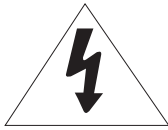


x20 Full-HD IP PTZ Outdoor Wall(Ceiling) Mount Camera

User's Manual

Safety Information



CAUTION

RISK OF ELECTRIC SHOCK.
DO NOT OPEN.



CAUTION:

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK) NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



Warning

This symbol indicates that dangerous voltage consisting a risk of electric shock is present within this unit.



Precaution

This exclamation point symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING

To prevent damage which may result in fire or electric shock hazard, do not expose this appliance to rain or moisture.

WARNING

2. Be sure to use only the standard adapter that is specified in the specification sheet. Using any other adapter could cause fire, electrical shock, or damage to the product.
3. Incorrectly connecting the power supply or replacing battery may cause explosion, fire, electric shock, or damage to the product.
4. Do not connect multiple cameras to a single adapter. Exceeding the capacity may cause abnormal heat generation or fire.
5. Securely plug the power cord into the power receptacle. Insecure connection may cause fire.
6. When installing the camera, fasten it securely and firmly. A falling camera may cause personal injury.
7. Do not place conductive objects (e.g. screw drivers, coins, metal things, etc.) or containers filled with water on top of the camera. Doing so may cause personal injury due to fire, electric shock, or falling objects.
8. Do not install the unit in humid, dusty, or sooty locations. Doing so may cause fire or electric shock.
9. If any unusual smells or smoke come from the unit, stop using the product. In such case, immediately disconnect the power source and contact the service center. Continued use in such a condition may cause fire or electric shock.
10. If this product fails to operate normally, contact the nearest service center. Never disassemble or modify this product in any way.
11. When cleaning, do not spray water directly onto parts of the product. Doing so may cause fire or electric shock.

Precautions

Operating

- Before using, make sure power supply and others are properly connected.
- While operating, if any abnormal condition or malfunction is observed, stop using the camera immediately and then contact your Special dealer.

Handling

- Do not disassemble or tamper with parts inside the camera.
- Do not drop or subject the camera to shock and vibration as this can damage camera.
- Care must be taken when you clean the clear dome cover. Especially, scratch and dust will ruin your quality of camera.

Installation and Storage

- Do not install the camera in areas of extreme temperature, which exceed the allowable range.
- Avoid installing in humid or dusty places.
- Avoid installing in places where radiation is present.
- Avoid installing in places where there are strong magnetic fields and electric signals.
- Avoid installing in places where the camera would be subject to strong vibrations.
- Never expose the camera to rain and water.

Important Safety Instructions

1. **Read these instructions.** - All these safety and operating instructions should be read before the product is operated.
2. **Keep these instructions.** - The safety, operating and use instructions should be retained for future reference.
3. **Heed all warnings.** - All warnings on the product and in the operating instructions should be adhered to.
4. **Follow all instructions.** - All operating and use instructions should be followed.
5. **Do not use this apparatus near water.** - For example: near a bath tub, wash bowl, kitchen sink, laundry tub, in a wet basement; near a swimming pool; etc.
6. **Clean only with dry cloth.** - Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners.
7. **Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.** - Slots and openings in the cabinet are provided for ventilation, to ensure reliable operation of the product, and to protect it from over-heating. The openings should never be blocked by placing the product on bed, sofa, rug or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided and the manufacturer's instructions have been adhered to.
8. **Do not install near any heat sources such as radiators, heat registers, or other apparatus (including amplifiers) that produce heat.**
9. **Do not defeat the safety purpose of the polarized or grounding-type plug.** A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. **Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.**
11. **Only use attachments/accessories specified by the manufacturer.**
12. **Use only with cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.**
13. **Unplug this apparatus during lightning storms or when unused for long periods of time.**
14. **Refer all servicing to qualified service personnel.** Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.





Disposal of Your Old Appliance

1. When this crossed-out wheel bin symbol is attached to a product it means the product is covered by the European Directive 2002/96/EC.
2. All electrical and electronic products should be disposed of separately from the municipal waste stream via designated by the government or the local authorities.
3. The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.
4. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or the shop where you purchased the product.



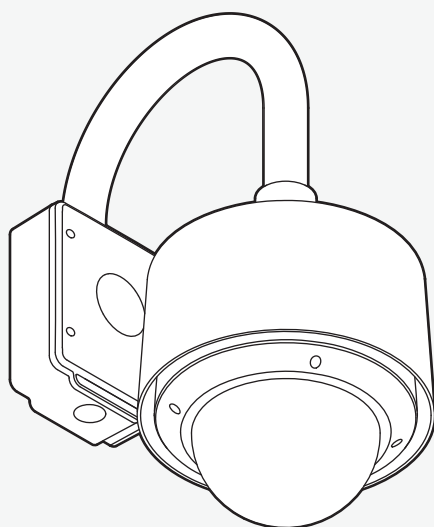
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Contents

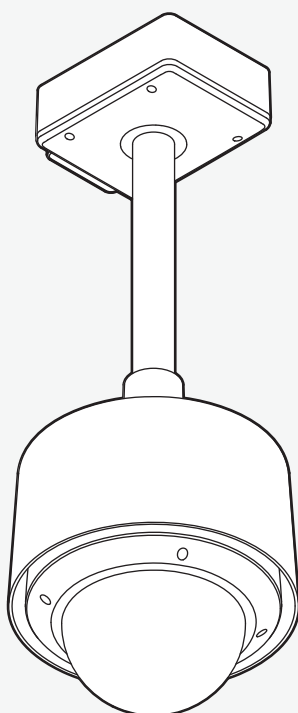
1. Introduction	6 Product & Accessories 7 Part Name & Functions
2. Installation	8 DIP Switch Setup 10 Installation Using Wall/Ceiling Mount Bracket 15 Cabling 17 Cabling the Audio Cable 18 Inserting/Removing an SD Memory Card
3. Network Setup	19 Quick Start of Network Connection 20 Initial Setup via a Crossover Cable 21 DDNS Registration 22 Guide to Network Environment 23 Setup Case A, B 24 Setup Case C, D 25 Port Forwarding 26 Starting IP Speed Dome
4. Web Viewer Screen	27 Basic Screen 28 PTZ Control 29 Etc. Control 30 Auto-map 31 Auto-map > Preset 32 Auto-map > Pattern 33 Auto-map > Scan 34 Auto-map > Group 35 Viewer Interface
5. Camera Setup	36 Camera Setup
6. Setup	39 Setup Screen 40 Video Setup 42 Audio Setup 43 TCP/IP Setup 44 DDNS Setup 45 HTTPS 46 SNMP 47 Status 48 Alarm Input 1 Setup 49 Alarm Input 2 Setup 50 Motion Detection Setup 51 Schedule Setup 52 Auto Tracking Setup 53 Transfer Setup 54 FTP Setup 55 SMTP Setup 56 SD CARD Setup 57 Users Setup 58 Date/Time Setup 59 Firmware Update 60 Default Set 61 Restart 62 Log
7. SD Card Search	63 Search
8. Appendix	64 A : Current TCP/IP Settings 65 B : Changing IP address and subnet mask 66 C : Port Forwarding 68 FAQ
9. Specifications	69 Dimension 70 Specification 71 Network Specification

1 Introduction - Product & Accessories

Product

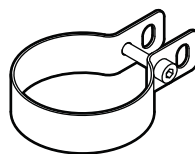


Wall Mount Type

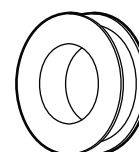


Ceiling Mount Type

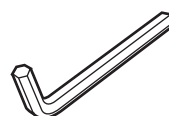
Accessories



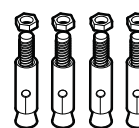
Housing Safety
Cable Hanger



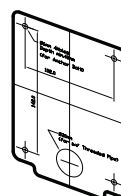
Water Proof Tape



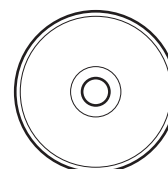
Hexagonal Wrench



Anchor Bolt(4pcs)



Hole Template



Manual CD



Safety Wire

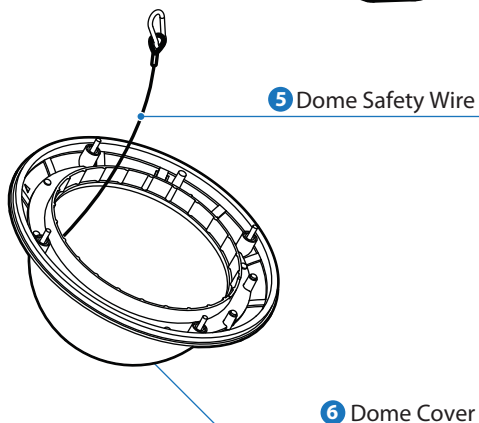
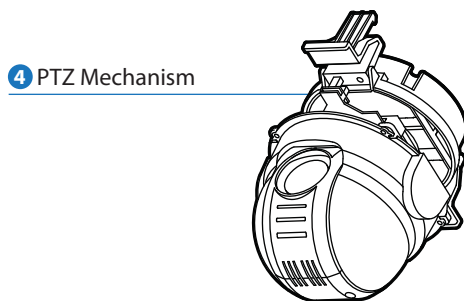
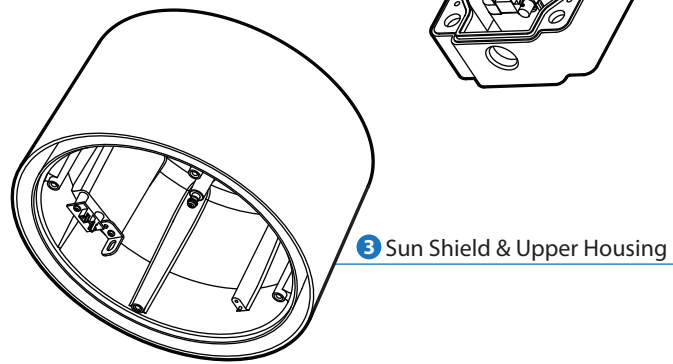
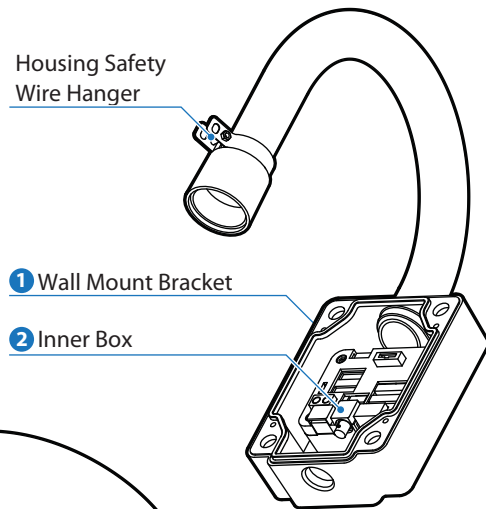
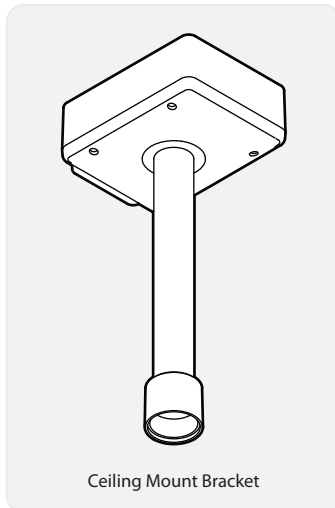


Quick Manual

1 Introduction - Part Name & Functions

1 Wall/Ceiling Mount Bracket

These are used to install the camera on the wall or ceiling and have junction box. The junction box of the bracket accommodate inner box.



2 Inner Box

The inner has many important roles of connection box between camera and outside. Top of the box, there are dip switches and terminal locks for power supply, video, communication, alarm input/output.

3 Sunshield & Upper Housing

Sunshield protect bubble dome cover from the sun rays and rain fall. In the sunshield, there is the upper housing which will contain accommodate PTZ mechanism. In the upper housing, there are fan and heater to remove moisture on the bubble dome. Also, the upper housing will be connected to both mounting brackets and dome cover.

4 PTZ Mechanism

Control the PTZ operations of the camera.

5 Dome Safety Wire

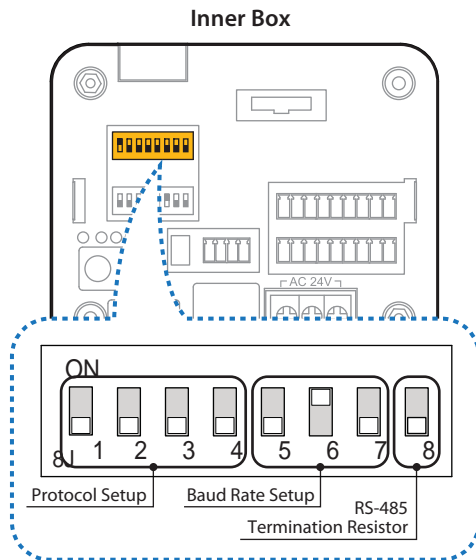
Prevents the dome cover from falling.

6 Dome Cover

Do not detach protection film from dome cover before finishing all installation process to protect dome cover from scratches or dust.

2 Installation - DIP Switch Setup

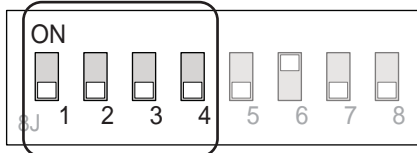
- ✳ Before installing the camera, you should set the DIP switch to configure the camera ID, communication protocol.



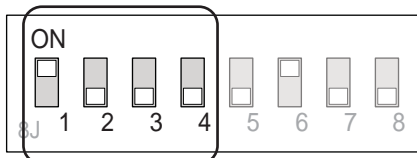
1. Communication Protocol Setup

Select the appropriate protocol with DIP switch combination.

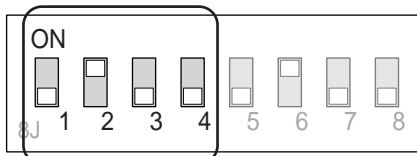
1 Auto - Factory Default



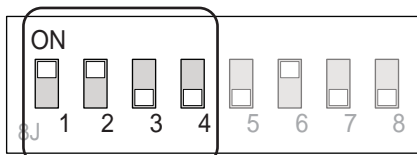
2 PELCO-D



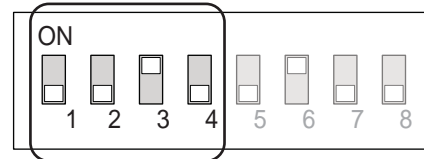
3 PELCO-P



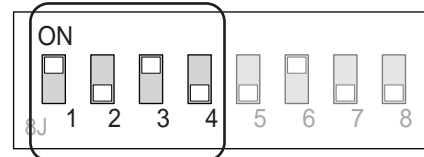
4 SAMSUNG



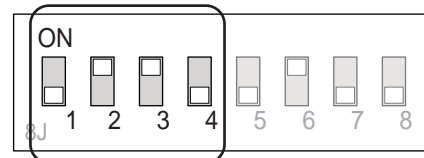
5 Panasonic



6 GE(Kalatel)



7 AD(American Dynamics)



- If you set the protocol as 'Auto' protocol, camera will automatically recognize PELCO-D or PELCO-P protocol.
- If you want to control using DVR or system keyboard, their protocol must be identical to camera. Otherwise, you can not control the camera.
- If you change camera protocol by changing DIP switch, the change will be effective after you reboot the camera.

2 Installation - DIP Switch Setup

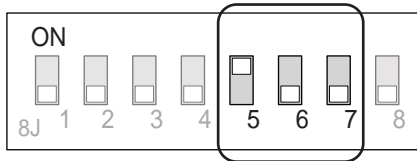
2. Communication Baud Rate Setup

Select the appropriate baud rate with DIP switch combination.

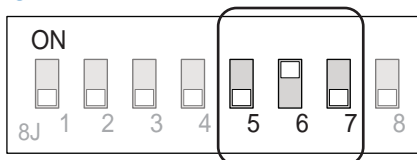
1 2400 BPS - Factory Default



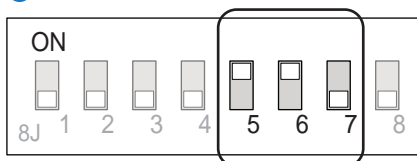
2 4800 BPS



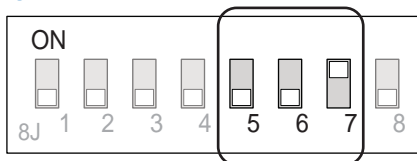
3 9600 BPS



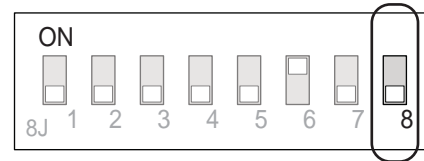
4 19200 BPS



5 38400 BPS



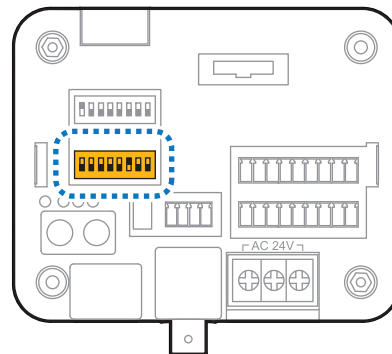
3. RS-485 Termination Resistor



- Pin 8 is used for on/off of RS-485 termination.
- Normally, it must be off state.
- Especially, when you have trouble with long daisy chain style connection, turn on this termination switch of the last camera.

4. Camera ID Setup

Inner Box



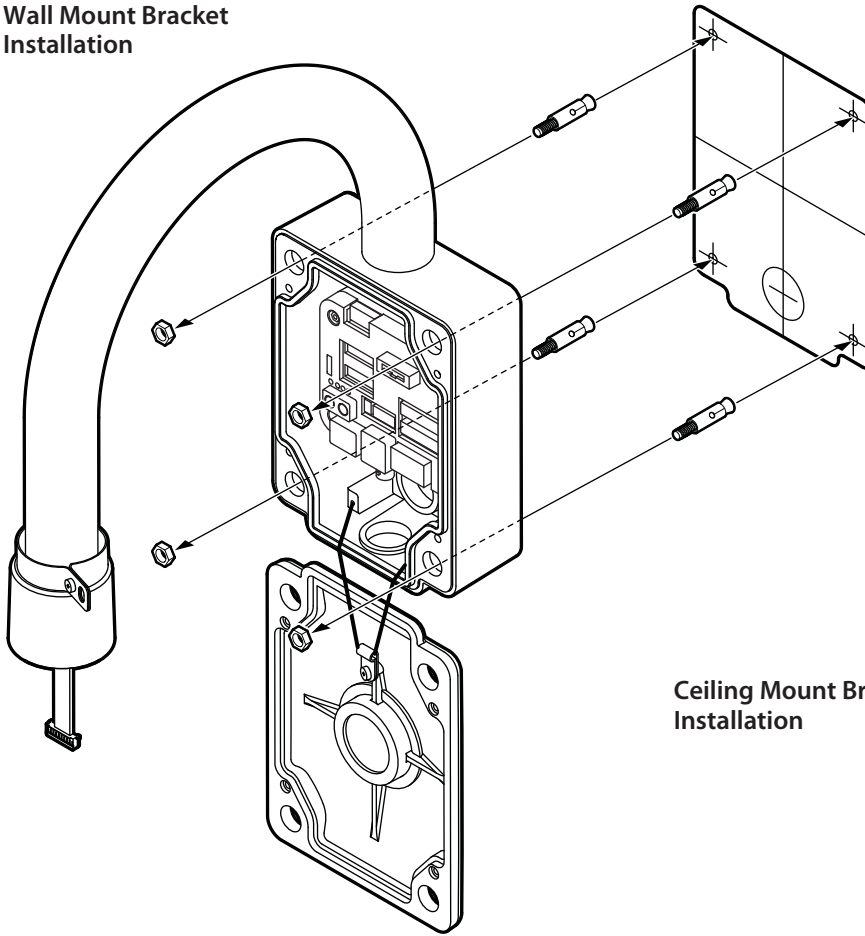
ID number of camera is set using binary number.
The example is shown below.

Pin	1	2	3	4	5	6	7	8
ID Value	1	2	4	8	16	32	64	128
ex) ID=5	on	off	on	off	off	off	off	off
ex) ID=10	off	on	off	on	off	off	off	off

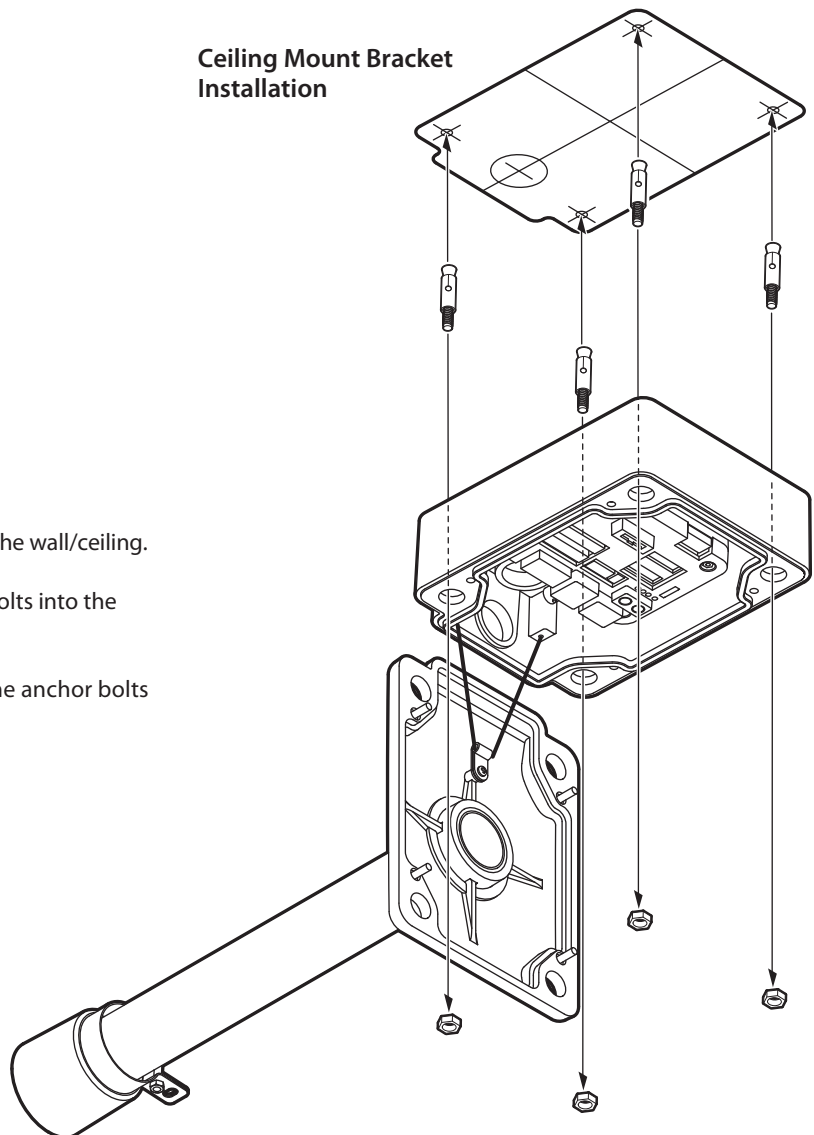
- If you want to control a certain camera, you must match the camera ID with 'CAM ID', setting of DVR or keyboard controller.
- ID number of the camera is set using binary number.
- The range of ID is 0~255.
- Factory default of camera ID is 1.
- Camera ID will be effective without rebooting the camera.

2 Installation - Installation Using Wall/Ceiling Mount Bracket

Wall Mount Bracket
Installation

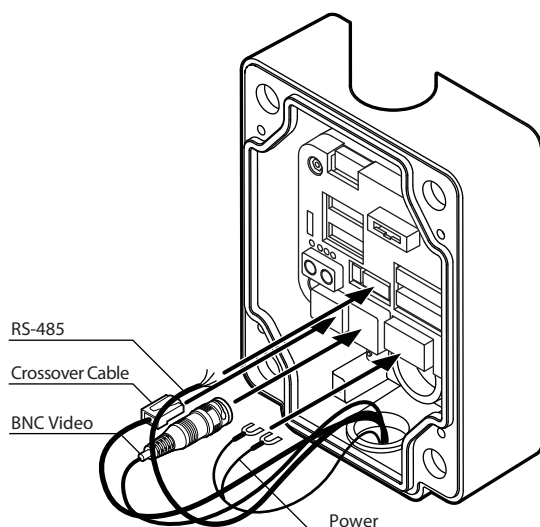


Ceiling Mount Bracket
Installation



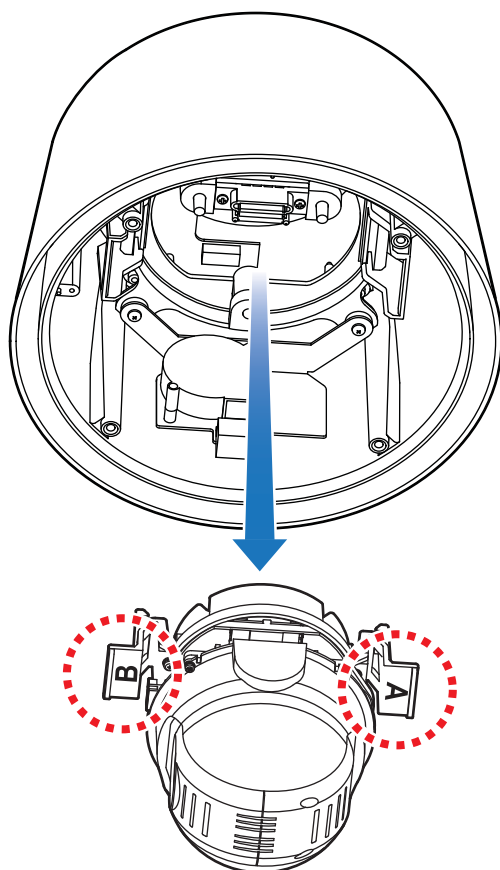
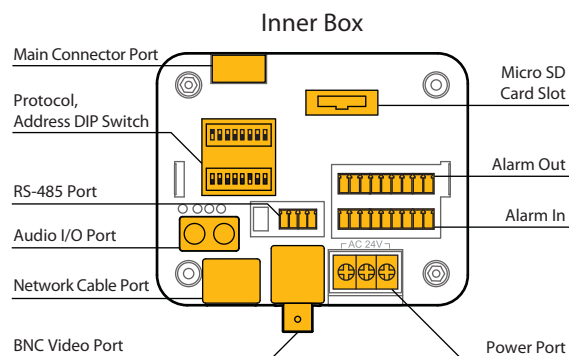
- 1 Using the hole template, mark the holes on the wall/ceiling.
- 2 After drilling the holes, fix the four anchor bolts into the holes.
- 3 After locating the wall mount bracket on the anchor bolts properly, tighten the nuts for anchor bolts.

2 Installation - Installation Using Wall/Ceiling Mount Bracket



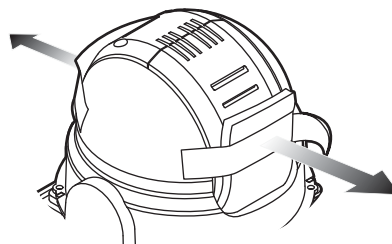
- 4 Connect cables to terminal blocks and BNC in the inner box of junction box.

See the cabling in the next section.

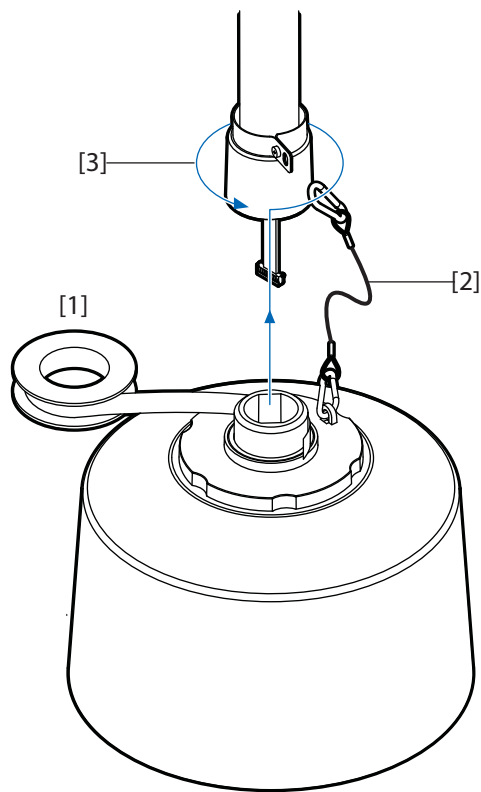


- 5 You have to detach the PTZ mechanism from the upper housing to plug the connector of cable. When detach PTZ mechanism, pressing down and holding up the black handles in both sides of PTZ mechanism.

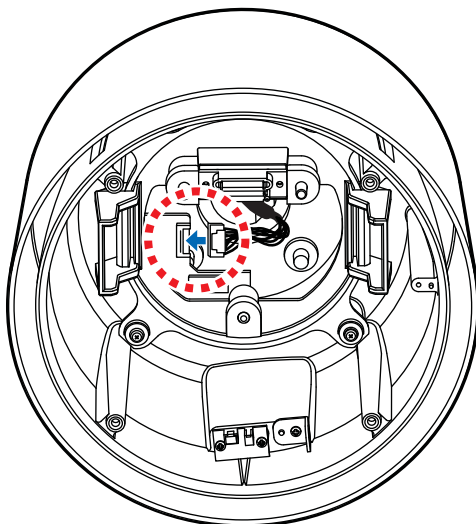
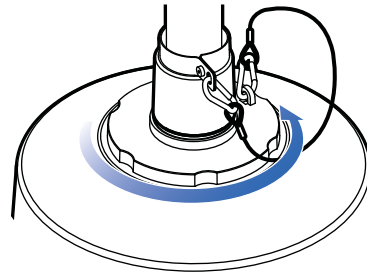
You should remove the tape used to fix the PTZ mechanism after detaching the PTZ mechanism from the upper housing.



2 Installation - Installation Using Wall/Ceiling Mount Bracket

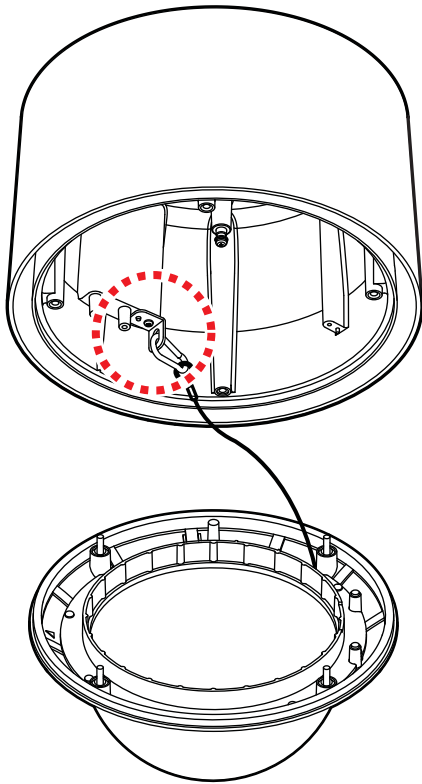


- 6 [1] Wind the water proof tape on the pipe of upper housing.
[2] Hooking the safety wire on the hole of pipe.
[3] Attach the upper housing to wall mount bracket by turning it at least seven turns.
- ※ To fix the upper body orientation, turn the handle of double nuts to clockwise tightly.

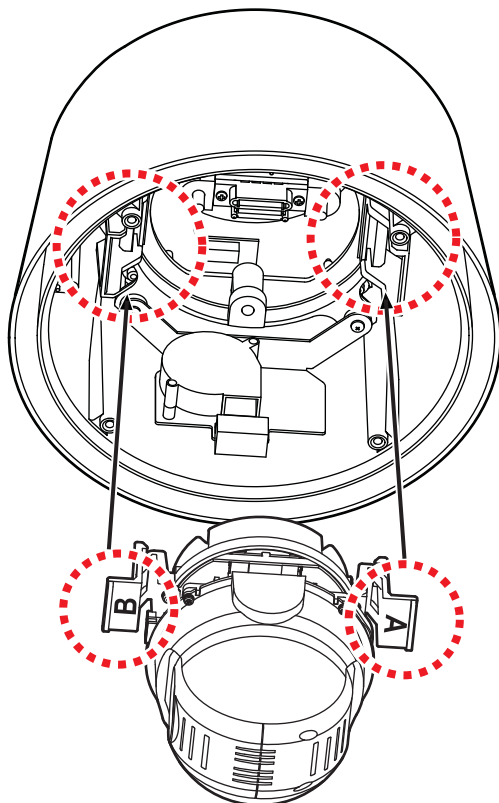


- 7 Plug the main cable into the main connector in the upper housing and press the main cable till it sounds snap to lock.

2 Installation - Installation Using Wall/Ceiling Mount Bracket

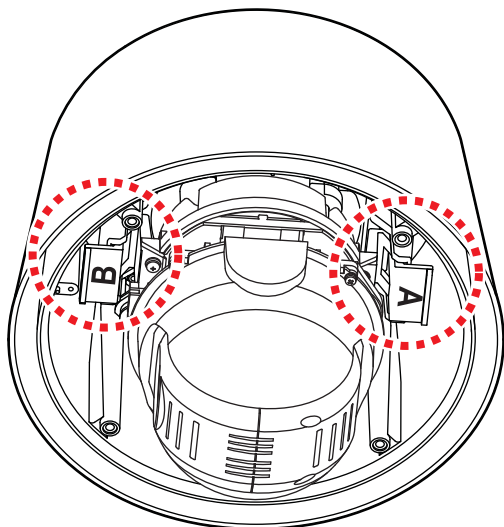


- 8 Connect the dome safety wire into the connectors in the upper housing.

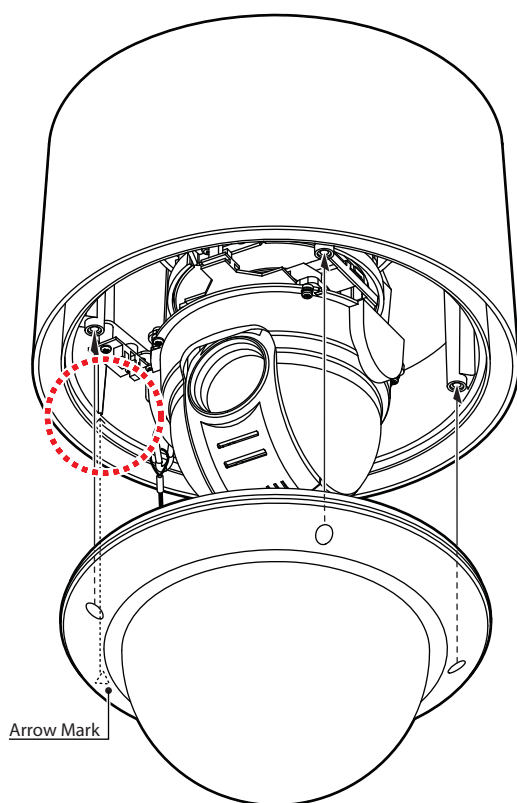


- 9 Plug the connector of cable from junction box into properly. After checking the orientation of one touch connector in the upper housing, press the PTZ mechanism into hook in the upper housing.

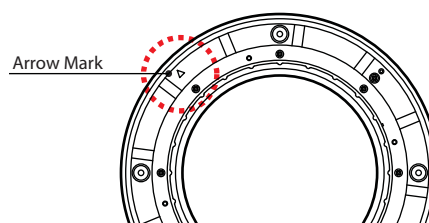
2 Installation - Installation Using Wall/Ceiling Mount Bracket



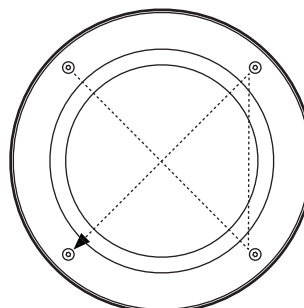
- 10 To lock the PTZ mechanism to the upper housing, press the two black handles till it sounds snap.



- 11 Close the dome cover. Care must be taken to locate dome cover by matching the 'Arrow Mark'.

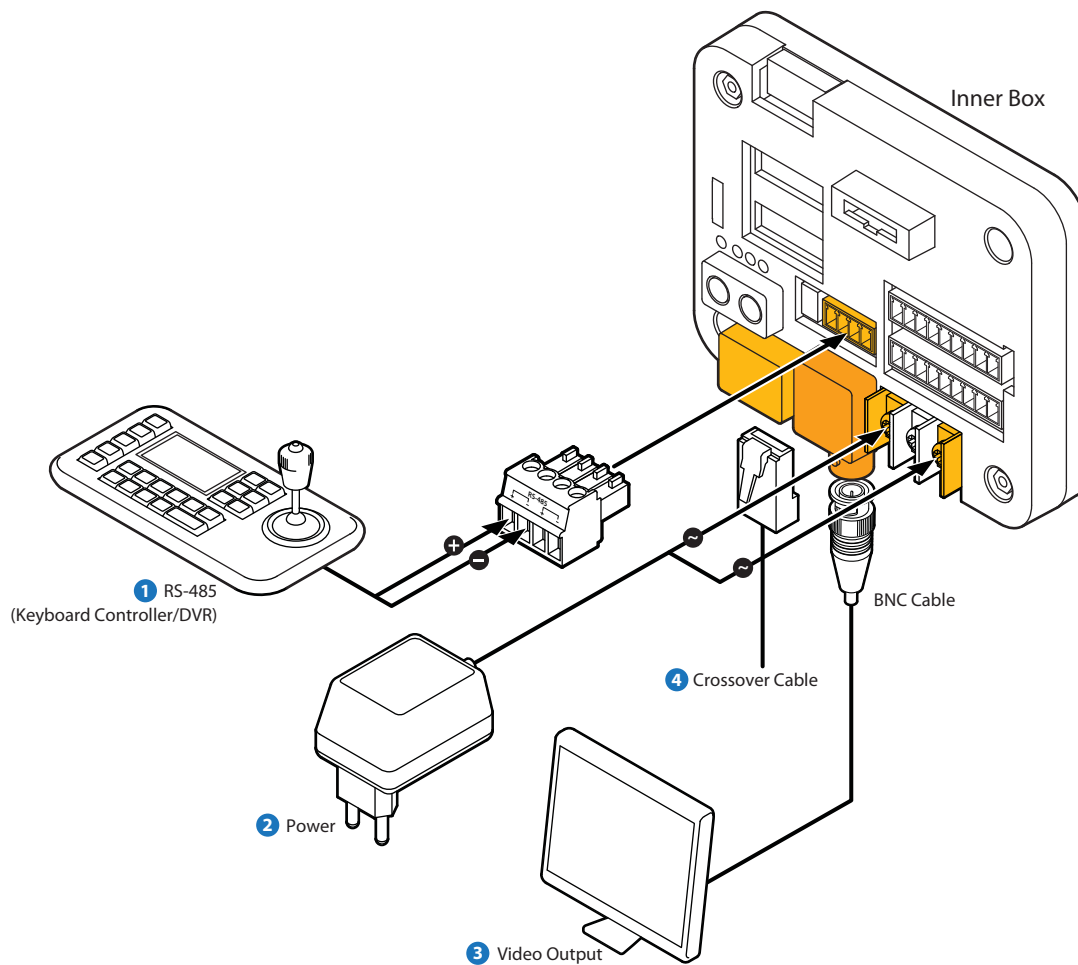


- 12 Tighten four screws on the dome cover in sequence as shown in the picture.



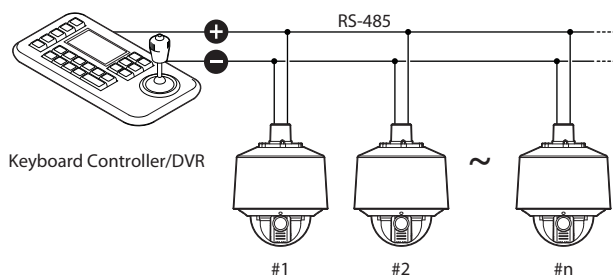
- ※ To maintain the best sealing, the torque of each screw must be in the range between 0.5 ~ 1.0 N·m (0.3 ~ 0.73 lbf·ft).

2 Installation - Cabling



1 RS-485 Communication (DVR/Keyboard)

For PTZ control, connect this line to keyboard and DVR. To control multiple cameras at the same time, RS-485 communication lines of them are connected in parallel as shown below.



2 Power Connection

Please, check the voltage and current capacity of rated power carefully.

Rate Power	Current Consumption
AC 24V	Heater Off: 24W • Heater On: 55W

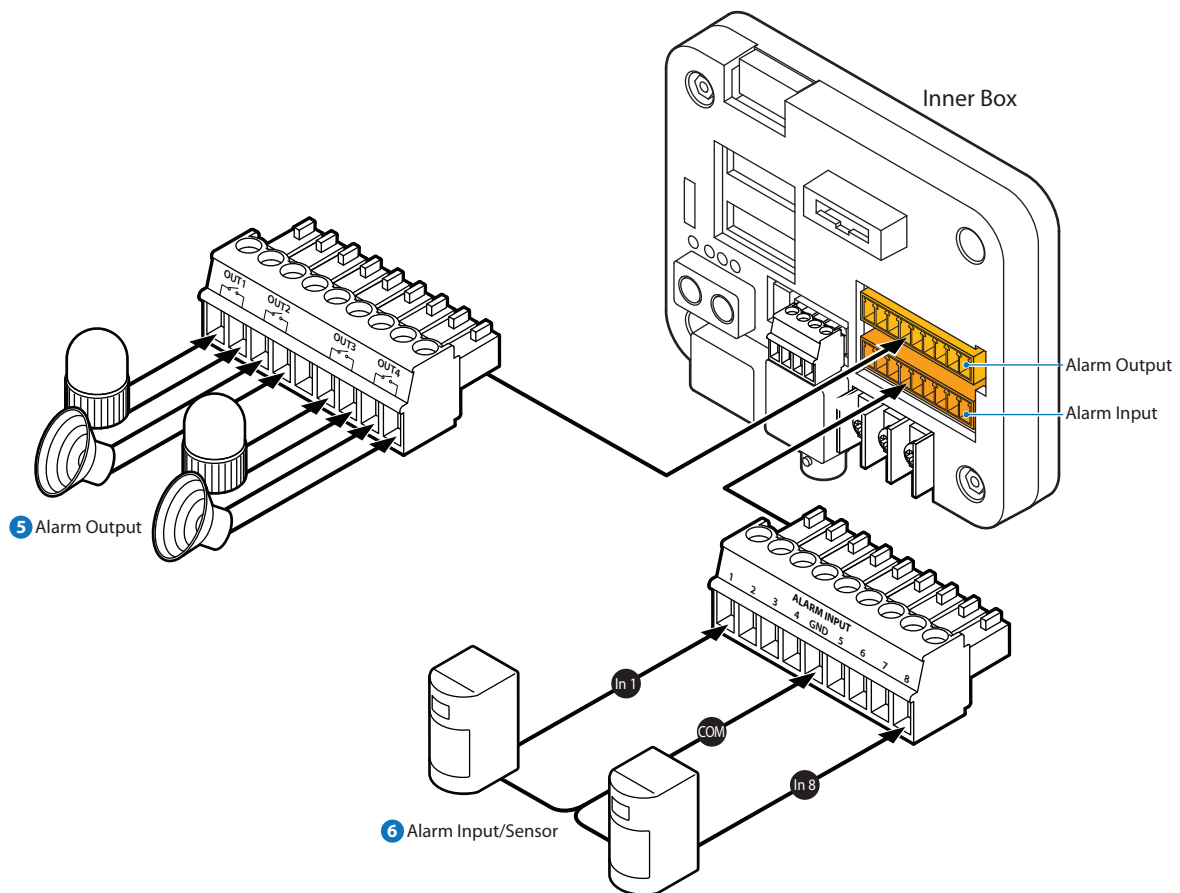
3 Video Output

Video out check the screen during installation.

4 Network Connection

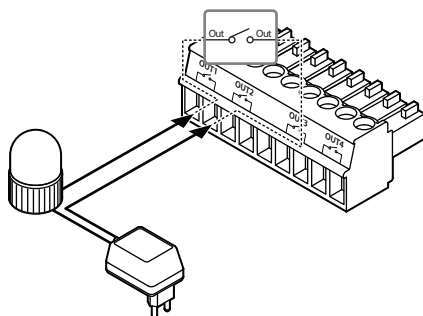
Connect the crossover cable into the RJ-45.

2 Installation - Cabling



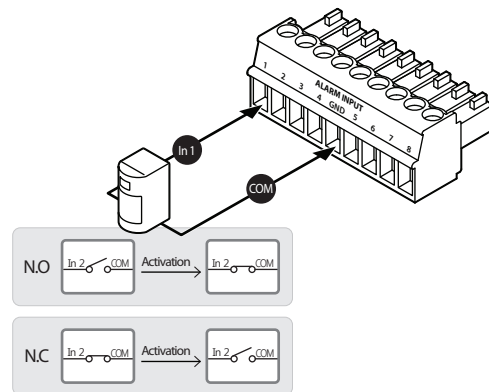
5 Alarm Output

There are 4 alarm outputs and all of them are relay contact type. Therefore, you do not have to care about polarity, AC/DC, and isolations between channels. Care must be taken for the power capacity of relay contact written above.



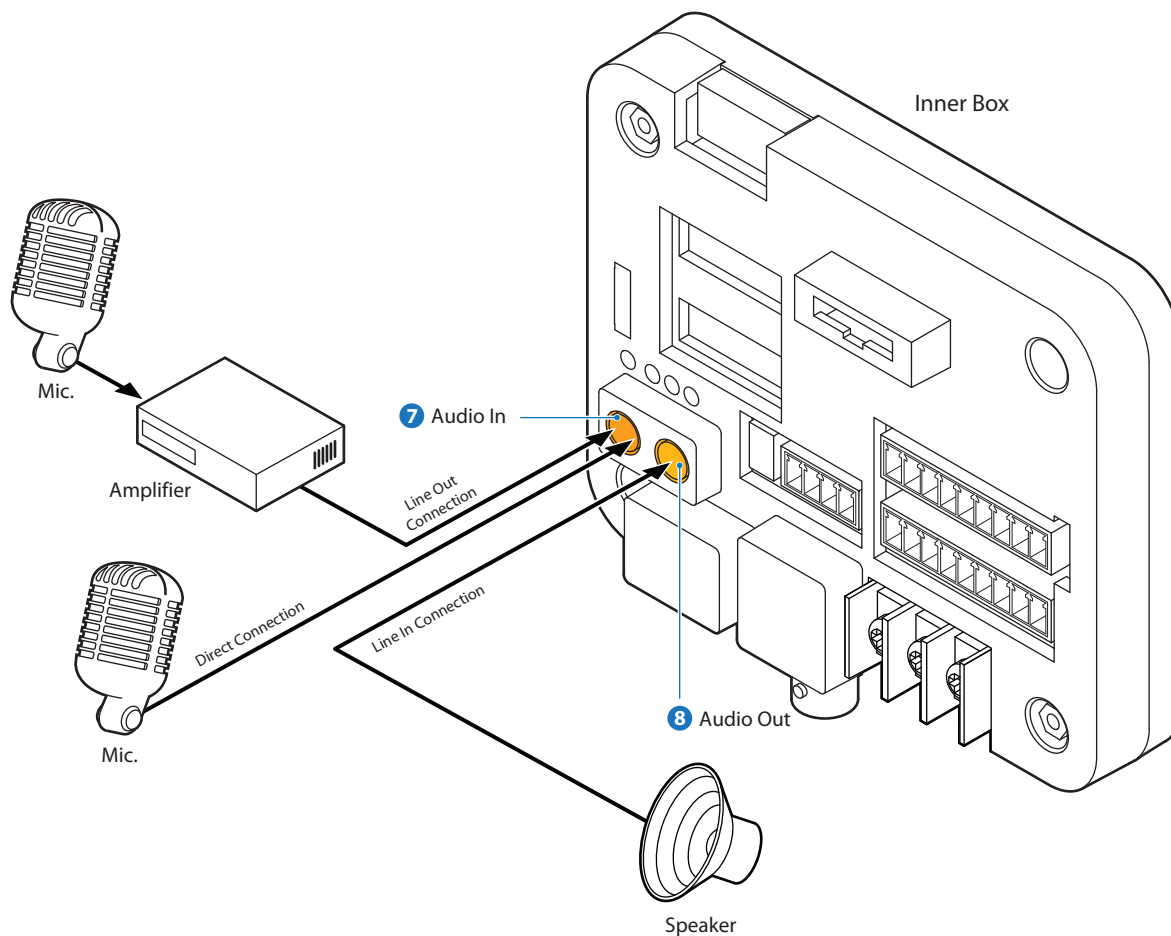
6 Sensor Input

If you want to use alarm input, the types of sensor must be selected on the 'Setup > Event > Alarm Input'. The sensor types are 'Normal Open' and 'Normal Close'. If sensor type is not selected properly, the alarm can be activated reversely.



✖ It is noted that short circuit between GND and Input pin means alarm activation.

2 Installation - Cabling the Audio Cable



7 Audio In

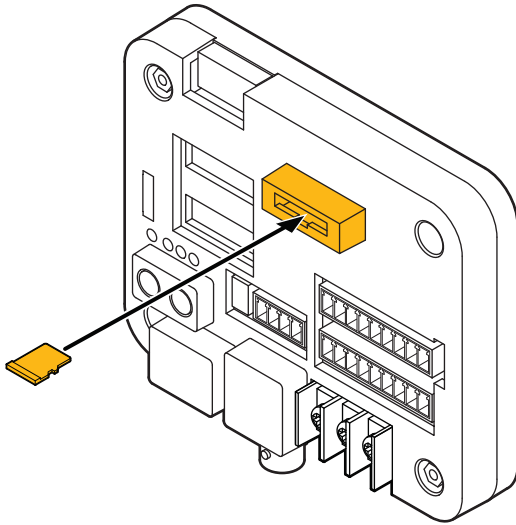
Connect the 'Audio In' port of the camera to the microphone directly or 'Line Out' port of the amplifier connected with microphone.

8 Audio Out

Connect the 'Audio Out' port of the camera to the 'Line In' port of the speaker.

⚠ In case the microphone connects directly to 'Audio Out' port, the speaker does not work. The 'Mic In' function is not supported.

2 Installation - Inserting/Removing an SD Memory Card



The memory card is an external data storage device that has been developed to offer an entirely new way to record and share video, audio, and text data using digital devices.



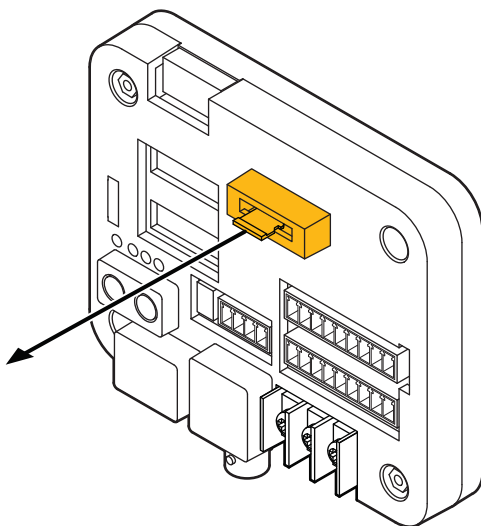
※ **Recommended SD Card Specification (Not Included)**

- Type: Micro SD (SDHC)
- Manufacturer: Transcend, Kingston, Toshiba, Sanddisk
- Capacity: 4~16G
- Class: over Class 6

1 Inserting an SD Memory Card

Insert the SD card in the arrow direction.

- ※ Don't insert the SD memory card while it's upside down by force. Otherwise, it may damage the SD memory card.



2 Removing an SD Memory Card

Removing an SD Memory Card Gently press down on the exposed end of the memory card as shown in the diagram to eject the memory card from the slot.

- ※ Pressing too hard on the SD memory card can cause the card to shoot out uncontrollably from the slot when released.
- ※ If you have saved data in the SD memory card, removing the SD memory card prior to setting record to OFF will cause damage to the data stored in the card.

3 Network Setup - Quick Start of Network Connection

Please follow the steps below to complete the initial setup of the network function.

- ❗ Please do not power on the IP Camera until instructed.
- ❗ Temporarily disable any proxy servers configured in Internet Explorer.
- ❗ If connecting the IP Camera directly to a modem, power down and reset the modem. Leave the modem powered down until configurations are finalized with the IP Camera and the IP Camera has been correctly connected to the modem.

1. You will need to access a PC/laptop and should configure that PC in order to communicate with the IP Camera. Record the current TCP/IP properties of that PC. (IP address, subnet mask, gateway, DNS, etc.)

Current TCP/IP Settings	
IP Address	
Subnet Mask	
Default Gateway	
Primary DNS Server	
Secondary DNS Server (Option)	

- ❗ If your PC obtains its IP address automatically, then there is no need to record any information.
2. Change the IP address of that host PC to 192.168.1.11 and subnet mask to 255.255.255.0 (leave all other entries blank)
3. Connect the IP Camera to your PC's Ethernet port via the supplied crossover cable. (It does not matter what end is used for the PC)
4. Power on the IP Camera using the according to the power rated.
5. After 1 minute of power, verify a flashing ACTIVE indicator, and a flashing or solid LINK indicator. After the corresponding indicator lights are properly displayed, open Internet Explorer.
6. Type - <http://192.168.1.80> (the default IP of the IP Camera) into your address bar.
7. Default ID/Password to access IP Camera are both the word: **admin**.
8. Familiarize yourself with the Viewer Interface Screen.
9. Locate the TCP/IP configuration under Setup. Supply the same ID and Password to enter Setup. (**admin : admin**)
10. Under 'Network Type' select STATIC. You will only select Dynamic if you are connecting the IP Camera directly to your cable/DSL/Broadband modem and your Internet Service Provider is supplying you a dynamic address.

- ❗ If you have a network with other devices (such as PC/laptop, etc.) or a router, you will NEVER select Dynamic.

11. Configure the IP Camera's TCP/IP settings as you would any other PC on your network, providing a proper IP address, subnet mask, default gateway, and DNS server.

- ❗ If this is standalone unit with a direct connection to a cable/DSL/Broadband modem then input the addresses you have received from your ISP. If you received no IP address from your ISP, please select Dynamic and choose the proper settings.

12. The IP Camera utilizes five TCP ports - a Web Port for utilizing Internet Explorer, a Video Port, a Control Server Port, Audio ports. A Web Port is for utilizing Internet Explorer, a Video Server port is to support the streaming video, and a Control Control Port is to transmit to control command. Also Audio Port are to transmit and to receive Audio data. If this IP Camera will be directly attached to a cable/DSL/Broadband modem or has been assigned a static IP from your ISP, then leave the default port settings.

If you are installing the IP Camera on a network, you must define a Web Port other than 80. The other ports, a Video Port, a Control Port, Audio Ports can remain unchanged.

13. If the IP Camera is connected to a network which utilizes a router, you must have Port Forwarding configured on your personal router to forward all ports to the IP address you have assigned the IP Camera.

14. After configuring Port Forwarding on your router (if necessary), you may then access your IP Camera on your local network by opening Internet Explorer and specifying the IP address and Web Server Port that you have assigned to the IP Camera.

- ❗ Examples: <http://192.168.0.200:8888>

- ❗ If you left your Web Port set to 80, then you don't need to specify the port in the Address Bar when accessing your IP Camera.

15. Access your IP Camera via the Internet :

If you use a static IP address assigned by your ISP

- 1) Open Internet Explorer.
- 2) Type the IP of the IP Camera.
- 3) If you use a router, type the routers' static IP and the web port number of the IP Camera.

If you have a dynamic address provided by your ISP

- 1) Open Internet Explorer and visit the DDNS website.
- 2) Register the IP Camera.
- 3) Reboot the IP Camera.
- 4) Give the DDNS server 10 minutes to locate your IP Camera's IP information.
- 5) Click the refresh button in the Internet Explore.
- 6) After your camera is connected, select your camera.

3 Network Setup - Initial Setup via a Crossover Cable

This section provides a guide on how to connect the IP Camera to your PC/Laptop for initial setup.

Please follow the instructions in the order they appear, without skipping steps. Do not supply power to the IP Camera, until instructed.

In order to access the IP Camera's firmware you will need to connect the Video Server directly to a PC or Laptop computer via the supplied crossover cable.

1. Before you begin, you must determine the current network/INTERNET (TCP/IP) settings on the PC or laptop you plan to setup the IP Camera. Write down your entries below for quick reference.

Current TCP/IP Settings	
IP Address	
Subnet Mask	
Default Gateway	
Primary DNS Server	
Secondary DNS Server (Option)	

- ❗ For information on how to determine your current settings, see Appendix A.
- ❗ If you are obtaining an IP Address automatically, then there is no need to write down this information.

2. In order for the IP Camera to communicate with your PC, you have to change your PC's IP address and subnet mask.

- ❗ We recommend that you change your IP address to 192.168.1.11 and change the subnet mask to 255.255.255.0. Leave all other entries (Default Gateway, DNS Servers, etc.) blank.
- ❗ For information on how to change your IP address and subnet mask, see Appendix B.

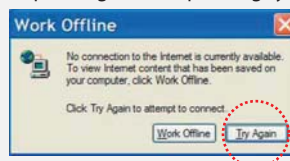
3. After you have made the changes to your IP address and subnet mask, you may then attach the IP Camera to your PC via the supplied crossover cable. Plug-in either end of the crossover cable into the PC's network card and the other end into your IP Camera.
4. After connecting the PC and IP Camera using the crossover cable, power on the IP Camera by plugging in the power supply shipped with the IP Camera.
5. No longer than 1 minute after powering on the IP Camera, verify that the ACTIVE indicator light is flashing, and the LINK indicator light is flickering or solid. If they are not, please read the FAQ.

6. Now you will be able to access the viewer software within the IP Camera.

- ❗ Open Internet Explorer and type the IP address of 192.168.1.80 (default IP of the IP Camera from the factory) into the Address Bar of the web browser (as seen below). Press Enter.



- ❗ If a message appears after pressing 'Enter' similar to the image depicted below, choose 'Try Again'. This message will vary depending on the operating system.



7. Now you will be able to see the login screen for the IP Camera.

- ❗ The 3 authorities are available : Administrator, Operator and Viewer. The authority setup is available in Setup.
 - Viewer : Only monitoring is allowed.
 - Operator : Most of the functions are allowed except 'Setup'.
 - Administrator : All functions are allowed.

8. The default ID and Password are both the word 'admin' (without the " ")

9. If at any time you are prompted to download ActiveX controls, you must click 'Yes', all contents are safe.

- ❗ You will have to click 'Yes' twice to two individual prompts. This allows your video to be displayed in Internet Explorer.

3 Network Setup - DDNS Registration

If you have DYNAMIC IP service from your Internet Service Provider (ISP), you can't tell what current IP address of IP Camera is. To solve this problem, you have to register to our DDNS service.

At first, we recommend, you have to check if you are using dynamic addressing. If so, please, register your IP Video Server on our DDNS website before you configure, setup, or install the IP Camera.

Even though your IP is not dynamic, you will get a benefit if you register to DDNS. In this case, you just remember 'alex.net4c.net/gate1' instead of complicated series of number like <http://201.23.4.76:8078>.

For more detail information, please contact our Support Center.

❖ To register IP Camera to DDNS, you should know the 'Serial No.' of your IP Camera. The 'Serial No.' can be found in section 6 'Setup - DDNS' menu.

❖ To use a public DDNS called 'dyndns' or 'no-ip', you can find detail information on how to use this service.

(Please, visit its web site : <http://www.dyndns.com> or <http://www.no-ip.com>)

3 Network Setup - Guide to Network Environment

Please configure the IP Camera at the location of its installation. You must determine your network scenario in order to configure the IP Camera with the proper TCP/IP settings. This tutorial will guide you through the process. Before actually configuring the IP Camera, determine what settings you will apply. Record those settings that you will use to configure your IP Camera for reference.

When configuring your IP Camera, treat the IP Camera as another PC on your network. You will assign it several addresses and other TCP/IP properties to match your current network.

This step-by-step tutorial will teach what IP addresses and network configurations you should assign your IP Camera based upon your network scenario.

5. Depicted below are several basic network scenarios. Determine which scenario describes your network. If your network does not match one of the scenarios below and are unsure how to setup your IP Camera, please contact your network administrator, then call our Support Center.

i Dash line box signifies areas of your network that you can't control. Only the ISP has access to these devices.

1. Before you begin, you will need to locate any information and settings that you have received from your Internet Service Provider (ISP). You may need to refer to these IP addresses at a later time during the configuration.

Current TCP/IP Settings	
IP Address	
Subnet Mask	
Default Gateway	
Primary DNS Server	
Secondary DNS Server (Option)	

Static ☐ Dynamic ☐

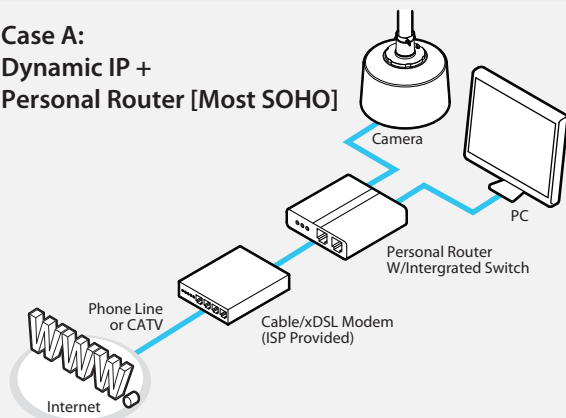
- i** If you were not given any IP addresses or the ISP was responsible for the setup and installation of your Internet connection on your PC or network, then please go to step 2.
- i** If you are not using a router on your network, your 'Current TCP/IP Settings' (from the previous section) and 'Assigned IP Addresses from My ISP' will be exactly the same.

2. You must determine whether the IP address that you were assigned from the ISP is STATIC or DYNAMIC. At this moment, you are only concerned about the ISP. Did they provide you with a STATIC or DYNAMIC address? If you are unsure, please contact your ISP.
3. Configure your IP Camera's TCP/IP settings for network connectivity by selecting Setup from the main interface and selecting TCP/IP located on the left of the Setup screen.
4. If prompted for an ID and Password, use 'admin' for both entries.

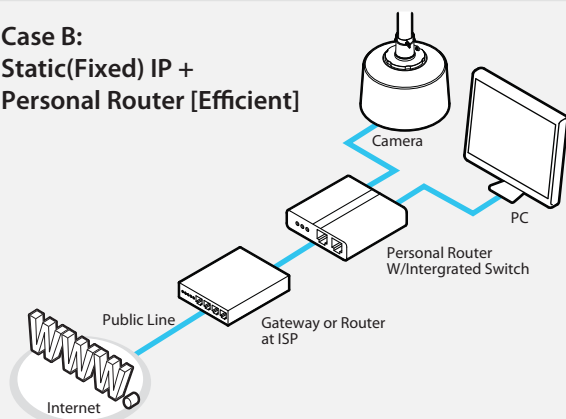
The default web port number is 80. If your ISP blocks port 80 you must use a value between 1025 ~ 60000. Please consult your ISP and determine if they block TCP port 80.

3 Network Setup - Setup Case A, B

Case A: Dynamic IP + Personal Router [Most SOHO]



Case B: Static(Fixed) IP + Personal Router [Efficient]



Configure your IP Camera's TCP/IP properties as follows :

1. **Network Type** : STATIC (even though you have Dynamic IP from your ISP, use STATIC on the IP Camera)

2. **Internet Address** : A private IP address such as 192.168.0.200 (Example)

❗ You need to assign the IP Camera an IP address, just as you would assign a PC.

❗ The IP address you assign must be unique to your network as well as match your network. For information how to choose a unique IP and match your network please read the FAQ.

❗ The IP address you assign the IP Camera must be a private IP. For information on how to choose a private IP please read the FAQ.

3. **Subnet Mask** : 255.255.255.0 (Example)

❗ You must use the same subnet mask as the one you noted under 'Current TCP/IP Settings'.

4. **Default Gateway** : 192.168.0.1 (Example)

❗ This IP address must be the IP address of your router. (private or LAN side)

❗ Use the same Default Gateway you noted under 'Current TCP/IP Settings'.

5. **Preferred DNS Server** : Use the 1st DNS Server from 'Assigned IP Address from My ISP'.

❗ If you did not receive any IP addresses from your ISP, please contact them and acquire the IP address of their DNS server.

6. **DDNS Server** : Use the DDNS server.

❗ This is the same site you will register with later to accommodate dynamic IP from your ISP.

7. **Web Port** : 8888

❗ Do NOT use the default port 80, you must change this number.

❗ You may select any number between 1025 ~ 60000.

8. **Control Port** : 7777

❗ You may select any number between 1025 ~ 60000.

9. **Video Port** : 7778

❗ You may select any number between 1025 ~ 60000.

10. **Audio Transmit Port** : 7779

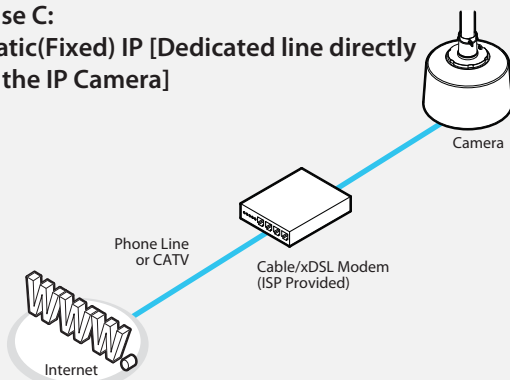
❗ You may select any number between 1025 ~ 60000.

11. **Audio Receive Port** : 7780

❗ You may select any number between 1025 ~ 60000.

3 Network Setup - Setup Case C, D

Case C: Static(Fixed) IP [Dedicated line directly to the IP Camera]



Configure your IP Camera's TCP/IP properties as follows :

1. **Network Type :** STATIC
2. **Internet Address :** A static IP address received from your ISP, such as 24.107.88.125 (Example)

i You need to assign the IP Camera an IP address, just as you would assign a PC.

3. **Subnet Mask :** Subnet mask assigned from your ISP, such as 255.255.255.240 (Example)

4. **Default Gateway :** 24.107.88.113 (Example)

i Use the assigned default gateway from your ISP

5. **Preferred DNS Server :** Use the 1st DNS Server from 'Assigned IP Address from My ISP'

i If you did not receive any IP addresses from your ISP, please contact them and acquire the IP address of their DNS server.

6. **DDNS Server :** Use the DDNS server

i This is the same site you will register with later to utilize our DDNS service.

7. **Web Port :** 80

i You may select any number between 1025 ~ 60000.

8. **Control Port :** 7777

i You may select any number between 1025 ~ 60000.

9. **Video Port :** 7778

i You may select any number between 1025 ~ 60000.

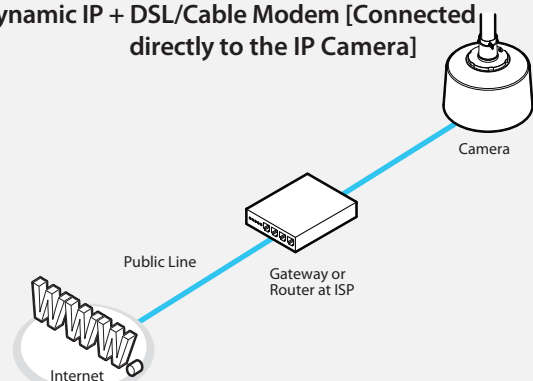
10. **Audio Transmit Port :** 7779

i You may select any number between 1025 ~ 60000.

11. **Audio Receive Port :** 7780

i You may select any number between 1025 ~ 60000.

Case D: Dynamic IP + DSL/Cable Modem [Connected directly to the IP Camera]



i When connecting the IP Camera directly to a modem, power down and reset the modem. Leave the modem powered down until configurations are finalized with the IP Camera and the IP Camera has been correctly connected to the modem. Then power on the modem, followed by the IP Camera.

Configure your IP Camera's TCP/IP properties as follows :

1. **Network Type :** DYNAMIC
2. **DDNS Server :** Use the DDNS server

i This is the same site you will register with later to accommodate dynamic IP from your ISP.

3. **Web Port :** 80

i You may select any number between 1025 ~ 60000.

4. **Control Port :** 7777

i You may select any number between 1025 ~ 60000.

5. **Video Port :** 7778

i You may select any number between 1025 ~ 60000.

6. **Audio Transmit Port :** 7779

i You may select any number between 1025 ~ 60000.

7. **Audio Receive Port :** 7780

i You may select any number between 1025 ~ 60000.

3 Network Setup - Port Forwarding

After entering the correct TCP/IP settings you will be ready for 'Port Forwarding' (Cases A, B).

1. Please record the TCP/IP settings of your IP Camera for future reference. You may need this information to access your IP Camera and to configure 'Port Forwarding'.

IP Camera TCP/IP Settings	
IP Address	
Subnet Mask	
Default Gateway	
Preferred DNS Server	
DDNS Server	
Web Port	
Control Port	
Video Port	
Audio Transmit Port	
Audio Receive Port	

2. After clicking 'Apply' the system will prompt for a reboot. Please allow the system 50 seconds to reboot and accept the changes. After 50 seconds, close the configuration screen. The view will display 'Trying to Reconnect'. If the ACTIVE light on the IP Camera has gone off and is now back on again flashing, then the IP Camera has rebooted. After the system reboots completely, remove the power supply from the unit and close Internet Explorer.
3. Return your PC/Laptop TCP/IP properties to their original settings.
4. Before installing the IP Camera, you must use 'Port Forwarding' on your personal router (Cases A, B).

You will need to forward 5 ports:

- Web Port you assigned to the IP Camera.
- Control Port you assigned to the IP Camera.
- VideoPort you assigned to the IP Camera.
- Audio Transmit Port you assigned to the IP Camera.
- Audio Receive Port you assigned to the IP Camera.

Both of these ports will be forwarded to the IP address you assigned to the IP Camera.

In the example above, you would forward:

- 8888 → 192.168.0.200
- 7777 → 192.168.0.200
- 7778 → 192.168.0.200
- 7779 → 192.168.0.200
- 7780 → 192.168.0.200

i For information on how to use 'Port Forwarding' please read Appendix C.

3 Network Setup - Starting IP Camera

After correctly forwarding the Web Port, Video Port, Control Port and two Audio Ports through your router (if applicable), you may then install the IP Camera in a proper location.

1. Locate the serial number located on the label attached to the bottom of the IP Camera, you will need this for DDNS registration.
2. Connect the IP Camera to your router or cable/DSL modem (per your network scenario) via a Cat5/5e UTP Ethernet network cable.
3. Supply power to the IP Camera.
4. After 1 minute, verify the IP Camera indicators:
 - ACTIVE : Flashing
 - LINK : Flickering/Solid
5. After configuring Port Forwarding on your router (if necessary), you may then access your IP Camera on your local network by opening Internet Explorer and specifying the IP address and Web Port that you have assigned to the IP Camera.

i Examples: <http://192.168.0.200:8888> or <http://24.106.88.123>
i If you left your Web Port set to 80, then you don't need to specify the port in the Address Bar when accessing the IP Camera.

6. Access your IP Camera via the Internet :

If you use Case B, C

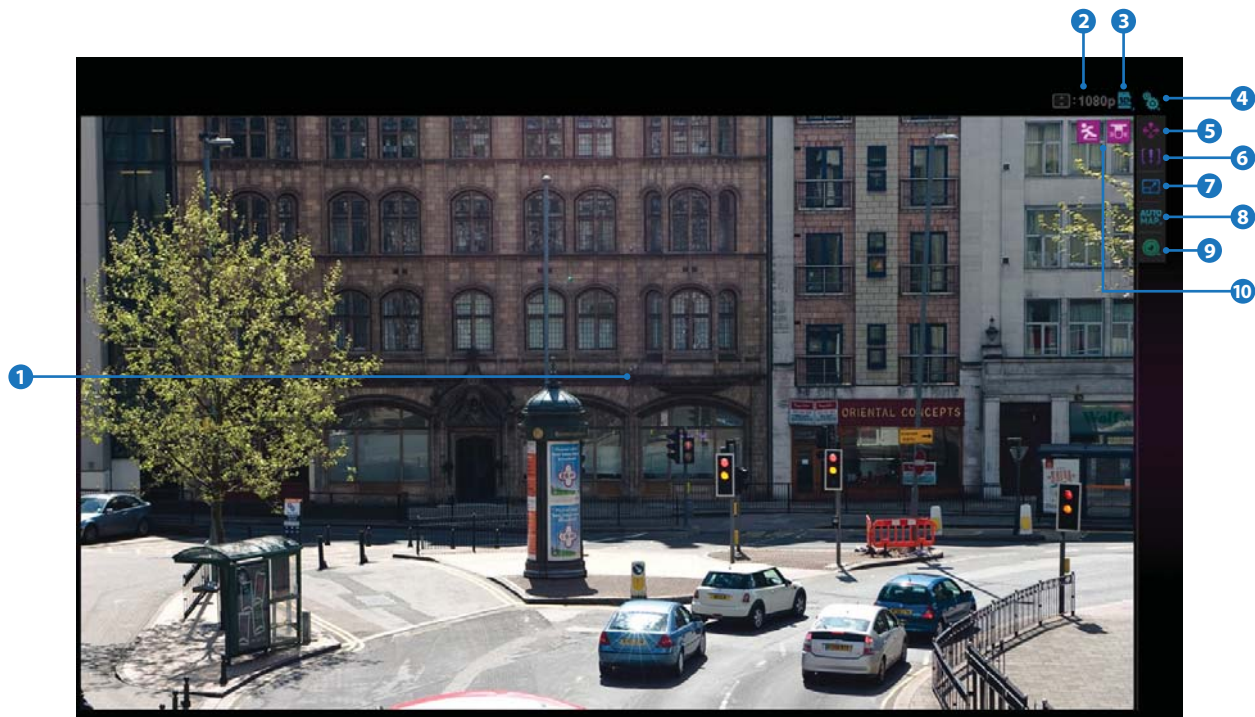
- 1) Open Internet Explorer.
- 2) Type the IP of the IP Camera.

If you use Case A, D

- 1) Open Internet Explorer.
- 2) Visit the DDNS website.
- 3) Register the IP Camera.
- 4) Give the DDNS server 10 minutes (MAX) to locate your IP Camera's IP information. You may reboot the server to send an immediate request to our DDNS server.
- 5) After your camera is connected, select your camera.

i The difference between B and C, is that B needs to set the port forwarding.
i Since the type of DDNS differs to the kind of the service, please refer the related service site.

4 Web Viewer Screen - Basic Screen



Web viewer is optimized with Windows XP or above version and explorer browser.

- 1 Live video display. This is the region for live video stream from the camera.
- 2 Resolution. The resolution of video that displays currently on the screen.
- 3 SD Card Search. Searching or Playing the Image which stored in the SD Card.
- 4 Setup popup button. Click it to open the Setup page to setup details of IP camera like Video, Network, Events, System and etc. See the section 6 'Setup'.
- 5 PTZ control tab button. Click it to extend the panel for Pan, Tilt, Zoom, Focus, IRIS, Backup, Live Buffering and Video Format control. See the section 4 'Web Viewer Screen - PTZ Control'.

6 Etc. setup tab button. Click it to extend the panel for Alarm Input, Alarm Output, Speaker, Microphone, Motion Detection and Auto Tracking. See the section 4 'Web Viewer Screen - Etc'.

7 Full screen button. Click it to extend the live video to full screen. To return to normal mode, press 'Esc' or 'Enter' key.

8 Auto-Map popup button. Click it to pop up the Auto-Map window.

9 Camera Setup popup button. Click it to open the Setup page to setup details of Lens, White Balance, Auto Exposure, image Backlight and etc. See the section 5 'Camera Setup'.

10 Event alert icon. If Alarm in and Motion detection are detected, below icons will appear.



4 Web Viewer Screen - PTZ Control



1 Pan-tilt wheel buttons. The Pan-tilt wheel enables to move the camera for 8 directions by clicking the corresponding arrow button. If you release the button clicked, the camera motion will stop immediately.

2 Zoom control button. The zoom ratio of the camera can be controlled by clicking ' + ' or ' - ' button.

3 Focus control button. The focus of the camera can be controlled by clicking ' + ' or ' - ' button.

⌘ If 'Focus Mode' in the Camera Setup Menu is 'Auto', the Focus cannot be changed manually.

4 Iris control button. The iris of the camera can be controlled by clicking ' + ' or ' - ' button.

⌘ If 'AE Mode' in the Camera Setup Menu is 'Full Auto, Shutter Priority, Bright, Spotlight', the Iris cannot be changed manually.

5 Pan-tilt speed slider. The pan-tilt speed can be controlled by clicking ' + ' or ' - ' button. Also, you can adjust it by dragging the red-lined slider in the center.

6 Capture button. Capture the live video in the form of BMP or JPG file. The location and file name of image can be decided after clicking this button.

⌘ Refer the 'Setup > Basic > Backup' to setup the type of Image.

7 Print Button. Print current live image to the printer connected to the PC.

8 Record Button. If you click this button, the current live video will be stored as AVI format file in your PC. During the recording, you cannot change the Video Format. If you change the Video Format, the recording will be stopped automatically.

⌘ If remained disk space of the HDD drive where the video is recorded is less than 1GByte, a warning message box regarding the disk space will be shown and the recording will be stopped automatically.

⌘ Recorded files folder

Windows Vista & Windows 7	c:\user\(\username)\AppData\LocalLow\IP Network Camera\RECORD
Windows xp, 2000 & Windows me, 98	:\My Documents\IP Network Camera\RECORD\(\MAC Address)\Stream1(or 2, 3, 4, 5)\(Date)\Date,Time_Filename.avi.

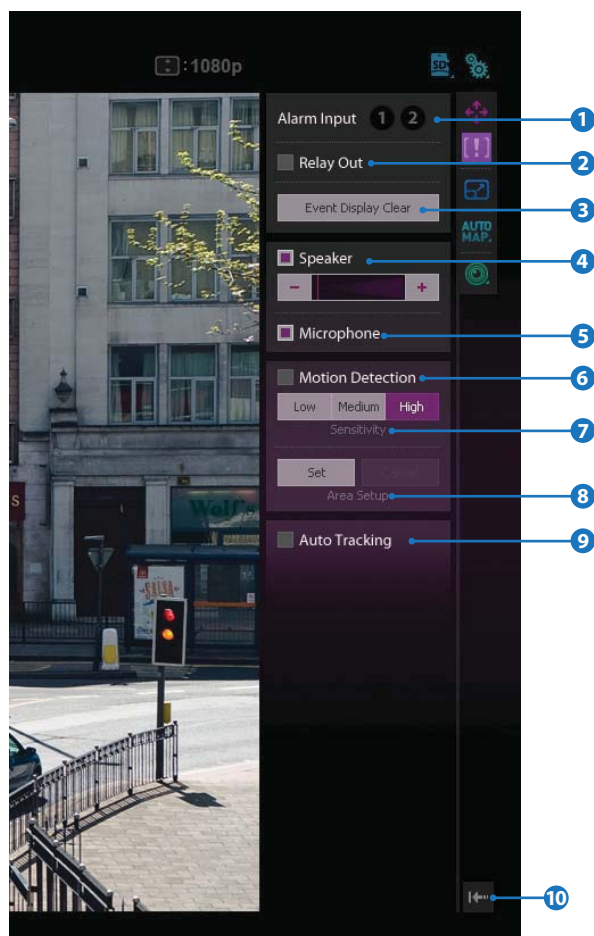
⌘ To play the recorded video in the Windows Media Player, H.264 codec must be installed.

9 Video stream button. Select a stream produced from the camera between Stream 1 ~ 5 to display it in the live view screen.

⌘ Refer the 'Setup > Basic > Video' to setup the Video Stream.

10 Hide Button. Hide all control panels extended.

4 Web Viewer Screen - Etc. Control



- 1 Alarm Input Status. It shows the Alarm Input status. If an alarm is fired, the color of corresponding input number will be changed to bright purple from dark gray and event alert icon (🚨) is displayed on the 'Live video display'. If alarm is removed, the alarm input status is reset.

⚠ Regardless of alarm status, the Alert Icon will remain unless 'Event Display Clear' button is clicked.

- 2 Relay Out Button. Using these buttons, you can read status of Relay Out and also set or reset it manually. If the status of Relay out becomes On state, the color of the button will be changed to bright purple.

- 3 Event Display Clear Button. Remove Event Alert Icons result from Alarm Input or Motion detection.

- 4 Speaker Control. Enable/Disable Audio stream received from the camera and Volume control of the speaker in the computer.

- 5 Mic Control. Enable/Disable the Audio stream to the camera.

- 6 Motion Detection. Enable or Disable motion detection function. 'Detection Area setting' below must be done in advance.

Event Alert Icon (🚨) appears on the screen if 'Motion Detection' is activated. Icon will remain unless 'Event Display Clear' button is clicked.

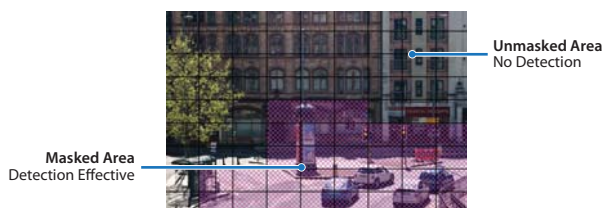
- 7 Sensitivity. Define the sensitivity of motion detection. If High is selected, it will detect very small motion while it becomes relatively insensitive when Low is selected.

- 8 Area Setup. Setup the target area of motion detection.

<How To Setup>

- 1) If 'Set' button is clicked, Live screen shows grids to help area setup.
- 2) By clicking or dragging mouse on the grids, create or erase the masks on the main view.
- 3) Motion detection is effective in the masked Area.
- 4) Save setting by clicking 'Save' button.

⚠ Area Setup is possible only on the Ch No.1 in the 'Video Format'. If you change the video format, motion detection area will return the setup to the default.



- 9 Auto Tracking. Enable or Disable Auto Tracking function.

⚠ Auto Tracking will be automatically off when PTZ, Auto-map, Aux Function, OSD menu, Motion Detection are runned.

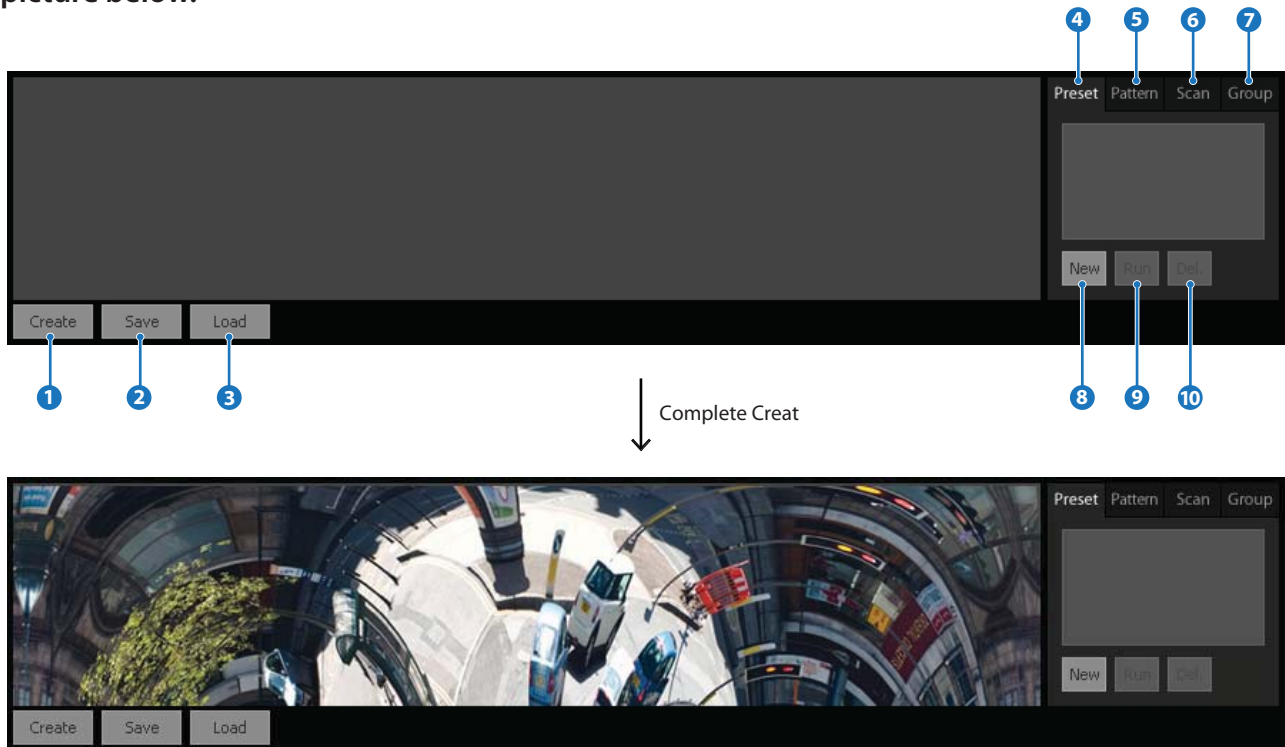
- ⚠ Auto Tracking and Motion Detection cannot be run at the same time.

Ex) If you run 'Auto Tracking' while running 'Motion Detection', 'Motion Detection' would be off automatically. Since then, although you make 'Auto Tracking' off, 'Motion Detection' cannot be back 'ON'.

- 10 Hide Button. Hide all control panel extended.

4 Web Viewer Screen - Auto-map

The Auto-map is the easiest way to control the PTZ in an intuitive manner. If you click the Auto-map popup button in the web viewer, the auto map window will appear as shown in the picture below.



1 Create Map Button

If you click this button, a new map will be created on the auto map window. Since the map is made by taking several photo and stitching them into a map, it is recommended to draw map when moving object is as small as possible. It will take around 5 minutes for the completion.

- ⌘ To locate the most important object in the center, please, move the camera to that object before creating the map.
- ⌘ When creating MAP, AE Mode will change to 'Manual', and it will move back to AE mode after completing creating Map.

2 Save Map Button

If you click this button, the current Map data will be uploaded to the IP Camera. By this, you can use stored map data in the future and share it with other Clients.

3 Load Map Button

If you click this button, the Map data stored previously will be downloaded from the IP Camera. If there is no map data stored in the IP Camera, you will see only black map in the screen.

4 Preset Tab Button

Shows Preset numbers in the list. The range of numbers is 1 to 1024.

5 Pattern Tab Button

Shows Pattern numbers in the list. The range of numbers is 1 to 128.

6 Scan Tab Button

Shows Scan numbers in the list. The range of numbers is 1 to 128.

7 Group Tab Button

Shows Group numbers in the list. The range of numbers is 1 to 128.

8 New Button. If you click this button, new popup will be displayed for creating new preset, pattern, scan or group.

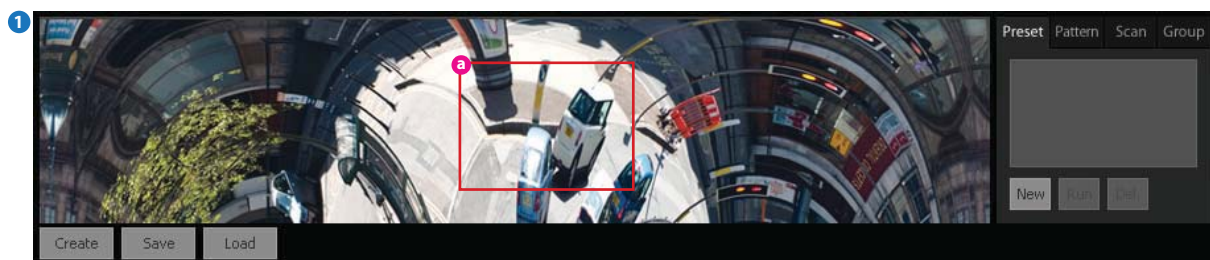
9 Run Button. Run selected contents of Preset, Pattern, Scan or Group function.

10 Delete Button. Delete selected contents of Preset, Pattern, Scan or Group function.

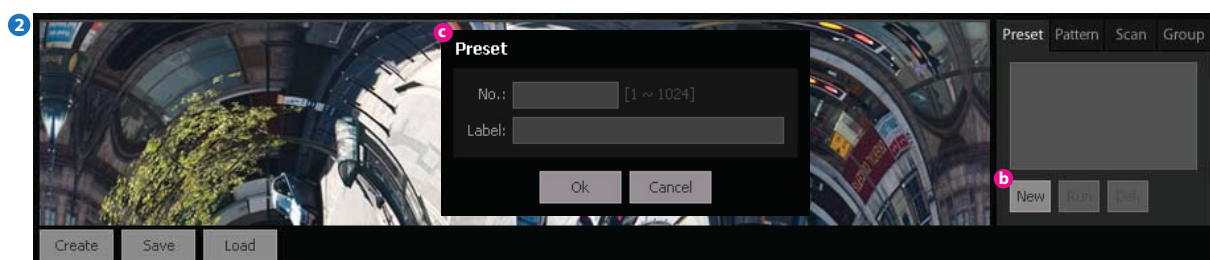
⌘ Basic Map Operation.

Left click	If you click a point of interested on the map, the camera will move to make that point be the center of screen while the zoom ratio is maintained.
Draw box	If you draw the box by clicking and dragging the mouse, PTZ will move to match the live video in your box drawn to viewer screen.

4 Web Viewer Screen - Auto-map > Preset



If you draw a box(a) on the map as shown in the picture, the IP camera will move and change the zoom ratio to obtain the optimal video matched with the box you just draw.



After drawing box on the map, if you click the 'New' button (b), you will see the Preset Edit Popup Window(c). Input the preset number and label.

PRESET No. 1 ~ 1024

Label
Max. 9 alphabets/numbers are allowed(Including space).

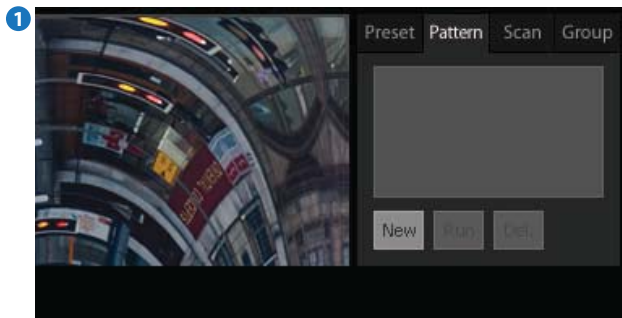


If you define a preset, size of view, location, number and label of Preset is denoted(d) on the map.

If you click the preset number(d) on yellow box or click 'Run' button(f) after you select a Preset in the preset list(g), camera will move to corresponding preset view. And if you click the 'Del' button(h), the Preset will be erased forever.

- ⌘ Moreover, the detailed information of each Preset i.e. Pan/Tilt angle and zoom ratio will be displayed(e) if the mouse approaches to yellow box.
- ⌘ You can simply double click a Preset in the list to move to the corresponding preset.

4 Web Viewer Screen - Auto-map > Pattern



1 If you click the 'New' button, the Pattern Edit Window will display expanded auto map as shown in the picture(2).

2 By clicking the desired positions(a) on the map repeatedly, you can draw a polygon similar to the trajectory of pattern desired. To close the polygon, please, click the starting point. It is advised that even 5~10 points is sufficient to make general pattern since you can adjust the path in curve editing stage.

3 The polygon finished is consist of several nodes(b) and segments. If you drag a node inward or outward, the line segment can be changed to Curved segments. You can change the zoom ratio and pan tilt speed for each segments of trajectory.

⌘ To change zoom ratio, right click node and type zoom ratio desired.

⌘ To change the pan tilt speed, right click the grey square on the segment and select appropriate speed.

If you think the pattern is finished, type the pattern number and its label. Click the 'Ok' button to save this pattern in the camera.

PATTERN No. 1 ~ 128

Label

Max. 9 alphabets/numbers are allowed(Including space).



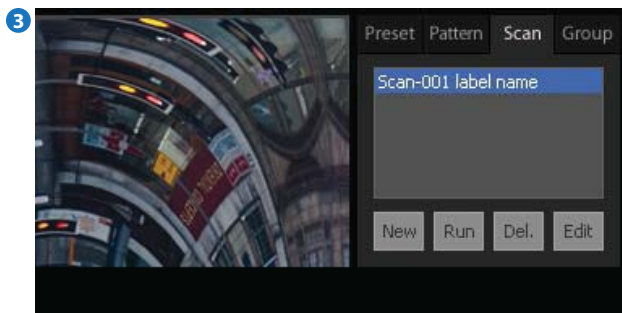
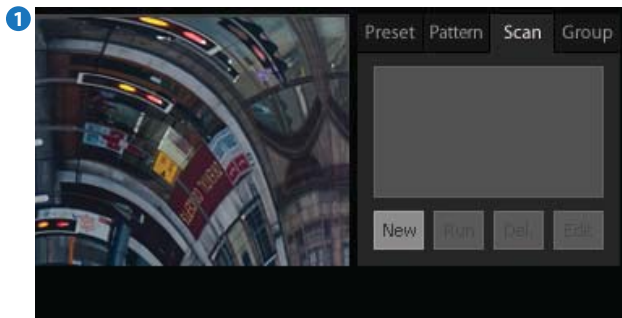
4 If you select a pattern in the Pattern List, a series of dots representing the pattern is displayed. After you select a Pattern in the list, if you click the 'Run' button, the camera will follow the trajectory of the pattern. The pattern will be continued repeatedly untill there is the other actions by operator. After you select a Pattern in the list, if you click the 'Del' button, the selected will be erased.

⌘ If trajectory is crossing or neighboring nodes are too close, motion will not work properly.

⌘ You can simply double click a pattern in the list to move to the corresponding pattern.



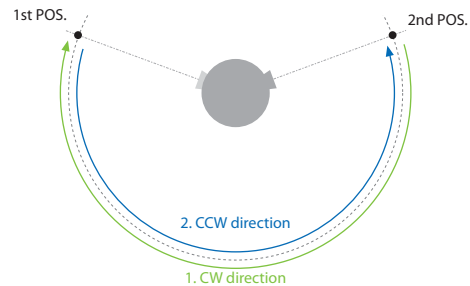
4 Web Viewer Screen - Auto-map > Scan



SCAN SETUP

Up to 128 scans are available, which makes the camera to move slowly between two preset positions.

When scan function runs, the camera moves from the preset assigned as the 1st pos. to the preset assigned as the 2nd pos. in CW(Clockwise) direction. Then camera moves from the preset assigned as the 2nd pos. to the preset assigned as the 1st pos. in CCW(Counterclockwise) direction. Then, it continues to move from the 1st pos. to the 2nd pos. back and forth.



If the 1st POS. = the 2nd POS.

In case that the preset assigned as the 1st pos. is same as the preset assigned as the 2nd pos., the camera turns on its axis by 360° in CW direction and then it turns on its axis by 360° in CCW direction.

- To create a Scan, click the 'New' button in the Scan tab.

⚠ There must be at least two Presets defined to make a scan.

- The Scan Edit Window will be shown as the picture on the left. Type the Scan number and its label. Assign 1st and 2nd position of Scan from existing presets in the drop down box. The Scan speed can be defined in the range of 1~360°/sec. click the 'Ok' button to save this Scan in the camera.

Scan No.	1 ~ 128
----------	---------

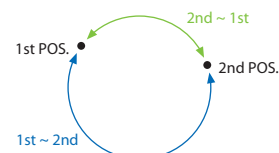
1st / 2nd Position

Max. 9 alphabets/numbers are allowed(Including space).

1st / 2nd Position	1 ~ 1024
--------------------	----------

Scan Speed	1 ~ 360 °/sec
------------	---------------

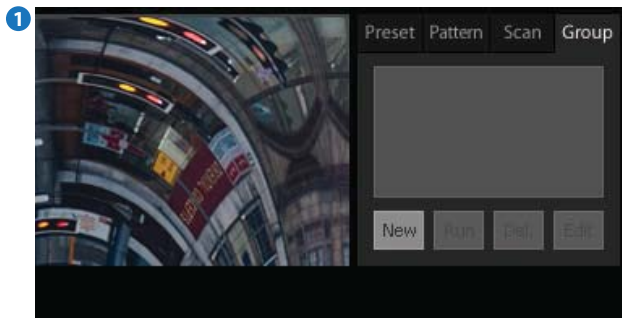
⚠ The order of presets assigned in 1st and 2nd position affects the turning direction as shown below. If the turning direction is unsatisfactory, please, reverse the order of presets.



- You can run this function by 'Run' button after selecting a scan in the list. And if you click the 'Del' button after you select a Scan in the list, the selected will be erased. To edit the Scan, after select one in the list, click the 'Edit' button.

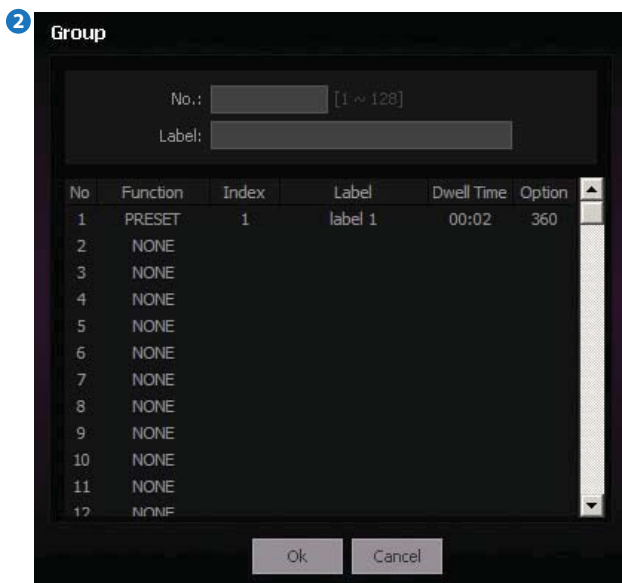
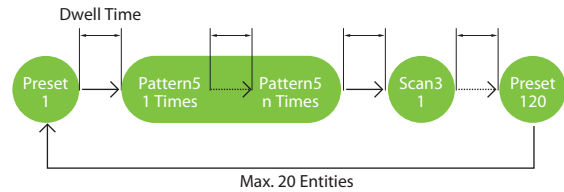
⚠ You can simply double click a Scan in the list to move to the corresponding preset.

4 Web Viewer Screen - Auto-map > Group



GROUP SETUP

The group function allows running sequence of presets, pattern and/or scans. Max. 128 group can be stored. Each group can have max. 20 action entities which can be preset, pattern or scan.



1 To create a Group, click the 'New' button in the Group tab.

2 The Group Edit Window will be shown as the picture on the left. Type the Group number and its label. Assign Function, Index of Function, Dwell Time, Option in the drop down box. After you input all items, click the 'Ok' button to save this Group in the camera.

GROUP No. 1 ~ 128

Label

Max. 10 alphabets/numbers are allowed(Including space).

No 1 ~ 20

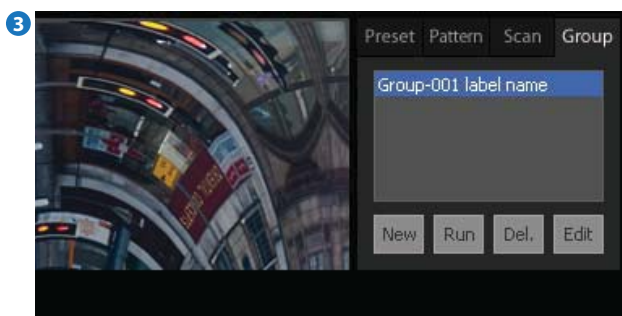
Means the sequence of the function in a group.
The functions will be run from lower no. to higher no. by sequence.

Function NONE / PRESET / PATTERN / SCAN
Select the function.

Index PRESET 1~1024 / PATTERN 1~128 / SCAN 1~128
Select the function index number.

Dwell Time 00:02 ~ 04:00 (min:sec)
Sets dwell time between function. If the 'OPT' of pattern/group is set to repeat more than twice, it means the repeat interval.

Option PRESET: 1~360 / PATTERN & SCAN: 1~255
It should be preset speed when preset is set in 'Function'. It should be the number of repeat when pattern or scan is selected in 'Function'.



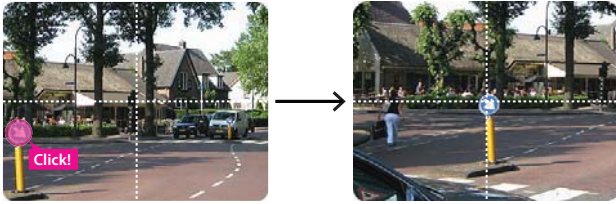
3 You can run this function by 'Run' button after selecting a group in the list. And if you click the 'Del' button after you select a group in the list, the selected will be erased. To edit the Group, after select one in the list, click the 'Edit' button.

☒ You can simply double click a Group in the list to move to the corresponding group.

4 Web Viewer Screen - Viewer Interface

1. Click & Go

By clicking a target in the main view, the camera will move to locate the center of the view to the target.



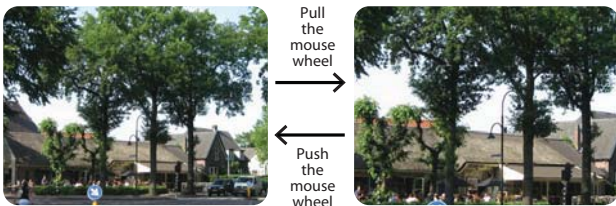
2. Box & Go

By drawing a box on the target in the main view, the camera will move the camera view to the center of the box and change the zoom ratio to match the view size with that of the box surrounding the target.



3. Zoom In/Out by Wheel Mouse

After clicking the screen, if you scroll the mouse wheel toward the monitor, it result in Zoom out. When scroll reversely, Zoom in.



Since in the full screen mode, all GUIs are hidden, you can control PTZ using powerful virtual joystick functions instead. This functions can be used simultaneously.

1. Right Click & Drag

When you want to move PT as smoothly as real joystick does, you can use virtual joystick function using the mouse in the full screen mode.



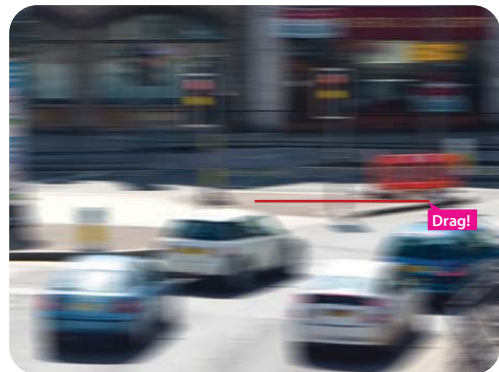
If you right click a position on a screen, red line is displayed.

Drag



If you drag the mouse to the desired direction while clicky the right button of the mouse, the view will follow your direction by moving the camera while a red line from the center shows direction and speed.

Drag further



If you drag further, the PT speed will be increased as red line becomes longer.

2. Zoom In/Out by Wheel Mouse

Same as left 3.

5



Camera Setup

Focus Mode :

☒ Auto

☐ Manual

☐ Semi-Auto

Focus Near Limit :



Digital Zoom :

☐ On

☒ Off

Day & Night :

☒ Day

☐ Night

☐ Auto

N -> D Threshold :



White Balance Mode :



R Gain :


B Gain :

One Push Trigger :

Auto Exposure Mode :



Shutter :



Iris :



Bright :



Gain :



Exposure Comp. Mode :

☐ On

☒ Off

Exposure Comp. :



Spot AE Mode :

☐ On

☒ Off

Spot AE Position :

Auto Slow Shutter :

☐ On

☒ Off

Noise Reduction :



Gain Limit :



Picture Effect :

☒ Off

☐ Negative

☐ Black & White

Gamma Type :



Aperture :



Baddlight :

☐ On

☒ Off

Wide-D :

☐ On

☒ Off

High Sensitivity :

☒ On

☐ Off

High Resolution :

☒ On

☐ Off

IR Correction :

☐ On

☒ Off

Close

Focus Mode Auto / Manual / Semi-Auto

In the auto focus mode, the focus adjustments is done automatically no matter scene or zoom are changed. In the manual mode, you have to adjust focus whenever it is required. In the Semi-Auto mode, lens will control the Focus automatically after PTZ control.

Focus Near Limit 1Cm ~ 25m (14 Steps, Default 30Cm)

It defines the distance to ignore objects in auto focusing. For instance, if you define it 4.9m, any object within this range will not be counted in the auto focus mode.

Digital Zoom On / Off

Those who think image using digital zoom does not meet their standards need to turn this Off.

Day & Night Day / Night / Auto

Day: In this mode, the IR cut filter is applied to the image sensor all the time. Thus, the sensitivity will be reduced in the dark light condition but the better color reproduction performance are obtained.

Night: In this mode, the IR cut filter on the image sensor is removed all the time. The sensitivity will be enhanced in the dark light condition but the image is black and white.

Auto: In this mode, the IR cut filter is removed automatically depending on the light condition around.

N→D Threshold 0 ~ 28 (29 Steps, Default 10)

It is a threshold value to change Night mode into Day mode when Day & Night mode is Auto.

WB Mode Auto / Indoor / Outdoor / One- Push Mode
/ Manual / ATW / Outdoor Auto
/ Sodium Lamp Auto / Sodium Lamp

Auto: The camera performs white balance automatically.

Indoor: WB will be done under the assumption of the Indoor illumination.

Outdoor: WB will be done under the assumption of the Sun light.

One-Push Mode: WB is executed once on the scene you designated. To do this, click the 'Set' button in One push Trigger.

Manual: The R/B gain level can be set up manually.

ATW: Auto Tracking White balance (2000 to 10000K)

Outdoor Auto: 5800K Base Mode

Sodium Lamp Auto: This is an auto white balance mode that is compatible with sodium vapor lamps.

Sodium Lamp: This is a fixed white balance mode specifically for sodium vapor lamps.

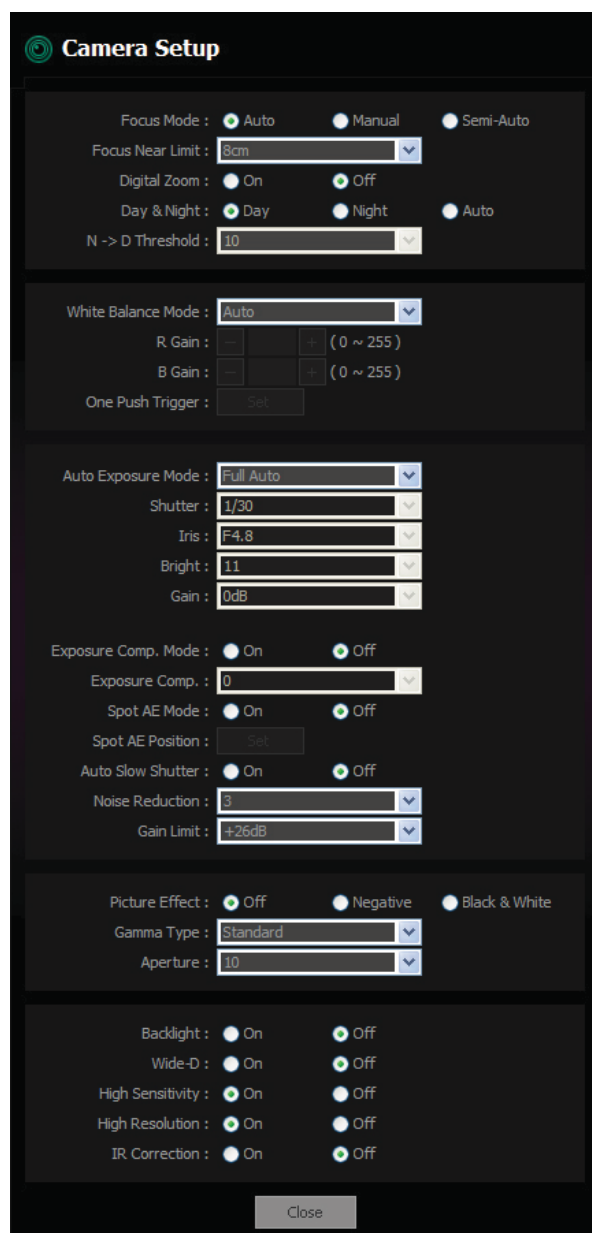
R Gain 0 ~ 255

B Gain 0 ~ 255

One Push Trigger

Click the 'Set' to apply One-Push WB with the current scene.

5 Camera Setup - Lens / White Balance Setup



AE Mode Full Auto / Manual / Shutter Priority / Iris Priority / Bright

Full Auto: The camera adjust the exposure by itself automatically.

Manual: Triple factors i.e. Shutter speed, Iris, Gain can be adjusted by users according to their preference.

Shutter Priority: The shutter speed can be selected by the user while iris and gain are controlled by camera automatically.

Iris Priority: Iris can be selected by users while the shutter speed and gain are controlled by camera automatically.

Bright: Iris and gain can be selected in terms of brightness while the shutter speed is automatically controlled.

Shutter 1/2 ~ 1/10,000 (21 Steps, Default 1/30)

The slower the shutter setting, the brighter the image is. However, the haunting can happen on the image when the object is moving fast.

Iris F1.8 ~ F14 / Close (14 Steps, Default F1.8)

The smaller number makes the brighter image.

Bright 0 (IRIS:CLOSE, GAIN:0dB) ~ 31 (IRIS:F1.6, GAIN:+28dB) (28 Steps, Default 17)

F1.8/28dB means Iris and gain respectively. The later number in the list makes the brighter image.

Gain 28dB ~ -3dB (16 Steps, Default 0)

The smaller number makes the daker image.

Exposure Comp. Mode On/ Off

In this mode, the internal brightness reference value can be shifted. As a result, all exposure results are done automatically showing different results. When AE mode is 'Manual, Bright', On/Off setup is unavailable. (When AE mode is changed, Exposure Comp. Mode will be disabled or Enabled automatically.)

Exposure Comp. 7 (GAIN:-10.5dB) ~ +7 (GAIN:+10.5dB) (15 Steps, Default 0)

Spot AE Mode On / Off

In this mode, you can designate a particular spot in the image to be weighted higher than other portions in the exposure calculations. When AE mode is 'Manual, Bright', On/Off setup is unavailable. (When AE mode is changed, Spot AE Mode will be disabled or Enabled automatically.)

Spot AE Position

By clicking the 'Set' button, you can designate a spot in 16x16 black blogs in a small screen. The screen is equivalent to the view of live video. By clicking a block, a spot can be selected.



Noise Reduction Off / 1 / 2 / 3 / 4 / 5 (Default 3)

This function removes noise that appears based on the setting of Gain to provide clearer live video. Higher setting value will increase the effect of noise reduction. In bright conditions, changing the this function will not have an effect.

Gain Limit +6dB ~ +28dB (12 Steps, Default 14dB)

This function enables users to set the maximum limitation of gain to get clear live video in low-light condition.

5

Camera Setup -

Lens / White Balance Setup

Camera Setup

Focus Mode :☒ Auto☐ Manual☐ Semi-Auto

Focus Near Limit :

Digital Zoom :☐ On☒ Off

Day & Night :☒ Day☐ Night☐ Auto

N → D Threshold :

White Balance Mode :

R Gain : (0 ~ 255)

B Gain : (0 ~ 255)

One Push Trigger :

Auto Exposure Mode :

Shutter :

Iris :

Bright :

Gain :

Exposure Comp. Mode :☐ On☒ Off

Exposure Comp. :

Spot AE Mode :☐ On☒ Off

Spot AE Position :

Auto Slow Shutter :☐ On☒ Off

Noise Reduction :

Gain Limit :

Picture Effect :☒ Off☐ Negative☐ Black & White

Gamma Type :

Aperture :

Baddlight :☐ On☒ Off

Wide-D :☐ On☒ Off

High Sensitivity :☒ On☐ Off

High Resolution :☒ On☐ Off

IR Correction :☐ On☒ Off

Close

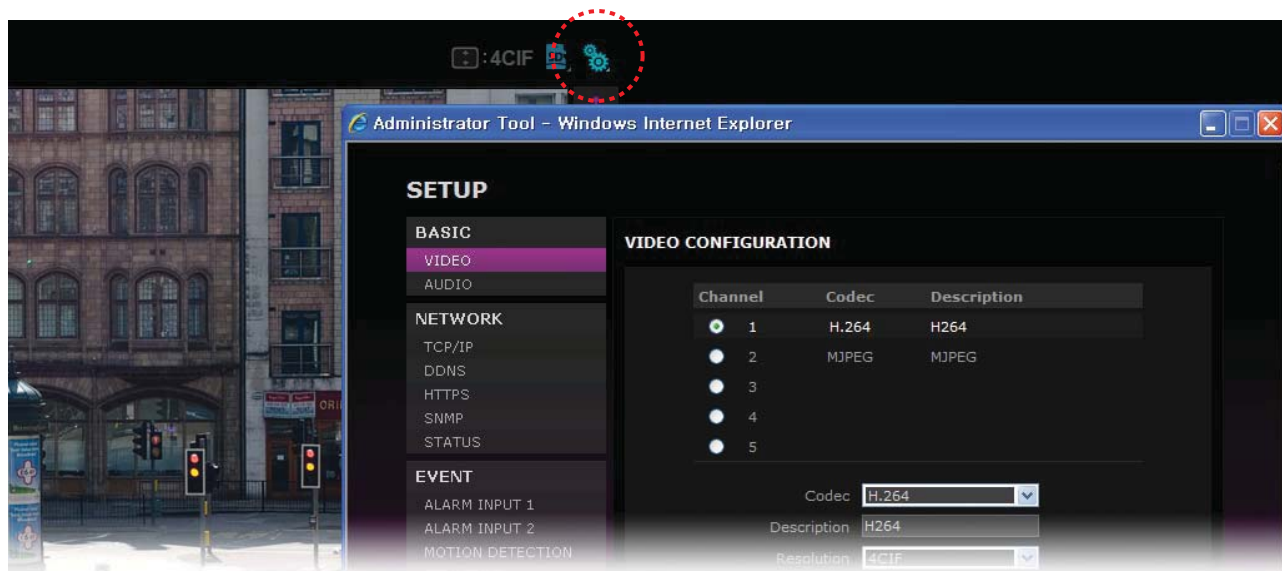
Picture Effect	Off / Negative / Black & White
Gamma Type	Standard / Gamma 1 / S-Curve Low / S-Curve Middle / S-Curve High (Default: Standard)
Gamma correction can be changed in this mode.	
Aperture	0 ~ 15 (16 Steps, Default 10)
Aperture Control is a function which adjusts the enhancement of the edges of objects in live video.	
Backlight	On / Off
When the background is too bright or the object is too dark, the backlight compensation will make the target object look clearer. Backlight setup is available when AE Mode is Full Auto.	
Wide-D(WDR)	On / Off
This function is intended to provide clear live image even under back light circumstances when there are both very bright and very dark areas simultaneously in live video.	
High Sensitivity	On / Off
In this mode, sensitivity of image sense will be increased so that you can get clearer images in low-light condition.	
High Resolution	On / Off
This mode enhances edges and produces higher definition images.	
IR Correction	On / Off
This function will control the focus error that can be made by ICR.	

6 Setup - Setup Screen

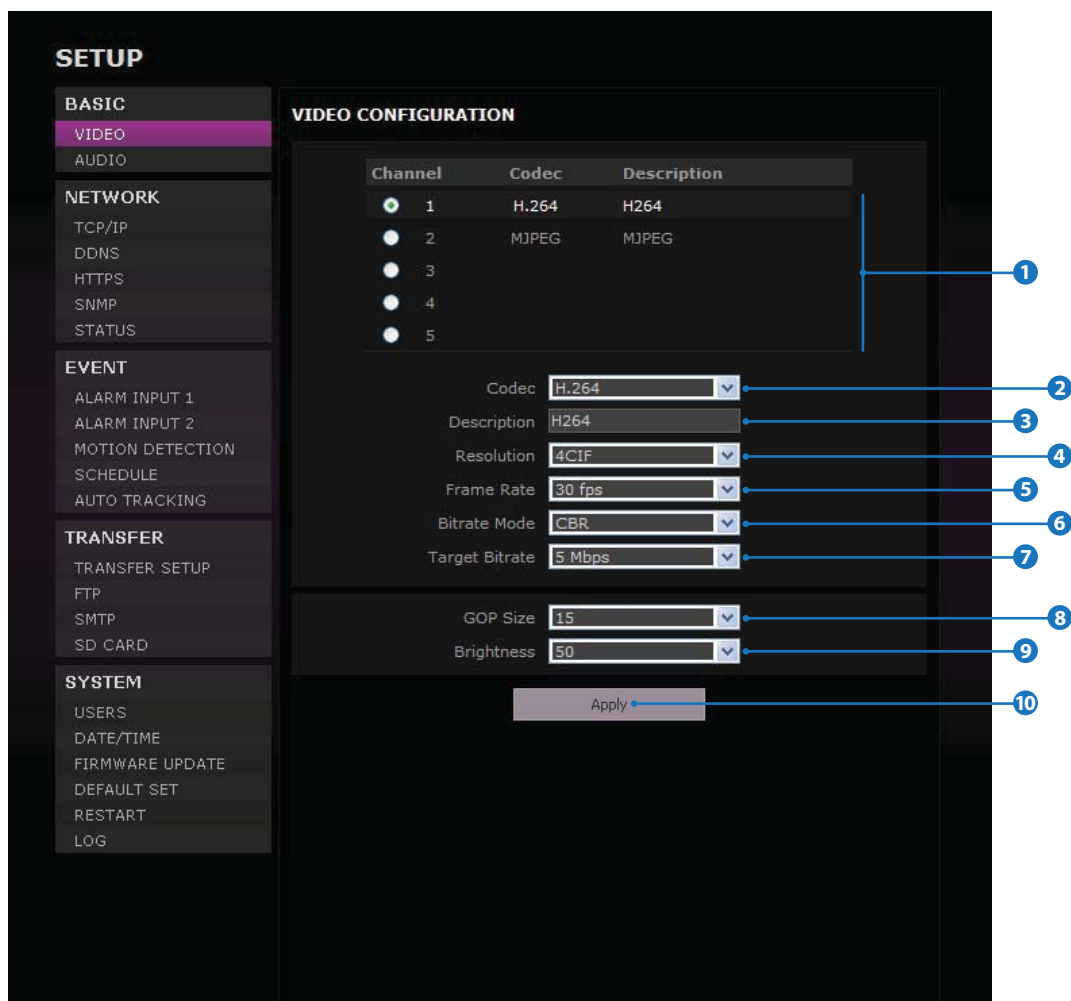
This section is provided to familiarize the user with the setup. Intuitive options are not explained in detail.

All the changes on Setup take the effect immediately. These settings will be global, affecting the view of all users currently logged on. However, OSD items changed are effective only after you refresh the viewer windows or restart the internet Explorer.

All settings are always saved in the video server even when you close the viewer program or you turn off the Power of the video server. If you lost your password, you must press the reset button to return all setting to its factory defaults.



6 Setup - Video Setup



1 Live Video Channel Setup

Setup the multiple codec and Video according to the environment of installed camera. Using selected channel on the 'Web-Viewer > PTZ Control > Video Format'.

CH No.1 and No.2 are the default CH, so they can't be changed. However, detailed category of default codec can be setup. CH No.3,4,5 are the user channel, and codec and detailed category of codec can be setup.

❗ If CH No.1, 2 and some of channel are setup to High Performance (High Resolution and Frame Rate), remainder of channels can not be setup. Also, when the CH No.4,5 are already setup, there can be some restriction of setting up the resolution and fps when you try to setup the detailed category of remained channel.

2 Codec

Choose the video compression method preferred between H.264, MJPEG. According to the selected codec, the subcategories can be changed automatically.

3 Description

Input the additional description about the selected channel. Max. 15 alphabets are allowed(Including space). For the description, English Alphabets, numbers and special characters (/ ~ ` ! @ \$ ^ () _ - { } [] ; ,) can be used.

4 Resolution

Select the resolution between 1080p, 720p, D1, CIF, QCIF.

❗ Available resolution can be depends on the codec setup between the channels.

❗ Below are the restriction when setup the resolution as the 1080p.

- Only CH No. 1 can be setup.
- CH No.4 /5 can't be setup.
- In case you assign 1080p 15 frame to No.1 channel for video setup, if you want to keep the good quality of image, you should use only up to channel No.2.
- CH No. 1, 1080p is selectable among 1, 5, 10, 15 fps and others should not have higher frame than set at 1080p.

Ex) If CH No. 1 set up of 1080p as 10 fps, CH No. 2 and NO. 3 is only selectable among 1, 5, 10 fps.

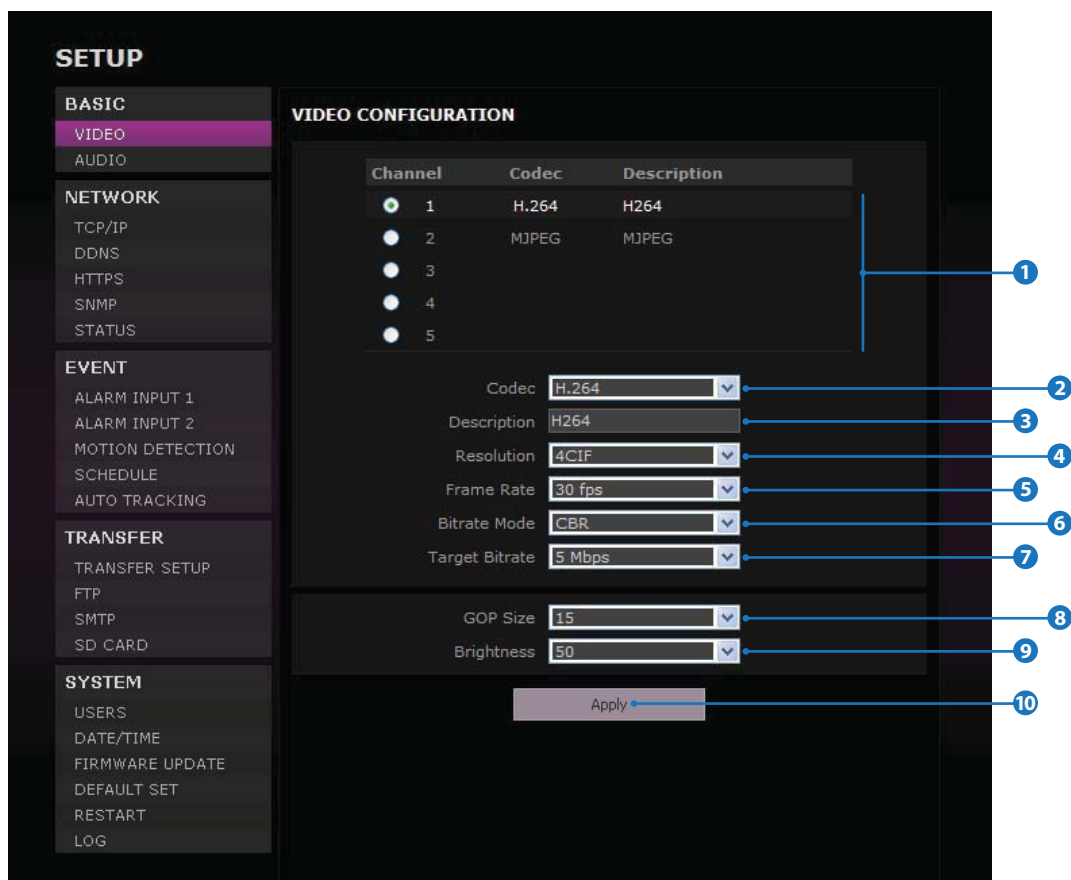
	NTSC	PAL
1080p	1920 x 1080	1920 x 1080
720p	1280 x 720	1280 x 720
D1	720 x 480	720 x 576
CIF	352 x 240	352 x 288
QCIF	176 x 144	176 x 220

<Resolution of Video Format>

H.264	1080p, 720p, D1, CIF
MJPEG	720p, D1, CIF, QCIF

<Support Resolution of Codec>

6 Setup - Video Setup



5 Frame Rate

Select the maximum Frame Rate.

※ Available Frame Rate can be different although same codecs were set up.

NTSC	PAL
30 / 25 / 20 / 15 / 10 / 5 / 1	25 / 20 / 15 / 10 / 5 / 1

6 Bitrate Mode

Select the bit rate control scheme of video compression from CBR (Constant Bit Rate) or VBR (Variable Bit Rate).

CBR

To guarantee the designated constant bit rate, the quality of video are controlled in this mode. Therefore, the quality of video is likely to be varying when network traffic is changing.

VBR

To guarantee the designated quality, the bit rate of video stream is changed in this mode. Therefore, the frame rate of video is likely to be varying when network traffic is changing

※ This category won't be appear if you select the codec.

7 Target Bitrate

If Bitrate Control is set to be CBR, you can set the Target Bitrate by 5 steps from 1Mbps to 5Mbps.

Quality

For VBR control mode, The Target Quality of video can be setup from 1~5. Value 1 is the best quality while 5 is the normal quality.

8 GOP(Group of Pictures) Size

Set up the number of frames (P-frame) which contain only changed information based on basic frame (I-frame). Regarding videos with lots of movement, if you set GOP size bigger, only the number of P-frames is bigger. As a result, video resolution will be low but 'File size' and 'Bit-rate' can be decreased.

※ GOP(Group of Pictures) Size is..

I-frame and P-frame can be created for MPEG4 and H.264 video compression. I-frame(=key-frame) means the whole image data for one specific scene of video. P-frame is image data which has been changed information compared to I-frame GOP is made up of one I-frame and corresponding several P-frames. To improve video quality, set the number of P-frames smaller and to decrease image size, set the number of P-frames bigger.

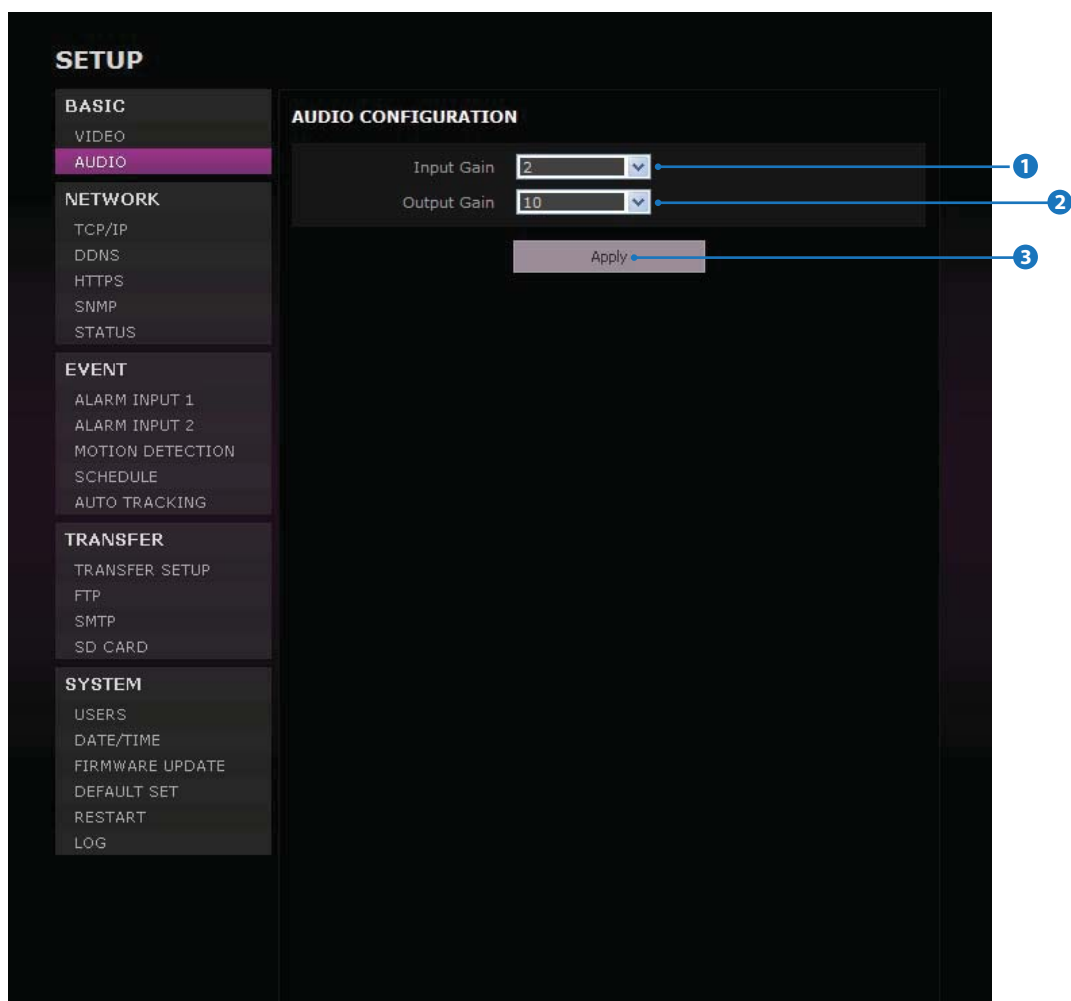
9 Brightness

Adjust the brightness of image. The range of brightness is 1 ~ 30. The max. value of brightness is 30.

10 Click 'Apply' to make above setting effective.

※ Click this button when completed setup each channels.

6 Setup - Audio Setup



- 1 Input Gain**
Adjust the input gain of audio 1 ~ 4.
- 2 Output Gain**
Adjust the output gain of audio 0 ~ 10. Output gain 0 is mute.
- 3 Click 'Apply' to make above setting effective.**

6 Setup - TCP/IP Setup

The screenshot shows the 'TCP/IP CONFIGURATION' window. On the left is a sidebar menu with categories: BASIC (VIDEO, AUDIO), NETWORK (TCP/IP, DDNS, HTTPS, SNMP, STATUS), EVENT (ALARM INPUT 1, ALARM INPUT 2, MOTION DETECTION, SCHEDULE, AUTO TRACKING), TRANSFER (TRANSFER SETUP, FTP, SMTP, SD CARD), and SYSTEM (USERS, DATE/TIME, FIRMWARE UPDATE, DEFAULT SET, RESTART, LOG). The 'TCP/IP CONFIGURATION' window has a 'Network Type' section with 'Static' selected. Below it is the 'IP Setup' section with fields for IP Address (192.168.1.88), Subnet Mask (255.255.255.0), Default Gateway (192.168.1.1), and Preferred DNS Server (168.126.63.1). The 'Port Setup' section lists Control Port (13089), Video Port (13090), Audio Transmit Port (13091), Audio Receive Port (13092), HTTP Port (13088), HTTPS Port (443), and RTSP Port (554). Each port field includes a default range in brackets. At the bottom is an 'Apply' button. Numbered callouts point to: 1. Network Type, 2. IP Address, 3. Subnet Mask, 4. Default Gateway, 5. Preferred DNS Server, 6. Port Setup section, and 7. Apply button.

1 Network Type

Define network IP address type from the Static Mode for the fixed IP or the Dynamic Mode by the dynamic IP address. If you select the Static Mode, you must fill out IP Address, Subnet Mask, Gateway, DNS Server and all ports. If you select the Dynamic Mode, the IP address will be allocated automatically by DHCP equipment. If you click the Apply button to update changes, the system will be re-booted. In this case, you have to reconnect the camera using new IP address.

2 IP Address

Define the IP address. The address is consisted of four numbers separated by dots and the range of each number is from 0 to 255.

3 Subnet Mask

Define the Subnet Mask. Format is same as the IP address.

4 Default Gateway

Default the Gateway IP Address. Format is same as the IP address.

5 Preferred DNS Server

Define the DNS server IP address. Format is same as the IP address.

6 Port

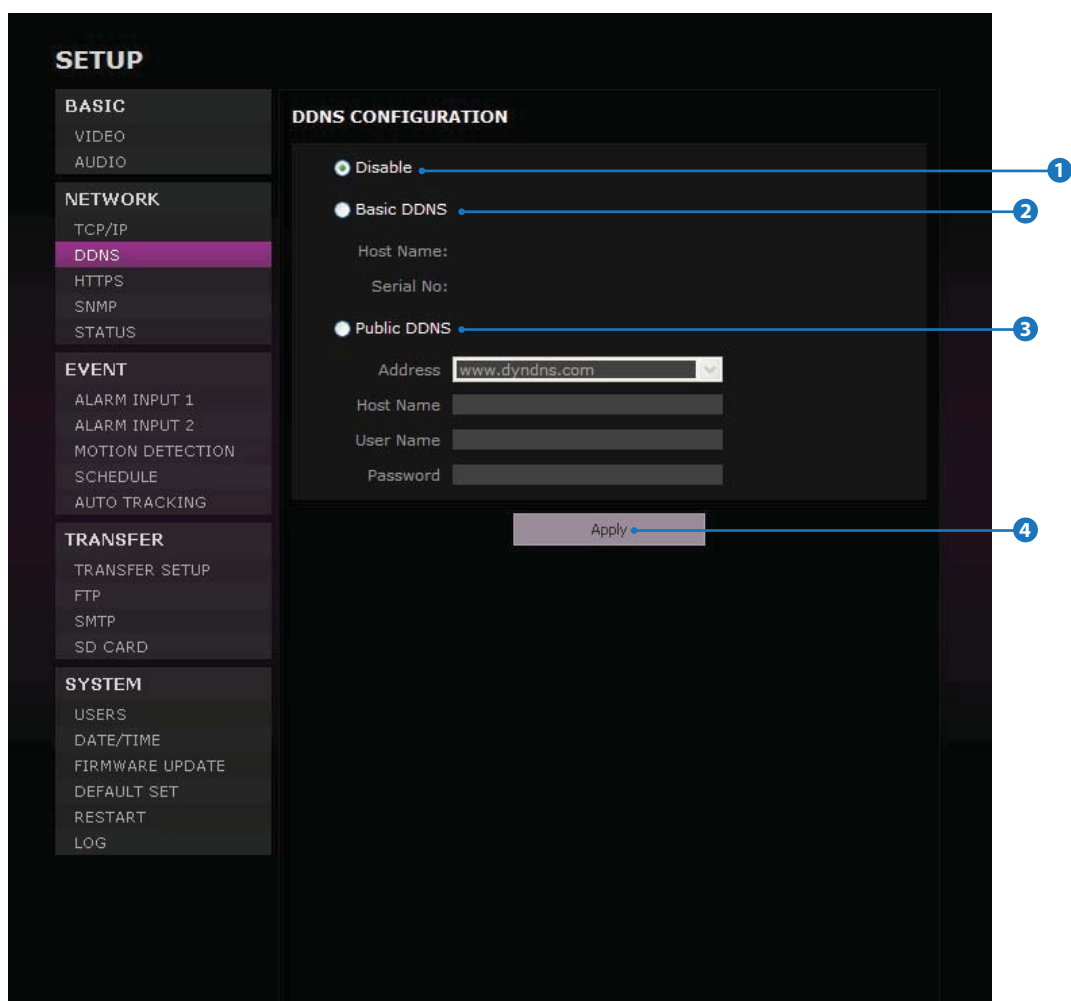
There are five ports in the camera providing different services. To get those services separately, unique port number must be assigned to each servers.

7 Click 'Apply' to make above setting effective.

⚠ If the network type is dynamic, the IP address is changed in below cases. Therefore, the IP address needs to be searched again, and the camera needs to be reconnected in these cases.

- When the camera power is on/off.
- After Firmware update, Default set and reboot.

6 Setup - DDNS Setup



1 DDNS Disable

If it is selected, DDNS service does not work.

2 Basic DDNS

Please register the camera in net4c site so as to use net4c DDNS. Insert the serial number shown on the screen in the serial entry field.

3 Public DDNS

To use public DDNS service, select a site address listed in the list. After filling out the Host Name of the site, the setup is completed by entering User Name and Password registered in that DDNS site.

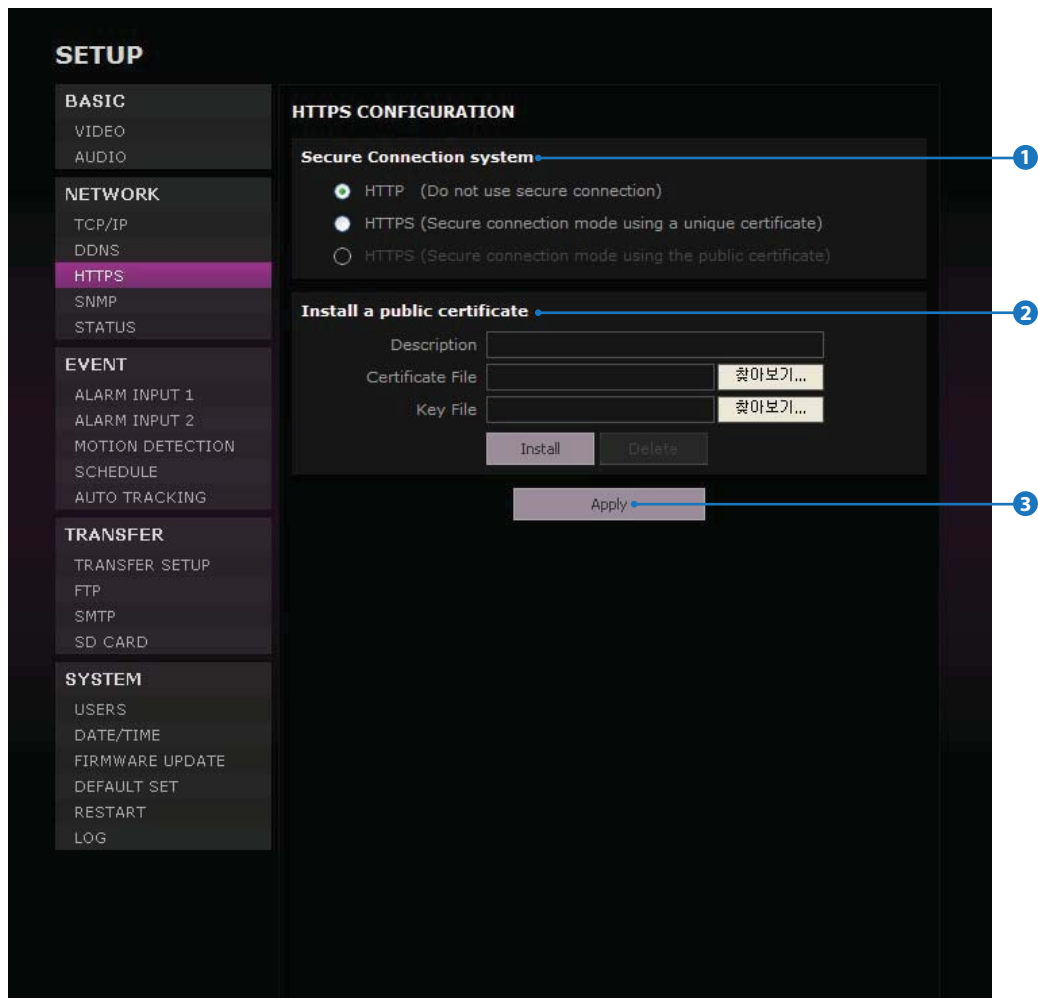
DDNS Provider	Site Address
DynDNS	www.dyndns.com
No-IP	www.no-ip.com

⚠ If you setup DDNS properly, the IP address of your camera will be updated automatically whenever IP address is changed or system is rebooted.

⚠ If IP updating to DDNS site is failed, camera will keep retrying in 1 min. interval.

4 Click 'Apply' to make above setting effective.

6 Setup - HTTPS Setup



1 Secure Connection System

Secure Connection System chooses a method of security connection.

HTTP

HTTP mode does not use a security connection method.

HTTPS (Secure connection mode using a unique certificate)

This mode is a security connection method which uses the (temporary) certificate in the camera.

HTTPS (Secure connection mode using the public certificate)

This mode is a security connection method which uses a certificate issued by certificate authority.

※ HTTPS (Secure connection mode using the public certificate) method can be selected only if a certificate has been already installed.

※ When HTTPS mode is chosen, input https://<IP Address> to connect to the camera.

2 Install a public certificate

A certificate issued by Certificate Authority can be installed to the camera and the installed certificate can be deleted.

<How to install or delete the certificate>

- 1) Input the description(name) of a certificate.
- 2) Click 'Install' button after selecting the certificate files and key file to be installed.
- 3) To remove the certificate files, click 'Delete' button.

※ While using HTTPS (Secure connection mode using the public certificate) method, the certificate cannot be deleted.

3 Click 'Apply' to make above setting effective.

6 Setup - SNMP Setup

SETUP

- BASIC**
 - VIDEO
 - AUDIO
- NETWORK**
 - TCP/IP
 - DDNS
 - HTTPS
 - SNMP**
 - STATUS
- EVENT**
 - ALARM INPUT 1
 - ALARM INPUT 2
 - MOTION DETECTION
 - SCHEDULE
 - AUTO TRACKING
- TRANSFER**
 - TRANSFER SETUP
 - FTP
 - SMTP
 - SD CARD
- SYSTEM**
 - USERS
 - DATE/TIME
 - FIRMWARE UPDATE
 - DEFAULT SET
 - RESTART
 - LOG

SNMP CONFIGURATION

SNMP V3 Secure Setup

User Name: root

Authentication Password (MD5):

Privacy Password (DES):

Apply

1 SNMP V3 Secure Setup

- The information of camera system can be known and configured with SNMP.
- The changes for configuration use version 3 and username and password should be certified at that time.

Username

Username is the information of user account for user authentication.

Authentication Password(MD5)

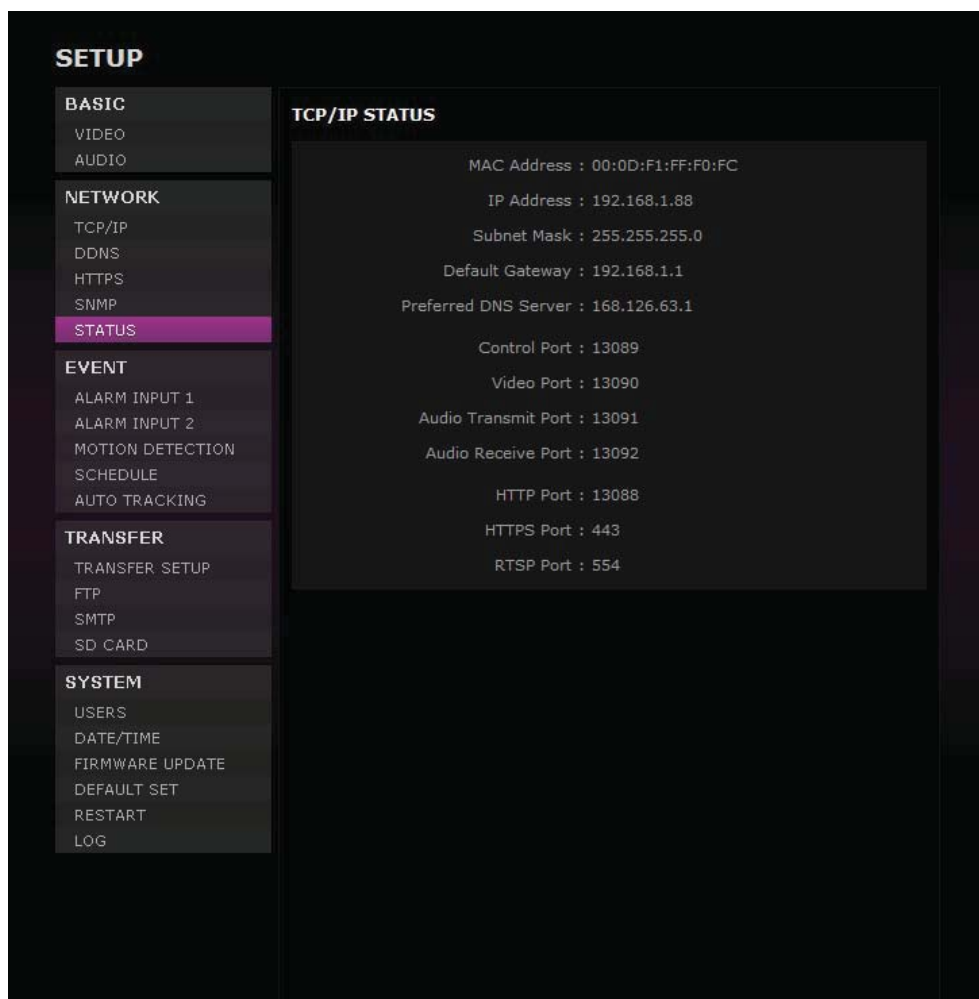
The Authentication Password (MD5) is an encryption for authentication and they are at least 8 digits and up to 30 digits allowed.

Privacy Password(DES)

Information protection password is a private encryption and they are at least 8 digits and up to 30 digits allowed.

2 Click 'Apply' to make above setting effective.

6 Setup - Status



This menu will show you all the information of Network setting in the camera. However, you cannot change those here.

6 Setup - Alarm Input 1 Setup

Input Device Setup

Select input device type from OFF / N.O. / N.C.

	Operation
Off	Ignore this Input sensor.
NO	The contact is normally open and closed when activated.
NC	The contact is normally closed and open when activated.

Activation Time

Select activation time from Always / Only Scheduled Time.

Always	An alarm event is activated whenever sensor Input is detected.
Only Scheduled Time	An alarm event is activated only when sensor input is detected during the scheduled time.

To setup the schedule, you need to define Start time and End time followed by selecting Days.

If End time is earlier than Start time, End time is regarded as next day.

Ex) Assume you select Tue. If you set Start time as 16:00 and End Time as 09:00, Alarm Input will work from 4:00pm Tue to 9:00am Wed.

3 Action

Define a counter action from Alarm Output / Alarm Image Transfer / Camera Action when Alarm Input is detected.

Action	Description
Alarm Output	Activate alarm out (relay). None or 1.
Output Duration	Select time duration to maintain output form 3 / 5 / 10 / 20 / 30 sec. or Continue
Alarm Image Transfer	Turn ON / OFF Image Transfer. Send image via E-mail or FTP server. (For more detail see Transfer Setup in this chapter)
Camera Action	Setup the Camera Action when Alarm in. Select among the None / Preset(1 ~ 255) / Scan(1 ~ 8) / Pattern(1 ~ 4) / Group(1 ~ 8) / Home Position.

4 Click 'Apply' to make above setting effective.

6 Setup - Alarm Input 2 Setup

SETUP

BASIC

VIDEO

AUDIO

NETWORK

TCP/IP

DDNS

HTTPS

SNMP

STATUS

EVENT

ALARM INPUT 1

ALARM INPUT 2

MOTION DETECTION

SCHEDULE

AUTO TRACKING

TRANSFER

TRANSFER SETUP

FTP

SMTP

SD CARD

SYSTEM

USERS

DATE/TIME

FIRMWARE UPDATE

DEFAULT SET

RESTART

LOG

ALARM 2 CONFIGURATION

Input Device Setup

☒ Off ☐ NO ☐ NC

Activation Time

☒ Always ☐ Only Scheduled Time

☒ Sun ☒ Mon ☒ Tue ☒ Wed ☒ Thu ☒ Fri ☒ Sat

Start Time : End Time :

Action

Alarm Output

Output Duration

Alarm Image Transfer

Camera Action

Apply

You can setup the 2 type of Alarm Input.

6 Setup - Motion Detection Setup

1 Activation Time

Select activation time from Always / Only Scheduled Time.

Always	An alarm is activated whenever motion is detected.
Only Scheduled Time	An alarm event is activated only when motion is detected during the scheduled time.

※ To setup schedule, you need to define Start time and End time followed by selecting Days.

※ If End time is earlier than Start time, End time is regarded as next day.

Ex) Assume you select Tue. If you set Start time as 16:00 and End Time as 09:00, Alarm Input will work from 4:00pm Tue to 9:00 am Wed.

2 Action

Define a counter action from Alarm Output / Alarm Image transfer when motion is detected.

Action	Description
Alarm Out	Activate alarm out (relay). None or 1.
Output Duration	Select time duration to maintain output form 3 / 5 / 10 / 20 / 30 sec. or Continue.
Alarm Image Transfer	Send image to E-mail or FTP server Select from ON / OFF (see 'Transfer Setup' Menu)

3 Click 'Apply' to make above setting effective.

6 Setup - Schedule Setup

The screenshot shows the 'SETUP' menu on the left with categories: BASIC, NETWORK, EVENT, TRANSFER, and SYSTEM. The 'SCHEDULE' option under the EVENT category is highlighted. The main area is titled 'SCHEDULE CONFIGURATION' and contains the following settings:

- Schedule Transfer Function:** Radio buttons for 'Enable' and 'Disable'. (Callout 1 points to the 'Disable' button)
- Transfer Interval:** A dropdown menu showing 'One Image Per' and '5 Sec'. (Callout 2 points to the dropdown)
- Activation Time:** Radio buttons for 'Always' and 'Only Scheduled Time'. Below are checkboxes for days of the week (Sun, Mon, Tue, Wed, Thu, Fri, Sat) and time pickers for 'Start Time' (00:00) and 'End Time' (23:59). (Callout 3 points to the 'Only Scheduled Time' radio button)
- Apply:** A button at the bottom right. (Callout 4 points to the button)

Schedule function enables to transfer series of still images in a time interval specified via E-mail or FTP. (For more detail, see 'Transfer Setup' in this chapter)

1 Enable / Disable

Set Schedule function to be enabled or disabled. Schedule function enables to transfer series of still images in a time interval specified.

2 Transfer Interval

Define time interval of image transfer from 5 / 15 / 30 / 45 / 60 sec. and 5 / 15 / 30 / 45 / 60 min.

3 Activation Time

Select activation time from Always / Only Scheduled Time.

Always	Transfer image at all times.
Only Scheduled Time	Transfer image during the scheduled time.

⚠ To setup 'Only Scheduled Time', you need to define Start time and End time followed by selecting Days. The setup schedule is repeated every week.

⚠ If End time is earlier than Start time, End time is regarded as next day.
Ex) Assume you select Tue. If you set Start time as 16:00 and End Time as 09:00, Alarm Input will work from 4:00pm Tue to 9:00am Wed.

4 Click 'Apply' to make above setting effective.

6 Setup - Auto Tracking Setup

1 Sensitivity

Setup the sensitivity of tracking motion. Higher numeric values will make the camera more sensitive when tracking the motion.

2 Tracking Range

Setup the range of angle for the camera tracking the motion. Each angles of Pan/Tilt can be setup. Camera will track the motion in the entire range when you check the ALL.

3 No Motion Timeout

No Motion Wait	Camera will Zoom Out when there is no motion has detected during the selected time.
1x Zoom Wait	After Zooming out following the 'No Motion Wait Function', camera will go back to home position(Where the camera starts tracking the motion) when there is no motion has detected during the selected time.

4 Escape from Oscillating Environment

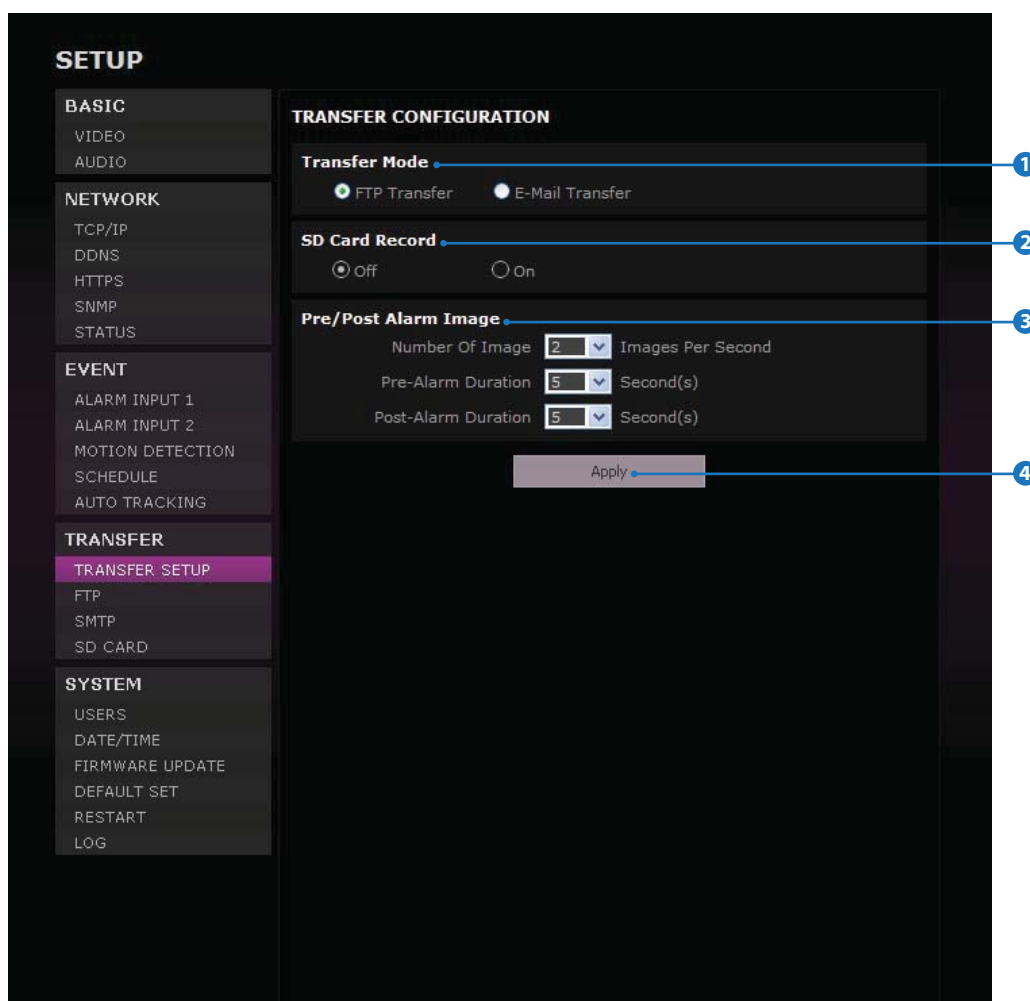
Camera will go back to home position (where the camera starts tracking the motion) when it detects motion constantly more than setting up in the 'Oscillation Count' in the smaller area than setting up in the 'Oscillation Magnitude'.

5 Object

- a Camera will start tracking the motion when the detected object is smaller than you setup.
- b Camera will Zoom In when the detected object is smaller than you setup.
- c Camera will Zoom Out when the detected object is smaller than you setup.

6 Click 'Apply' to make above setting effective.

6 Setup - Transfer Setup



1 Transfer Mode

Image Transfer method is selected from FTP and E-Mail (SMTP).

※ To use image transfer, FTP and SMTP in the next sections must be configured properly.

2 SD Card Record

If it is set to On, the image is saved into the SD card as well.

※ It will setup OFF automatically when SD card doesn't applied.
The SD card setting can be configured on the SD CARD section.

3 Pre/Post Alarm Image

Image Transfer due to event is configured by setting Image transfer rate and Pre/Post alarm duration.

	Descriptions	Range
Number of Image	Define Number of image transferred per second.	1 ~ 5
Pre-alarm Duration	Define duration of image transfer before an event.	1 / 10 / 15 / 30
Post-alarm Duration	Define duration of image transfer after an event.	1 / 10 / 15 / 30

※ Range of Pre/Post alarm duration can be changed according to Number of image setting.

4 Click 'Apply' to make above setting effective.

6 Setup - FTP Setup

The screenshot shows the 'SETUP' menu on the left with categories: BASIC, NETWORK, EVENT, TRANSFER, and SYSTEM. The 'FTP' option under 'TRANSFER' is highlighted. The main area is titled 'FTP CONFIGURATION' and contains the following fields:

- 1** ☒ Use Passive Mode
- 2** FTP Server Address
- 3** Upload Path /
- 4** Port 21
- 5** User ID
- 6** Password
- 7** Apply

To transfer/save the image to the relevant sites through FTP, then FTP needs to be setup.

1 Use Passive Mode

Check it to use Passive mode for FTP transfer. If it is not checked, the transfer becomes Active Mode. However, if you select active mode, it is possible that there might be problems due to the firewall. Consult with your network manager.

⚠ In Active mode, the FTP transfer might not work due to the firewall. In this case, ask to the network administrator.

2 FTP Server Address

Define FTP Server IP Address. If IP Address form is incorrect, a Message box will be shown to try again.

3 Upload Path

Define a path in FTP server to store video. For the path name, English Alphabets, numbers and special characters (/ ~ ` ! @ \$ ^ () _ - { } [] ; ,) can be used.

4 Port

Define the FTP Server Port. If Port is not appropriate, it is impossible to access to FTP Server.

5 User ID

Define User ID to access to the FTP Server. Fill out the correct User ID registered in the FTP Server.

6 Password

Define Password to access to the FTP Server. Fill out the correct Password registered in the FTP Server.

7 Click 'Apply' to make above setting effective.

⚠ Refer the above screen image for the example.

6 Setup - SMTP Setup

The screenshot shows the 'SMTP CONFIGURATION' screen in a web interface. On the left is a sidebar menu with categories: BASIC (VIDEO, AUDIO), NETWORK (TCP/IP, DDNS, HTTPS, SNMP, STATUS), EVENT (ALARM INPUT 1, ALARM INPUT 2, MOTION DETECTION, SCHEDULE, AUTO TRACKING), TRANSFER (TRANSFER SETUP, FTP, SMTP, SD CARD), and SYSTEM (USERS, DATE/TIME, FIRMWARE UPDATE, DEFAULT SET, RESTART, LOG). The 'SMTP' option under the TRANSFER category is highlighted. The main area is titled 'SMTP CONFIGURATION' and contains the following fields:

- Security mode: Two radio buttons, 'Plain' and 'SSL/TLS'. 'SSL/TLS' is selected and marked with a blue line and number 1.
- SMTP Server Address: A text input field marked with a blue line and number 2.
- Port: A text input field with '25' entered, marked with a blue line and number 3.
- User ID: A text input field marked with a blue line and number 4.
- Password: A text input field marked with a blue line and number 5.
- E-Mail Sender: A text input field marked with a blue line and number 6.
- E-Mail Receiver: A text input field marked with a blue line and number 7.
- Title: A text input field marked with a blue line and number 8.
- Message: A large text area marked with a blue line and number 9.
- At the bottom right is an 'Apply' button marked with a blue line and number 10.

To send/save the image to the relevant sites by Email, SMTP needs to be setup.

1 Plain, SSL/TLS

Select Security mode of SMTP from Plain or SSL/TLS. After checking account setup of your SMTP Server, you may select one.

2 SMTP Server Address

Define the SMTP Server Address. If the IP Address form is incorrect, a Message box will be shown to try again.

3 Port

Define the Port used in the Plain or SSL/TLS security mode in the above.

4 User ID

Define the User ID to access to SMTP Server. Fill out the correct User ID registered in the SMTP Server.

5 Password

Define the Password to access to SMTP Server. Fill out the correct Password registered in the SMTP Server.

6 E-Mail Sender

Define the e-mail address of E-Mail Sender. It will be displayed as the sender when the camera sends an E-mail.

7 E-Mail Receiver

Define the e-mail address of E-Mail Receiver. It will be displayed as the Receiver when the camera sends an E-mail.

8 Title

Define the title of the E-Mail when the camera sends an E-mail.

✖ The title of the Email is limited to 40 characters including the spaces.

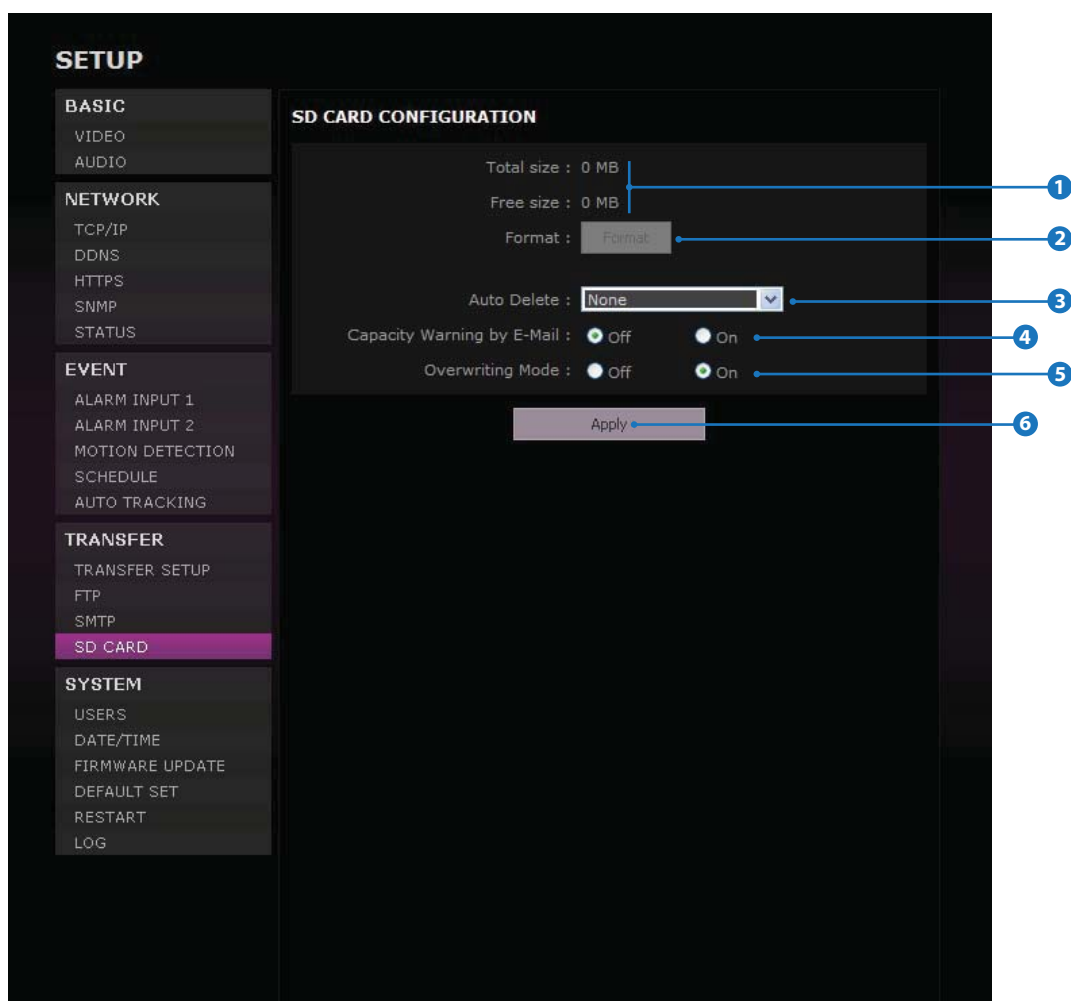
9 Message

Define the contents of E-Mail when camera sends an E-mail.

✖ The message of the Email is limited to 40 characters including the spaces.

10 Click 'Apply' to make above setting effective.

6 Setup - SD CARD Setup



1 Total size / Free size

Total capacity of SD card and the remainder of it are displayed.

2 Format

Delete the all contents that stored in SD card.

⚠ If the SD card doesn't applied, 'Format' button will be deactivated.

3 Auto Delete

Select the period for Auto delete. The image data stored before period will be deleted automatically.

NONE	Do not use 'Auto Delete'.
1 Week	Delete all stored image older than 1 week from 00:00 today.
1 Month	Delete all stored image older than 1 Month from 00:00 today.
1 Year	Delete all stored image older than 1 Year from 00:00 today.

⚠ It is noted that this function will be executed everyday to delete data before designated period.

4 Capacity Warning E-mail

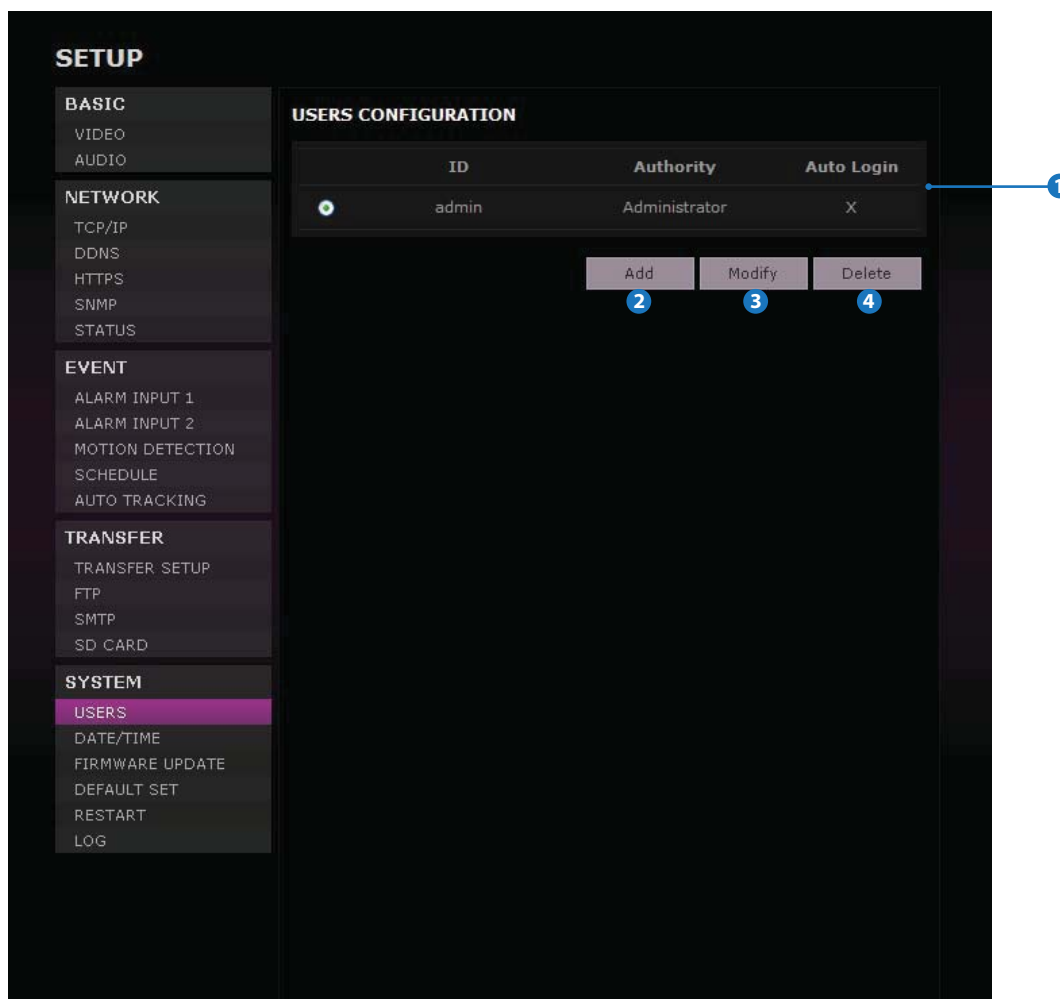
If it is set ON and remained space of SD card reach to less than 8MB, a warning e-mail will be sent to the e-mail account set in SMTP menu.

5 Overwriting Mode

If it is set ON and remained space of SD card reach to less than 8MB, new data will start to be overwritten on the oldest data. However, if it is set OFF and remained space of SD card reach to less than 8MB, image recording will be stopped.

6 Click 'Apply' to make above setting effective.

6 Setup - Users Setup



1 Users

List all the user accounts for authentication.

2 Add

Register a new user

3 Modify

Modify the information of the user accounts registered. For admin account, only Password and Auto Login function can be modified.

4 Delete

Delete the selected user account. Admin account cannot be deleted.

ID	Enter a new user ID except Admin since it exists.
Password	Enter the user Password.
Verify	Enter the user Password again for verification.
User Level	Select Operator or Viewer. • Viewer : Only monitoring is allowed. • Operator : Most of the functions are allowed except 'Setup'. • Administrator: All functions are allowed.
Auto Login	If you check the auto login for an account, this account becomes the public account. From the next login, everybody can access the camera using this account without authentication. Only one account can have the Auto Login.

⚠ The ID and Password are limited to 10 characters.

6 Setup - Date/Time Setup

The screenshot shows a web interface for 'DATE & TIME CONFIGURATION'. On the left is a sidebar menu with categories: BASIC (VIDEO, AUDIO), NETWORK (TCP/IP, DDNS, HTTPS, SNMP, STATUS), EVENT (ALARM INPUT 1, ALARM INPUT 2, MOTION DETECTION, SCHEDULE, AUTO TRACKING), TRANSFER (TRANSFER SETUP, FTP, SMTP, SD CARD), and SYSTEM (USERS, DATE/TIME, FIRMWARE UPDATE, DEFAULT SET, RESTART, LOG). The 'DATE/TIME' option is highlighted. The main panel is titled 'DATE & TIME CONFIGURATION' and contains two sections. The first section, 'Current Date & Time', shows 'Date: 2011/05/30' and 'Time: 15:56:13'. The second section, 'New Camera Date & Time', has three radio buttons: 'Synchronize with my computer' (selected), 'Setup manually', and 'Synchronize with time server'. Below the first radio button are 'Date: 2011/05/30' and 'Time: 15:57:49'. Below the second radio button are date and time pickers: 'Date: 2000 01 01' and 'Time: 00 00 00'. Below the third radio button is a 'Time Zone' dropdown menu showing '(GMT+09:00) Seoul, Tokyo' and a 'Time Server' text field containing 'time-a.nist.gov'. At the bottom of the panel is an 'Apply' button. Five blue numbered callouts point to specific elements: 1 points to the 'Current Date & Time' section header, 2 points to the 'Synchronize with my computer' radio button, 3 points to the 'Setup manually' radio button, 4 points to the 'Synchronize with time server' radio button, and 5 points to the 'Apply' button.

1 Current Date & Time

Shows the current date and time setting in the Camera.

2 Synchronize with my computer

Set the date/time using those of PC currently connected.

3 Setup manually

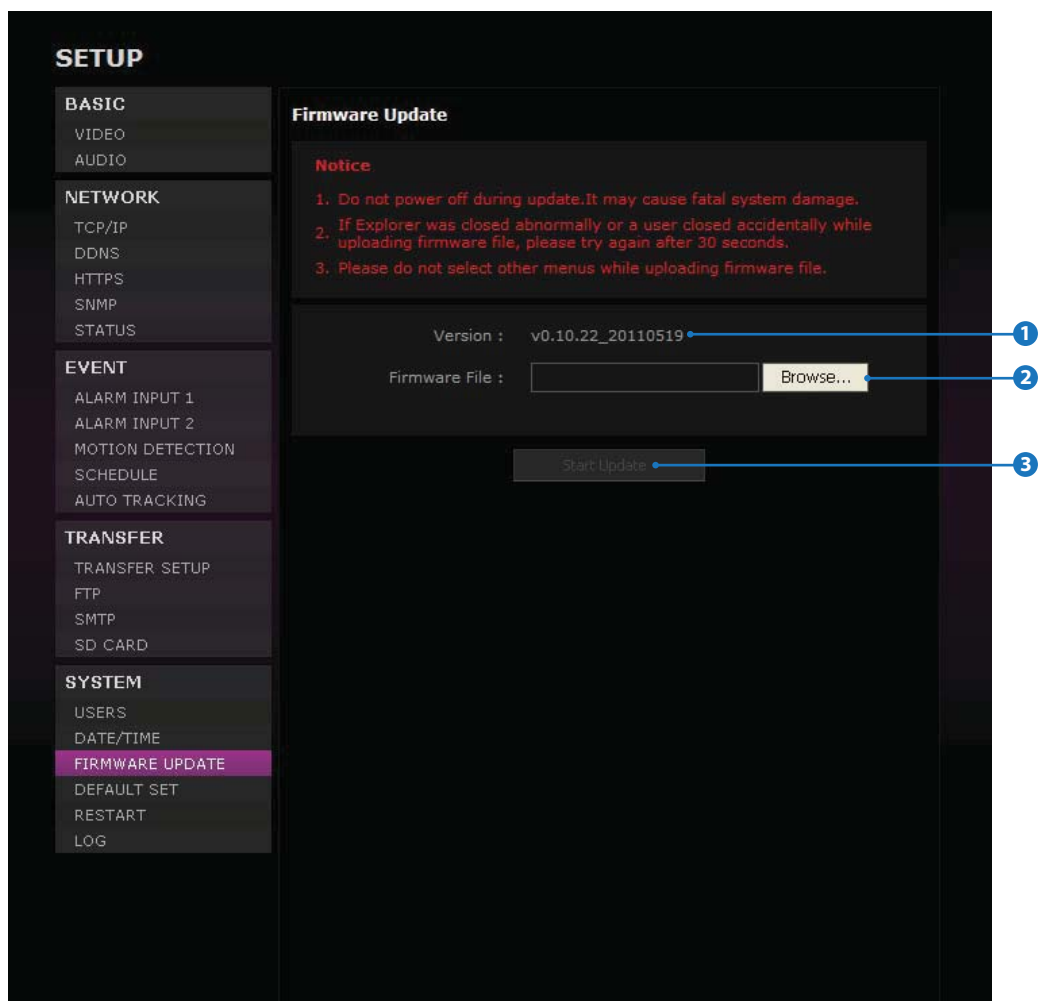
Set the date/time by typing manually.

4 Synchronize with the time server

In this mode, date/time is automatically updated using the Time Server selected. After selecting the Time Zone properly, Time Server must be selected. However, if you want to assign a time server not in the list, select Manual. Once synchronization is configured successfully, the time and date will be updated every 1 hour automatically.

5 Click 'Apply' to make above setting effective.

6 Setup - Firmware Update



1 Firmware Version

It shows the current Firmware Version in the system.

2 Firmware Filename

Designate the Firmware file name in your computer by clicking [Browse...] button.

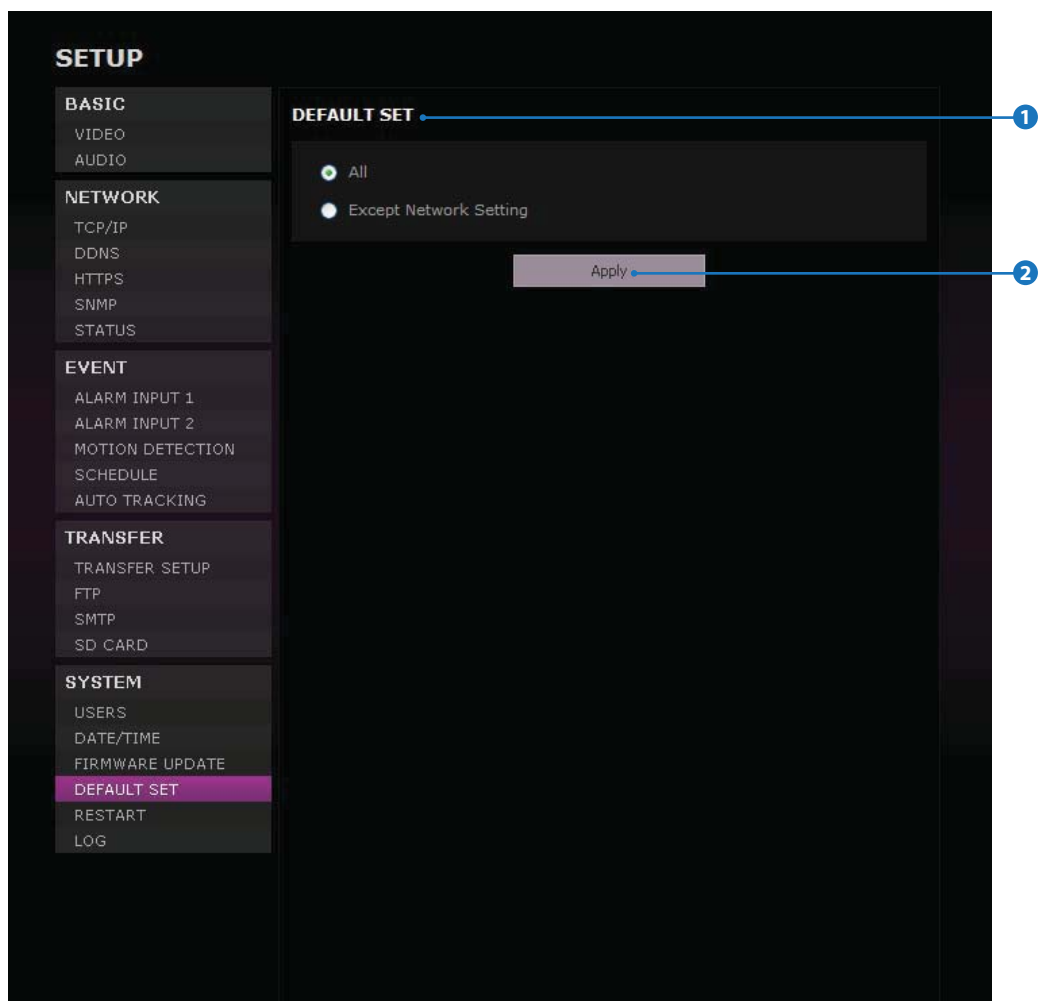
3 Start Update

Click this button to start update. Progress of uploading will be displayed using Progress Bar. If you assign the wrong file name, an error message will be shown.

⚠ Warning:

1. Do not turn off the power of camera during the Firmware update. Otherwise, the system can be stuck to be unstable. If updating is finished, the system will be rebooted automatically.
2. Please make sure to check the 'Notice' shown on screen. If firmware update is completed, the camera will reboot automatically and 'Setup window' will be closed

6 Setup - Default Set



1 Reset to the Factory Defaults

Return the setup to the Factory Default.

All	Reset all Settings to the Factory Defaults.
Except Network Settings	Except Network related settings, reset all others to the Factory Defaults.

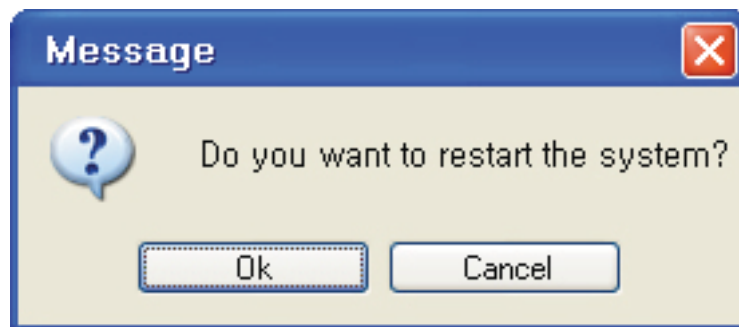
⚠ Warning:

If you click 'Apply', you will lose all setting data. If needed, please, make a note for further installation.

2 Click 'Apply' to make above setting effective.

⚠ It takes approximated 4 minutes after clicking 'Apply' for the Default Set.

6 Setup - Restart



If you click the 'RESTART' menu, a message box will be shown to confirm. Click the 'Ok' button to restart.

6 Setup - Log

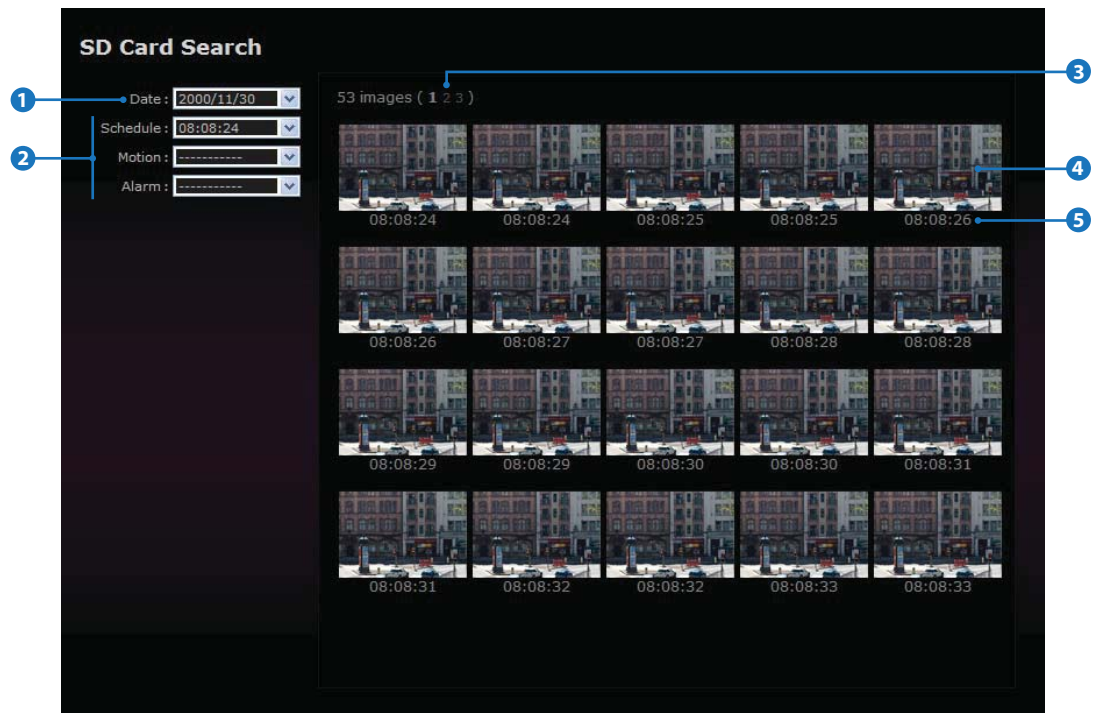
The screenshot displays the 'LOG' section of a system's setup menu. On the left, a sidebar lists various setup categories: BASIC (VIDEO, AUDIO), NETWORK (TCP/IP, DDNS, HTTPS, SNMP, STATUS), EVENT (ALARM INPUT 1, ALARM INPUT 2, MOTION DETECTION, SCHEDULE, AUTO TRACKING), TRANSFER (TRANSFER SETUP, FTP, SMTP, SD CARD), and SYSTEM (USERS, DATE/TIME, FIRMWARE UPDATE, DEFAULT SET, RESTART, LOG). The 'LOG' option is highlighted. The main area shows a table of log entries with columns for 'Date & Time' and 'Description'. The table contains 15 entries, all dated 2011/05/30. Most entries are 'Motion occurrence.', while one entry at 15:47:17 is 'System reset.'. Navigation controls at the top of the log table include 'First', 'Previous', '1 / 59', 'Next', and 'Last'.

Date & Time	Description
2011/05/30 15:49:01	Motion occurrence.
2011/05/30 15:48:20	Motion occurrence.
2011/05/30 15:47:35	Motion occurrence.
2011/05/30 15:47:14	Motion occurrence.
2011/05/30 15:47:13	Motion occurrence.
2011/05/30 15:47:03	Motion occurrence.
2011/05/30 15:46:48	Motion occurrence.
2011/05/30 15:47:19	Motion occurrence.
2011/05/30 15:47:17	System reset.
2011/05/30 15:47:14	Motion occurrence.
2011/05/30 15:47:09	Motion occurrence.
2011/05/30 15:47:04	Motion occurrence.
2011/05/30 15:46:44	Motion occurrence.
2011/05/30 15:46:29	Motion occurrence.
2011/05/30 15:46:22	Motion occurrence.
2011/05/30 15:46:15	Motion occurrence.
2011/05/30 15:46:07	Motion occurrence.

System Start, Network Connection Status(Including IP Address), Changing System Time, Changing Video Setup, Network Setup and Event(Alarm / Motion) Alert will be recorded.

1000 PCS of Log can be stored and the recorded data won't be deleted.

7 SD Card Search - Search



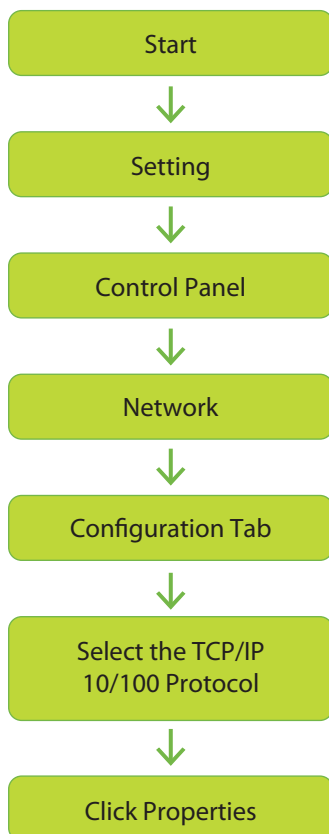
- 1 Date of stored image**
Choosing the date to find the stored events.
- 2 Stored Events(Schedule / Motion / Alarm)**
The interval of stored time and number of stored images in the Event Setup can be different.
- 3 Page No. of searched Images**
The latest page will be loaded at the head.
- 4 Stored Images**
Image will be stored by value at CH No. 2 in 'Setup>Video configuration'. By clicking the image, see the image on the larger screen.
- 5 Stored Time of Images**
The interval of stored image can be setup depending on the each Events.

8 Appendix

A : Current TCP/IP Settings

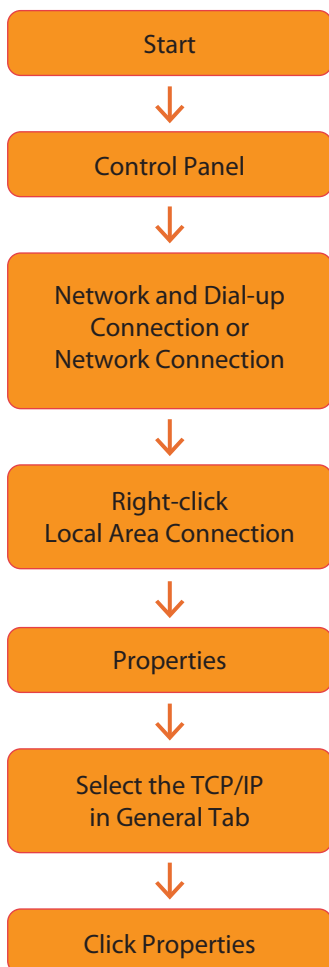
i If your IP settings are obtained automatically, you could use the MS-DOS prompt (or Command Prompt) to determine your IP address. For information on how to do this, please read the FAQ.

1. Windows 98 / ME Users



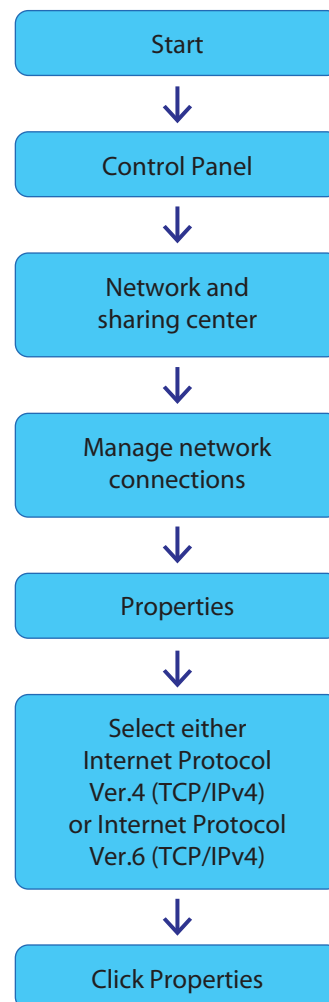
Note the settings under the IP Address, DNS Configuration, and Gateway tabs

2. Windows 2000 or XP Users



Under the 'General' tab of the TCP/IP Properties you will see your IP address information.

3. Windows Vista or 7 Users

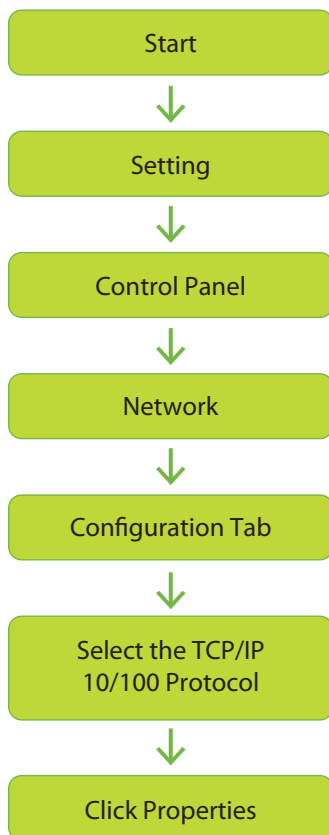


Under the 'General' tab of the TCP/IP Properties you will see your IP address information.

8 Appendix -

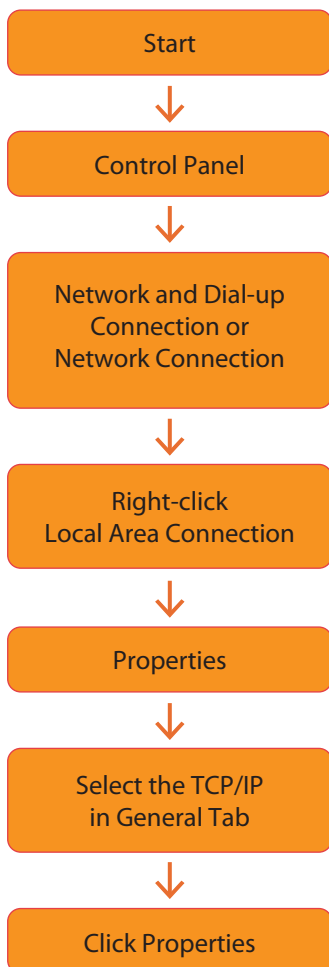
B : Changing IP address and subnet mask

1. Windows 98 / ME Users



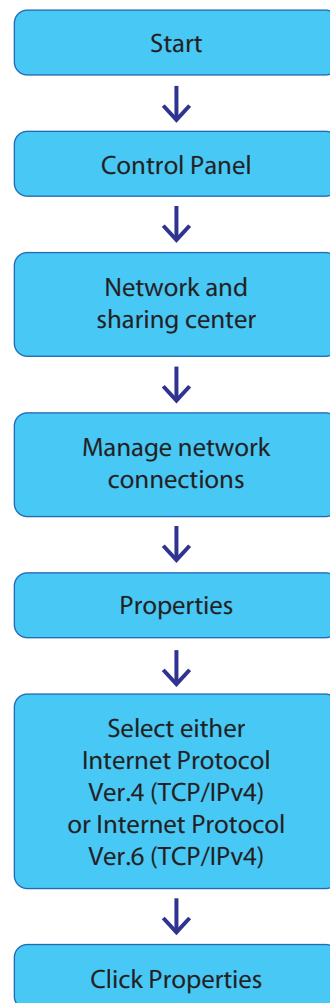
Select 'Use the following IP address' and change the IP address and Subnet Mask.

2. Windows 2000 or XP Users



Select 'Use the following IP address'

3. Windows Vista or 7 Users



Select 'Use the following IP address'

8 Appendix - C : Port Forwarding

After assigning the IP Camera a web server port and video server port you must use Port Forwarding. (for cases A, B)

Please consult your router's user guide on how to correctly configure Port Forwarding.

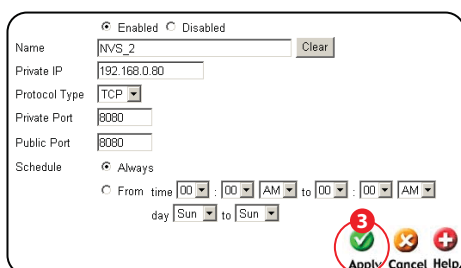
For your convenience, we have provided two example configurations.

1. For D-Link DI-604 broadband routers:

- 1) Open a web browser and type http://192.168.0.1 into your Address bar. (the default IP address to access the router)
- 2) You will have to supply your User Name and Password to log onto the router. Default from factory. (User Name: admin Password: [leave blank])
- 3) Select the "1 Advanced" tab and click "2 Virtual Server" menu.



- 4) Click "3 Apply" button after inputting proper values. The example is as below



Enabled / Disabled	Select "Enabled".
Name	Input IVS name.
Private IP	Input IVS address.
Protocol Type	Select "TCP".
Private Port / Public Port	Input IVS Web Server Port.
Schedule	Select "Always"

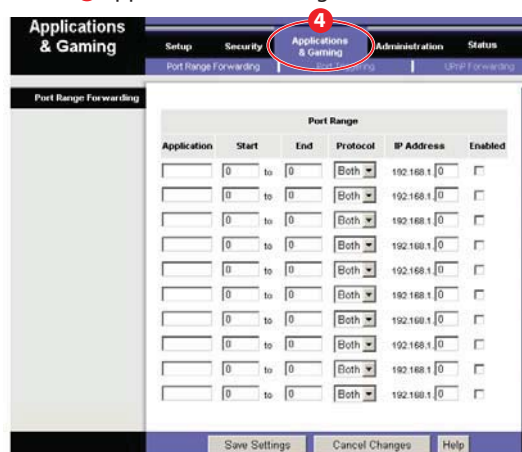
- 5) If 'Setting Saved' shows, click [Continue] button.
- 6) With the same method as above, add Video Server Port.
- 7) The Web Server Port, Video Server Port and 2 Audio Ports shows in "Virtual Server List" as below.

Virtual Servers List

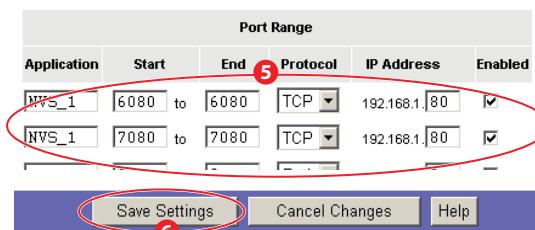
Name	Private IP	Protocol	Schedule	
✓ NVS_2	192.168.0.80	TCP 8080/8080	always	
✓ NVS_2	192.168.0.80	TCP 7777/7777	always	
✓ NVS_2	192.168.0.80	TCP 7778/7778	always	
✓ NVS_2	192.168.0.80	TCP 7779/7779	always	
✓ NVS_2	192.168.0.80	TCP 7780/7780	always	

2. For Linksys BEFSR41 Cable/DSL routers:

- 1) Open a web browser and type http://192.168.1.1 into you Address bar. (the default IP address to access the router)
- 2) You will have to supply your User Name and Password to log onto the router. Default from factory (User Name:[leave blank] Password: admin)
- 3) Select "4 Applications & Gaming" from the menu bar.



- 4) Input port numbers in "5 Port Range" as below and click "6 Save Setting" button. Both of Web Server Port and Video Server Port should be added. The example is as below.



Enabled / Disabled	Input IP Camera name.
Start / End	Input IP Camera Web Server Port and Video Server Port. Start should be same as End. Both of Web Server Port and Video Server Port should be added.
Protocol	Select "TCP" in Protocol option.
IP Address	Input IP Camera IP Address.
Enabled	Check the square.

8 Appendix - C : Port Forwarding

3. For Netgear RP614 routers:

- 1) Input http://192.168.0.1 in address bar of web browser.
http://192.168.0.1 is the default IP address.
- 2) If it asks ID and password, input admin as ID and password as password.
- 3) Click "Port Forwarding" in "Advanced".
- 4) Click "➊ Add Custom Service" button in Port Forwarding page.

Port Forwarding

#	Enable	Service Name	Start Port	End Port	Server IP Address
Add Custom Service Edit Service Delete Service					

Apply Cancel

- 5) Input proper values in "Ports - Custom Services" page as below.

Ports - Custom Services

☐ Enable

Service Name

Starting Port (1 ~ 65535)

Ending Port (1 ~ 65535)

Server IP Address 192.168.0.1

Add Cancel

Enable	Check it.
Service Name	Input IP Camera name.
Starting/ Ending Port	Input IP Camera Web Server port. Starting Port should be same as Ending Port.
Server IP Address	Input IP Camera IP Address.

- 6) Click "➋ Add" button.
- 7) With the same method as above, add Video Server Port.
- 8) Click "Apply" button to finish Port Forwarding.

1. My POWER light is not on?

Power is not being supplied to the unit. Please use the power supply shipped with the unit and verify that a power source is active from the attached power outlet used to connect the adapter. You can test this by plugging in any other electrical device and verify its operation. After using the power supply shipped with the product, checking the power source, and reinserting the power connector into the IP Camera, please call our Support Center. The power supply may be defective.

2. My ACTIVE light is not flashing?

Verify the power supply to the unit. Power off the unit and back on again, wait 1 minute, if the ACTIVE light still does not begin to flash, you will have to set the unit to its factory default (THIS WILL DELETE ANY CONFIGURATION AND SET THE UNIT TO THE FACTORY DEFAULTS). Power on the unit and insert the end of a paper clip into the small recessed opening on the back of the unit. Use the clip to press the button located within that opening.

3. My LINK light is not flashing or solid?

Verify the cable connection. 99% of the time the cable's connection to the unit is causing this problem. Try using a different network cable or crossover cable (for PC connection only). Try reinserting the cable, if this still doesn't solve the problem call our Support Center.

4. I can access the video server on my LAN, but not from the Internet.

Verify that your router (if applicable) has port forwarding properly configured. If accessing from our DDNS service, verify correct serial number. Firewall issues may prevent user access.

5. How do I open an MS-DOS or Command Prompt?

- Windows 98 / ME Users :
Start > Programs > Accessories > MS-DOS prompt
- Windows 2000 / XP Users :
Start > (All) Programs > Accessories > Command Prompt

6. How do I find out my IP address information if my settings were automatically detected?

Windows 98 / ME Users

- 1) Open an MS-DOS Prompt
- 2) At the prompt type: "winipcfg" (without the quotation marks)
- 3) Use the drop down list to select your 10/100 Ethernet Adapter (not a PPP adapter)
- 4) Now you will see your IP Address, Subnet Mask, and Default Gateway information
- 5) For DNS information contact your Internet Service Provider

Windows 2000 / XP Users

- 1) Open a Command Prompt
- 2) At the prompt type - "ipconfig /all" (without the quotes)
- 3) Near the end of the information supplied, should be your current IP address, subnet mask, default gateway and DNS servers

7. I can't connect!!

In the case of a connection failure.

Modem Reboot > Modem Reboot Finished > Router Reboot > Router Reboot Finished > IP Camera Reboot > IP Camera Reboot Finish > Verify DDNS and IP Camera connection, if applicable.

8. How do I "PING" an IP address?

- 1) Open an MS-DOS (or Command) prompt
- 2) At the prompt type - "ping xxx.xxx.xxx.xxx" (without the quotes and replace the "x"s with an IP address)
- 3) Press Enter

9. I'm accessing my video server remotely over the Internet and the video stream is choppy, is this normal?

Yes. The frames per second received remotely are determined by your bandwidth capabilities both at your site where the IP Camera is installed and your remote location. The lower of the two sites will determine how fast your video stream is received. It is recommended to have at least a 256Kb/sec upstream connection from the site where the IP Camera is installed. Lower speeds will operate properly, but provide poor remote performance. The Faster the Internet connection at both ends, the faster the video stream.

10. How do I enable or check ActiveX on my browser

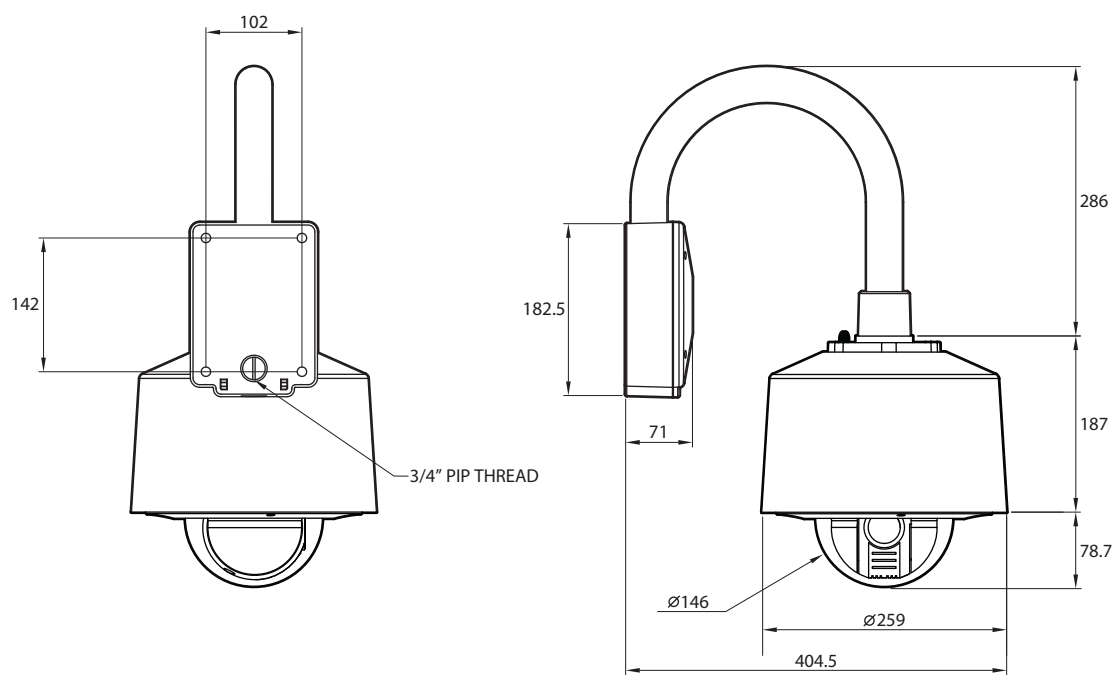
Open Internet Explorer > Tools on the menu bar > Internet Options > Security Tab > Custom Level > Scroll down and verify that you are prompted or have enabled ActiveX controls and plug-ins to be downloaded and executed. > click OK > restart browser.

11. How do I reset the unit to factory defaults?

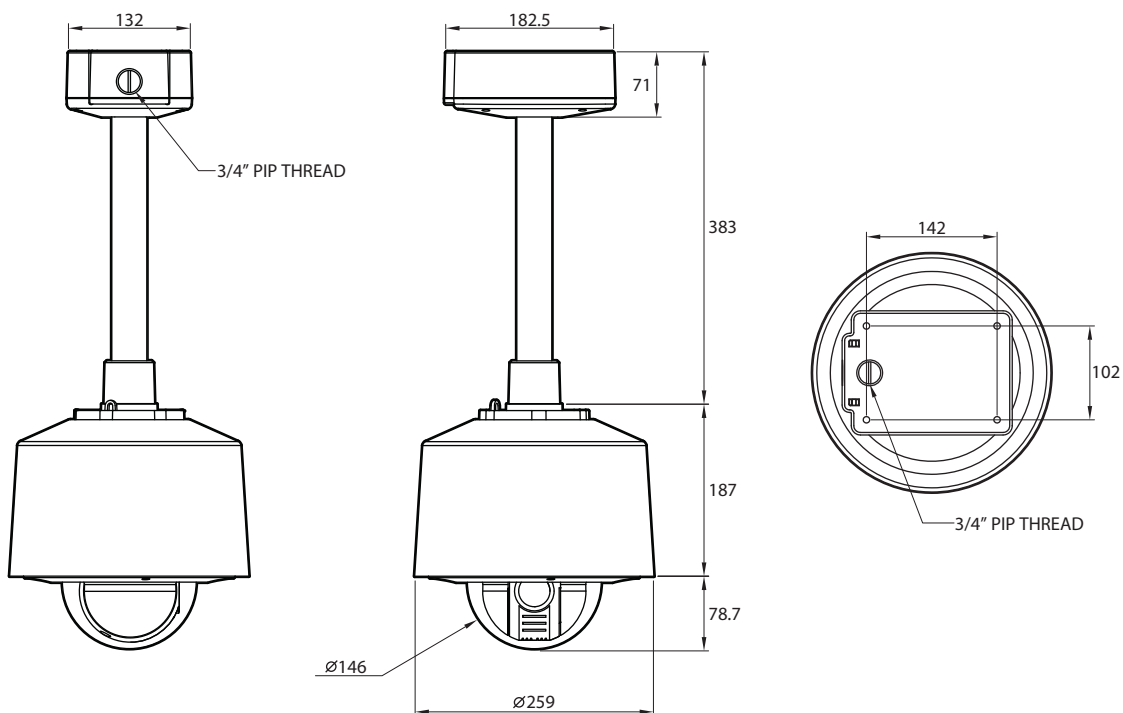
On the underside of the unit you will find a recessed opening located near the top-left side of the label. Power ON the unit and use a paper clip to push the reset button within that opening. You should then see the ACTIVE light turn off and after a few seconds the ACTIVE light will begin to flash, signifying a successful reboot. If the ACTIVE light does not turn off after depressing the reset button, please try holding the button in for a few seconds and releasing. **YOU WILL LOSE ALL DATA THAT HAD BEEN ENTERED PREVIOUSLY AND THE IP CAMERA WILL BE SET TO ITS FACTORY RESETS.**

9 Specification - Dimension

Unit: mm



Wall Mount Bracket



Ceiling Mount Bracket

9 Specifications - Specification

Camera

Image Device	1/2.8" 3.0 Mega Pixel CMOS
Total Pixel	Approx. 3,270,000 effective pixels
H. Resolution	Color: 530 TV Lines B/W: 570 TV Lines
S/N Ratio	More than 50 dB
Zoom	x20 Optical Zoom & x10 Digital Zoom (Total x200)
Focal Length	f = 4.7 (W) ~ 94.0 (T) mm, F1.6 (W) ~ 3.5 (T)
Angle of View	H: 54.1° (W) ~ 2.9° (T)
Min. Illuminance	Color: 1.7 Lux @ 50 IRE, F1.6 B/W: 0.3 lux @ 50 IRE, F1.2
Shutter Speed	1/2 ~ 1/10000 sec. (21Steps)
Day & Night	Auto / Day / Night (ICR)
Focus	Auto(Near Limit setting) / Semi Auto / Manual
Iris	Auto / Manual
White Balance	AUTO / ATW / Manual / Indoor / Outdoor / One-Push / SodiumVaporLamp(fix / auto)
AGC	Level Adjustment / MAX Gain Limit
DNR	Level Adjustment (1~5)
WDR	On / Off
Other Functions	Frame Freeze Function, System Image Flip by Installation Type

Pan/Tilt

Pan Range	360° (Endless)
Tilt Range	0° ~ 180° (Auto-Flip On) • 0° ~ 90° (Auto-Flip Off)
Pan/Tilt Speed	Preset: 360° Scan: 1° ~ 180°/sec. Manual: 0.05° ~ 200°/sec. (Zoom Proportional)
Preset	1024 Presets with Labels / Independent Camera Setup
Pattern	128 Patterns
Scan	128 Scans
Group	128 Groups (Max. 20 Entities per Group)
Schedule	7 Rules (Condition: Day, Time → Action: Preset, Scan, Group, Pattern)
Other Functions	Image Auto Flip, Auto Parking, Power-up Action & etc.

General

Video Out	BNC: VBS 1.0 Vp-p
Communication	RS-485
Protocol	Auto, Pelco-D/P, Samsung, Panasonic, GE(Kalatel), AD(American Dynamics) Selectable
Sensor In/Out	Built-in 2 Input / 1 Relay Output
OSD	Menu, PTZ Information, etc., Support 7 Languages: ENGLISH / ESPAÑOL / FRANÇAIS / DEUTSCH / ITALIANO / РУССКИЙ / PORTUGUÊS
Power	AC 24 V
Approvals	FCC, CE, IP66, RoHS
Outdoor Housing	Weather Proof, Vandal Proof Structure, White Pearl Color
Material	Body: Aluminum Die-casting • Clear Bubble: Polycarbonate
Weight	Net: 6 Kg / Package: 10.9 Kg
Operating Temp.	AC : -40° ~ 50° C (-40° ~ 122° F)

9 Specifications - Network Specification

OS	Embedded Linux
Video Compression	H.264 / MJPEG
Video Streaming	VBR / CBR (Controllable Bandwidth)
Resolution	H.264: 1080p / 720p / D1 / CIF MJPEG: 720p / D1 / CIF / QCIF
Frame Rate	Max. 30 fps for 1080p/720p/D1/CIF/QCIF
Audio Streaming	Two-way, G.711 PCM, 16 kHz
Local Storage	SDHC Memory Card (Card Not Included)
Motion Detection	Notification: FTP, E-mail, Alarm out, JPEG Recording on SD
Alarm	Pre-Post Alarm
Number of Clients	Max. 5
IPv4 Protocol	TCP/IP, UDP/IP, RTSP, NTP, HTTP, DHCP, FTP, SMTP, ICMP, ARP, DNS, DDNS, DynDNS, (OnViF)
Security Protocol	Digest Authentication (ID/PW)
OS Supported	Windows 7, Vista, XP, 2000