

x39 IP PTZ Indoor **In-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.

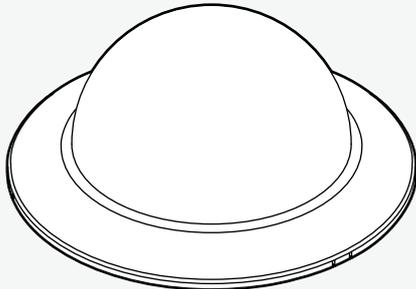
This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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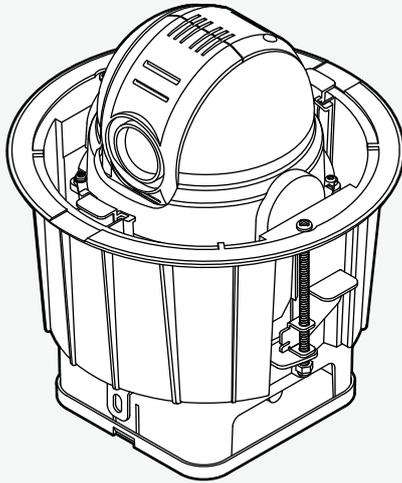
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1 Introduction - Product & Accessories

Product



Dome Cover

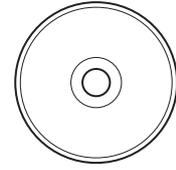


In-ceiling Hosing
with PTZ Mechanism

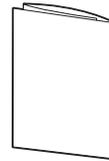
Accessories



Safety Wire x2

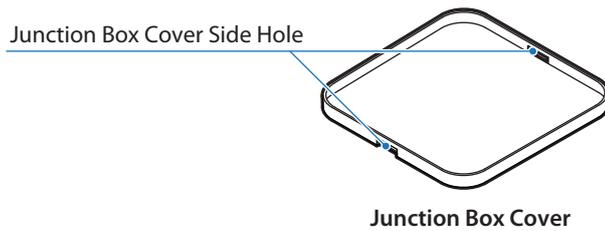
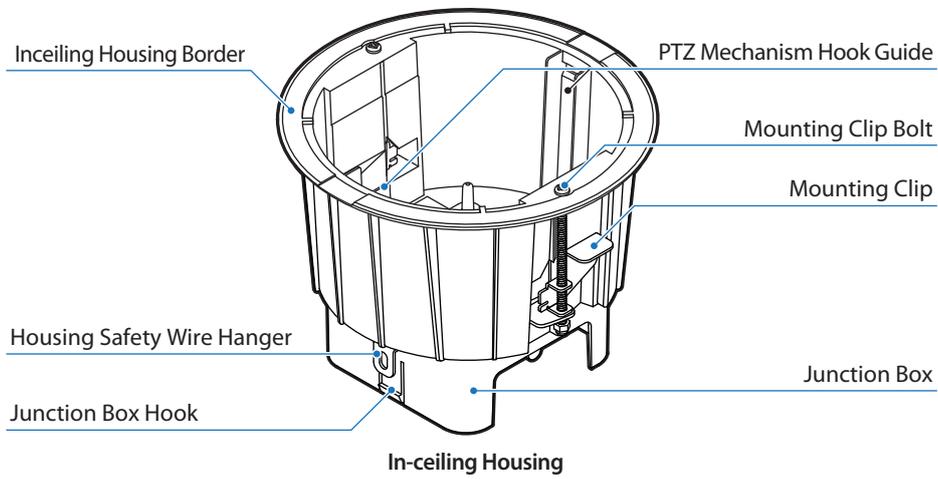
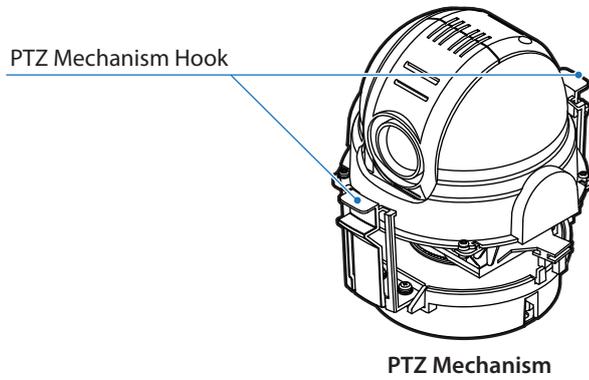
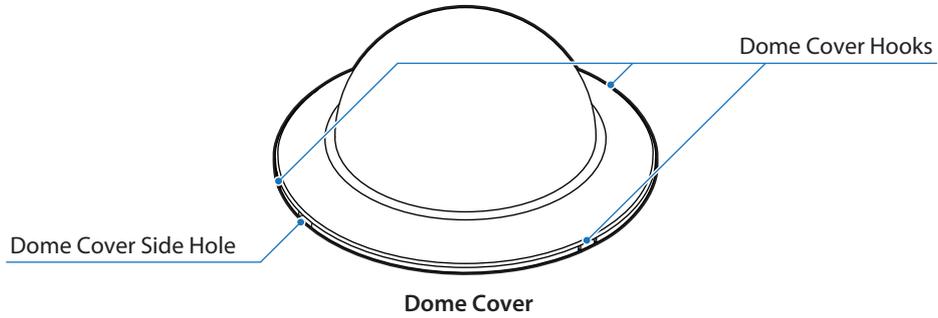


Manual CD



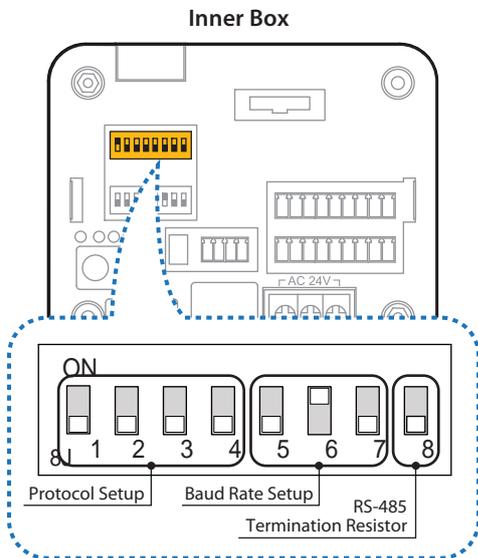
Quick Manual

1 Introduction - Part Name

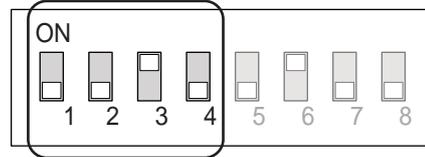


2 Installation - DIP Switch Setup

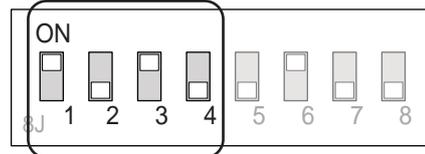
⊠ Before installing the camera, you should set the DIP switch to configure the camera ID, communication protocol.



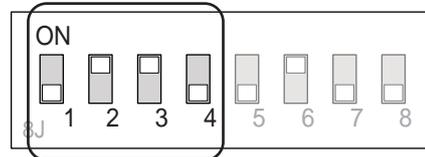
5 Panasonic



6 GE(Kalatel)



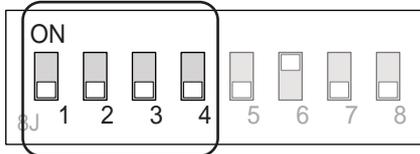
7 AD(American Dynamics)



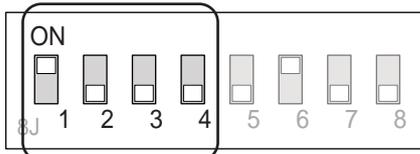
1. Communication Protocol Setup

Select the appropriate protocol with DIP switch combination.

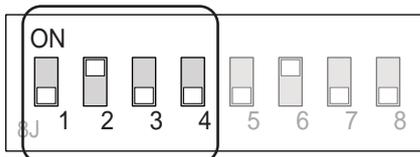
1 Auto - Factory Default



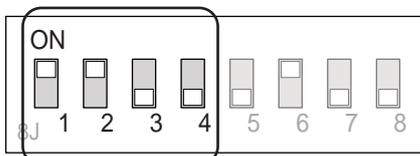
2 PELCO-D



3 PELCO-P



4 SAMSUNG



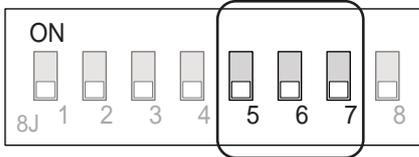
- If you set the protocol as 'Auto' protocol, camera will automatically recognize PELCO-D or PELCO-P protocol.
- If you want to control using DVR or system keyboard, their protocol must be identical to camera. Otherwise, you can not control the camera.
- If you change camera protocol by changing DIP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

2 Installation - DIP Switch Setup

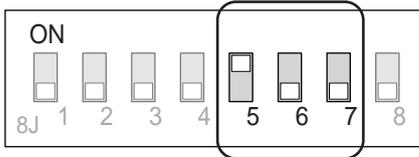
2. Communication Baud Rate Setup

Select the appropriate baud rate with DIP switch combination.

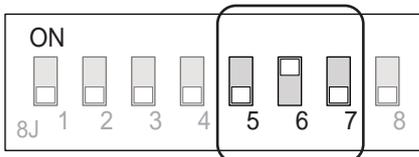
1 2400 BPS - Factory Default



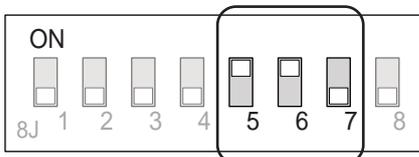
2 4800 BPS



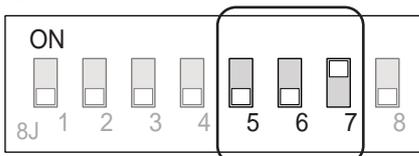
3 9600 BPS



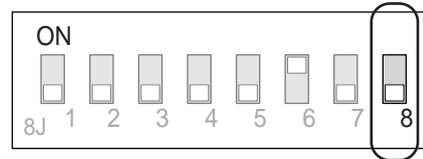
4 19200 BPS



5 38400 BPS



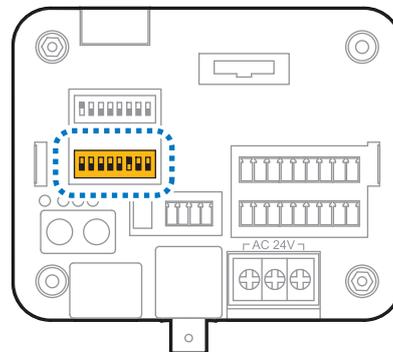
3. RS-485 Termination Resistor



- 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

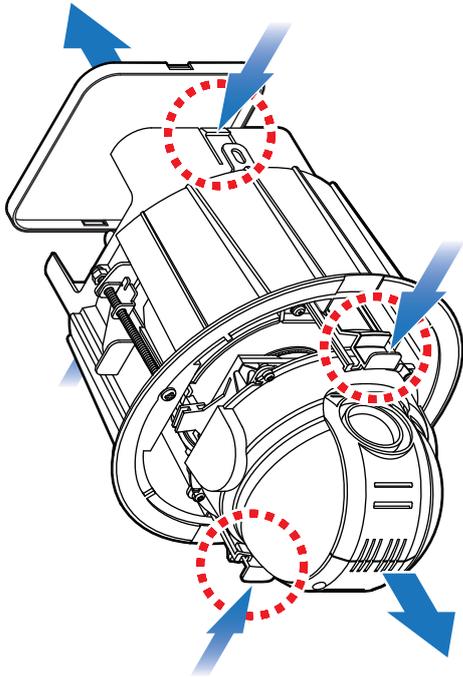


ID number of camera is set using binary number. The example is shown below.

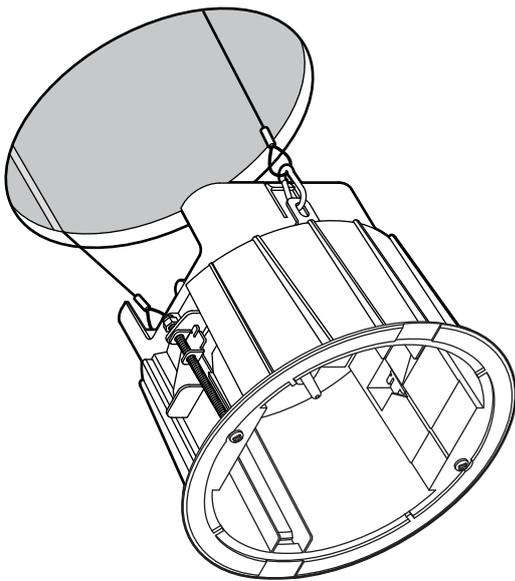
| Pin | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|
| ID Value | 1 | 2 | 4 | 8 | 16 | 32 | 64 | 128 |
| ex) ID=5 | on | off | on | off | off | off | off | off |
| ex) ID=10 | off | on | off | on | off | off | off | off |

- 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

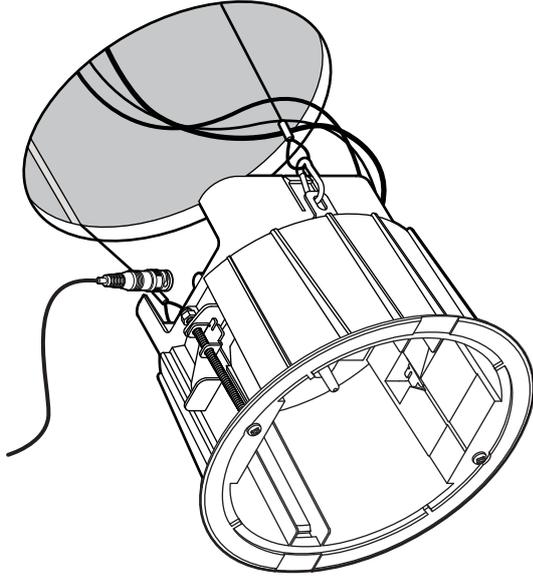


- 1 Detach the PTZ Mechanism and the Junction Box Cover**
By pressing down and holding up the hooks in both sides of PTZ Mechanism, detach PTZ Mechanism from the housing. Then, detach the junction box cover by pressing down the hooks in both sides of the junction box.

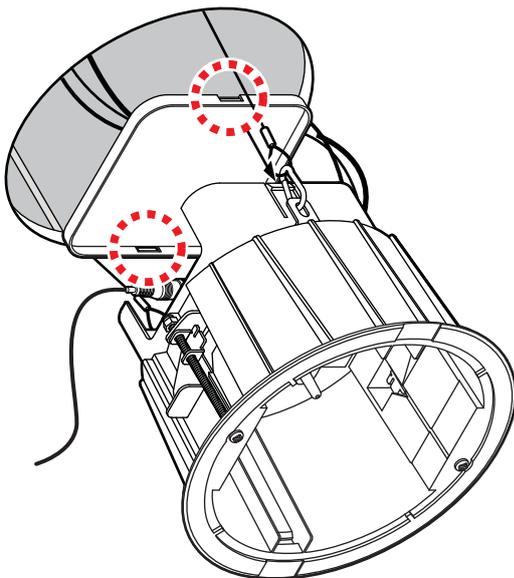
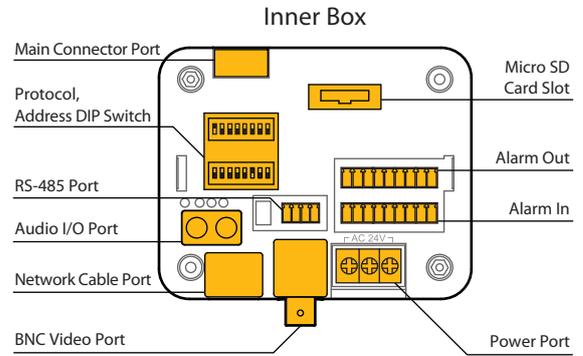


- 2 Drill the hole on the ceiling**
To install the in-ceiling housing in the ceiling, drill a hole (190mm diameter) on the ceiling.
- 3 Hook the Safety Wires**
Connect one of the rings of safety wire for preventing falling down with the housing safety wire hanger in either sides of Housing. Then, connect the remained ring of the safety wire with the hanger bolt of the ceiling.

2 Installation - Installation

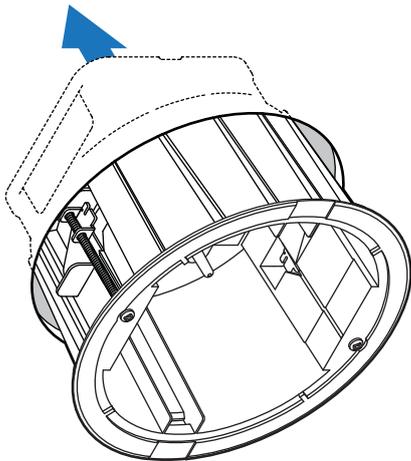


- 4 Connect the Wires and Terminal blocks**
Connect cables to terminal blocks and BNC in the inner box of junction box.
- ✳ See the cabling in the next section.

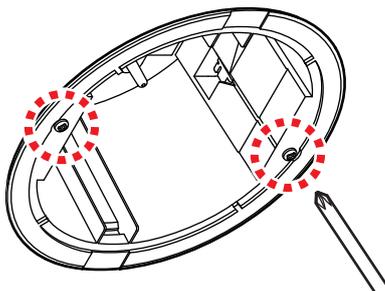


- 5 Close the Junction Box Cover**
Close the junction box cover by inserting the both junction box cover side holes to the junction box hooks.

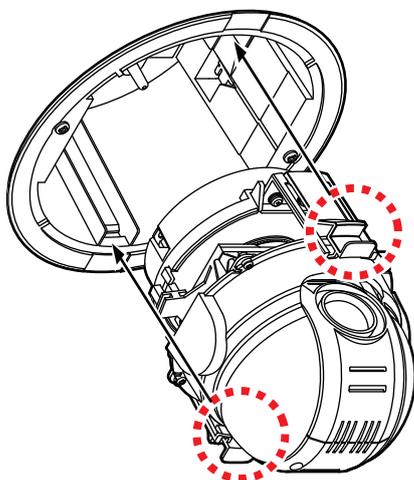
2 Installation - Installation



- 6 Insert the In-ceiling Housing**
Insert the housing to the ceiling hole and press the edge of housing against the ceiling.

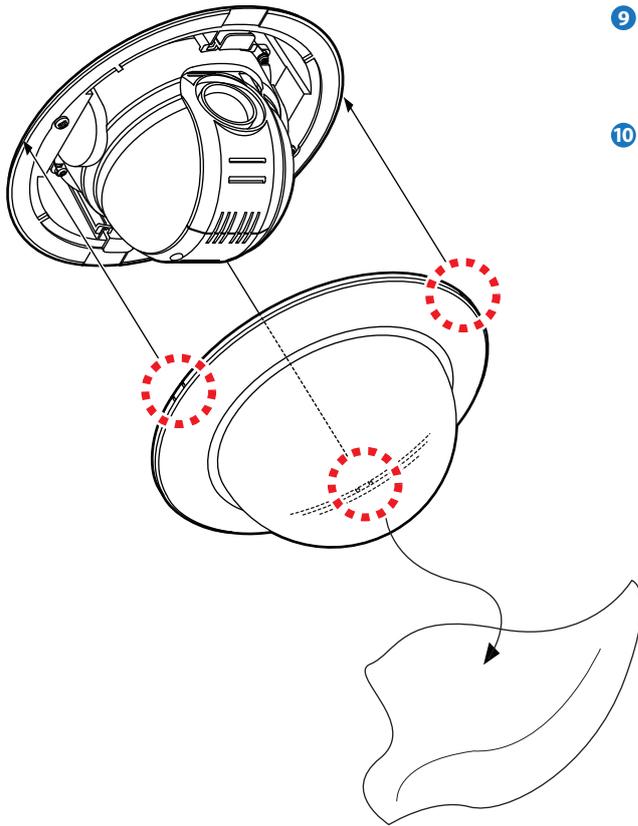


- 7 Fix the In-ceiling Housing**
Fix the In-ceiling housing by turning the mounting clip bolts clockwise.



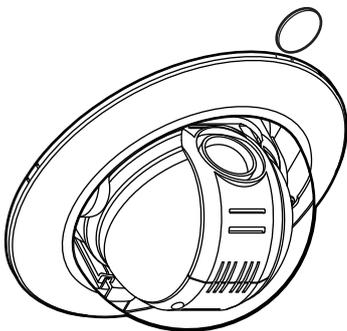
- 8 Mount the PTZ Mechanism**
Fix the PTZ Mechanism to the housing by inserting PTZ Mechanism hook to the mechanism hook guides.

2 Installation - Installation



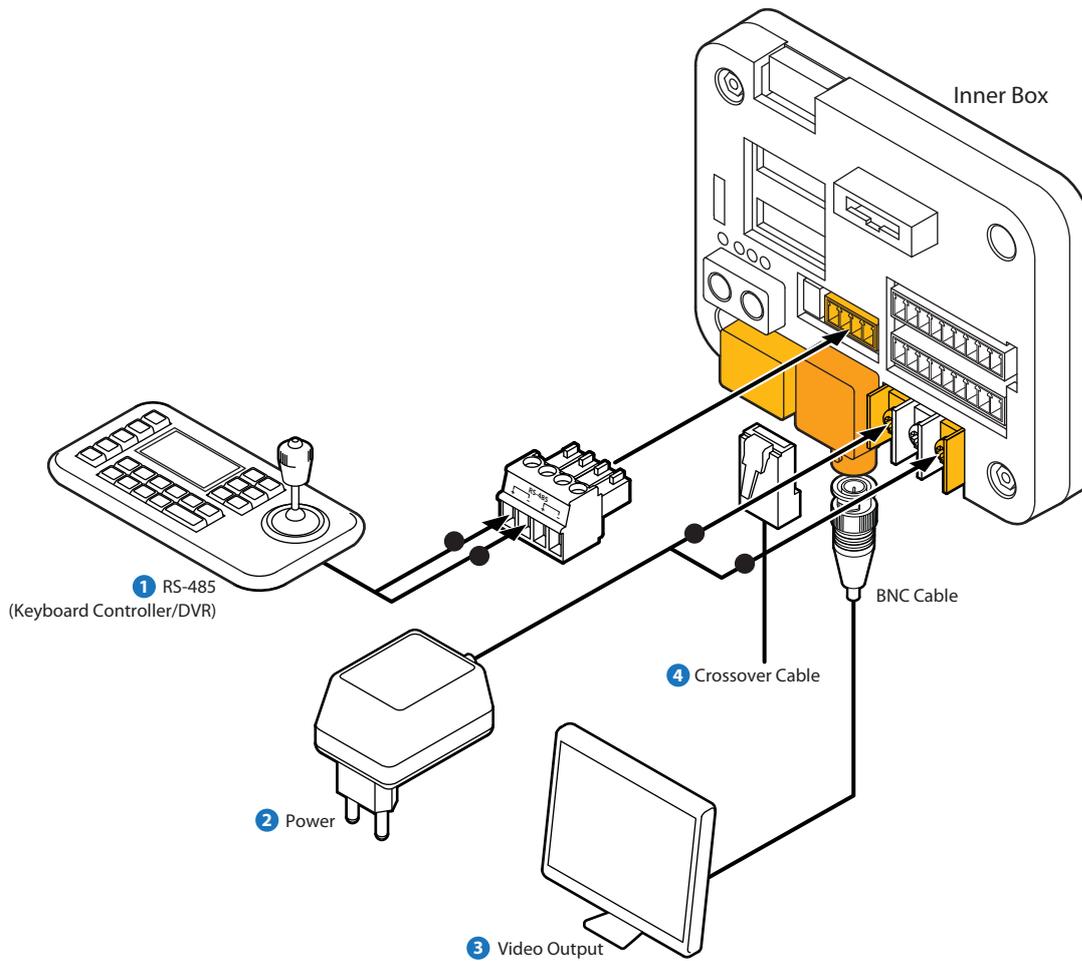
9 Attach the Dome Cover
Attach the dome cover by fixing the dome cover side hooks to the edge of housing.

10 Detach the Protection Vinyl



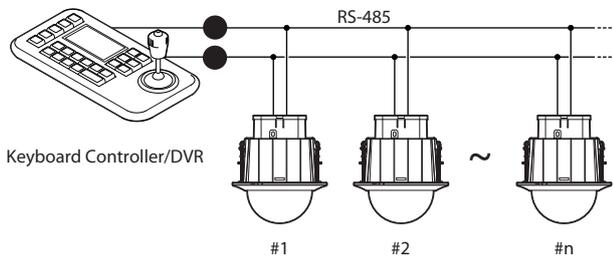
✳ Detach the Dome Cover
Detach the dome cover from the cover side hole by using a flathead screwdriver or a coin.

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 |

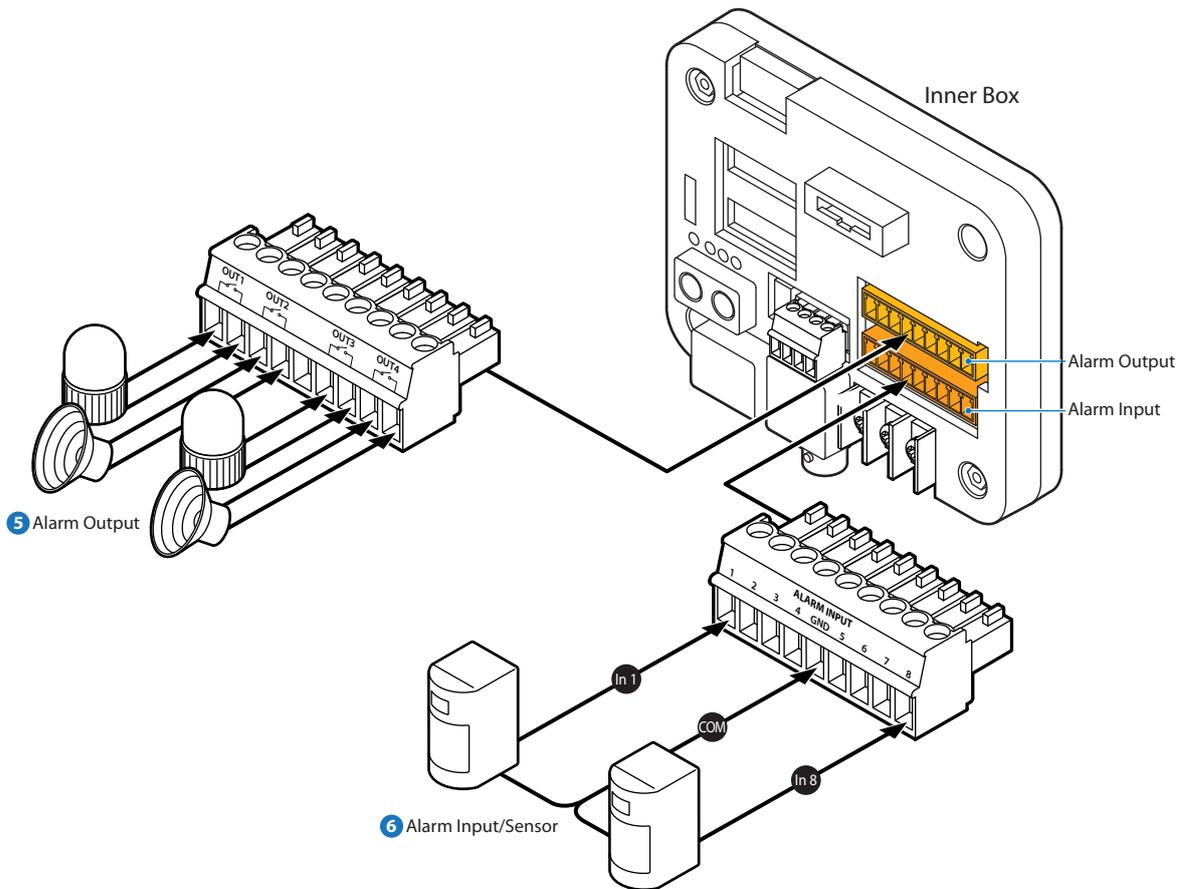
3 Video Output

Video out check the screen during installation.

4 Network Connection

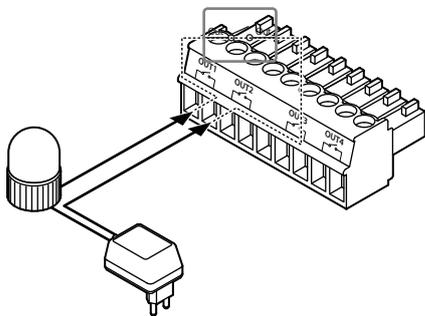
Connect the crossover cable into the RS-45.

2 Installation - Cabling



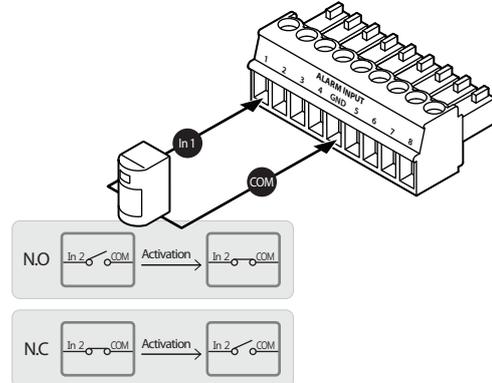
5 Alarm Output

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.



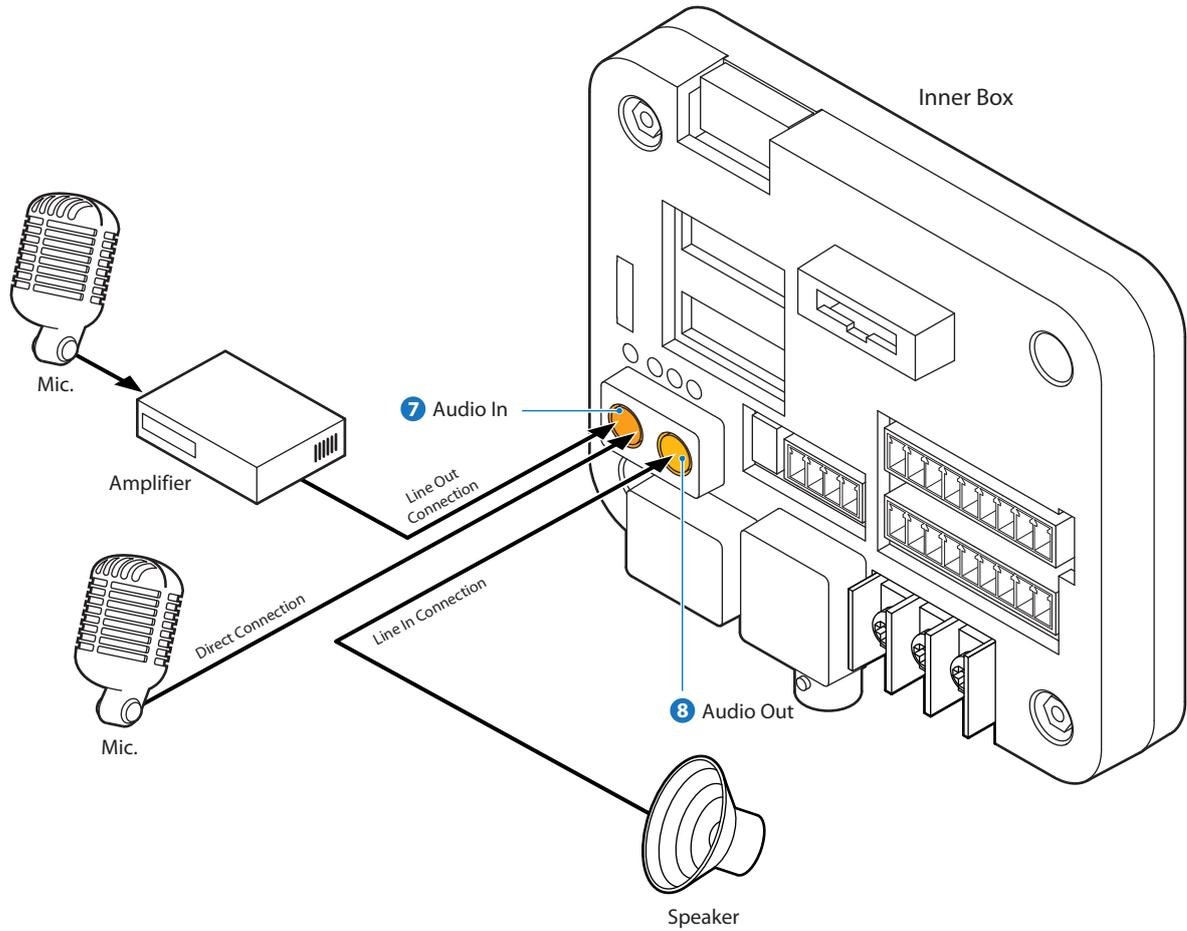
6 Sensor Input

If you want to use alarm input, the types of sensor must be selected in OSD menu. 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

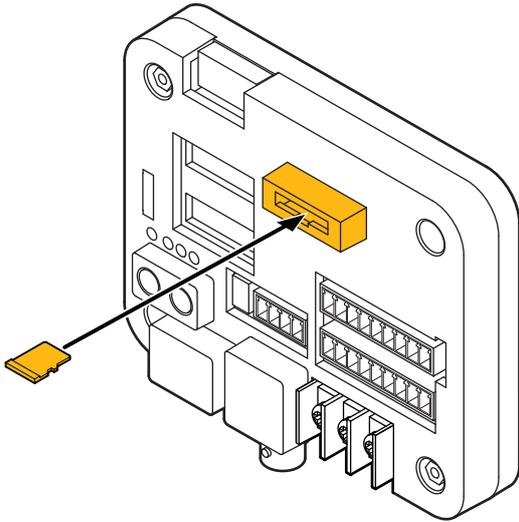
Connect the 'Audio In' port of the camera to the microphone directly or 'Line Out' port of the amplifier connected with microphone.

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.



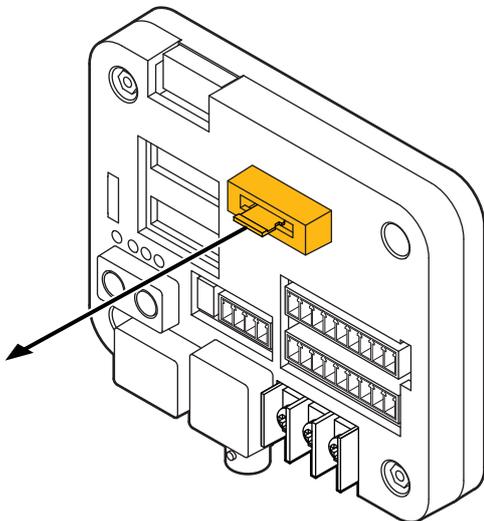
⊠ **Recommended SD Card Specification (Not Included)**

- 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.d)

| 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.

- 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)
- 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)
- Power on the IP Camera using the according to the power rated.
- 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.
- Type - <http://192.168.1.80> (the default IP of the IP Camera) into your address bar.
- Default ID/Password to access IP Camera are both the word: **admin**.
- Familiarize yourself with the Viewer Interface Screen.
- Locate the TCP/IP configuration under Setup. Supply the same ID and Password to enter Setup. (**admin : admin**)
- 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

- Open Internet Explorer.
- Type the IP of the IP Camera.
- 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

- Open Internet Explorer and visit the DDNS website.
- Register the IP Camera.
- Reboot the IP Camera.
- Give the DDNS server 10 minutes to locate your IP Camera's IP information.
- Click the refresh button in the Internet Explore.
- 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.

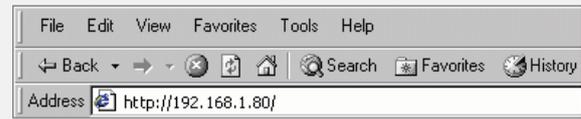
3. After you have made the changes to your IP address and subnet mask, you may then attach the IP Camera to your PC via the supplied crossover cable. Plug-in either end of the crossover cable into the PC's network card and the other end into your IP Camera.

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.

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.

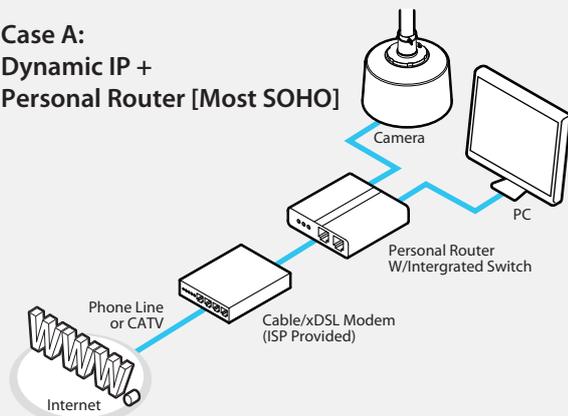
The default web port number is 80. If your ISP blocks port 80 you must use a value between 1025 ~ 60000. Please consult your ISP and determine if they block TCP port 80.

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.

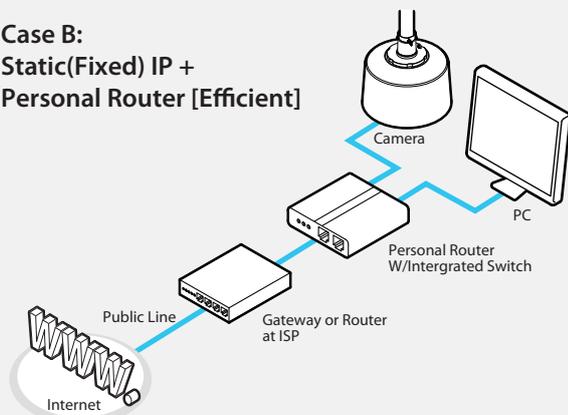
i Dash line box signifies areas of your network that you can't control. Only the ISP has access to these devices.

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)

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

i 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.

i 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)

i 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)

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

i 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'.

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 accommodate dynamic IP from your ISP.

7. **Web Port** : 8888

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

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.

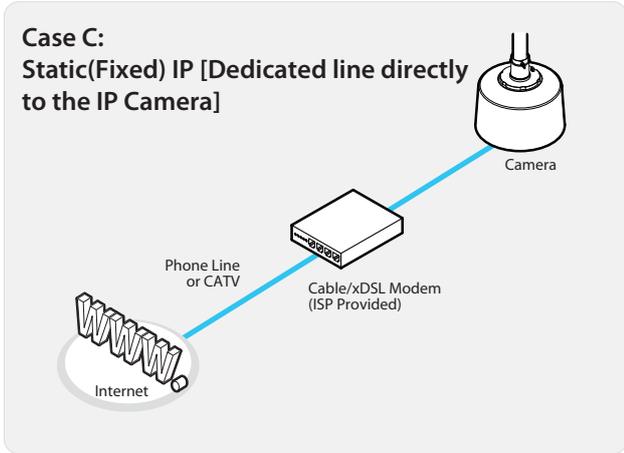
10. **Audio Transmit Port** : 7779

i You may select any number between 1025 ~ 60000.

11. **Audio Receive Port** : 7780

i You may select any number between 1025 ~ 60000.

3 Network Setup - Setup Case C, D



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

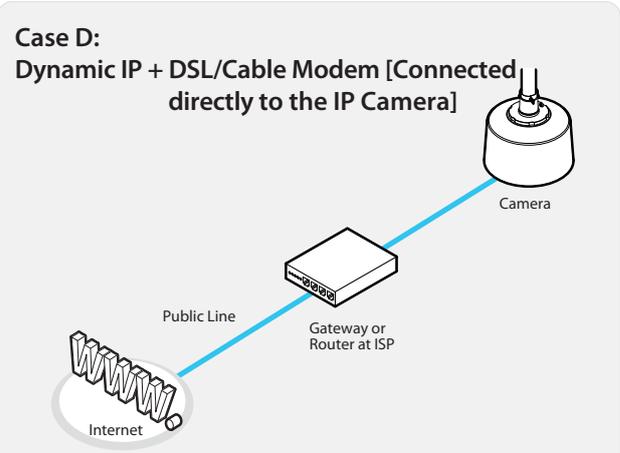
i You may select any number between 1025 ~ 60000.

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.



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.

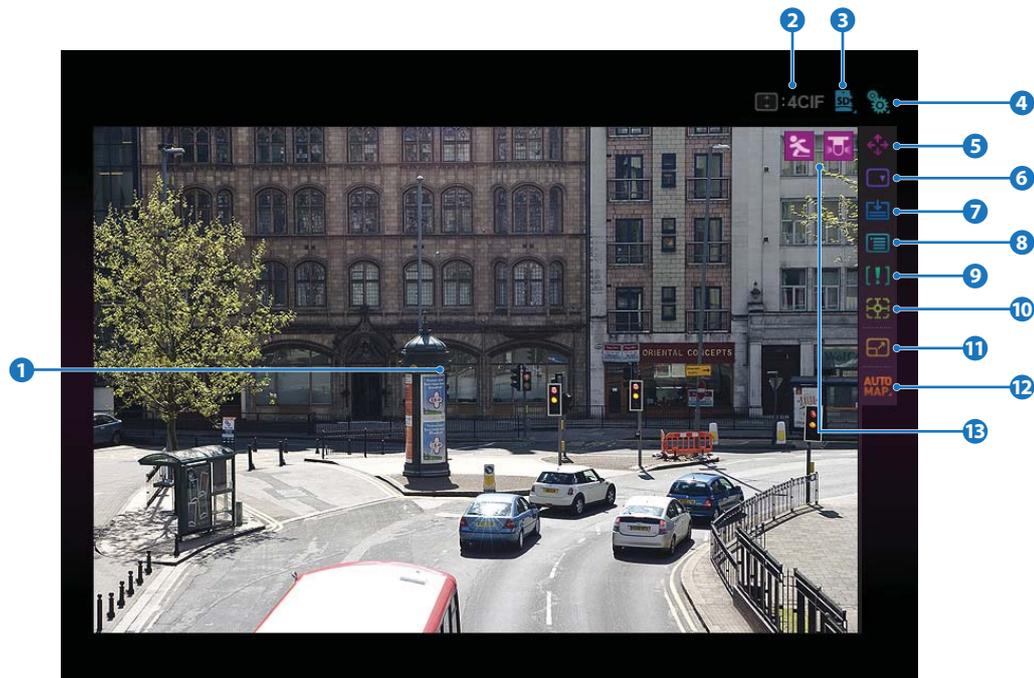
If you use Case A, D

- 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



⚡ The web-viewer is optimized to Window XP and Explorer 6.0.

- 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, Video Format control. See the next section 4 'Web Viewer Screen - PTZ Control'.
- 6 Aux Function control tab button. Click it to extend the Aux Function Panel. Here, you can handle followings; 1) Preset, Pattern, Scan function, 2) Alarm input and Relay out, 3) OSD menu in Camera. See the section 4 'Web Viewer Screen - Aux Function Control'.
- 7 Backup control tab button. Click it to extend the panel for the Backup, and Audio Control. See the section 4 'Web Viewer Screen - Backup Control'.

8 OSD setup tab button. Click it to extend the panel to setup camera using OSD menu. See the section 4 'Web Viewer Screen – OSD Setup'.

9 Etc setup tab button. Click it to extend the panel to setup 1) Alarm Input and Relay Output, 2) Audio setup, 3) Video stream selection. See the section 4 'Web Viewer Screen – Etc. Setup'.

10 Motion Detection tab button. Click it to extend the panel to setup 1) Motion detection, 2) Auto Tracking setup. See the section 4 'Web Viewer Screen – Motion Detection Setup'.

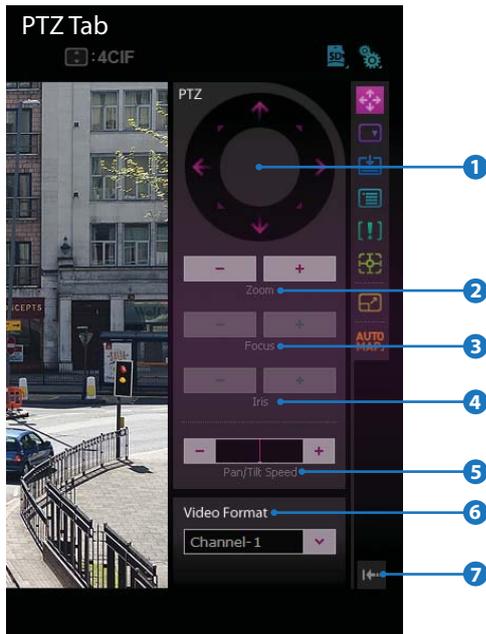
11 Full screen button. Click it to extend the live video to full screen. To return to normal mode, press 'Esc' or 'Enter' key.

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

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



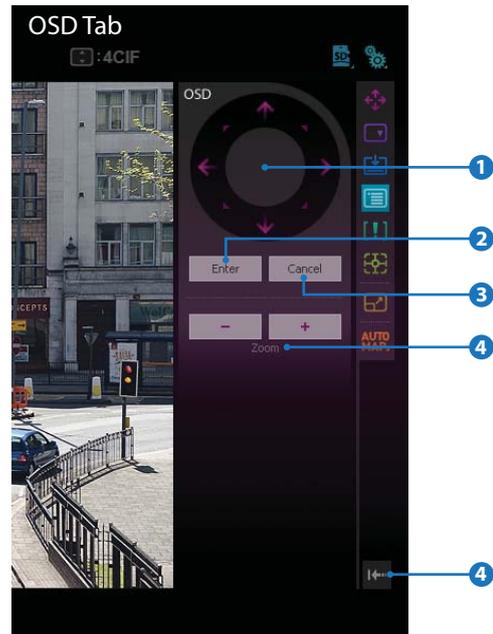
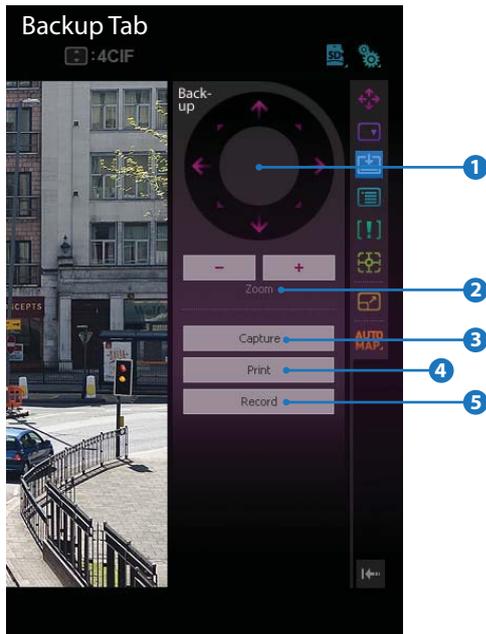
4 Web Viewer Screen - PTZ Control & Aux Function Control



- 1 The Pan-tilt wheel button. The Pan-tilt wheel enables to move the camera for 8 directions by pressing the corresponding arrow button. If you release the button pressed, the camera motion will stop immediately.
- 2 Zoom control button. The zoom ratio of the camera can be controlled by clicking ' + ' or ' - ' button.
 - ⊠ The speed of the zoom operation can be setup in the Camera Menu.
- 3 Focus control button. The focus of the camera can be controlled by clicking ' + ' or ' - ' button.
 - ⊠ If Focus mode in the Camera OSD 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 Iris mode in the Camera OSD Menu is 'Auto', the Iris cannot be changed manually.
- 5 Pan-tilt Speed Slider. 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 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.
- 7 Hide Button. Hide all control panels extended.

- 1 The Pan-tilt wheel button. Enables to move the camera for 8 directions to adjust live view.
- 2 Zoom control button. The zoom ratio of the camera can be controlled by clicking ' + ' or ' - ' button.
- 3 Group Button. Shows Group numbers in the list. Range of numbers is 1 to 8.
- 4 Scan Button. Shows Scan numbers in the list. Range of numbers is 1 to 8.
- 5 Pattern Button. Shows Pattern numbers in the list. Range of numbers is 1 to 4.
- 6 Preset Button: Shows Preset numbers in the list. Range of numbers is 1 to 255.
- 7 Run Button. Run selected contents of Preset, Pattern, Scan or Group function.
- 8 Delete Button. Delete selected contents of Preset, Pattern, Scan or Group function.
- 9 Save Button. Save current view to the Preset as a selected number.
 - ⊠ Pattern, Scan, Group function can be created in OSD menu.
 - ⊠ If you run a Preset, Pattern, Scan or Group function number not defined before, the message 'undefined' will be shown for 3 sec. on the upper right side of the screen.

4 Web Viewer Screen - Backup Control & OSD Setup



- 1 The Pan-tilt wheel button. Enables to move the camera for 8 directions to adjust live view.
- 2 Zoom control button. The zoom ratio of the camera can be controlled by clicking ' + ' or ' - ' button.
- 3 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.
- 4 Print Button. Print current live image to the printer connected to PC.
- 5 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.

☒ Captured files folder

| | |
|-----------------------------------|--|
| Windows Vista & Windows 7 | c:\user\<(username)\AppData\LocalLow\IP Network Camera\CAPTURE |
| Windows xp, 2000 & Windows me, 98 | :\My Documents\IP Network Camera\CAPTURE\{(MAC Address)\Stream1(or 2, 3, 4, 5)\(Date)\IP_Date_Time_Filename.bmp(or jpg)! |

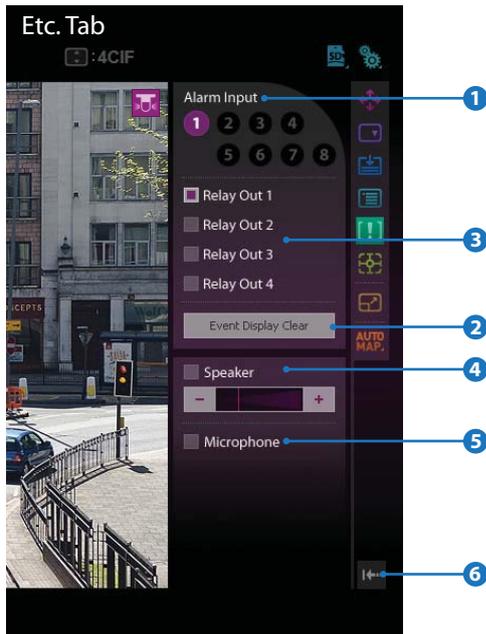
☒ Recorded files folder

| | |
|-----------------------------------|--|
| 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.

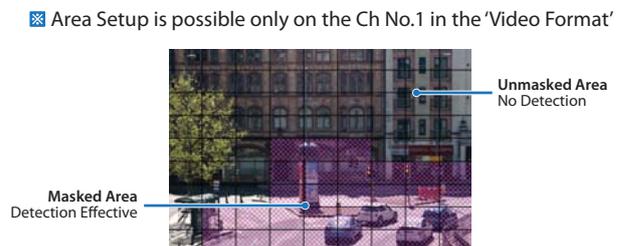
- 1 The Pan-tilt wheel button. Enables to move the camera for 8 directions to adjust live view. In OSD menu mode it is used to move the cursor up, down, left, right as well as to change the values of a parameter selected.
- 2 Enter button. Use to confirm selected item.
- 3 Cancel button. Use to cancel selected item or exit to upper menu.
- 4 Zoom control button. The zoom ratio of the camera can be controlled by clicking ' + ' or ' - ' button.

4 Web Viewer Screen - Etc. Setup & Motion Detection Setup



- 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 Hide Button. Hide all control panel extended.

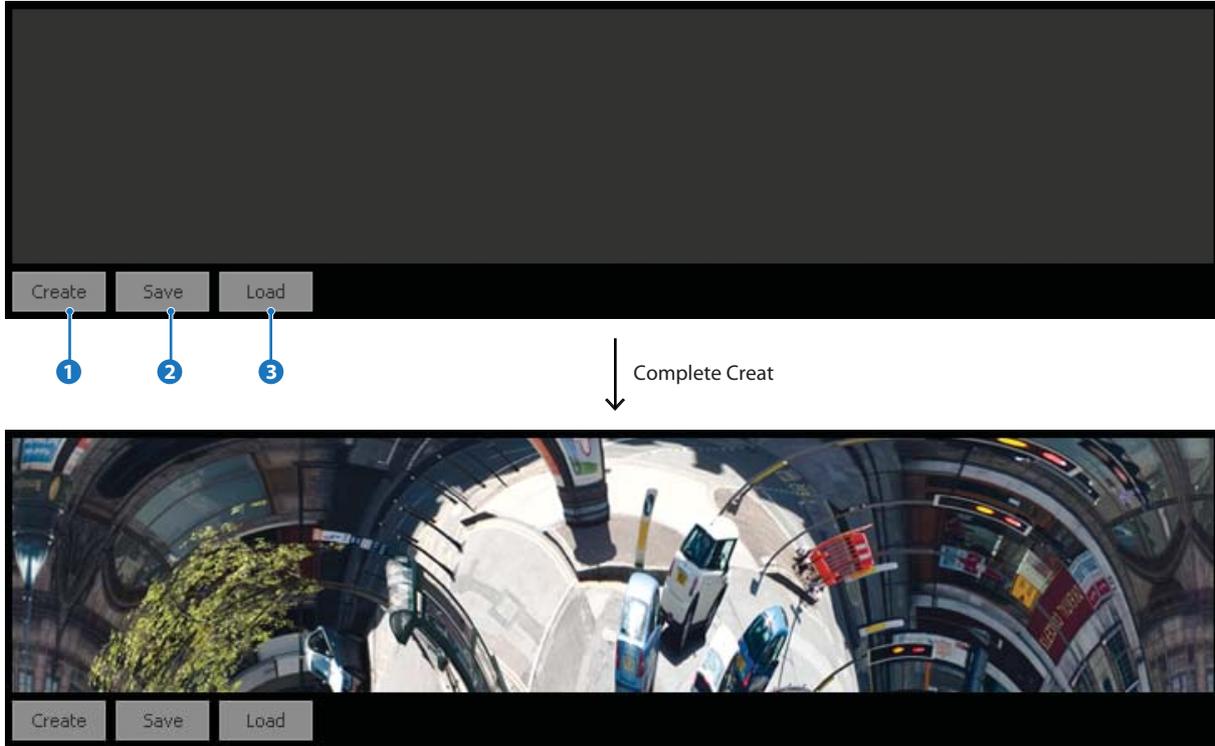
- 1 Motion Detection. Enable or Disable motion detection function. 'Detection Area setting' below must be done in advance.
 - Event Alert Icon (🚨) appears on the screen if 'Motion Detection' is activated. Icon will remain unless 'Event Display Clear' button is clicked.
- 2 Sensitivity. Define the sensitivity of motion detection. If High is selected, it will detect very small motion while it becomes relatively insensitive when Low is selected.
- 3 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'
- 4 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'.

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

To create an Auto Map, Pan Tilt angle of camera is changed step-by-step all over the PT range and several photos are taken in each step. The photos are mathematically transformed and stitched into a big rectangular picture so called Auto Map.

< How to Create Auto Map >

- 1) It is recommended to draw the map when moving objects in the coverage of camera are as small as possible
- 2) To locate most important object in the center of Map, move camera view to that object before create the map.
- 3) Press 'Create' button to start.
- 4) To cancel the map creating, press 'Create' button again.

2 Save Map

If you click 'Save' button, the current Map will be saved to the camera. The map data stored can be used in the future operation and shared it with other Clients.

3 Load Map

If you click 'Load' button, the Map data stored previously will be downloaded from the camera. If there is no map data stored in it, you will see only black map in the Auto Map window.

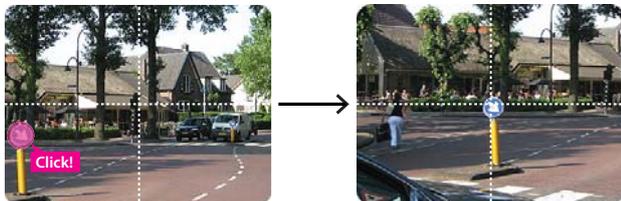
Basic Map Operation.

| | |
|-------------------|--|
| Left click | If you click a point of interested on the map, camera will move to make that point be the center of screen while 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 - Viewer Interface

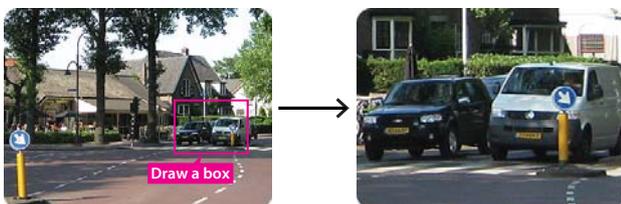
1. Click & Go

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



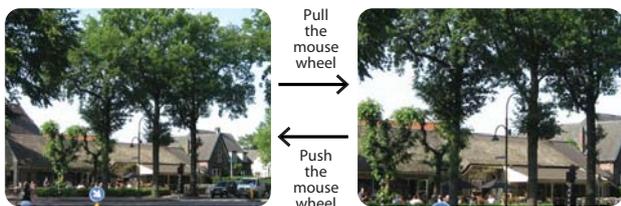
2. Box & Go

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



3. Zoom In/Out by Wheel Mouse

After click the screen, if you turn mouse wheel toward the monitor, it result in Zoom out. When turn reversely, Zoom In.



Since in the full screen mod, all GUIs are hidden, you can control PTZ using powerful Virtual joy stick 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 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 desired direction, 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 with left.

5 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.

The screenshot displays the 'SETUP' interface with a sidebar menu on the left and a main configuration area on the right. The sidebar menu includes sections for BASIC, NETWORK, EVENT, TRANSFER, and SYSTEM. The 'VIDEO CONFIGURATION' section is active, showing a table of channels and their settings. Below the table, there are dropdown menus for Codec, Description, Resolution, Frame Rate, Bitrate Mode, and Target Bitrate. A 'Brightness' dropdown is also visible. An 'Apply' button is located at the bottom of the configuration area.

SETUP

- BASIC
 - VIDEO**
 - AUDIO
 - BACKUP
- NETWORK
 - TCP/IP
 - DDNS
 - STATUS
- EVENT
 - ALARM INPUT 1
 - ALARM INPUT 2
 - ALARM INPUT 3
 - ALARM INPUT 4
 - ALARM INPUT 5
 - ALARM INPUT 6
 - ALARM INPUT 7
 - ALARM INPUT 8
 - MOTION DETECTION
 - SCHEDULE
 - AUTO TRACKING
- TRANSFER
 - TRANSFER SETUP
 - FTP
 - SMTP
 - SD CARD
- SYSTEM
 - USERS
 - DATE/TIME
 - FIRMWARE UPDATE
 - DEFAULT SET
 - RESTART
 - LOG

VIDEO CONFIGURATION

| Channel | Codec | Description |
|------------------------------------|-------|-------------|
| <input checked="" type="radio"/> 1 | H.264 | H264 |
| <input type="radio"/> 2 | MJPEG | MJPEG |
| <input type="radio"/> 3 | H.264 | NONE |
| <input type="radio"/> 4 | MPEG4 | NONE |
| <input type="radio"/> 5 | MJPEG | NONE |

Codec:

Description:

Resolution:

Frame Rate:

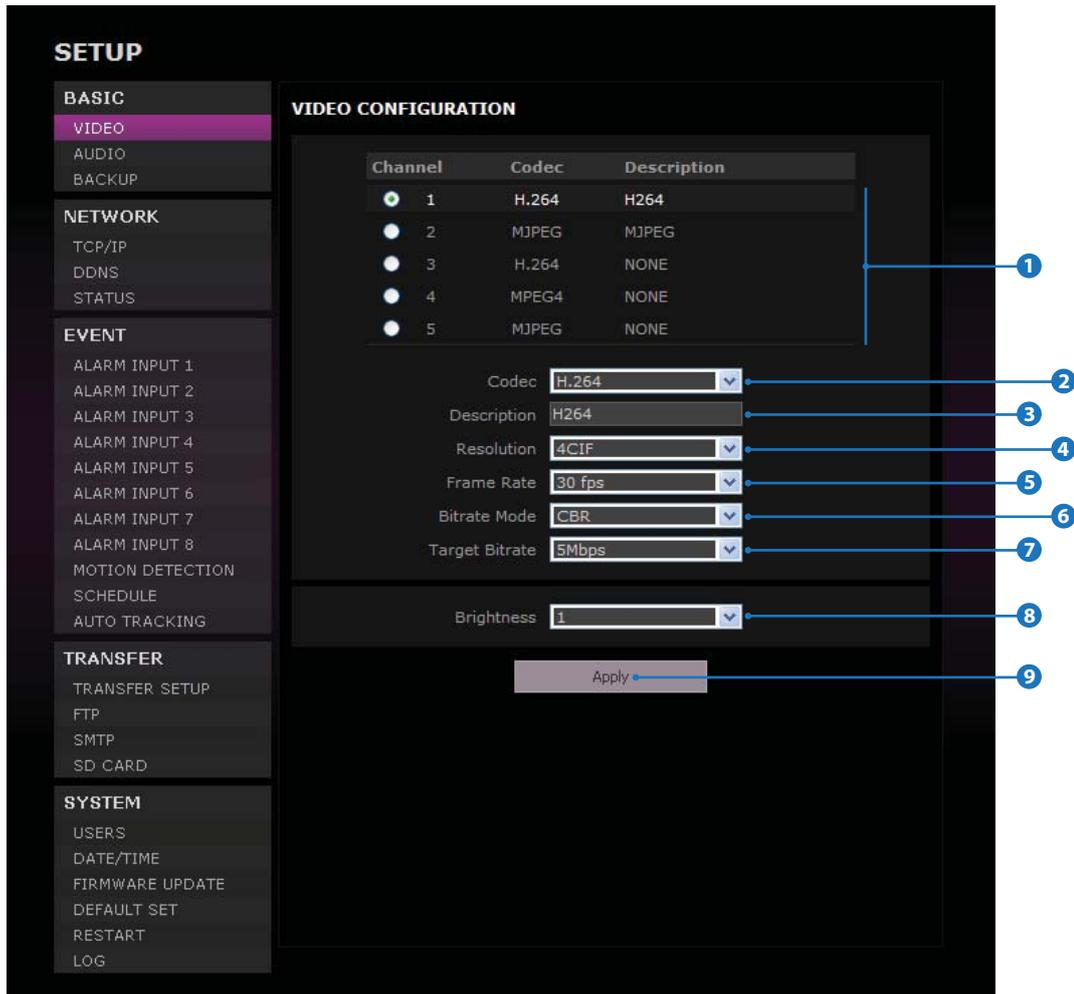
Bitrate Mode:

Target Bitrate:

Brightness:

Apply

5 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 among H.264, MJPEG, MPEG4. 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 4CIF, CIF, QCIF.

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

| | NTSC | PAL |
|------|-----------|-----------|
| 4CIF | 704 x 480 | 704 x 576 |
| CIF | 352 x 240 | 352 x 288 |
| QCIF | 176 x 144 | 176 x 220 |

<Resolution of Video Format>

| | |
|-------|-----------------|
| H.264 | 4CIF, CIF |
| MPEG4 | 4CIF, CIF |
| MJPEG | 4CIF, CIF, QCIF |

<Support Resolution of Codec>

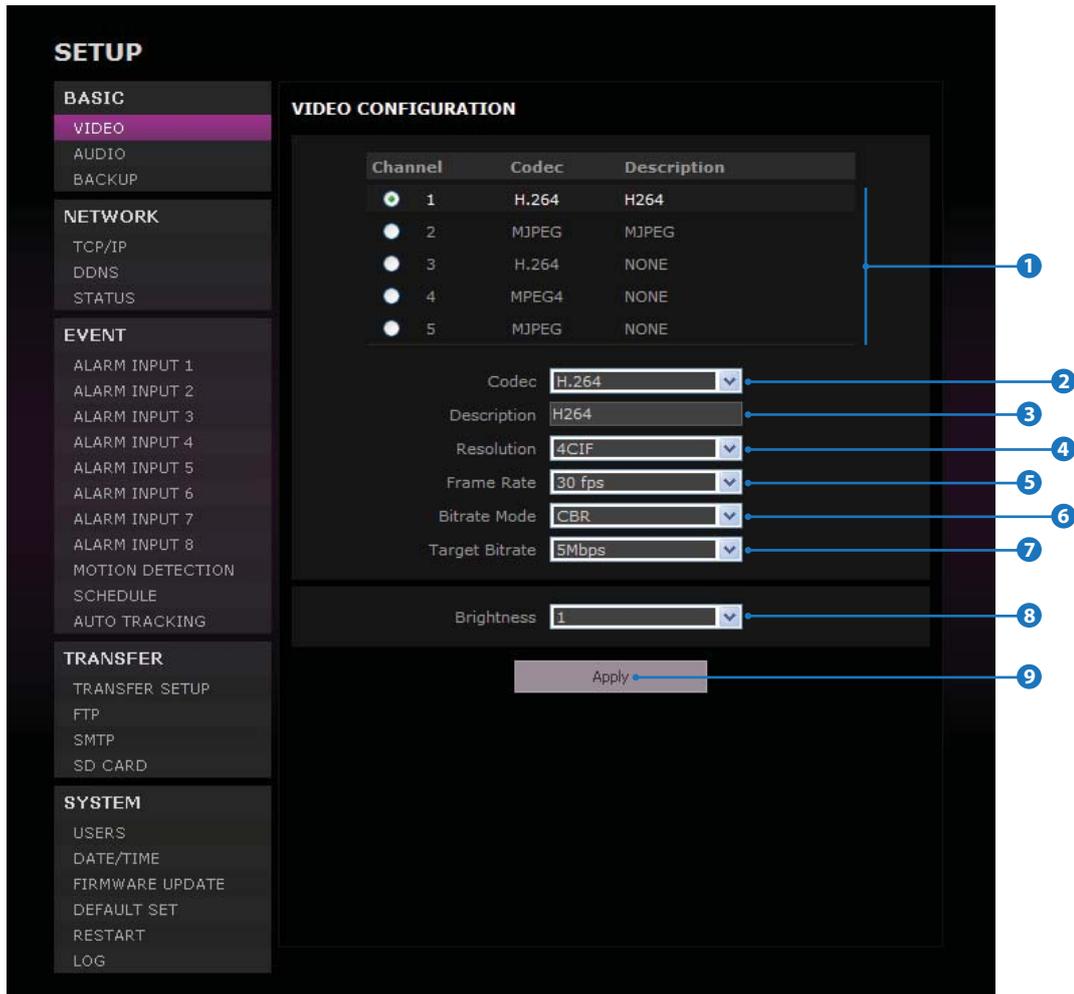
5 Frame Rate

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 |

5 Setup - Video Setup



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 and the frame rate are controlled in this mode. Therefore, the quality of video and the frame rate are 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.

7 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.

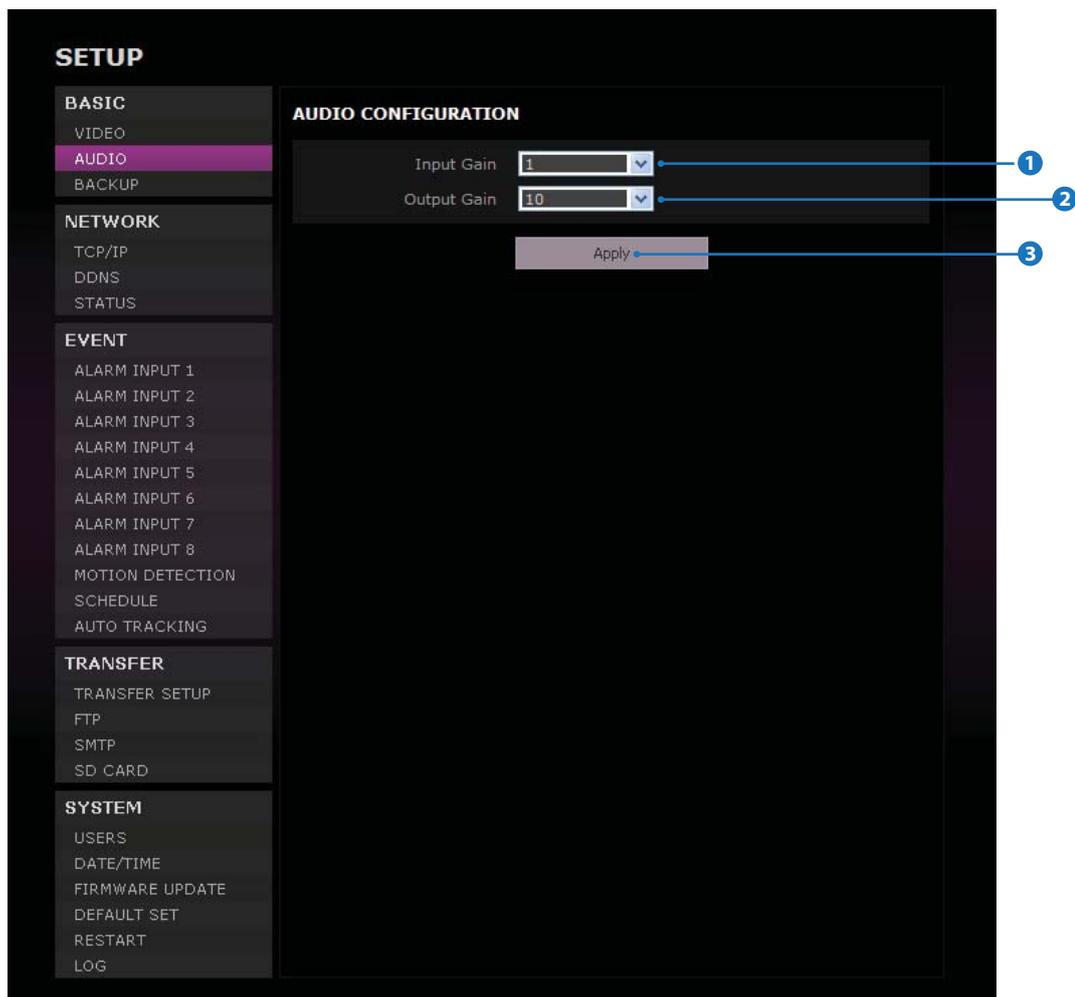
8 Brightness

Adjust the brightness of image. The range of brightness is 1 ~ 100. The max. value of brightness is 100.

9 Click 'Apply' to make above setting effective.

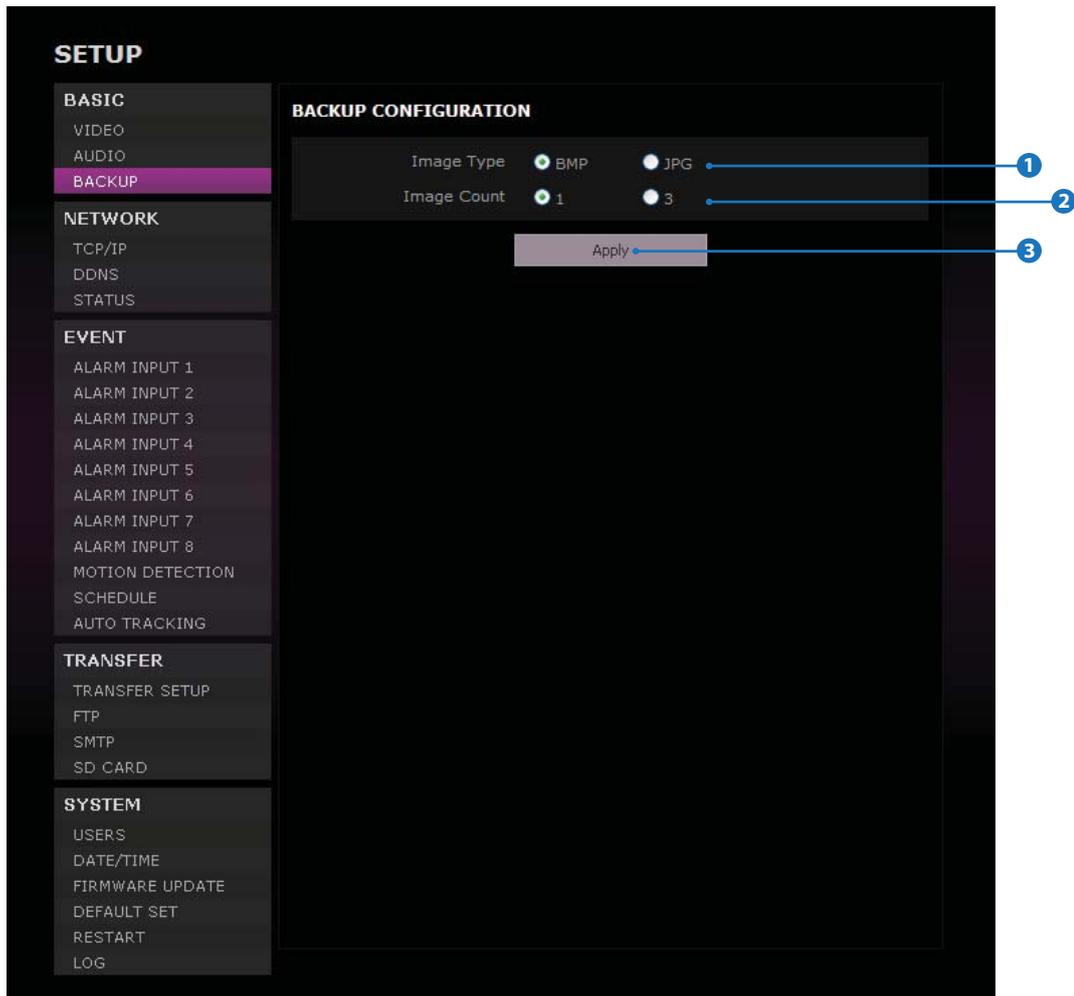
⊠ Click this button when completed setup each channels.

5 Setup - Audio Setup



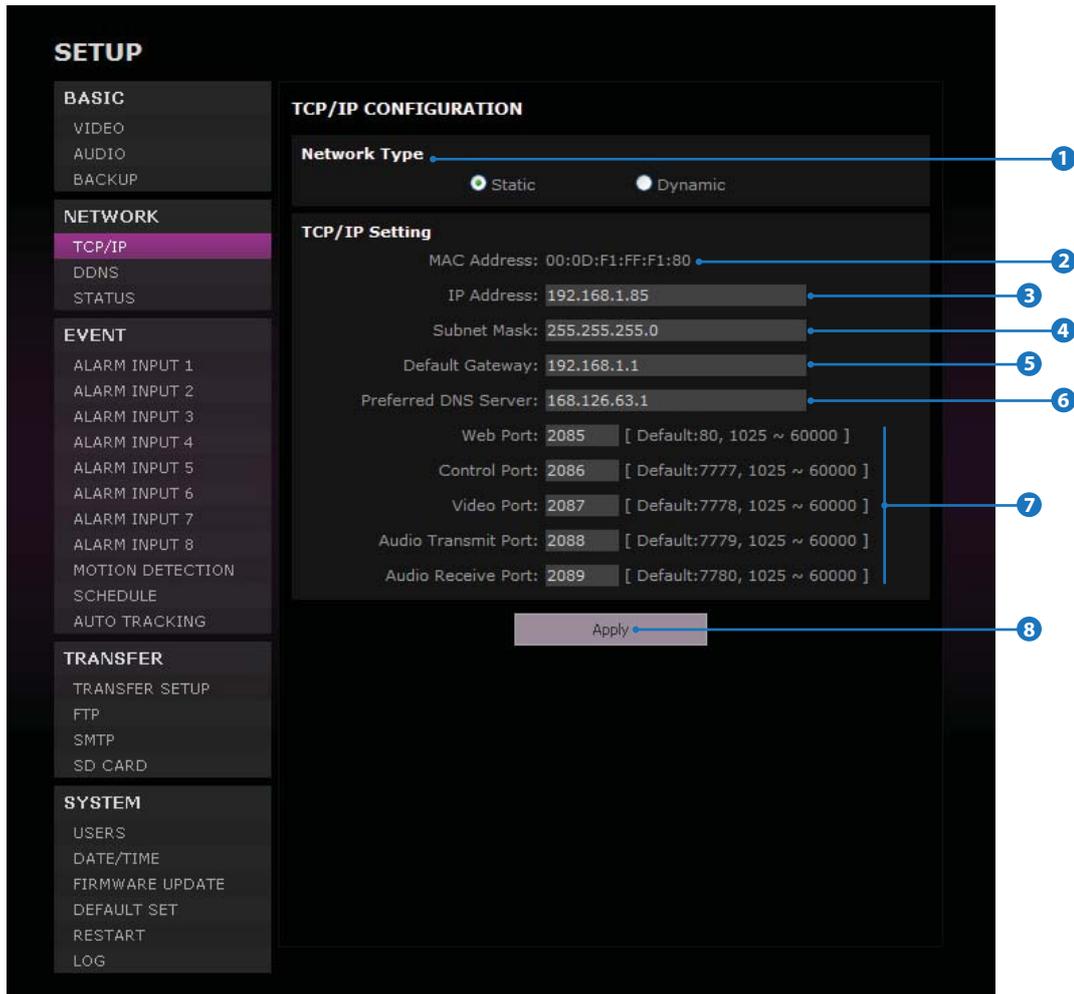
- 1 Input Gain**
Adjust the input gain of audio 1 ~ 4.
- 2 Output Gain**
Adjust the output gain of audio 0 ~ 10. Output gain 0 is mute.
- 3** Click 'Apply' to make above setting effective.

5 Setup - Backup Setup



- 1 Image Type**
Select the type of Image after capturing the screen on the web-viewer.
- 2 Image Count**
Select the number of Images that you want to store when click 'Capture' button on the web-viewer.
- 3** Click 'Apply' to make above setting effective.

5 Setup - TCP/IP Setup



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 MAC Address

Display the MAC Address of Camera.

3 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.

4 Subnet Mask

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

5 Default Gateway

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

6 Preferred DNS Server

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

7 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.

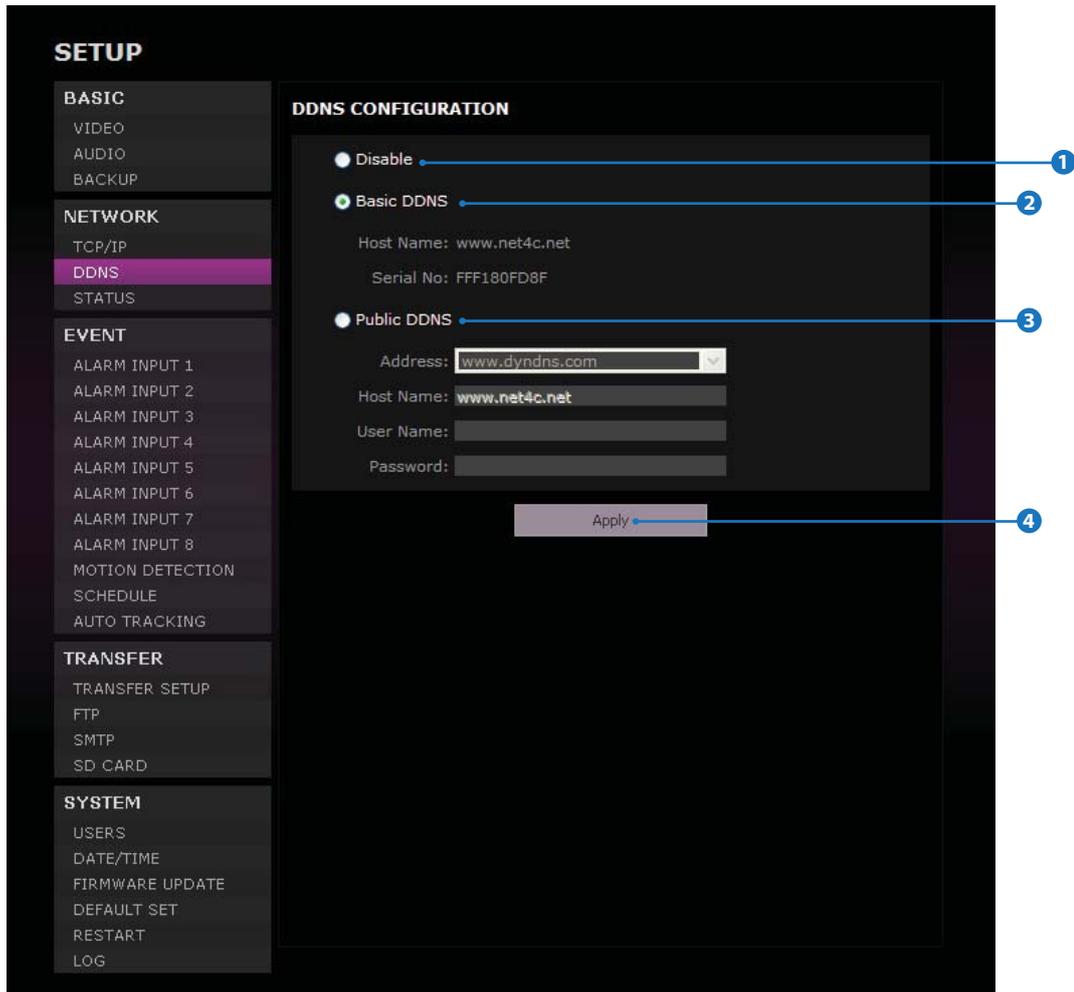
| Port Name | Description | Default | Range |
|---------------------|-----------------------------------|---------|--------------------|
| Web Port | Define HTTP Web Server Port | 80 | 1025 ~ 60000 |
| Control Port | Define Control Server Port | 7777 | |
| Video Port | Define Video Server port | 7778 | |
| Audio Transmit Port | Define Audio Transmit Server port | 7779 | |
| Audio Receive Port | Define Audio Receive Server port | 7780 | |

8 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.

5 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.

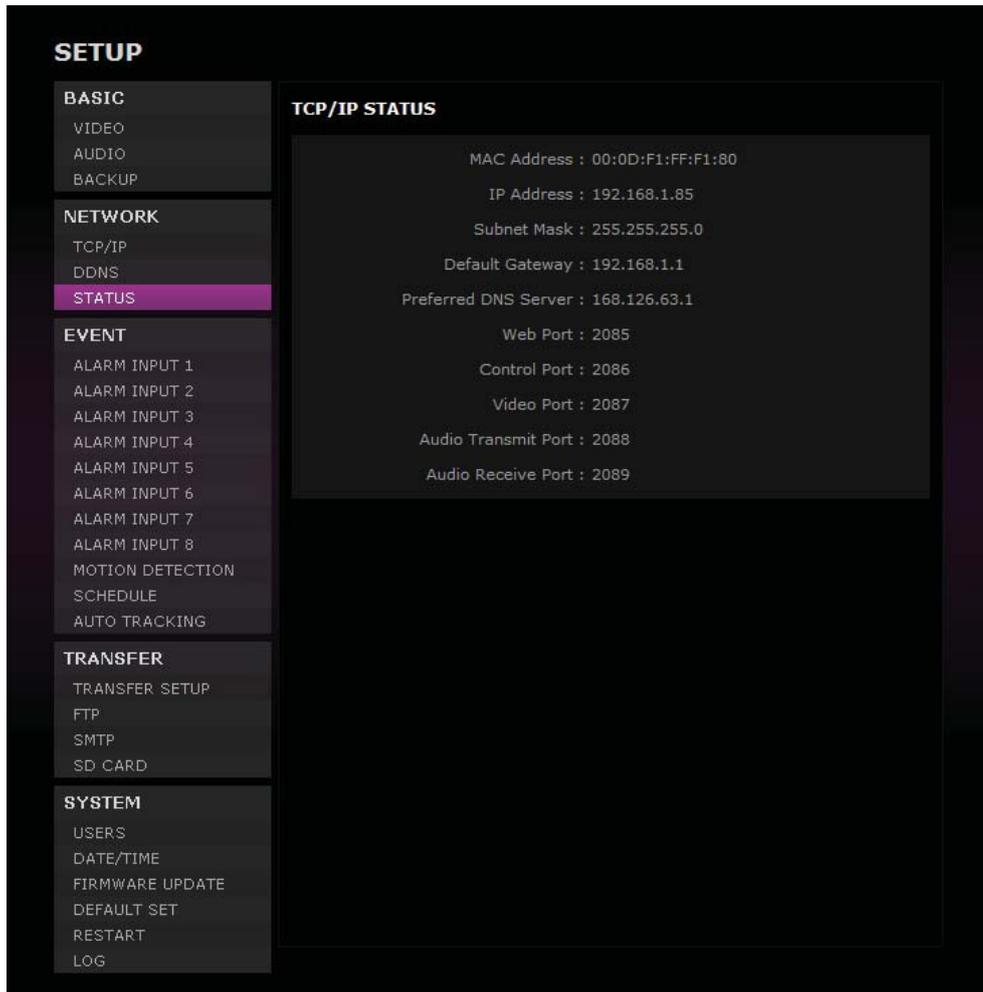
| DDNS Provider | Site Address |
|---------------|----------------|
| DynDNS | www.dyndns.com |
| No-IP | www.no-ip.com |

⊗ 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. In this situation ACTIVE LED will be blinking. If DDNS is disabled, the ACTIVE LED will be lit always.

4 Click 'Apply' to make above setting effective.

5 Setup - Status



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

5 Setup - Alarm Input 1 Setup



1 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. |

2 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.

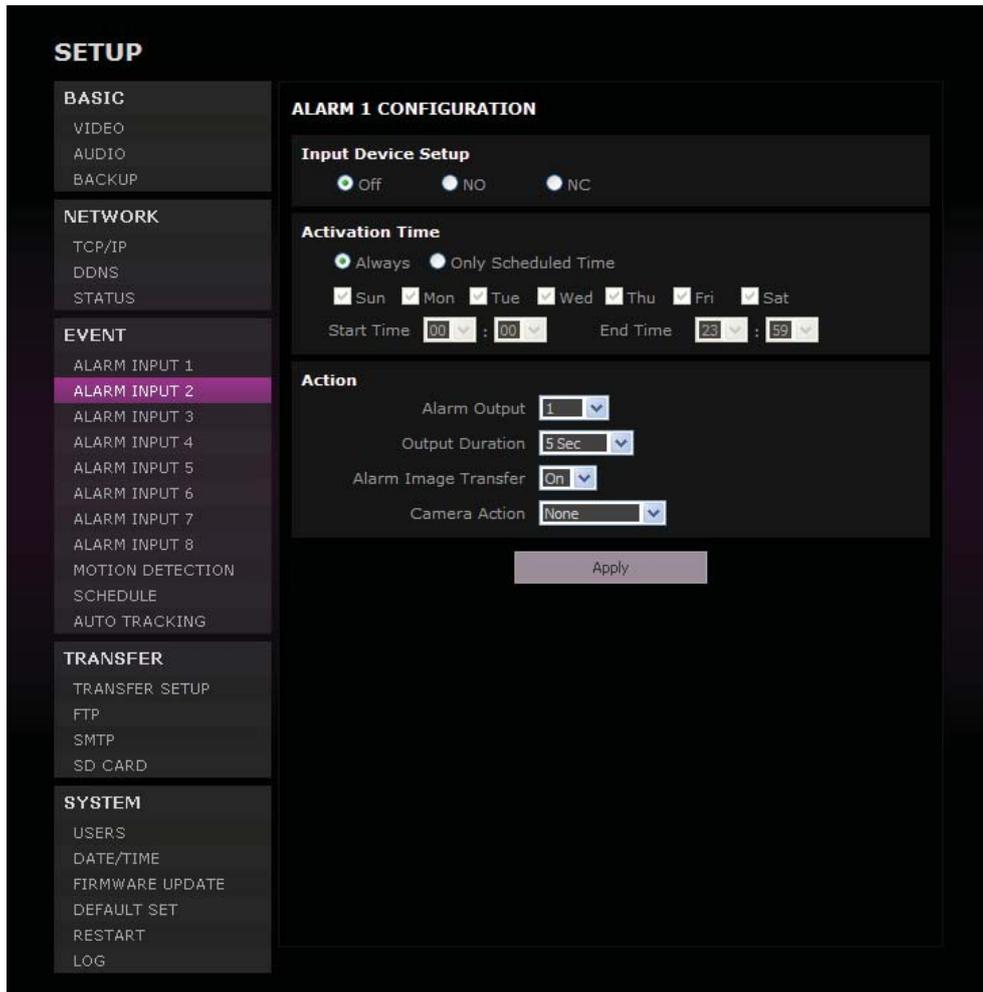
3 Action

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 / 1 ~4 |
| 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. |

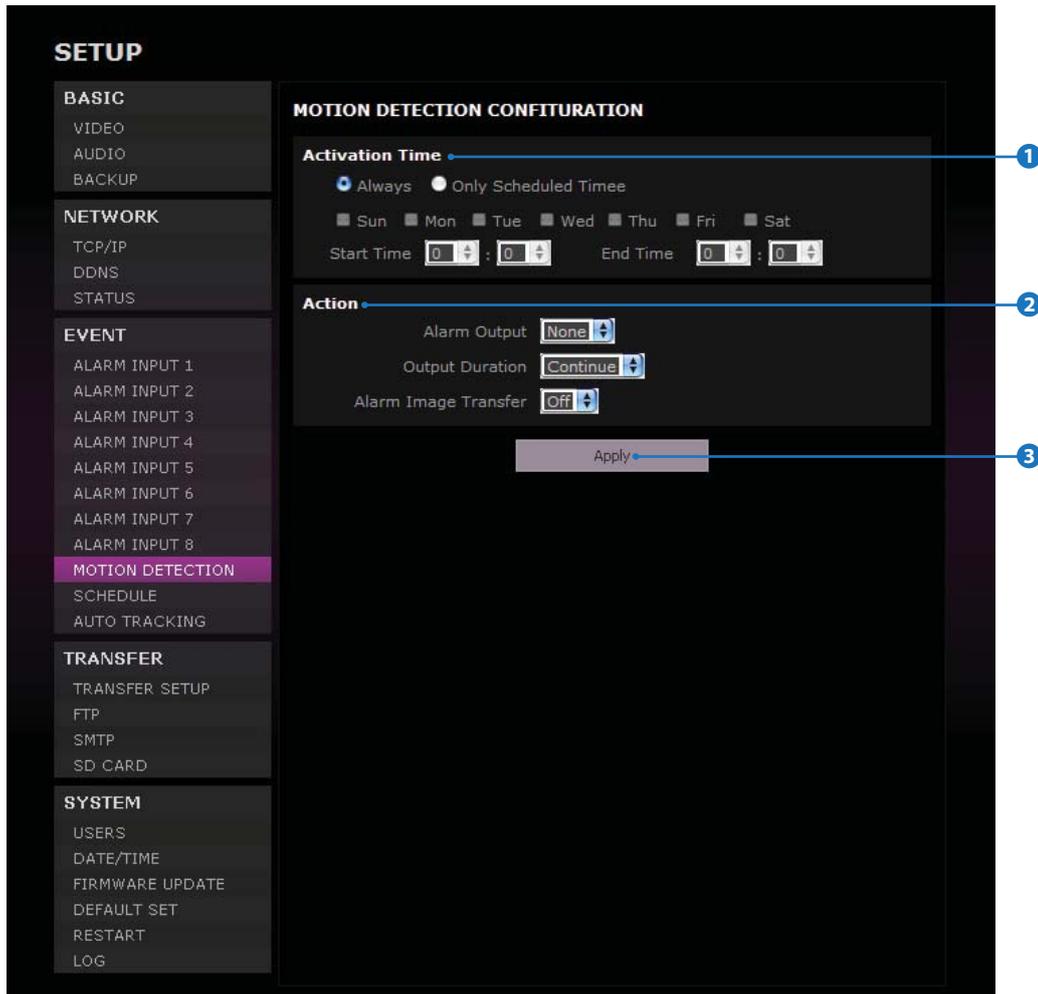
4 Click 'Apply' to make above setting effective.

5 Setup - Alarm Input 2~8 Setup



You can setup the 1 ~ 8 type of Alarm Input each other.

5 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 9:00am 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 / 1 ~4 |
| 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.

5 Setup - Schedule Setup



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.

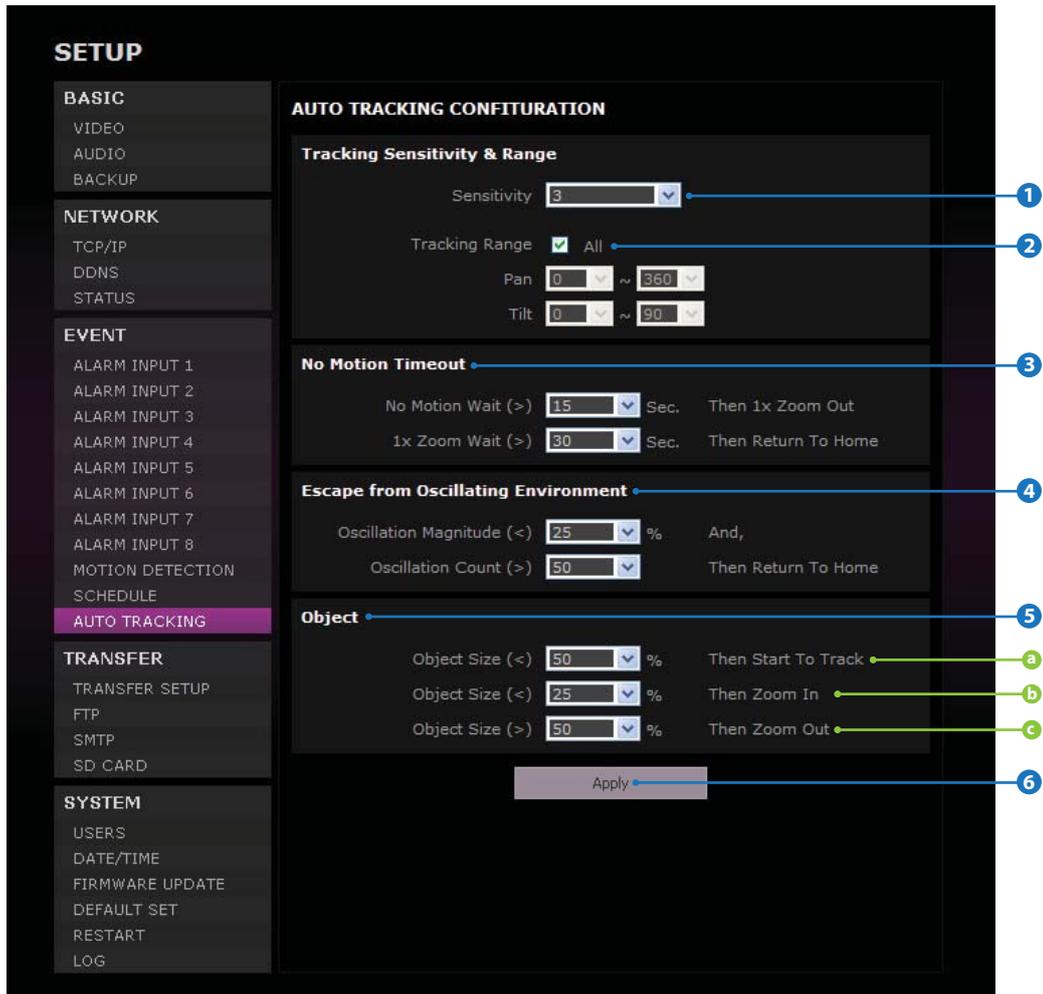
| | |
|---------------------|---|
| Always | Transfer image at all times. |
| Only Scheduled Time | Transfer image during the scheduled time. |

⊠ 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.

5 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

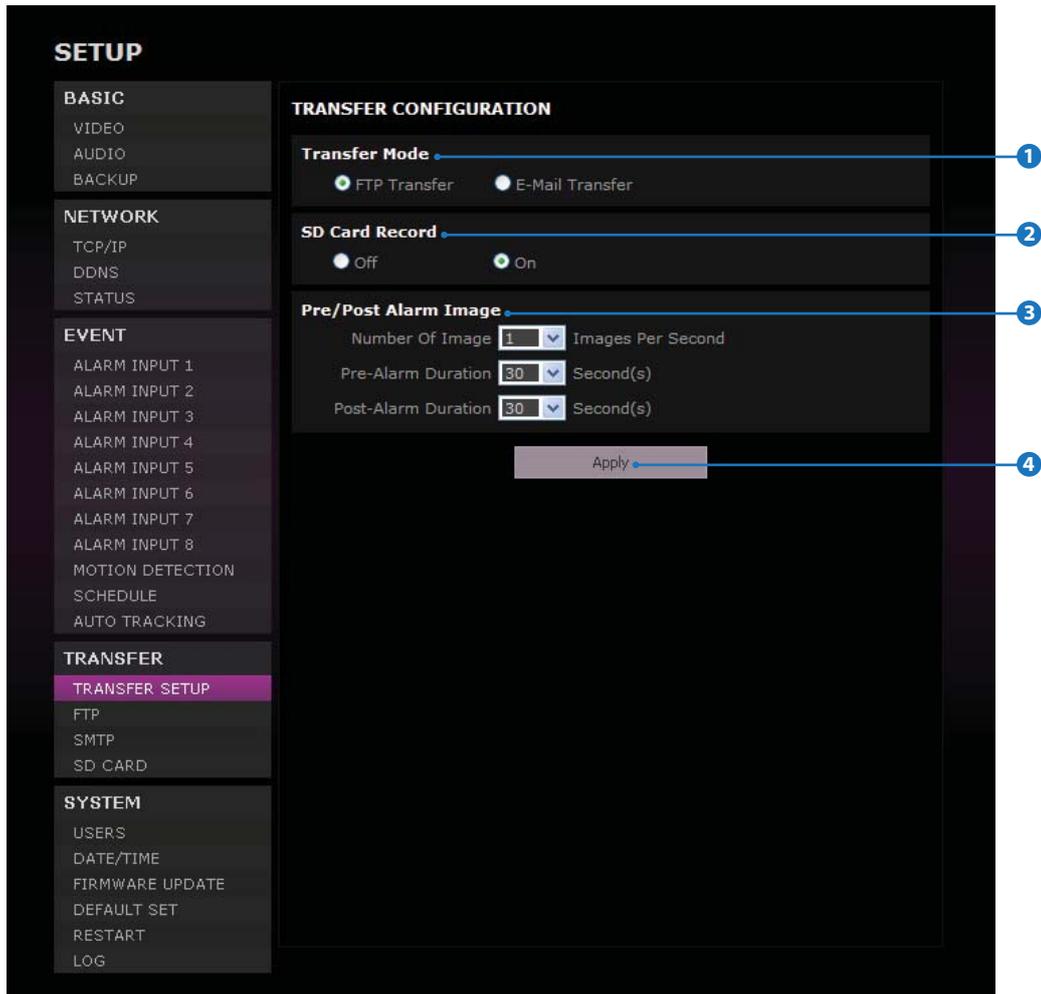
Camera will go back to home position (where the camera starts tracking the motion) when it detects motion constantly more than setting up in the 'Oscillation Count' in the smaller area than setting up in the 'Oscillation Magnitude'.

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.

5 Setup - Ttransfer 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

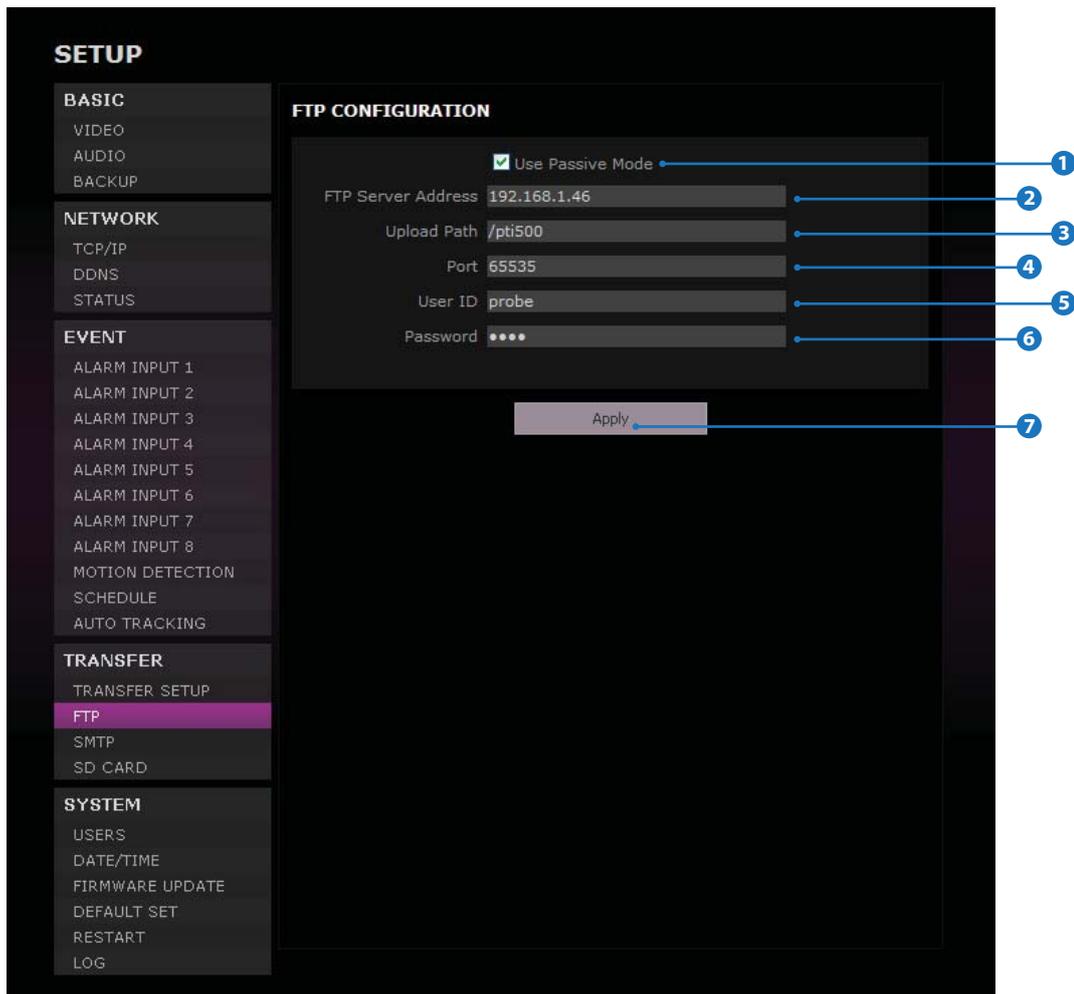
Image Transfer due to event is configured by setting Image transfer rate and Pre/Post alarm duration.

| | 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.

5 Setup - FTP Setup



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.

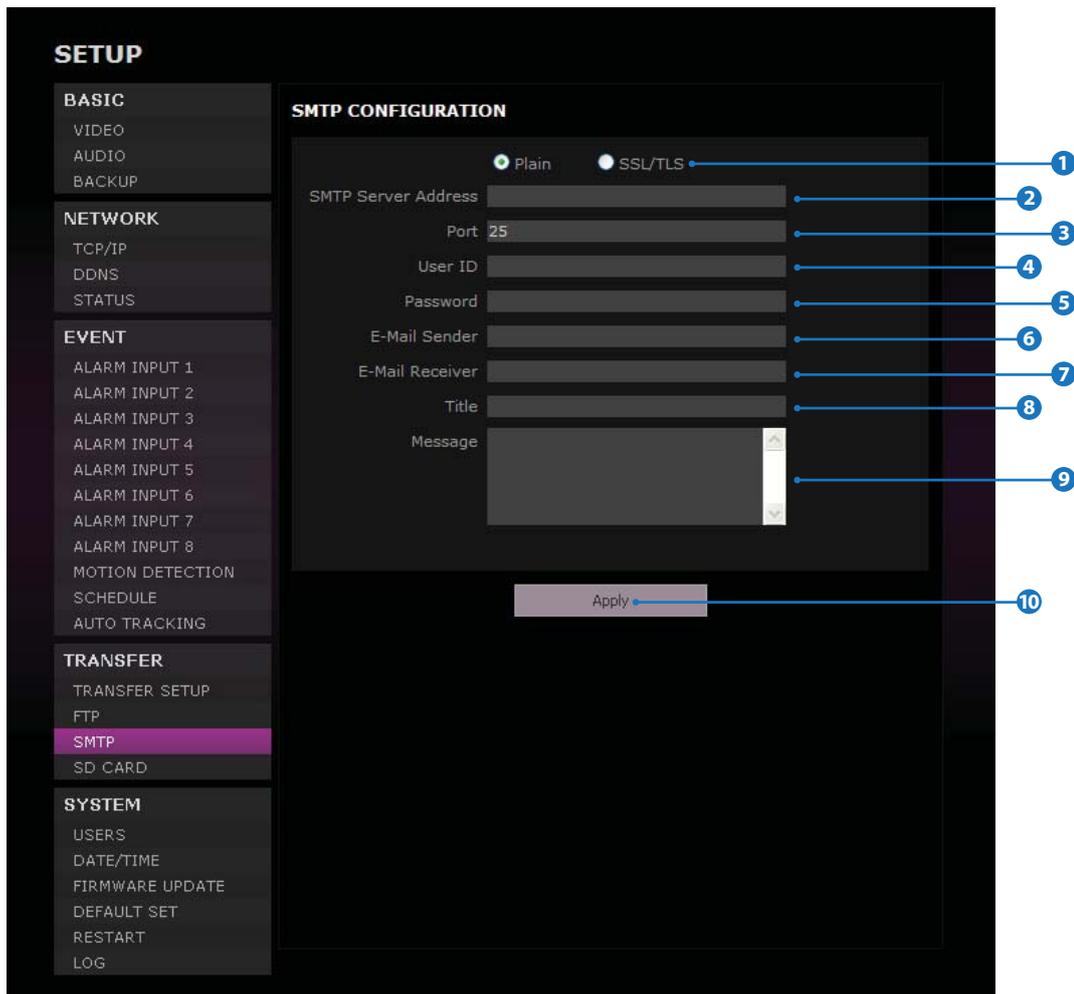
6 Password

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.

5 Setup - SMTP Setup



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.

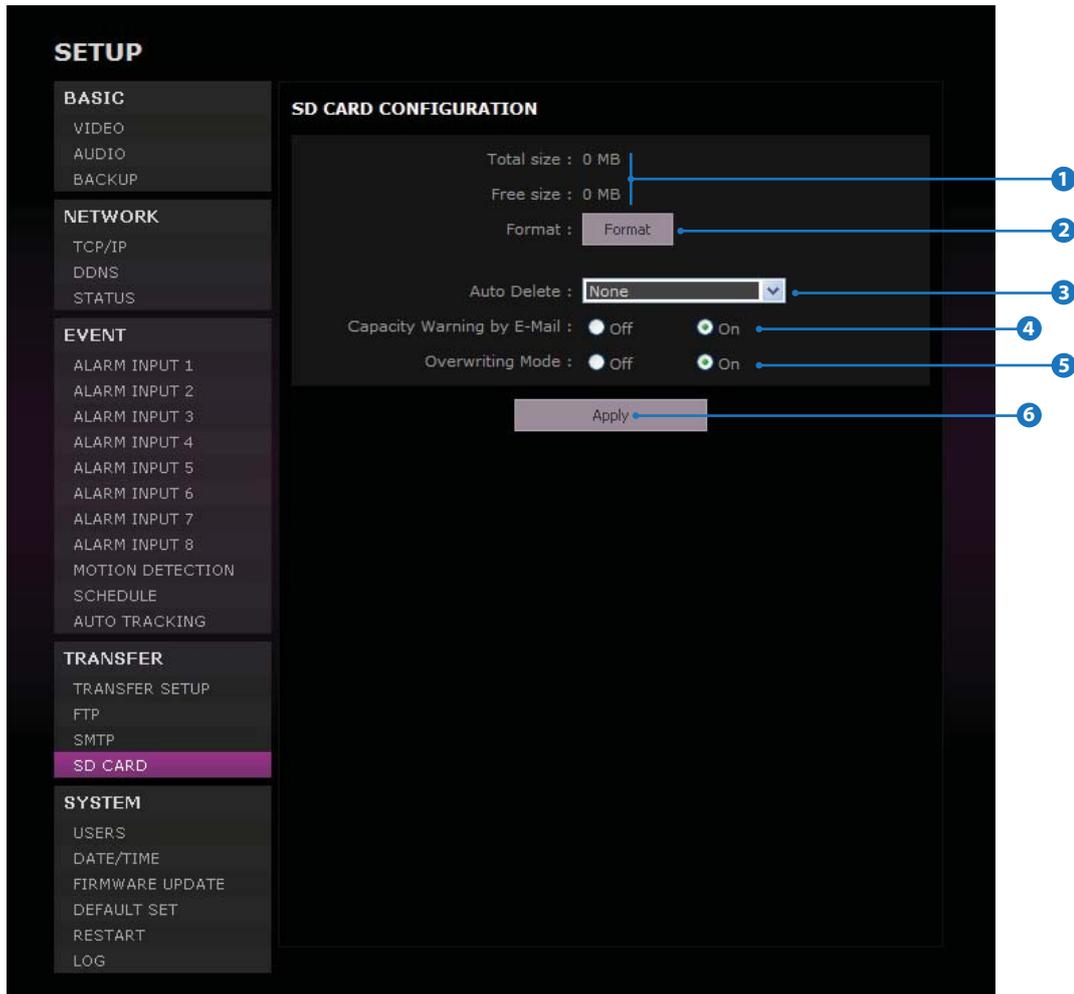
9 Message

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.

5 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

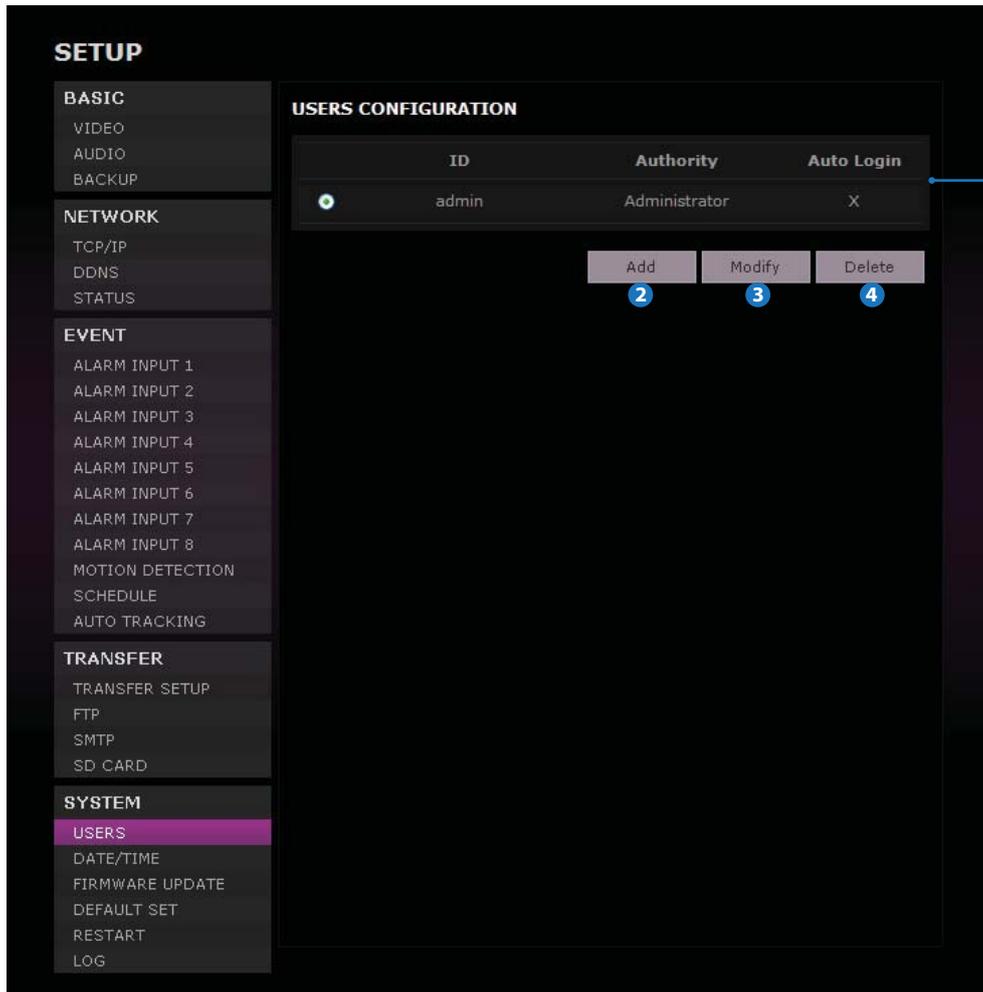
If it is set ON and remained space of SD card reach to less than 8MB, a warning e-mail will be sent to the e-mail account set in SMTP menu.

5 Overwriting Mode

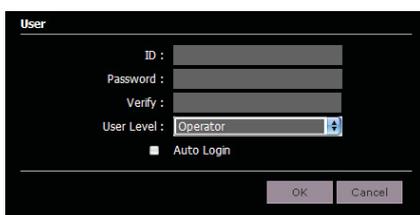
If it is set ON and remained space of SD card reach to less than 8MB, new data will start to be overwritten on the oldest data. However, if it is set OFF and remained space of SD card reach to less than 8MB, image recording will be stopped.

6 Click 'Apply' to make above setting effective.

5 Setup - Users Setup



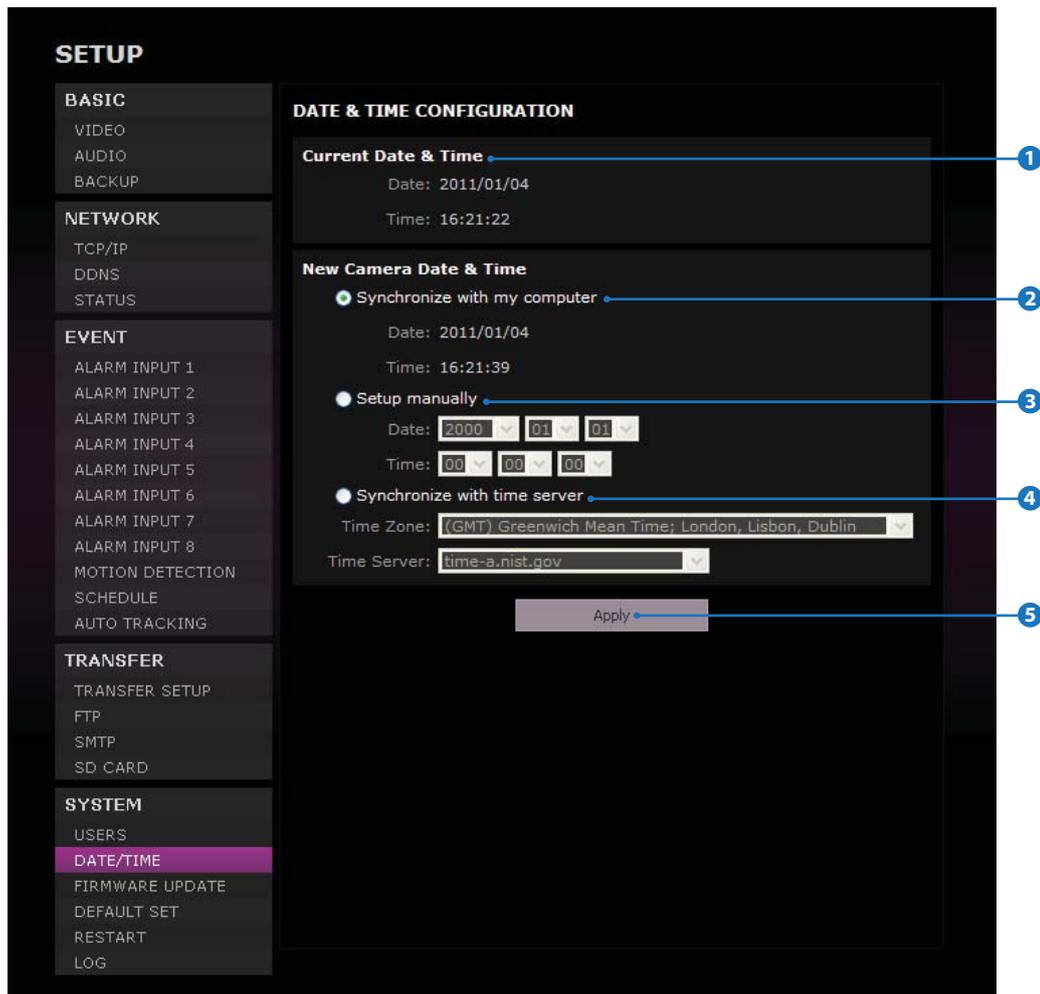
- 1 Users**
List all the user accounts for authentication.
- 2 Add**
Register a new user
- 3 Modify**
Modify the information of the user accounts registered. For admin account, only Password and Auto Login function can be modified.
- 4 Delete**
Delete the selected user account. Admin account cannot be 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. <ul style="list-style-type: none"> • 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. |

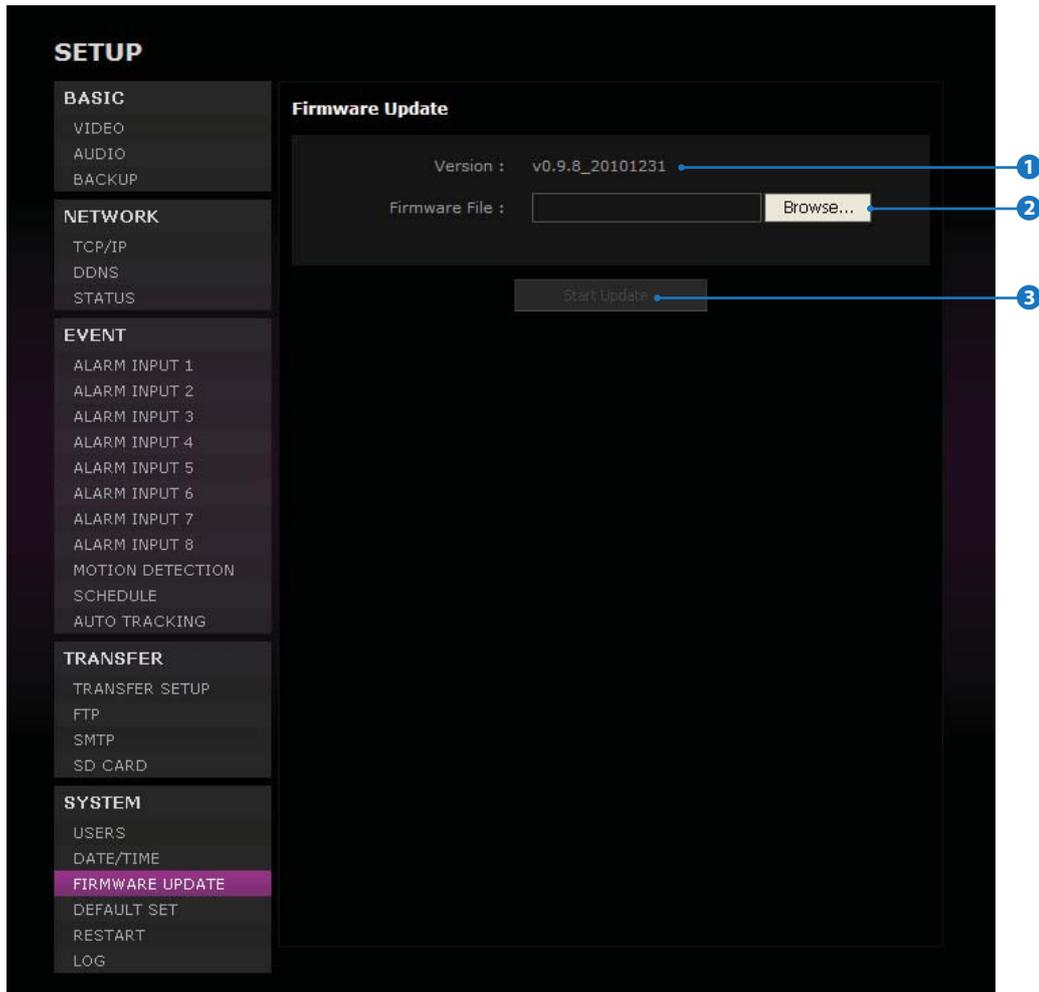
⚠ The ID and Password are limited to 10 characters.

5 Setup - Date/Time Setup



- 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.**

5 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.

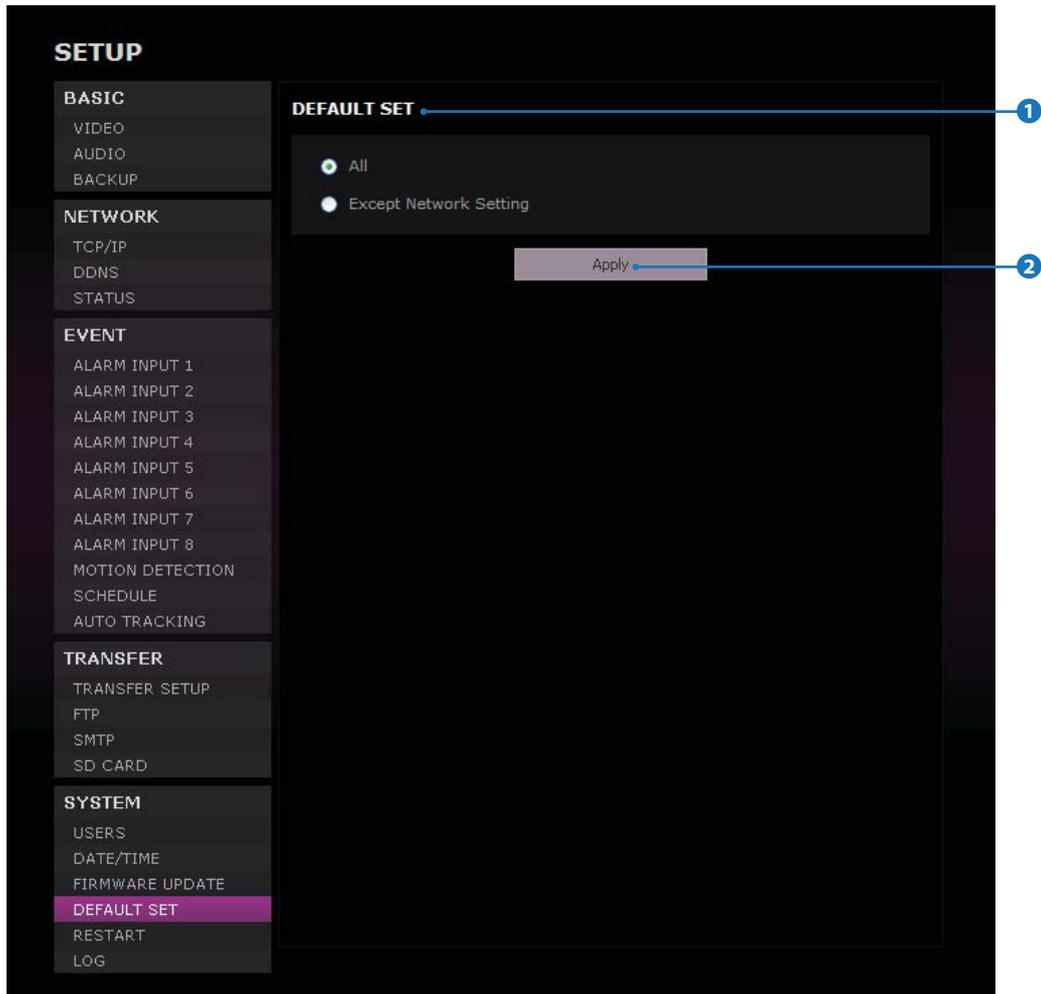
3 Start Update

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:

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.

5 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. |

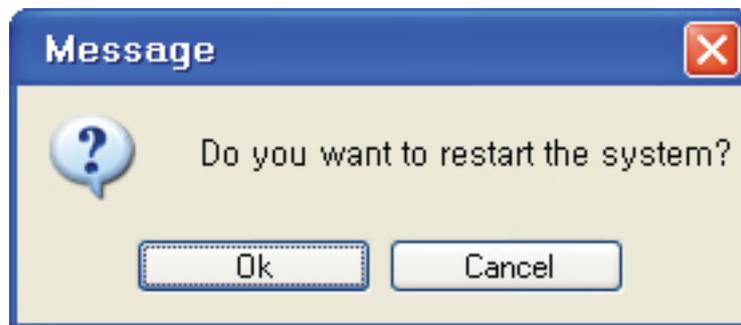
⚠ Warning:

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.

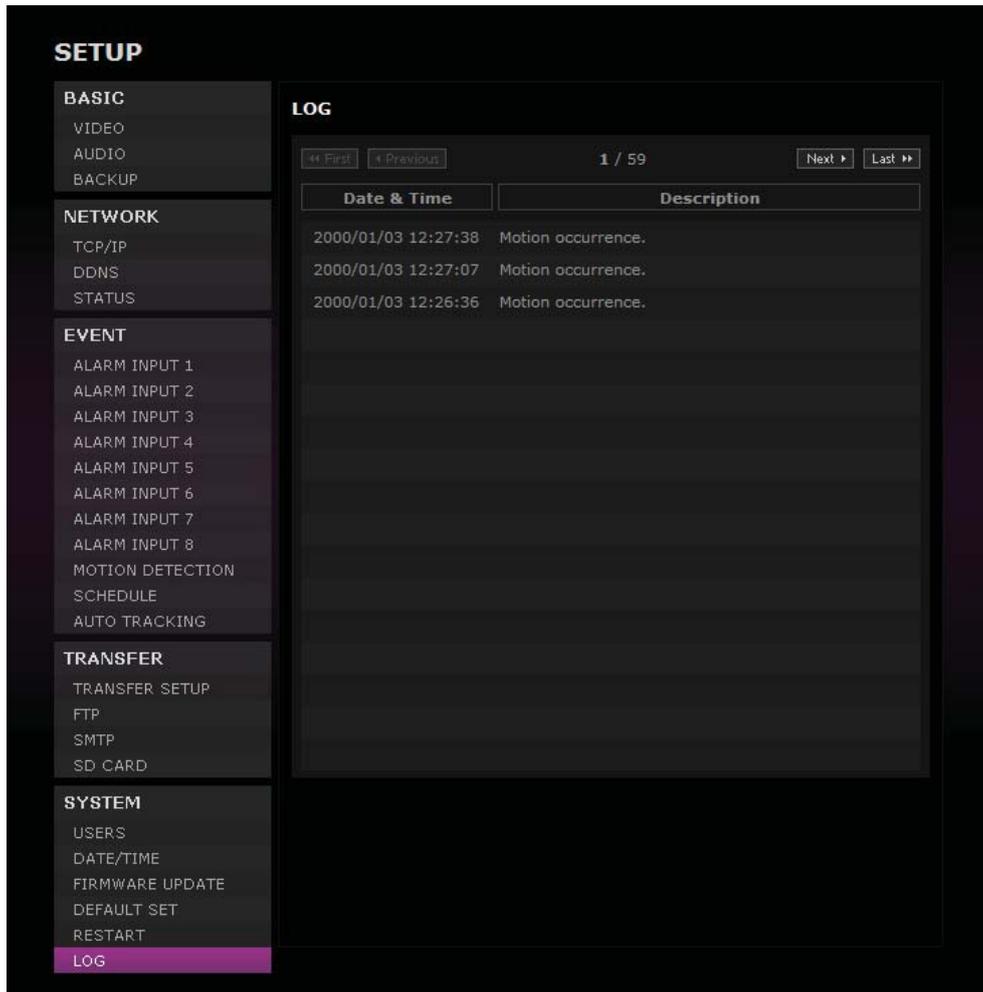
⚠ It takes approximated 4 minutes after clicking 'Apply' for the Default Set.

5 Setup - Restart



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

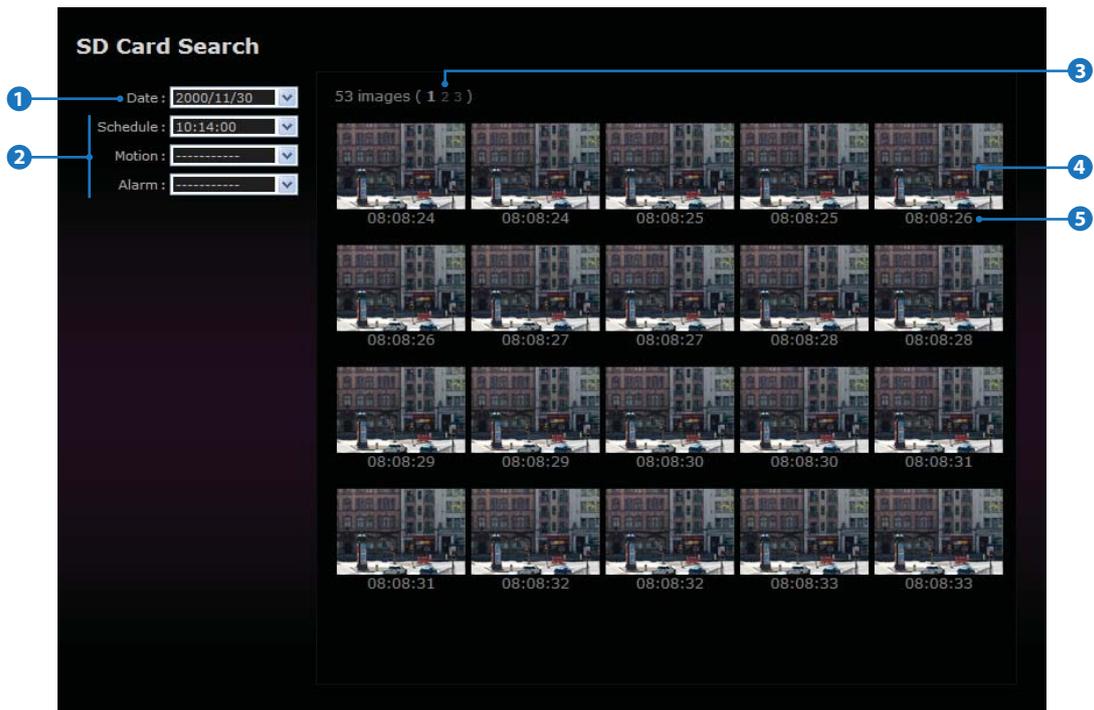
5 Setup - Log



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.

6 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.

7 OSD - Check Points before Operation

✘ The OSD menu in this manual is based on the control of Web-Viewer. Some of the menu items (Date/Time Setup, Alarm Input Setup, etc.) might be different when analog base is used.

Check Points before Operation

1. Before power is applied, please check the cables carefully.
2. The camera ID of the controller must be identical to that of the camera to be controlled. The camera ID can be check in the system information of OSD menu.
3. If your controller supports multi-protocols, the protocol must be changed to match to that of the camera.
4. If you changed camera protocol by changing DIP switch, the change will be effective after you reboot the camera.
5. Since the operation method can be different for each controller available, refer to the manual for your controller if camera cannot be controlled properly.

1 Preset and Pattern Function Pre-check

- Check how to operate preset, pattern, scan and group function with keyboard controller/DVR in advance to operate camera function using them.
(Refer to your system keyboard manual)

2 Auto Calibration

- If the camera is continuously subjected to very high temperature (over 50°C or 122°F) environment for a long time, it is possible for the camera to lose focus. As a result, you will get blurry image. In this case, it is recommended to turn on 'AUTO CALIBRATION'.
- If you execute 'AUTO CALIBRATION', camera will calibrate its focus at every 6 hours.

3 Start OSD Menu

- Using the OSD menu, preset, pattern, scan, group and alarm input function can be configured for each application.
Enter 'Preset key + 0' or 'Pattern + 30'.

7 OSD - Aux Functions

1 Preset

- Max. 255 positions can be stored as preset positions. The preset number can be assigned from 1 to 255.
- See the section 'ROOT MENU>FUNCTION SETUP>PRESET SETUP' for more detailed information.

1. Set Preset

Method 1) Use keyboard controller:
☒ Refer to keyboard controller manual.

Method 2) Use OSD menu.

2. Run Preset

Method 1) Use keyboard controller:
Preset key + Number key(1~255)

3. Delete Preset

To delete preset, use OSD menu.

2 Scan

- By using scan function, you can make camera to move between 2 preset positions repeatedly.
- See the section 'ROOT MENU>FUNCTION SETUP>SCAN SETUP' for more detailed information.

1. Set Scan

To set scan, use OSD menu.

2. Run Scan

Method) Pattern key + Scan number(1~8) + 10
Ex) Run scan 2 = Pattern key + [12] + Enter key

3. Delete Scan

To delete scan, use OSD menu.

3 Pattern

- Pattern function is that a camera memorizes the path (mostly curve path) by joystick of controller for assigned time and revives the path exactly as it memorized.
- See the section 'ROOT MENU>FUNCTION SETUP>PATTERN SETUP' for more detailed information.

1. Set Pattern

To set pattern, use OSD menu.

2. Run Pattern

Method 1) Pattern key + Pattern number(1~4) + Enter key
Ex) Run pattern 2 = Pattern key + [2] + Enter key

3. Delete Pattern

To delete pattern, use OSD menu.

- ☒ When the pattern is saved/executed, the pan/tilt is operated with 'AUTO FLIP-OFF'.

4 Group

- The group function allows running sequence of presets, pattern and/or scans.
- See the section 'ROOT MENU>FUNCTION SETUP>GROUP SETUP' for more detailed information.

1. Set Group

To set group, use OSD menu.

2. Run Group

Method) Pattern key + [Group number(1~8) + 20]
Ex) Run group 2 = Pattern key + [22] + Enter key

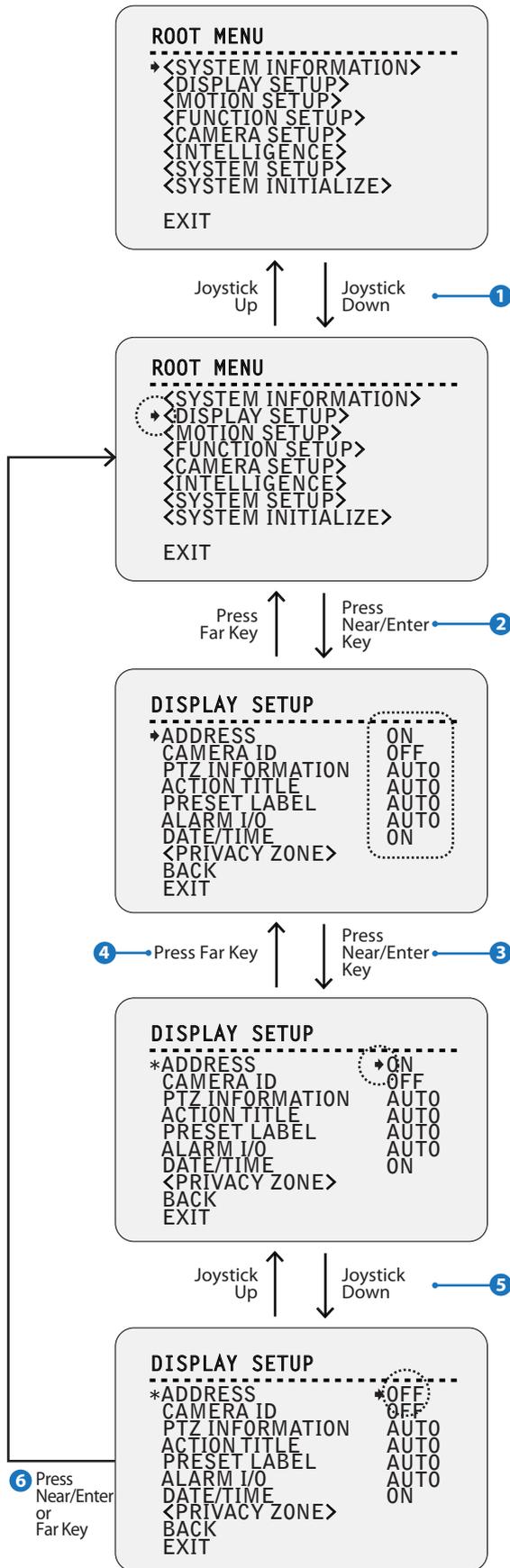
3. Delete Group

To delete group, use OSD menu.

5 Schedule

- The schedule function allows running an appropriate function like preset, scan, group, pattern, home move at the designated day and time.
- See the section 'ROOT MENU>FUNCTION SETUP>SCHEDULE SETUP' for more detailed information.

7 OSD - General Rules of Menu Operation



- 1 The menu items surrounded with < > always has its sub menu.
- 2 To move from items to item in the menu, use joystick in the up/down or left/right.
- 3 For all menu level, to go into sub menu, press near or enter key.
- 4 To go to up-one-level menu, press far key.
- 5 To change a value of an item, use up/down of the joystick in the controller.
- 6 Press near or enter key to save values and press far key to cancel values.

7 OSD - ROOT MENU & SYSTEM INFORMATION

1

```
ROOT MENU
-----
* <SYSTEM INFORMATION>
<DISPLAY SETUP>
<MOTION SETUP>
<FUNCTION SETUP>
<CAMERA SETUP>
<INTELLIGENCE>
<SYSTEM SETUP>
<SYSTEM INITIALIZE>

EXIT
```

1 ROOT MENU

<SYSTEM INFORMATION>
Shows information and current configuration.

<DISPLAY SETUP>
Enable/Disable of OSD display on main screen.

<MOTION SETUP>
Setup for motion related settings.

<FUNCTION SETUP>
Setup for various functions such as preset, scan, pattern, group and schedule.

<CAMERA SETUP>
Configure camera related functions and data.

<INTELLIGENCE>
Setup for detection of object moving or changing.

<SYSTEM SETUP>
Configure for basic system setup.

<SYSTEM INITIALIZE>
Initializes system configuration and sets all data to factory default configuration.

EXIT
To escape from the OSD setting, go to exit.

1

```
SYSTEM INFORMATION
-----
FIRMWARE VER 1.0
COLOR SYSTEM NTSC
PROTOCOL AUTO
BAUD RATE 2400
ADDRESS 1

BACK
EXIT
```

1 SYSTEM INFORMATION

FIRMWARE VER
Shows the current firmware version.

COLOR SYSTEM
Shows the current analog video system.

PROTOCOL
Shows the current PTZ control protocol.

BAUD RATE
Shows the current baud rate of the PTZ control.

ADDRESS
Shows the current camera ID of the PTZ control.

7 OSD - DISPLAY SETUP > CAMERA ID

1

```

DISPLAY SETUP
-----
ADDRESS                ON
*CAMERA ID             BOT
PTZ INFORMATION        ON
ACTION TITLE           ON
PRESET LABEL           ON
ALARM I/O              ON
DATE/TIME              ON
<PRIVACY ZONE>
BACK
EXIT
    
```

Press Near/Enter Key

2

```

DISPLAY SETUP
-----
ADDRESS                ON
*CAMERA ID             BOT
PTZ INFORMATION        ON
ACTION TITLE           ON
PRESET LABEL           ON
ALARM I/O              ON
DATE/TIME              ON
<PRIVACY ZONE>
BACK
EXIT
    
```

Joystick Right

3

```

DISPLAY SETUP
-----
ADDRESS                ON
*CAMERA ID             BOT
PTZ INFORMATION        ON
ACTION TITLE           ON
PRESET LABEL           ON
ALARM I/O              ON
DATE/TIME              ON
<PRIVACY ZONE>
BACK
EXIT
    
```

Press Near/Enter Key

4

```

CAMERA ID
-----
 2 3 4 5 6 7 8 9 0 OK
 ABCDEFGHIJ CANCEL
 KLMNOPQRST
 UVWXYZabcd
 efghijklmn
 opqrstuvw
 yz < > - / : . <
    
```

Press Near/Enter Key

5

```

CAMERA ID
-----
AAAAAAAAAAAAAAAAAAAA
BBBBBBBBBBBBBBBBBB
 2 3 4 5 6 7 8 9 0 OK
 ABCDEFGHIJ CANCEL
 KLMNOPQRST
 UVWXYZabcd
 efghijklmn
 opqrstuvw
 yz < > - / : . <
    
```

1 DISPLAY SETUP

This menu defines enable/disable of OSD display on main screen. If an item is set to be 'AUTO', the item is displayed only when the value of it is changed.

| | |
|-----------------|--|
| ADDRESS | ON / OFF |
| CAMERA ID | BOT / TOP / OFF Select the camera ID location. Refer to 'OSD Display of Main Screen'. |
| PTZ INFORMATION | ON / OFF / AUTO |
| ACTION TITLE | ON / OFF / AUTO |
| PRESET LABEL | ON / OFF / AUTO |
| ALARM I/O | ON / OFF / AUTO |
| DATE/TIME | ON / OFF |
| <PRIVACY ZONE> | Start Privacy Zone Mask setup Menu. |

3 CAMERA ID - Alphabet Input

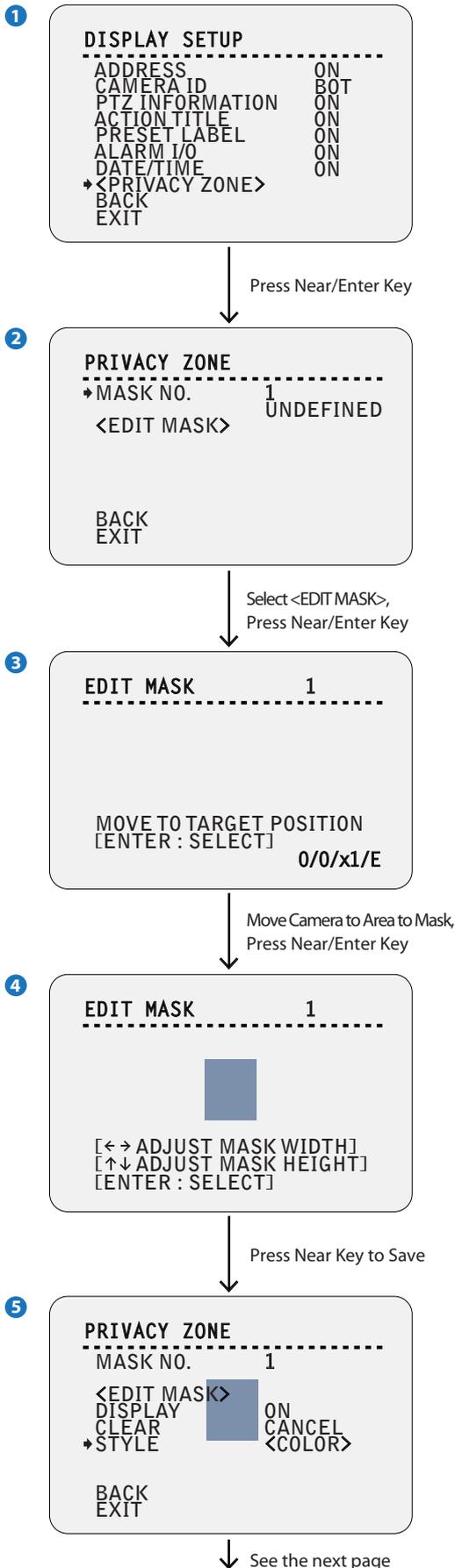
- Edits the camera ID to show on monitor when camera ID sets 'TOP(Top)' or 'BOT(Bottom)'.
- Max. 48 alphabets are allowed(Including space).

- a Current Cursor Position:** In edit label menu, a reverse rectangular is cursor. As soon as finishing selecting alphabet, cursor moves to the next digit.
- b Selecting Alphabet:** Using left/right/up/down of joystick, move to an appropriate character from the character set. To choose the character, press the near or enter key.
- c Space:** If you want to use blank, choose space character (' ').
- d Back-Space:** If you want to delete a character in front, use back space character ('<').

4 CAMERA ID - Complete Editing

If you complete the camera ID editing, move the cursor to 'OK' and press near key to save the completed camera ID. To abort the current change, move the cursor to 'CANCEL' and press the near key.

7 OSD - DISPLAY SETUP > PRIVACY ZONE



1 DISPLAY SETUP

See the previous page.

3 EDIT MASK - Move to Target Position

Move camera to area to mask. Then the menu to adjust mask size will be displayed.

⊗ If the tilt angle is located in the range between 90° to 90°, you can not set up privacy zone mask.

⊗ If tilt angle over 90° (image flipped region) is designated, camera will automatically move to identical position by changing tilt angle less than 90° and moving pan angle 180° relatively.

4 EDIT MASK - Adjust Mask Size

Adjust mask size. Use joystick or arrow buttons to adjust mask size.

- Move Joystick Left/Right(◀▶): Adjust Mask Width.

- Move Joystick Up/Down(▲▼): Adjust Mask Height.

⊗ To hide a certain zone completely regardless of high speed pan/tilt motions, it is recommended that the size of mask must be 20% bigger than original target size.

⊗ It is noted that during pan/tilt control like jog action, the object behind the privacy mask can be disclosed in a short period of time.

5 PRIVACY ZONE

Selects area in image to mask.

MASK NO. 1 ~ 8

Select mask number. If the selected mask has data already, camera moves as it was set. Otherwise, 'UNDEFINED' will be displayed under 'MASK NO.'.

DISPLAY ON / OFF

Sets if the camera makes mask shows or not on images.

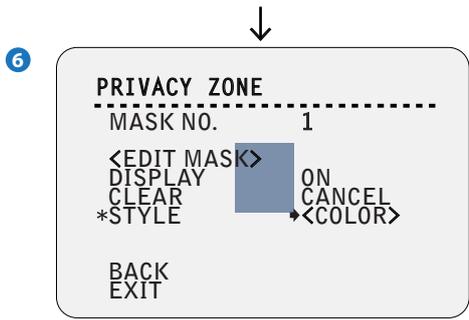
CLEAR MASK CANCEL / OK

Deletes data in the selected mask no.

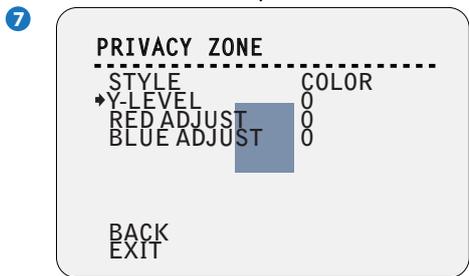
STYLE <COLOR> / MOSAIC 1 ~ 4

Set the style of the mask. See the next page.

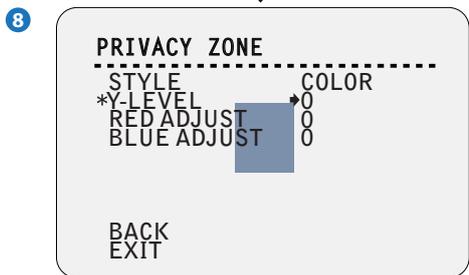
7 OSD - DISPLAY SETUP > PRIVACY ZONE



Press Near/Enter Key



Press Near Key to Save



7 PRIVACY ZONE - STYLE>COLOR

Set the color of the mask.

Y-LEVEL 0 ~ 100

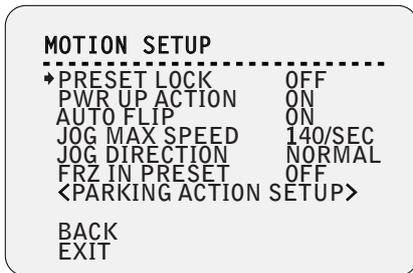
Set the color 'Y-LEVEL' of the mask.

RED ADJUST 0 ~ 100

BLUE ADJUST 0 ~ 100

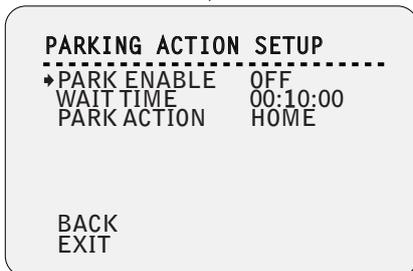
7 OSD - MOTION SETUP

1



Press Near/Enter Key

2



1 MOTION SETUP

Setup the general functions of pan/tilt motions.

PRESET LOCK ON / OFF

If motion lock is set to on, it is impossible to set up and delete preset, scan, pattern and group. It is possible only to run those functions. To set up and delete those functions, enter into OSD menu.

PWR UP ACTION ON / OFF

This function enables to resume the last action executed before power down. Most of actions such as preset, pattern, scan and group are available for this function but jog actions are not available to resume.

AUTO FLIP ON / OFF

In case that tilt angle arrives at the top of tilt orbit (90°), zoom module camera keep moving to opposite tilt direction (180°) to keep tracing targets. As soon as zoom module camera passes through the top of tilt direction(90°), images should be reversed automatically and [F] appears in screen. If this function is set to 'OFF', tilt movement range is 0° ~ 90°.

JOG MAX SPEED 2/SEC ~ 200/SEC

Sets maximum jog speed. Jog speed is inversely proportional to zoom magnification. As zoom magnification goes up, pan/tilt speed goes down.

JOG DIRECTION INVERSE / NORMAL

If you set this to 'NORMAL', the view in the screen is moving same direction with jog tilting. If 'INVERSE' is selected, the view in the screen is moving reversely.

FRZ IN PRESET ON / OFF

At start point of preset movement, camera starts freezing the image of start point. Camera keeps displaying the image of start point during preset movement and does not display the images which camera gets during preset movement. As soon as camera stops at preset end point, camera starts displaying live images which it gets at preset end point. This function availability should be different by models.

<PARKING ACTION SETUP>

Moves to 'PARKING ACTION SETUP' screen.

2 PARKING ACTION SETUP

If 'PARK ENABLE' is set to 'ON', camera runs assigned function automatically if there is no PTZ command during assigned 'WAIT TIME'.

PARK ENABLE ON / OFF

WAIT TIME 00:00:05 ~ 04:00:00

The time is displayed with "hh:mm:ss" format and you can change this by 1 sec. unit.

1. To place the cursor on the time marked as below, press near key.

00:10:00

2. Move joystick Left/Right to adjust hours, minutes and seconds.

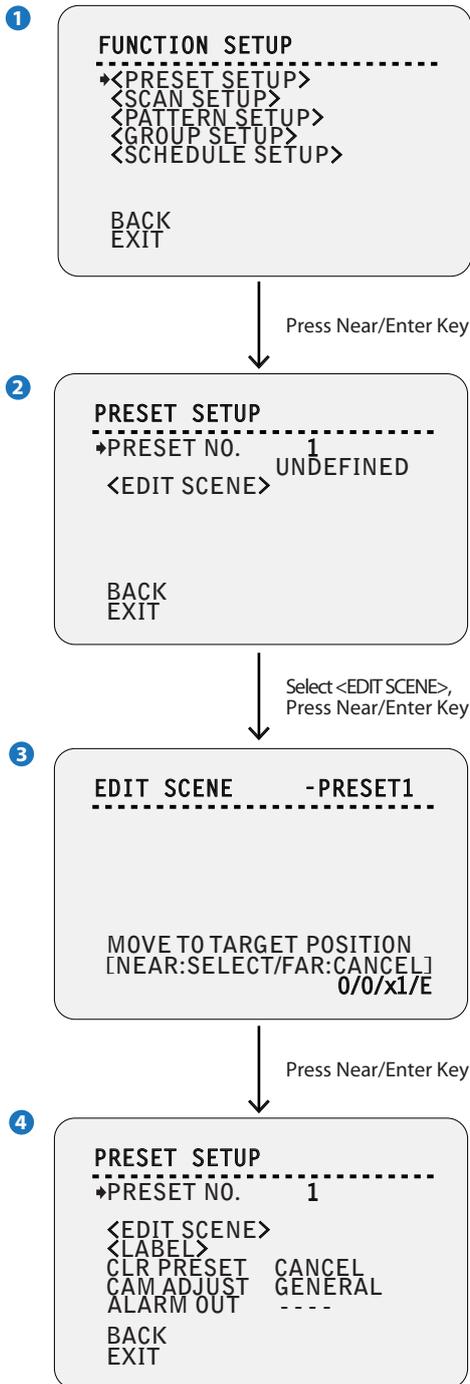
3. Move joystick Up/Down to select the digit.

4. By pressing near key, save current setting.

PARKING ACTION HOME / PRESET 1~128 / SCAN 1~8 /
PATTERN 1~4 / GROUP 1~8

Ex) If 'HOME' is selected for park action, camera will move to home position when there is no PTZ command during the assigned 'WAIT TIME.'

7 OSD - FUNCTION SETUP > PRESET SETUP



1 FUNCTION SETUP

Configure 5 special functions with this menu.

2 PRESET SETUP - Undefined

255 presets from the number 1 to 255 can be assigned excluding preset 95 reserved for menu.

PRESET NO. 1 ~ 255

If a selected preset is already defined, camera moves to pre-defined position and preset characteristics such as label and relay outputs show on monitor. (Refer screen 4) If a selected preset is not defined, 'UNDEFINED' shows on monitor.

<EDIT SCENE>

Redefine the current preset scene position(i.e. PTZ).

3 EDIT SCENE

1. Using joystick, move camera to the desired position.
2. By pressing near key, save the current PTZ data.
3. Press far key to cancel.

4 PRESET SETUP

If the preset is defined, the information will be shown on the OSD menu with the setting, and the alarm device (if defined) will be activated.

PRESET NO. 1 ~ 255

<EDIT SCENE>

<LABEL>

Edits Label to show on monitor when preset runs. Max. 10 alphabets are allowed.

CAM ADJUST GENERAL / SPECIAL

- WB(White Balance) and AE(Auto Exposure) can be set up independently for each preset.

- **GENERAL:** WB or AE can be set up totally and simultaneously for all presets in 'ROOT MENU>CAMERA SETUP' menu.

- **SPECIAL:** WB or AE can be set up independently or separately for each preset in each preset setup menu.

- Each special WB/AE value should be activated correspondingly when camera arrives at each preset location. During jog operation, general WB/AE value should be applied.

- All special WB/AE value should not be changed although general WB/AE value is changed. If 'SPECIAL' is selected, the menu to set WB/AE is shown on monitor.

ALARM OUT ---- ~ 1 2 3 4

State of four alarm outputs can be freely controlled in conjunction with preset run. The character '-' means off state and the number representing each bit means on.

Ex) If it is set to be '- 2 3 -', output relay 2, 3 will be on and 1, 4 will be off, when you run this preset.

7 OSD - FUNCTION SETUP > PRESET SETUP

1

```

PRESET SETUP
-----
PRESET NO.    1
<EDIT SCENE>
* <LABEL>
CLR PRESET   CANCEL
CAM ADJUST   GENERAL
ALARM OUT    -----
BACK
EXIT
    
```

Press Near/Enter Key

2

```

LABEL          PRESET1
-----
[ ]
1 2 3 4 5 6 7 8 9 0 OK
A B C D E F G H I J CANCEL
K L M N O P Q R S T
U V W X Y Z a b c d
e f g h i j k l m n
o p q r s t u v w x
y z < > - / : . <
    
```

Press Near/Enter Key

3

```

LABEL          PRESET1
-----
[SKY]
1 2 3 4 5 6 7 8 9 0 *OK
A B C D E F G H I J CANCEL
K L M N O P Q R S T
U V W X Y Z a b c d
e f g h i j k l m n
o p q r s t u v w x
y z < > - / : .
    
```

2 LABEL
Edits label to show on monitor when camera arrives at preset.

The diagram shows the LABEL menu with a dashed line above the characters. A reverse rectangular cursor is positioned over the first character '1'. A pink arrow labeled 'a' points to the cursor. Another pink arrow labeled 'b' points to the character '1'. A third pink arrow labeled 'c' points to the space character ' '. A fourth pink arrow labeled 'd' points to the backspace character '<'. The character set includes numbers 0-9, uppercase letters A-J, lowercase letters a-x, and symbols <, >, -, /, :, and ..

- a Current Cursor Position:** In edit label menu, a reverse rectangular is cursor. As soon as finishing selecting alphabet, cursor moves to the next digit.
- b Selecting Alphabet:** Using left/right/up/down of joystick, move to an appropriate character from the character set. To choose the character, press the near or enter key.
- c Space:** If you want to use blank, choose space character (' ').
- d Back-Space:** If you want to delete a character in front, use back space character (<).

3 LABEL – Complete Editing
If you complete the label editing, move cursor to 'OK' and press near key to save completed label. To abort current change, move cursor to 'CANCEL' and press near key.

1

```

PRESET SETUP
-----
PRESET NO.    1
<EDIT SCENE>
<LABEL>
CLR PRESET   CANCEL
*CAM ADJUST * <SPECIAL>
ALARM OUT    -----
BACK
EXIT
    
```

Press Near/Enter Key

2

```

CAM ADJUST    -PRESET1
-----
* <WHITE BALANCE SETUP>
<AUTO EXPOSURE SETUP>

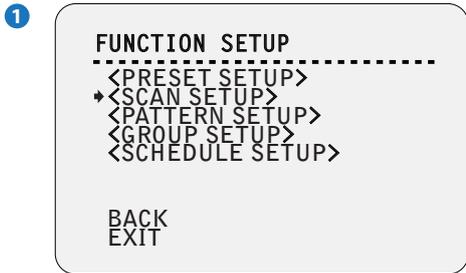
BACK
EXIT
    
```

2 CAM ADJUST
Edits label to show on monitor when the camera arrives at presets.

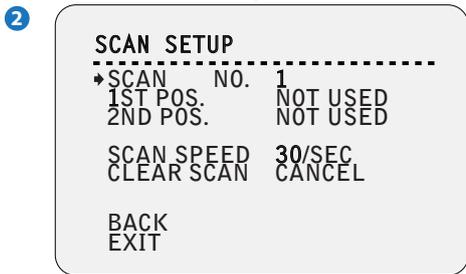
<WHITE BALANCE SETUP>
See the section 'ROOT MENU>CAMERA SETUP>WB SETUP'.

<AUTO EXPOSURE SETUP>
See the section 'ROOT MENU>CAMERA SETUP>AE SETUP'.

7 OSD - FUNCTION SETUP > SCAN SETUP



Press Near/Enter Key

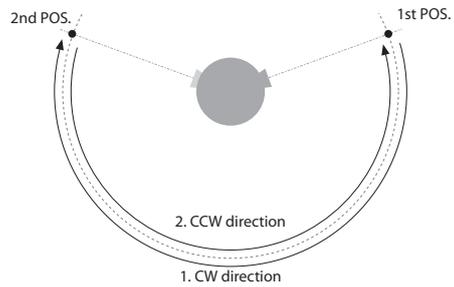


2 SCAN SETUP

By using the scan function, you can make the camera to move between 2 preset positions repeatedly.

When the scan function runs, the camera moves from the preset assigned as the 1st point to the preset assigned as the 2nd point in CW(Clockwise) direction. Then the camera moves from the preset assigned as the 2nd point to the preset assigned as the 1st point in CCW(Counterclockwise) direction.

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

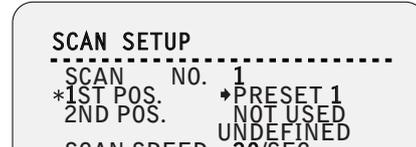


SCAN NO. 1 ~ 8

Selects the scan number to edit. If a selected scan has not defined, 'NOT USED' is displayed in 1st position and 2nd position.

1ST POS. / 2ND POS. PRESET 1 ~ 255 / NOT USED

Set up the 2 position for scan function. If a selected preset is not defined, 'UNDEFINED' will be displayed as shown below.



SCAN SPEED 1/SEC ~ 180/SEC

Sets the scan speed.

CLEAR SCAN CANCEL / OK

Deletes the current scan data.

7 OSD - FUNCTION SETUP > GROUP SETUP

1

```

FUNCTION SETUP
-----
<PRESET SETUP>
<SCAN SETUP>
<PATTERN SETUP>
* <GROUP SETUP>
<SCHEDULE SETUP>

BACK
EXIT
    
```

Press Near/Enter Key

2

```

GROUP SETUP
-----
* GROUP NO.      1
CLEAR GROUP    UNDEFINED
<EDIT GROUP>   CANCEL

BACK
EXIT
    
```

Select <EDIT GROUP>, Press Near/Enter Key

3

```

EDIT GROUP      1
-----
* NO. ACTION NO. DWELL OPT
  1 NONE
  2 NONE
  3 NONE
  4 NONE
  5 NONE
-----
SAVE
CANCEL [NEAR:EDIT]
    
```

Press Near/Enter Key

4

```

EDIT GROUP      1
-----
NO. ACTION NO. DWELL OPT
* 1 NONE
  2 NONE
  3 NONE
  4 NONE
  5 NONE
-----
SAVE [NEAR:EDIT ACT]
CANCEL [FAR :EDIT END]
    
```

Press Near/Enter Key

5

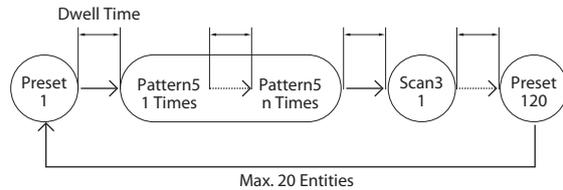
```

EDIT GROUP      1
-----
NO. ACTION NO. DWELL OPT
* 1 NONE
  2 NONE
  3 NONE
  4 NONE
  5 NONE
-----
SAVE [←→:MOVE CURSOR]
CANCEL [↑↓:CHANGE VAL.]
    
```

2 GROUP SETUP SCREEN

The group function allows running sequence of presets, pattern and/or scans. Max. 8 group can be stored. Each group can have max. 20 action entities which can be preset, pattern or scan.

Preset speed can be set up and the repeat number of pattern & scan can be set up in group setup. Dwell time between actions can be set up also.



GROUP NO. 1 ~ 8

Selects group number to edit. If a selected group number is not defined, 'UNDEFINED' will be displayed under the selected group number.

CLEAR GROUP CANCEL / OK

Deletes data in the current group.

<EDIT GROUP>

Starts editing group.

3 EDIT GROUP - Initial Screen

Press near or enter key in 'NO' list to start group setup.

ACTION NO. NONE / PRESET 1~255 / PATTERN 1~4 / SCAN 1~8

DWELL TIME 00:03 ~ 04:00 (min:sec)

Sets dwell time between function by moving joystick up/down.

OPT PRESET: 2~360 / PATTERN & SCAN: 1~255

It represents preset speed (2~360) when preset is selected. It should be the number of repetition (1~255) when pattern or scan is selected for 'ACTION'.

4 EDIT GROUP - Select Function Sequence

Note that max. 20 functions are allowed in a group.

Move cursor up/down and press near or enter key to set up.

5 6 EDIT GROUP - Assign Function

Set up 'ACTION', 'DWELL' and 'OPT'. Note that selected item is displayed in reverse. Move cursor left/right to select items and move cursor up/down to change each value.

7 OSD - FUNCTION SETUP > GROUP SETUP

6

```

EDIT GROUP                1
-----
NO. ACTION NO. DWELL OPT
→ 1 PATTERN 1 00:03 1
   2 NONE
   3 NONE
   4 NONE
   5 NONE
-----
SAVE [←→:MOVE CURSOR]
CANCEL [↑↓:CHANGE VAL.]
  
```

↓ Press Near/Enter Key

7

```

EDIT GROUP                1
-----
NO. ACTION NO. DWELL OPT
→ 1 PATTERN 1 00:03 1
   2 NONE
   3 NONE
   4 NONE
   5 NONE
-----
SAVE [NEAR:EDIT ACT]
CANCEL [FAR :EDIT END]
  
```

↓ Press Far Key

8

```

EDIT GROUP                1
-----
NO. ACTION NO. DWELL OPT
  1 PATTERN 1 00:03 1
  2 NONE
  3 NONE
  4 NONE
  5 NONE
-----
→SAVE
CANCEL
  
```

7

EDIT GROUP - Selects Function Sequence

After finishing setting up an 'ACTION', press near or enter key to one-upper-level menu. Move cursor up/down to select 'ACTION NO.' and repeat to step 4 ~ step 6 to edit the selected group.

8

EDIT GROUP - Saves the Setting

After finishing setting up all actions, press far key to exit. Then cursor should be moved to 'SAVE'. Press near or enter key to save the data.

7 OSD - FUNCTION SETUP > SCHEDULE SETUP

1

```

FUNCTION SETUP
-----
<PRESET SETUP>
<SCAN SETUP>
<PATTERN SETUP>
<GROUP SETUP>
<SCHEDULE SETUP>

BACK
EXIT
    
```

Press Near/Enter Key

2

```

SCHEDULE SETUP
-----
▶ MASTER ENABLE      OFF
  DAY TIME  ACT NO  ON
1  UNDEFINED
2  UNDEFINED
3  UNDEFINED
4  UNDEFINED
5  UNDEFINED
6  UNDEFINED
7  UNDEFINED
BACK
    
```

Joystick Down,
Press Near Key

3

```

SCHEDULE SETUP
-----
MASTER ENABLE      OFF
  DAY TIME  ACT NO  ON
1  UNDEFINED
2  UNDEFINED
3  UNDEFINED
4  UNDEFINED
5  UNDEFINED
6  UNDEFINED
7  UNDEFINED
BACK
    
```

Joystick Down

4

```

SCHEDULE SETUP
-----
MASTER ENABLE      OFF
  DAY TIME  ACT NO  ON
1  ALL 00:00 HOM  OFF
2  UNDEFINED
3  UNDEFINED
4  UNDEFINED
5  UNDEFINED
6  UNDEFINED
7  UNDEFINED
BACK
    
```

Assign Value

5

```

SCHEDULE SETUP
-----
MASTER ENABLE      OFF
  DAY TIME  ACT NO  ON
1  ALL 12:00 PRS 128 ON
2  UNDEFINED
3  UNDEFINED
4  UNDEFINED
5  UNDEFINED
6  UNDEFINED
7  UNDEFINED
BACK
    
```

2 SCHEDULE SETUP SCREEN

The schedule function allows running an appropriate function like preset, scan, pattern, group, home move at designated day and time.

EX) If you setup a rule 'Tuesday at 9:00AM' and 'Preset 1(say main gate)', the camera will move to main gate every Tuesday at 9:00 AM. If you choose weekday, camera will move to main gate everyday except weekend.

It is noted that due to the real time clock(ROOT MENU> SYSTEM SETUP>DATA/TIME SETUP), the time data will be kept regardless of blackout. The initial time and day setup is essential to proper schedule function.

MASTER ENABLE ON / OFF

Decide whether schedule function is active or not.

DAY UNDEFINED / ALL / WKD / SUN ~ MON

Set the day for scheduling.

- **Undefined:** Inactivate

- **All:** Applies to every day

- **WKD:** Applies to every day except Saturday and Sunday

- **SUN-MON:** Applies to designated day only

TIME 00:00 ~ 23:59 (hour:min)

Set the time.

ACT NO HOM(HOME) / PRS(Preset) 1~255
/ SCN(Scan) 1~8 / PTN(Pattern) 1~4
/ GRO(Group) 1~8

Set the function and no.

ON ON /OFF

Decide to make this rule effective or not.

4 5 SCHEDULE SETUP - Assign Value

Each field (DAY, TIME, ACT, NO., ON) can be selected by Left/Right keys and the values in the field are changed using Up/Down keys.

7 OSD - FUNCTION SETUP > SCHEDULE SETUP

6

SCHEDULE SETUP

```
-----  
MASTER ENABLE          ON  
DAY TIME ACT NO ON  
1 MON 01:20 HOM 12 ON  
2 WED 07:00 PRS 12 ON  
3 THU 11:40 SCN 3 ON  
4 ALL 12:00 SCN 1 ON  
5 UNDEFINED  
6 UNDEFINED  
7 UNDEFINED  
BACK
```

EX)

The second rule means camera will move to preset 12 position at 7:00 on every wednesday.

- ⊗ If there are rules conflicts to each other, the higher number is the higher priority has.
- ⊗ If you assign undefined function, there will be no action.
- ⊗ Using reserved preset, you can make various schedules.
For example, PRS179 and PRS178 are 'DAY' and 'NIGHT' mode respectively.
(Refer to Reserved Preset(page 18) list in this manual.)

7 OSD - CAMERA SETUP > WB SETUP

1

```

ZOOM CAMERA SETUP
-----
FOCUS MODE      SEMIAUTO
DIGITAL ZOOM    ON
IMAGE FLIP      OFF
FLICKERLESS     OFF
DIS MODE        OFF
* <WHITE BALANCE SETUP>
<AUTO EXPOSURE SETUP>
<SPECIAL>
BACK
EXIT
    
```

Press Near/Enter Key

2

```

WB SETUP
-----
* DAY/NIGHT     DAY
- WB MODE       ATW2
- RED ADJUST    0
- BLUE ADJUST   0

BACK
EXIT
    
```

Joystick Down,
Press Near Key

3

```

WB SETUP
-----
DAY/NIGHT     DAY
*- WB MODE    * ATW2
- RED ADJUST  0
- BLUE ADJUST 0

BACK
EXIT
    
```

Joystick Down

4

```

WB SETUP
-----
DAY/NIGHT     DAY
*- WB MODE    * AWC>
- RED ADJUST  0
- BLUE ADJUST 0
- R-GAIN      0
- B-GAIN      0

BACK
EXIT
    
```

Joystick Right

5

```

WB SETUP
-----
DAY/NIGHT     DAY
*- WB MODE    * AWC>
- RED ADJUST  0
- BLUE ADJUST 0
- R-GAIN      74
- B-GAIN      52

BACK
EXIT
    
```

1 ZOOM CAMERA SETUP

Setup the general functions of zoom camera module.

FOCUS MODE AUTO / MANUAL / SEMIAUTO

Sets the camera focus mode.

- **SEMIAUTO:** This mode exchanges the focus mode automatically between manual focus mode and auto focus mode. Manual focus mode activates in preset operation and auto focus mode activates when jog operation starts.

- **MANUAL:** With manual mode at presets, focus data is memorized in each preset in advance and camera calls focus data in correspondence with presets as soon as camera arrives at a preset.

DIGITAL ZOOM ON / OFF

Sets digital zoom function to 'ON' or 'OFF'. If this is set to 'OFF', optical zoom function runs but zoom function stops at the end of optical zoom magnification.

IMAGE FLIP ON / OFF

Sets if the image should be reversed or not.

FLICKERLESS ON / OFF

Turns on or off the flickerless function. In this function, AE mode becomes shutter priority mode and shutter speed value will be fixed to 1/100 sec.

DIS MODE ON / OFF

Sets the digital image stabilization mode.

<WHITE BALANCE SETUP>

Starts 'WHITE BALANCE SETUP' setup screen.

<AUTO EXPOSURE SETUP>

Starts 'AUTO EXPOSURE SETUP' setup screen.

<SPECIAL>

Starts to 'SPECIAL SETUP' screen.

2 WB SETUP - DAY

DAY/NIGHT DAY / NIGHT

The day/night mode can be set independently.

☒ Only, night mode will be deactivated if 'AGC' in 'CAMERA SETUP' is set to 'OFF' or 'FIX'.

WB MODE ATW1 / ATW2 / AWC / 3200K / 5600K / OFF

- **ATW1:** The color temperature is adjusted automatically between 2500K and 9300K.

- **ATW2:** The color temperature is adjusted automatically between 2000K and 10000K.

- **AWC:** The color temperature is adjusted automatically once, then adjusted value of 'R-GAIN, B-GAIN' are maintained. Gain value can be adjusted manually by the user. It can be fixed as 3200K or 5600K.

- **OFF:** Only activated when 'NIGHT' is selected. At night, the setting will be same as day's setting.

RED/BLUE ADJUST -32 ~ +32

In every mode except 'OFF', users can adjust the red/blue adjust value to have the image they want.

R/B - GAIN 0 ~ 1023

If 'AWC' is on, the adjusted value will be marked. Also, the user can adjust the values after it was adjusted automatically.

7 OSD - CAMERA SETUP > WB SETUP

6

```
WB SETUP
-----
DAY/NIGHT      NIGHT
*- WB MODE     → AWC>
- BRIGHTNESS  MIDDLE
- RED ADJUST   0
- BLUE ADJUST  0
- R-GAIN       74
- B-GAIN       52

BACK
EXIT
```

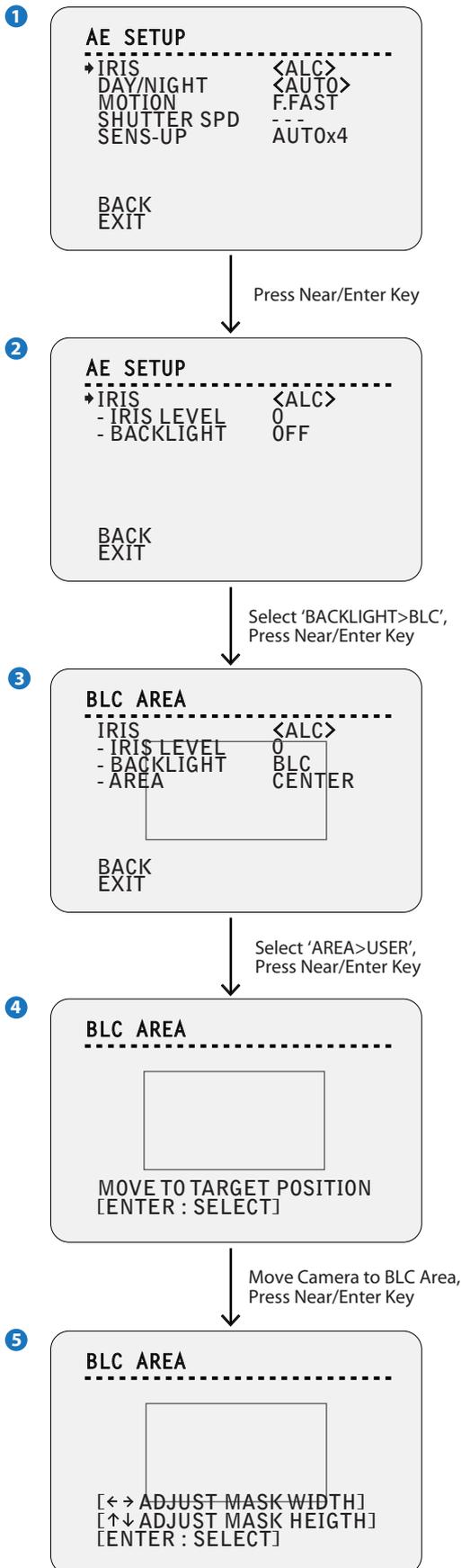
6 WB SETUP - NIGHT

BRIGHTNESS LOW / MIDDLE / HIGH

When 'NIGHT' is selected, it sets the criterion of the automatic day/night selection.

If set to 'LOW', the image has to be very dark to be recognized as night among 3 settings. If set to 'HIGH', the image will be recognized as night even though it is a little dark.

7 OSD - CAMERA SETUP > AE SETUP



1 AE SETUP

IRIS ALC / MANUAL
See the below 2 'AE SETUP - IRIS>ALC'

DAY/NIGHT DAY / NIGHT / AUTO
Color filter or B/W filter can be selected. If DAY/NIGHT is set to 'AUTO', starts 'DAY/NIGHT' editing. See the next page 2 'DAY/NIGHT'.

⊠ This is changed to 'AGC' or 'MOTION' according to the 'SENS-UP' setting.

AGC VERY LOW / LOW / MIDDLE / HIGH /
VERY HIGH / USER 1~16 / FIX 1~16

Enhances the brightness of the image by amplifying gain when the illumination is low.

MOTION S.SLOW / SLOW / NORMAL / FAST / F.FAST
If 'MOTION' is set towards 'S.SLOW', the gain will be used less. However, so as compensate it, the shutter speed will be slower to obtain more light. Thus, there will be less noise but this can cause the ghost effect of the moving object. If 'MOTION' is set towards 'F.FAST', there will be more noise but this will reduce the ghost effect of the moving object.

SHUTTER SPD OFF / 1/100 ~ 1/10K
If this speed is faster, the moving object can be photographed without the ghost effect. However, picture can be dark if there is no sufficient lighting.

⊠ If 'SENS-UP' is set to 'AUTO', 'SHUTTER SPD' is deactivated.

SENS-UP OFF / AUTO x2 ~ AUTO x256 / FIX x2 ~ FIX x256
It activates the slow shutter function when luminance of image is too dark so that CCD can accumulate the light as much as it is multiplied by the number which is set.

2 AE SETUP - IRIS>ALC

If 'ALC' is selected, iris will be controlled automatically.

IRIS LEVEL -32 ~ +32

BACKLIGHT OFF / BLC / WDR

Using this function, the backlight effect, which the object displays dark on the monitor when there is intensive backlight, can be improved.

- **BLC**: You can set the desired area, then the area will be bright. If it is set on the bright area, note that the area will be even more brighter.

- **WDR**: See the next page 'AE SETUP-IRIS>ALC>BACKLIGHT>WDR'.

3 BLC AREA

AREA TOP / BOTTOM / LEFT / RIGHT / USER

If set to 'USER', the user can set the area by him/herself.

See the screen 4 5 on this page.

7 OSD - CAMERA SETUP > AE SETUP

1

```

AE SETUP
-----
IRIS                <ALC>
*DAY/NIGHT          → <AUTO>
MOTION              F.FAST
SHUTTER SPD         ---
SENS-UP             AUTOx4

BACK
EXIT
    
```

Press Near/Enter Key

2

```

DAY/NIGHT
-----
→ BURST             OFF
[DAY→NIGHT]
-BRIGHTNESS        MIDDLE
-DWELL TIME         5 SEC
[NIGHT→DAY]
-BRIGHTNESS        MIDDLE
-DWELL TIME         5 SEC
-MASK AREA          1 2
BACK
EXIT
    
```

2 DAY/NIGHT

It is automatically changed by sensing the brightness of the scene.

BURST ON / OFF

If 'BURST' is set to 'ON', the burst signal is outputted although it is changed to B/W filter

BRIGHTNESS LOW / MIDDLE / HIGH

When switched from color to B/W filter, it has to be darker if 'BRIGHTNESS' is the 'LOW' side. When switched from B/W to color, it has to be brighter if 'BRIGHTNESS' is the 'HIGH' side.

DWELL TIME 2 SEC / 3 SEC / 5 SEC / 10 SEC / 15 SEC / 20 SEC / 25 SEC / 30 SEC

When the switching criterions are satisfied, the filter is changed after the status is maintained during the dwell time.

MASK AREA 1 / 2

If the streetlights or traffic lights are present, the mode might not be changed to B/W. In this occasion, if you set 'MASK AREA' on those kind of the spot light, this can reduce the effect of the interference on criterion.

☒ If 'BACKLIGHT' is set to 'BLC', 'MASK AREA' function is deactivated.

1

```

AE SETUP
-----
IRIS                <ALC>
- IRIS LEVEL        0
*- BACKLIGHT        → OFF

BACK
EXIT
    
```

Joystick Down

2

```

AE SETUP
-----
IRIS                <ALC>
- IRIS LEVEL        0
→ BACKLIGHT         WDR
- WEIGHT             MIDDLE
- WDR LEVEL          0
- WHITE BAL          INDOOR

BACK
EXIT
    
```

2 AE SETUP - IRIS>ALC>BACKLIGHT>WDR

In 'WDR' mode, the brightness is adjusted in all area of the picture by combining high speed shutter and low speed shutter.

WEIGHT LOW / MIDDLE / HIGH

If 'WEIGHT' goes to 'HIGH', the area applying high speed shutter is expanded.

WDR LEVEL -9 ~ +9

If 'WDR LEVEL' goes up, the speed of the high speed shutter becomes faster.

WHITE BAL INDOOR / OUTDOOR

If 'WHITE BAL' is set to 'INDOOR', the color temperature is adjusted based on the dark area, if set to 'OUTDOOR', it is adjusted based on the bright area.

☒ When 'WDR' is used, the internally operating 'VPS' function is stopped.

7 OSD - CAMERA SETUP > SPECIAL

1

| ZOOM CAMERA SETUP | |
|-----------------------|----------|
| FOCUS MODE | SEMIAUTO |
| DIGITAL ZOOM | ON |
| IMAGE FLIP | OFF |
| FLICKERLESS | OFF |
| DIS MODE | OFF |
| <WHITE BALANCE SETUP> | |
| <AUTO EXPOSURE SETUP> | |
| ▶<SPECIAL> | |
| BACK | |
| EXIT | |

↓
Press Near/Enter Key

2

| SPECIAL | |
|---------------|--------|
| ▶DNR | MIDDLE |
| ZOOM SPEED | 4 |
| DETAIL | 2 |
| AGC COLOR SUP | MIDDLE |
| PIP | OFF |
| POSI/NEGA | + |
| | |
| BACK | |
| EXIT | |

2 SPECIAL

Sets the special function related to the image.

DNR OFF / LOW / MIDDLE / HIGH / USER 1~16
If reduces the noise caused by 'AGC' action. If set towards 'HIGH', the noise will be reduced but the ghost effect on moving objects will be increased.

ZOOM SPEED 1 ~ 4
Zoom speed while zoom in/out action can be adjusted. 1 is the slowest, and 4 is the fastest.

DETAIL 0 ~ 3
The distinction can be set as 4 levels.
If the level is high, the outline is clear but the noise is increased.

AGC COLOR SUP LOW / MIDDLE / HIGH
The color range of the noise caused by 'AGC' can be reduced.
If set towards 'HIGH', the color element of the noise is reduced.
However, the overall color sense of the scene can be decreased.

PIP ON / OFF
Selects if the sub screen will be displayed.
Sub screen will be displayed on the bottom of the right side.
Even though the main image enables the digital zoom, the sub screen will only display with maximum optical zoom.

POSI/NEGA + / -
If set to '+', the normal image will be outputted. However, if set to '-', the brightness signal and color signal will be outputted as reverse.

7 OSD - INTELLIGENCE > MASK AREA

1

```

INTELLIGENCE
-----
MOTION                OFF
ADVANCED              OFF
*MASK AREA           1 2 3 4
DISPLAY              OFF
SENSITIVITY           0
RESOLUTION            0
<ALARM OUT>
BACK
EXIT
    
```

Press Near/Enter Key

2

```

INTELLIGENCE
-----
MOTION                OFF
ADVANCED              OFF
*MASK AREA           1 2 3 4
DISPLAY              OFF
SENSITIVITY           0
RESOLUTION            0
<ALARM OUT>
BACK
EXIT
    
```

Joystick Up or Down

3

```

INTELLIGENCE
-----
MOTION                OFF
ADVANCED              OFF
*MASK AREA           1 2 3 4
DISPLAY              OFF
SENSITIVITY           0
RESOLUTION            0
<ALARM OUT>
BACK
EXIT
    
```

Press Near/Enter Key

4

```

INTELLIGENCE
-----
[ ]
-----
MOVE TO TARGET POSITION
[ENTER : SELECT]
    
```

Press Near/Enter Key

5

```

INTELLIGENCE
-----
[ ]
-----
[←→] ADJUST MASK WIDTH]
[↑↓] ADJUST MASK HEIGHT]
[ENTER : SELECT]
    
```

1 INTELLIGENCE

You can enable the motion detection and tracking functions.

MOTION OFF / DETECTION / TRACKING

You can enable the motion detection and tracking functions.

- ⊗ If you set it to 'DETECTION', the 'FIX/MOVE' option of 'ADVANCED' menu will not be available.
- ⊗ In following situations, motion detection and tracking function may not work properly.
 - When there is sudden changes of brightness.
 - When the device moves.
 - When a certain object's movement fills most of the framing area.
 - When there is difficulties in distinguishing the moving object and background.

ADVANCED OFF / FIX/MOVE

You can detect motions and mark the video that contains such motion, and enables tracking of the movement.

Selecting the 'FIX/MOVE' option will mark a region if an existing object disappears, or a new object appears and fixed for a certain period of time.

- ⊗ In following situations, 'FIX/MOVE' detection may not work properly.
 - When multiple motions continue arbitrarily.
 - When the object that is fixed continues to move in the same position.
 - When a newly appearing object conceals another object that is moving.

MASK AREA 1 / 2 / 3 / 4

Select the number of the area to be masked that will be excluded from motion detection.

DISPLAY ON / OFF

When selected 'ON', it displays the motion detected and detection of configured advanced function.

SENSITIVITY 0 ~ 6

Sets the sensitivity of motion sensor.

RESOLUTION 0 ~ 6

The bigger the resolution setting, the smaller the object that can be detected.

<ALARM OUT>

Start to 'ALARM OUT' menu.

7 OSD - INTELLIGENCE > ALARM OUT

1

```
INTELLIGENCE
-----
MOTION          OFF
ADVANCED        OFF
MASK AREA      1 2 3 4
DISPLAY         OFF
SENSITIVITY     0
RESOLUTION     0
▶<ALARM OUT>

BACK
EXIT
```

↓ Press Near/Enter Key

2

```
ALARM OUT
-----
▶<MOTION          ON
FIX/MOVE         ON

BACK
EXIT
```

2 ALARM OUT

When selected 'ON', it outputs alarm signal when the motion is detected and on a detection of configured advanced function.

| | |
|--------|----------|
| MOTION | ON / OFF |
|--------|----------|

| | |
|----------|----------|
| FIX/MOVE | ON / OFF |
|----------|----------|

7 OSD - SYSTEM SETUP

1

```

SYSTEM SETUP
-----
▶ <RELAY TYPE>
  <PASSWORD>
  <SET HOME POSITION>
  <SET NORTH DIRECTION>
  LANGUAGE ENGLISH

BACK
EXIT
    
```

2

```

RELAY TYPE SETUP
-----
▶ RELAY1  NORMAL OPEN
  RELAY2  NORMAL OPEN
  RELAY3  NORMAL OPEN
  RELAY4  NORMAL CLOSE

BACK
EXIT
    
```

3

```

EDIT PASSWORD
-----
[ ]
1 2 3 4 5 6 7 8 9 0 OK
ABCDEF GHIJ CANCEL
KLMNOP QRST
UVWXYZ abcde DISABLE
efghijklmn
opqrstuvw
yz < > - / : . ←
    
```

1 SYSTEM SETUP

<RELAY TYPE>
Start 'RELAY TYPE' setup.

<PASSWORD>
Start 'PASSWORD' setup.

<SET HOME POSITION>
Starts 'SET HOME POSITION' setup.

<SET NORTH DIRECTION>
Starts 'SET NORTH DIRECTION' setup.

LANGUAGE ENGLISH / ESPAÑOL / FRANÇAIS / DEUTSCH
/ ITALIANO / РУССКИЙ / PORTUGUÊS

You can select a preferred Language of OSD display from 7 choices.
After selecting a language, press near or enter key.

2 RELAY TYPE SETUP

RELAY1, 2, 3, 4 NORMAL OPEN(N.O) / NORMAL CLOSE(N.C)
Contacts type of of 4ch. Relay out are defined.

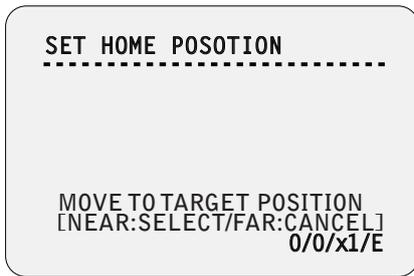
3 EDIT PASSWORD

Sets the 4 characters long password. If this function is set to 'ENABLE', the password is required whenever you enter OSD menu.

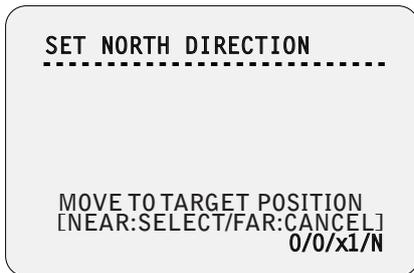
⊠ The default password is '4321' and the master password is '- - > g'.

7 OSD - SYSTEM SETUP

5



6



5 SET HOME POSITION

Home position means the origin of pan angle calculation. The value of pan angle displayed on the screen is based on this home position.

By using joystick, move the camera to the desired position and press near key.

Home is not effective to tilt angle.

If you change the location of the home position, all horizontal location of functions such as preset, scan, pattern, group and privacy zone mask will be shifted based on the changed home position.

If there are no setup for those functions like preset, pattern, scan, group camera will automatically move to home position after rebooting.

If power up action is set to be on, camera will continue the function which is executed lastly after rebooting.

⊠ Set Home Position?

When you replace the camera block or the orientation of camera is changed due to maintenance operations, it is very difficult to maintain the same pan orientation. Therefore, all function data maintain on pan orientation such as preset, scan, pattern, group and privacy zone mask are not useful any more accordingly.

However, even in this case, you can reuse the data if you redefine set home position on the previous home position.

6 SET NORTH DIRECTION

By using joystick, move the camera to the desired north position and press enter (near/save).

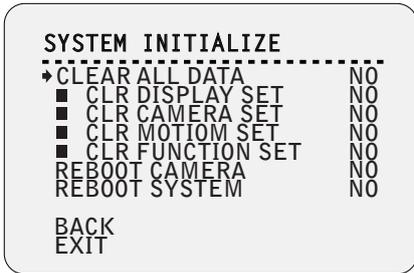
The direction will be displayed in the screen



Direction will be displayed from:

N(North) / S(South) / E(East) / W(West) / NE(Northeast) / NW(Northwest) / SE(Southeast) / SW(Southwest).

7 OSD - SYSTEM INITIALIZE



SYSTEM INITIALIZE

| | | |
|-------------------------|----------|---|
| CLEAR ALL DATA | YES / NO | Deletes all configuration data such as display, camera, motion setup and so on. |
| CLR DISPLAY SET | YES / NO | Initializes display configuration. |
| CLR CAMERA SET | YES / NO | Initializes camera configuration. |
| CLR MOTION SET | YES / NO | Initializes motion configuration. |
| CLR FUNCTION SET | YES / NO | Deletes preset data, scan data, pattern data, group data and schedule data. |
| REBOOT CAMERA | YES / NO | Reboots zoom camera module. |
| REBOOT SYSTEM | YES / NO | Reboots speed dome camera. |

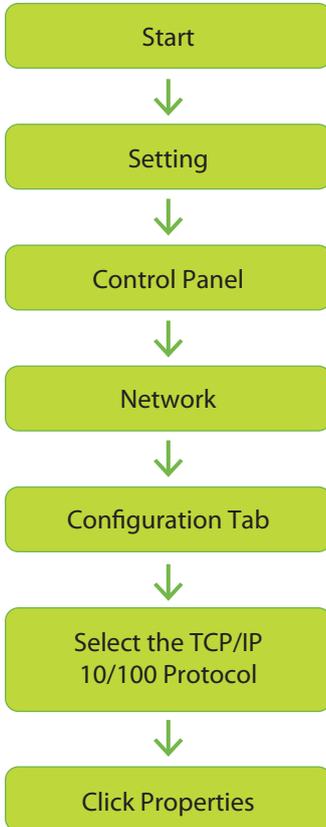
※ Initial Configuration Table

| | | |
|--------------------|-----------|---------------|
| Address | ON | |
| Camera ID | OFF | |
| PTZ Information | AUTO | |
| Action Title | AUTO | Display |
| Preset Label | AUTO | |
| Alarm I/O | AUTO | |
| Date/Time | ON | |
| Privacy Zone | Undefined | |
| Preset Lock | OFF | |
| Power Up Action | ON | |
| Auto Flip | ON | |
| Jog Max Speed | 140°/sec | Motion |
| Jog Direction | NORMAL | |
| Freeze In Preset | OFF | |
| Park Action | OFF | |
| Alarm I/O Action | OFF | |
| Preset 1~255 | Undefined | |
| Auto Pan 1~8 | Undefined | Function |
| Pattern 1~4 | Undefined | |
| Scan 1~8 | Undefined | |
| Schedule 1~7 | Undefined | |
| Focus Mode | AUTO | |
| Digital Zoom | ON | |
| Image Flip | OFF | |
| Flickerless | OFF | |
| DIS Mode | Off | |
| Day/Night | DAY | |
| WB Mode | ATW2 | |
| Red Adjust | 0 | |
| Blue Adjust | 0 | |
| Day/Night | NIGHT | |
| WB Mode | OFF | |
| Iris | ALC | Camera |
| Iris Level | 0 | |
| Backlight | OFF | |
| Day/Night | AUTO | |
| Burst | OFF | |
| Brightness | MIDDLE | |
| Dwell Time | 5 SEC | |
| Mask Area | Undefined | |
| Motion | F.FAST | |
| Sens-up | AUTOx4 | |
| DNR | MIDDLE | |
| Zoom Speed | 4 | |
| Detail | 2 | |
| AGC Color Sup | MIDDLE | |
| PIP | OFF | |
| Posi/Nega | + | |
| Motion | OFF | Intelligence |
| Advanced | OFF | |
| Mask Area | Undefined | |
| Display | ON | |
| Sensitivity | 4 | |
| Resolution | 3 | |
| Alarm Out>Motion | ON | Communication |
| Alarm Out>Fix/Move | ON | |
| Protocol | AUTO | |
| Baud Rate | 2400 | |

8 Appendix A : Current TCP/IP Settings

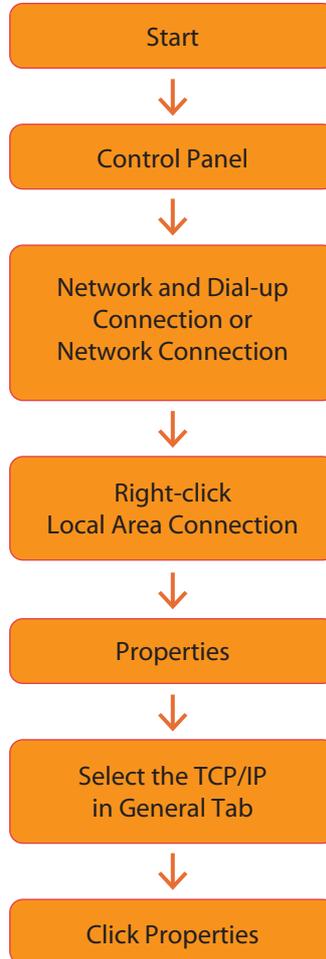
i If your IP settings are obtained automatically, you could use the MS-DOS prompt (or Command Prompt) to determine your IP address. For information on how to do this, please read the FAQ.

1. Windows 98 / ME Users



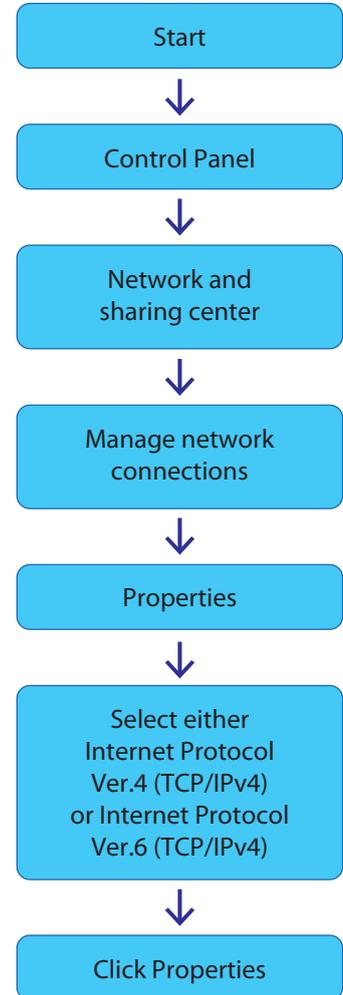
Note the settings under the IP Address, DNS Configuration, and Gateway tabs

2. Windows 2000 or XP Users



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

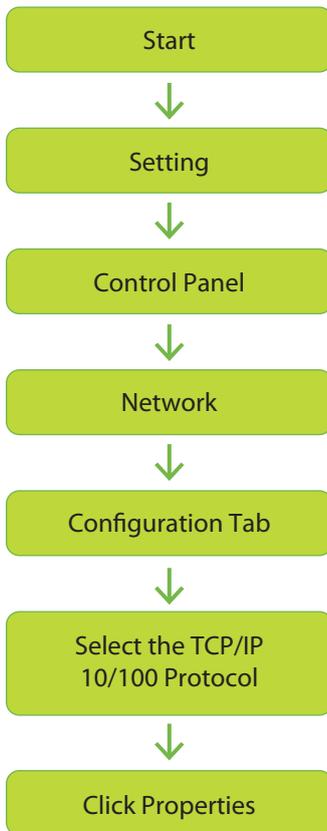
3. Windows Vista or 7 Users



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

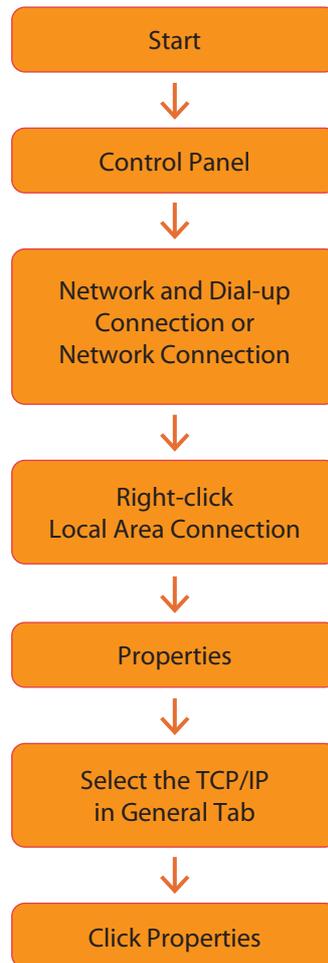
8 Appendix - 8 B : Changing IP address and subnet mask

1. Windows 98 / ME Users



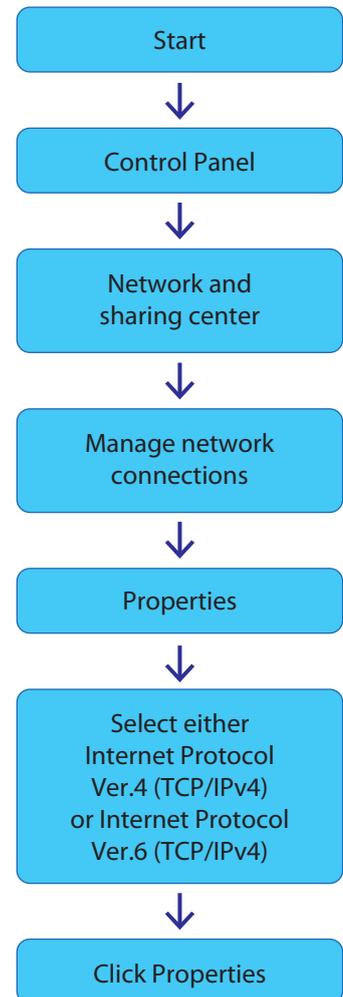
Select 'Use the following IP address' and change the IP address and Subnet Mask.

2. Windows 2000 or XP User



Select 'Use the following IP address'

3. Windows Vista or 7 Users



Select 'Use the following IP address'

8 Appendix - C : Port Forwarding

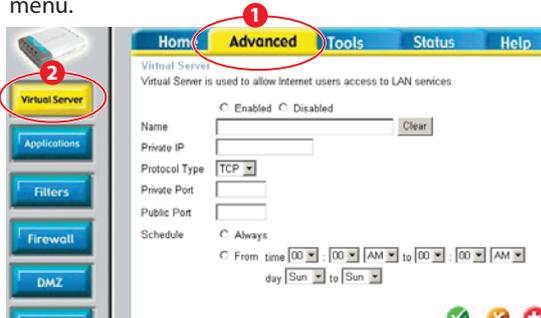
After assigning the IP Speed Dome a web server port and video server port you must use Port Forwarding (for cases A, B)

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

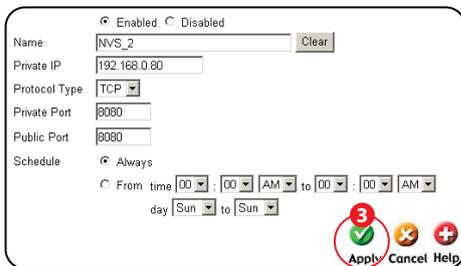
For your convenience, we have provided two example configurations.

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" |

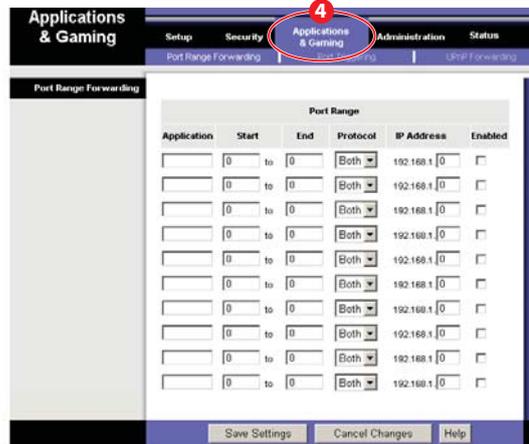
- 5) If 'Setting Saved' shows, click [Continue] button.
- 6) With the same method as above, add Video Server Port.
- 7) The Web Server Port, Video Server Port and 2 Audio Ports shows in "Virtual Server List" as below.

Virtual Servers List

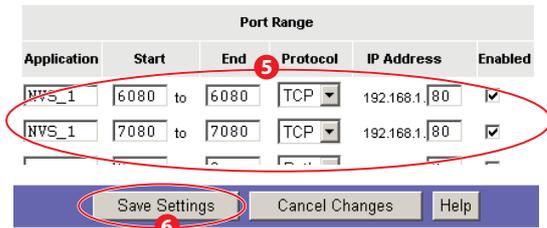
| Name | Private IP | Protocol | Schedule |
|---------|--------------|---------------|----------|
| ✓ NVS_2 | 192.168.0.80 | TCP 8080/8080 | always |
| ✓ NVS_2 | 192.168.0.80 | TCP 7777/7777 | always |
| ✓ NVS_2 | 192.168.0.80 | TCP 7778/7778 | always |
| ✓ NVS_2 | 192.168.0.80 | TCP 7779/7779 | always |
| ✓ 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.



| | |
|-------------|--|
| Application | Input IP Speed Dome name. |
| Start / End | Input IP Speed Dome 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 Speed Dome 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

Service Name: SERVICES | Server IP Address: 192.168.0.1 | Add

| # | Enabled | Service Name | Start Port | End Port | Server IP Address |
|---|---------|--------------|------------|----------|-------------------|
| | | | | | |

Buttons: Add Custom Service, Edit Service, Delete Service

Buttons: 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

Buttons: Add, Cancel

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

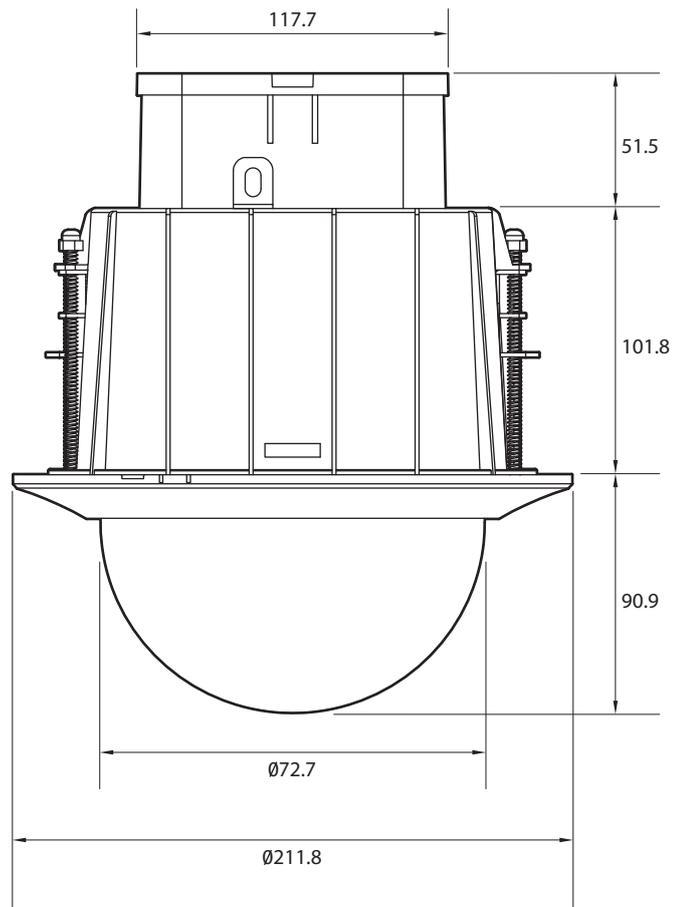
Open Internet Explorer > Tools on the menu bar > Internet Options > Security Tab > Custom Level > Scroll down and verify that you are prompted or have enabled ActiveX controls and plug-ins to be downloaded and executed. > click OK > restart browser.

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.

10 Specifications - Dimension

Unit: mm



10 Specifications - Specification

Camera

| | |
|------------------|--|
| Image Device | 1/4" Sony Ex-View HAD Progressive Scan CCD |
| Total Pixel | NTSC : 811 (H) × 508 (V) 410K Pixels • PAL : 795 (H) × 596 (V) 470K Pixels |
| Effective Pixel | NTSC : 768 (H) × 494 (V) 380K Pixels • PAL : 752 (H) × 582 (V) 440K Pixels |
| H. Resolution | Color: 560 TV Lines • B/W: 600 TV Lines |
| S/N Ratio | 52 dB (AGC Off) |
| Zoom | x39 Optical Zoom & x12 Digital Zoom (Total x468) |
| Focal Length | f = 3.4 (W) ~ 132.6 (T) mm, F1.6 (W) ~ 3.7 (T) |
| Angle of View | H: 57.54° (W) ~ 1.56° (T) • V: 44.44° (W) ~ 1.16° (T) |
| Min. Illuminance | Color: 1.2 Lux (Sens up Off), 0.004 Lux (Sens up x256) @ 50 IRE B/W: 0.12 Lux (Sens up Off), 0.0004 Lux (Sens up x256) @ 50 IRE |
| Shutter Speed | NTSC : x256 ~ x2, 1/60 ~ 1/120,000 sec. • PAL : x256 ~ x2, 1/50 ~ 1/120,000 sec. |
| Day & Night | Auto / Day / Night (ICR) |
| Focus | Auto / Manual / Semi-Auto |
| Iris | Auto / Manual |
| White Balance | ATW1 / ATW2 / AWC / Manual (ATW1 : 2500~9500°K, ATW2 : 2000~10000°K) |
| AGC | On / Off (MAX Level setting) |
| DNR | On / Off |
| DIS | On / Off |
| BLC | On / Off |
| 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 | 255 Presets with Labels / Independent Camera Setup |
| Pattern | 4 Patterns |
| Scan | 8 Scans |
| Group | 8 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 | CVBS: 1.0 V p-p / 75Ω |
| Communication | RS-485 |
| Protocol | Auto, Pelco-D/P, Samsung, Panasonic, GE(Kalatel), AD(American Dynamics) Selectable |
| Privacy Zone | 8 Zones |
| Sensor In/Out | Built-in 8 Input / 4 Relay Output |
| OSD | Menu, PTZ Information, etc., Support 7 Languages: ENGLISH / ESPAÑOL / FRANÇAIS / DEUTSCH / ITALIANO / РУССКИЙ / PORTUGUÊS |
| Power | AC 24 V, 24 W (Heater Off) / 55 W (Heater On) |
| Approvals | FCC, CE, IP66, RoHS |
| Outdoor Housing | Weather Proof, Vandal Proof Structure, White Pearl Color |
| Material | Body: Aluminum Die-casting • Clear Bubble: Polycarbonate |
| Weight | 6.2 Kg |
| Operating Temp. | AC: -40° ~ 50° C (-40° ~ 122° F) |

10 Specifications - Network Specification

| | |
|--------------------------|--|
| OS | Embedded Linux |
| Video Compression | H.264 / MJPEG / MPEG4 |
| Video Streaming | VBR / CBR (Controllable Frame Rate and Bandwidth) |
| Resolution | 4CIF / CIF / QCIF |
| Frame Rate | NTSC 4CIF: Max. 30 fps • PAL 4CIF: Max. 25 fps |
| Image Settings | Quality, Brightness, Sharpness |
| 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, RTP(UDP), RTSP, NTP, HTTP,HTTPS, SSL, DNS, DDNS, DHCP, FTP, SMTP, ICMP, SNMPv1/v2c/v3(MIB-2) |
| Security Protocol | Digest Authentication (ID/PW) |
| OS Supported | Windows 7, Vista, XP, 2000 |