

**SAMSUNG TECHWIN**

# **NETWORK CAMERA**

User Manual

SND-3080(P)



# Network Camera

## User Manual

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### Warranty

If the product does not operate properly in normal conditions, please let us know. Samsung Techwin will resolve the problem for free of charge. The warranty period is 3 years. However, the followings are excluded:

- If the system behaves abnormally because you run a program irrelevant to the system operation.
- Deteriorated performance or natural worn-out in process of time



## 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.



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



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

## WARNING

- To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.
- To prevent injury, this apparatus must be securely attached to the floor/wall in accordance with the installation instructions.
- If this power supply is used at 24V ac, a suitable plug adapter should be used.
- The camera is to be only connected to PoE networks without routing to the outside plant.

## WARNING

1. 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.
2. Incorrectly connecting the power supply or replacing battery may cause explosion, fire, electric shock, or damage to the product.
3. Do not connect multiple cameras to a single adapter. Exceeding the capacity may cause abnormal heat generation or fire.
4. Securely plug the power cord into the power receptacle. Insecure connection may cause fire.
5. When installing the camera, fasten it securely and firmly. The fall of camera may cause personal injury.
6. Do not place conductive objects (e.g. screwdrivers, coins, metal parts, 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.

# overview

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7. Do not install the unit in humid, dusty, or sooty locations. Doing so may cause fire or electric shock.
8. 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.
9. If this product fails to operate normally, contact the nearest service center. Never disassemble or modify this product in any way. (SAMSUNG is not liable for problems caused by unauthorized modifications or attempted repair.)
10. When cleaning, do not spray water directly onto parts of the product. Doing so may cause fire or electric shock
11. Do not expose the product to the direct airflow from an air conditioner. Otherwise, it may cause moisture condensation inside the Clear Dome due to temperature difference between internal and external of the dome camera.
12. If you install this product in a low-temp area such as inside a cold store, you must seal up the wiring pipe with silicon, so that the external air can not flow inside the housing. Otherwise, external high, humid air may flow inside the housing, pooling moisture or vapor inside the product due to a difference between internal and external temperature.

## CAUTION

1. Do not drop objects on the product or apply strong blows to it. Keep away from a location subject to excessive vibration or magnetic interference.
2. Do not install in a location subject to high temperature (over 50°C), low temperature (below -10°C), or high humidity. Doing so may cause fire or electric shock.
3. If you want to relocate the already installed product, be sure to turn off the power and then move or reinstall it.
4. Remove the power plug from the outlet when there is a lightning storm. Neglecting to do so may cause fire or damage to the product.
5. Keep out of direct sunlight and heat radiation sources. It may cause fire.
6. Install it in a place with good ventilation.
7. Avoid aiming the camera directly towards extremely bright objects such as sun, as this may damage the CCD image sensor.
8. Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.
9. The Mains plug is used as a disconnect device and shall stay readily operable at any time.
10. When using the camera outdoors, moisture may occur inside the camera due to temperature difference between indoors and outdoors. For this reason, it is recommended to install the camera indoors. For outdoor use, use the camera with built-in fan and heater.

## FCC STATEMENT

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions :

- 1) This device may not cause harmful interference, and
- 2) This device must accept any interference received including interference that may cause undesired operation.

## CAUTION

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of 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.



### IC Compliance Notice

This Class A digital apparatus meets all requirements of the Canadian Interference.-Causing Equipment Regulations of ICES-003.

## CAUTION

Danger of explosion if battery is incorrectly replaced.  
Replace only with the same or equivalent type.

# IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
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 is 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 the 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 powersupply 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.



Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus

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## PRODUCT FEATURES

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- **Support various communication protocols**

Supports TCP/IP, UDP, RTP/RTSP, SMTP for email, and FTP protocols as well as various internet protocols such as ARP, HTTP, HTTPS and DHCP.

- **Web Browser-based Monitoring**

Using the Internet web browser to display the image in a local network environment.

- **Automatic Local IP Setup**

Even a network novice can install it with minimum operations.

- **Alarm**

If an alarm sensor is connected and it detects a motion, a message is sent to the registered address via FTP/email (SMTP) or stored in the SD memory card, or an alarm will signal to the alarm out terminal.

- **Motion Detection**

If the camera with a specified motion area detects a motion in that area, it will send a notification to a user FTP/email account (SMTP) or stored in the SD memory card, or send the corresponding signal to the Alarm Out terminal.

- **ONVIF (Spec 1.01) Compliance**

This product supports ONVIF Core Spec. 1. 01.

For more information, refer to [www.onvif.org](http://www.onvif.org).



Driving network video through global standardization

## RECOMMENDED PC SPECIFICATIONS

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- CPU : Pentium4 / 2.4GHz or higher
- Operating System : Windows XP(Service Pack2, Service Pack3) / Windows Vista / Windows 7
- Resolution : 1024X768 pixels or higher
- RAM : 512MB or higher
- Web Browser : Internet Explorer 6.0 or higher
- Video Card : Radeon, Nvidia
- Video Memory : 128MB
- DirectX 8.1 or higher

### **Compatible Broadband Router**

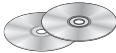
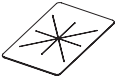
- Linksys/D-Link/Netgear

### **Compatible PoE Switches**

- Linksys SRW224G4P/D-Link DES-1316/SMC SMCPWR-INJ3

## WHAT'S INCLUDED

Please check if your camera and accessories are all included in the product package.

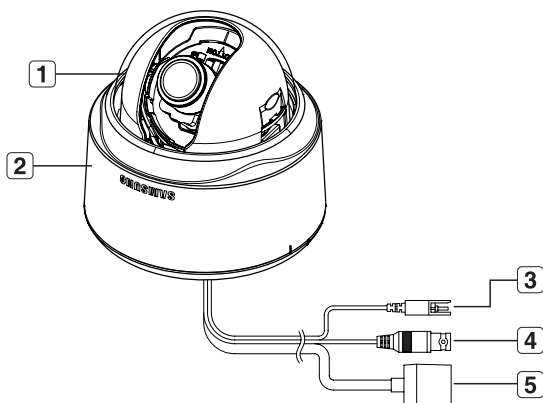
|                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  |  |  |
| Camera                                                                            | User Manual,<br>Installer S/W CD, CMS S/W DVD                                     | Quick Guide                                                                       |
|  |  |  |
| Test Monitor Cable                                                                | Screw                                                                             | Dust-proof Plate                                                                  |



- The Test Monitor Cable is connected to a portable displayer and used for testing the camera. If you intend to use it for an actual monitoring camera, use the BNC cable instead.

## AT A GLANCE

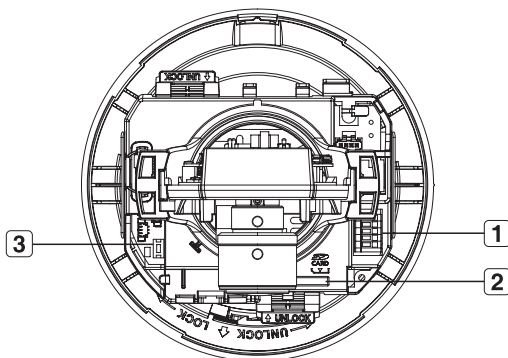
### Appearance



| Item                       | Description                                                                                               |
|----------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>1</b> Dome Cover        | Case cover used to protect the lens and the main unit.                                                    |
| <b>2</b> Main Unit         | Consists of: lens, switch board, PCB and screws.                                                          |
| <b>3</b> Power Port        | Used to plug in the power cable.                                                                          |
| <b>4</b> Video Output Port | Used to connect the Video In connector of the monitor, from which the video signal of the camera outputs. |
| <b>5</b> Network Port      | Used to connect the PoE or LAN cable.                                                                     |



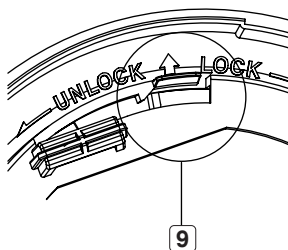
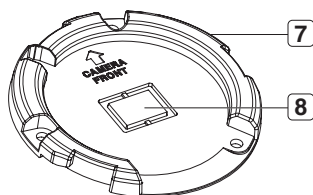
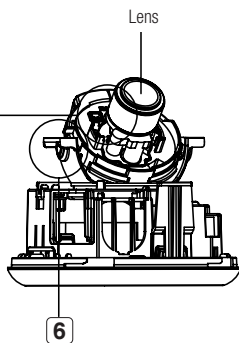
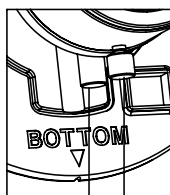
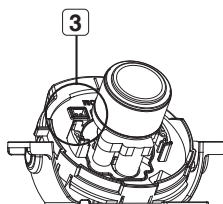
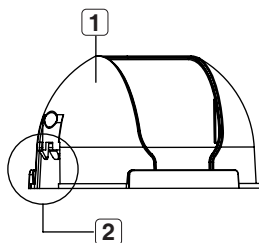
- Wipe out a dirty surface of the lens softly with a lens tissue or cloth to which you have applied ethanol.

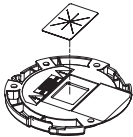


| Item                                | Description                                                                                                                                                                                                                                                                                          |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b> Alarm In / Out terminals   | Alarm in/out terminals can be configured as follows:<br>- <b>ALARM IN</b> : Terminal for Alarm Input.<br>- <b>ALARM OUT</b> : Terminal for Alarm Output.<br>- <b>GND</b> : Grounding terminal.                                                                                                       |
| <b>2</b> SD Memory Card Compartment | Compartment for the SD memory card.                                                                                                                                                                                                                                                                  |
| <b>3</b> Reset Button               | Resets the camera settings.<br>Press the button for about 3 seconds, and the system indicator turns off and will restart.<br><b>!</b> Resetting the camera requires reconfiguration of network settings (IP address, subnet mask, gateway address etc.) using the IP Installer software application. |

# overview

## Components



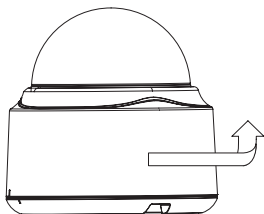
| Item                    | Description                                                                                                                                                                                                                                                         |                                                                                   |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <b>1</b> Inner Cover    | Cover used to protect the main unit.                                                                                                                                                                                                                                |                                                                                   |
| <b>2</b> Wing-Side Hook | Tap on either end to remove the inner cover.                                                                                                                                                                                                                        |                                                                                   |
| <b>3</b> Monitor Out    | The Test Monitor Cable is connected to a portable displayer and used for testing the camera.                                                                                                                                                                        |                                                                                   |
| <b>4</b> Zoom Lever     | Used to adjust or fix the zoom factor of the lens.                                                                                                                                                                                                                  |                                                                                   |
| <b>5</b> Focus Lever    | Turn it to the left or right to adjust the focus; turn it clockwise to fix the focus.                                                                                                                                                                               |                                                                                   |
| <b>6</b> Tilt Screw     | Used to adjust or fix the tilt of the lens.                                                                                                                                                                                                                         |                                                                                   |
| <b>7</b> Bracket        | Used to install the camera on the wall or ceiling with the screws.                                                                                                                                                                                                  |                                                                                   |
| <b>8</b> Wiring Cover   | <p>If you drill a hole in the wiring cover for wiring, remove the cover and attach the provided dust-proof plate to it, and arrange the cables through the plate.</p> <p>The dust-proof plate is to prevent outside dust from inflow to the wiring compartment.</p> |  |
| <b>9</b> Release Lock   | <p>If you want to remove the bracket from the main unit or remove the camera from the bracket, push this out and turn the main unit in the &lt;UNLOCK&gt; direction.</p>                                                                                            |                                                                                   |

# installation & connection

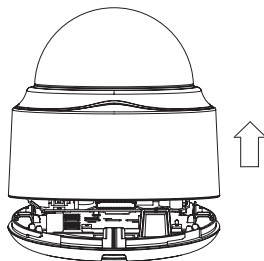
## REMOVING THE COVERS

If you want to connect the Alarm I/O connectors, you must remove the dome cover and lens cover beforehand.

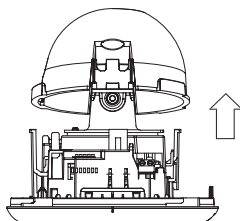
1. Turn the dome cover counter-clockwise.



2. Remove the dome cover by lifting it up.



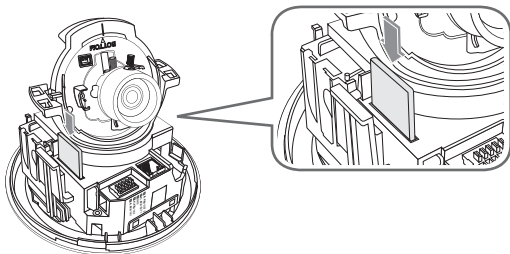
3. Tap on either end of the lens cover to remove it.



## INSERTING/REMOVING AN SD MEMORY CARD

### Inserting an SD Memory Card

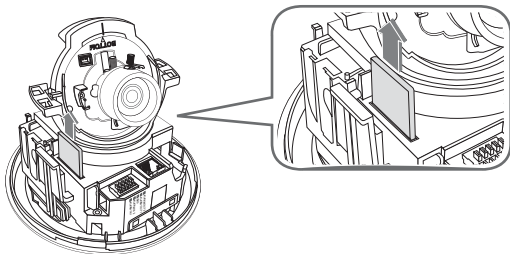
Push the SD memory card in the direction of the arrow shown in the diagram.



- Do not insert the SD memory card while it's upside down by force. Otherwise, it may damage the 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.
- Before ejecting the SD memory card, release the checkbox **<SD Card Record>** in **<Alarm image>** and press **[Apply]** button. (page 65)

## MEMORY CARD INFORMATION (NOT INCLUDED)

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### What is a 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.

### Selecting a memory card that's suitable for you

Your camera supports SDHC memory cards.

You may, however, experience compatibility issues depending on the model and make of the memory card.

Your camera supports SD memory cards.

Note that supported memory card capacity is up to 2GB.

For your camera, we recommend you use a memory card from the following manufacturers:

SDHC/SD Memory Card: Panasonic, Sandisk, Toshiba

Your camera supports 128MB to 16GB (SD Card : 2GB) of memory card capacity.

Playback performance can be affected depending on the speed of memory card, so use the high-speed memory card.

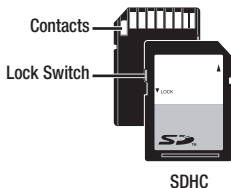
To ensure proper recording of video data, we recommend you use a memory card that supports at least read/write speed 10Mbps and Class 6.

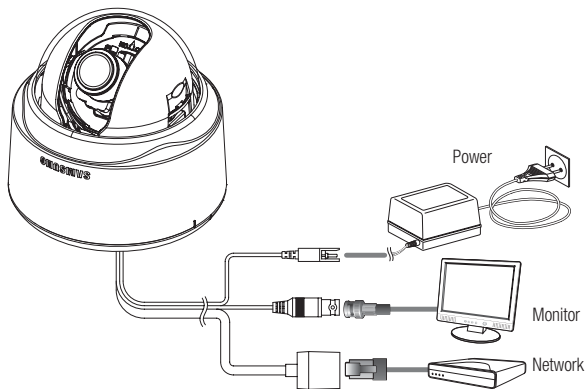
### Memory Card Use

SD and SDHC memory cards feature a switch that disables writing data on to the media.

Having this switch to the Lock position will prevent accidental deletion of data stored in the memory card but at the same time will also prevent you from writing data on to the media.

### ❖ Memory Card Components





### Power Supply

Connect the power adaptor to the power input port.



- Be careful not to reverse the polarity when you connect the power cable.  
You can also use a router featuring PoE (Power over Ethernet) to supply power to the camera.

### Connecting to the monitor

Connect the [V\_OUT] port of the camera to the video input port of the monitor.

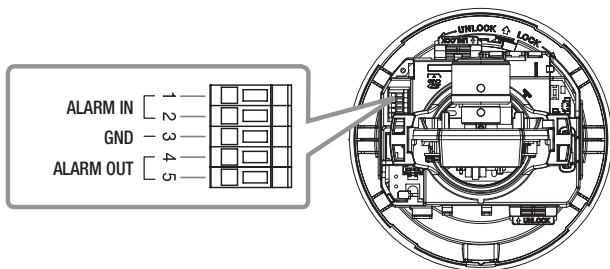
### Network Connection

Connect the Network cable to the local network or to the Internet.

# installation & connection

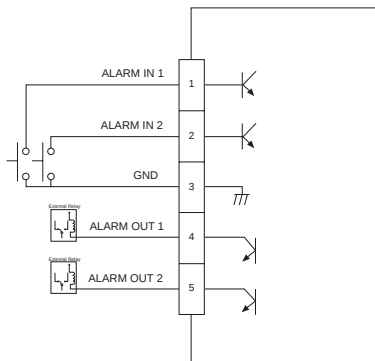
## Connecting to the I/O port box

Connect the Alarm I/O cable to the corresponding port of the inner port box.



- ALARM IN 1, 2 : Used to connect the alarm input signal.
- GND : Used for earth-grounding.
- ALARM OUT 1, 2 : Used to connect the alarm output signal.

## Alarm I/O Wiring Diagram



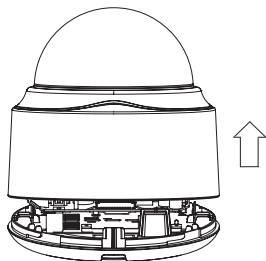
## Precautions before installation

Ensure you read the following instructions before installing the camera:

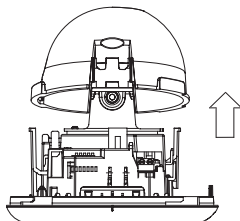
- Select an installation site (ceiling or wall) that can endure at least 5 times of the camera weight.
- Stuck-in or peeled-off cables can cause damage to the product or a fire.
- For safety purposes, keep anyone else away from the installation site. And put aside personal belongings from the site, just in case.

## Installing the camera

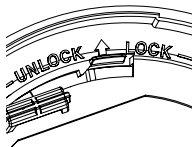
1. Hold down the bottom lock lever while removing the cover with the other hand. Removing the cover reveals the main unit and inner cover.



2. To fix the camera position, hold down either hook of the inner cover and lift it up.



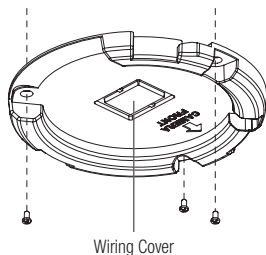
3. Push the release lock out while turning the main unit in the <UNLOCK> direction to remove the bracket.  
If this doesn't work, use the hole on the bottom of the bracket to turn the bracket in the <LOCK> direction.



# installation & connection

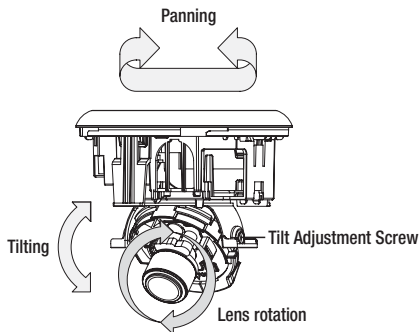
4. Use the provided screws (x3) to fix the bracket to a desired position (ceiling or wall).

- Ensure that the <CAMERA FRONT> label on the bracket faces the direction for camera monitoring.



5. Arrange the cables through the bracket to the ceiling or wall.  
If you drill a hole in the ceiling cover for wiring, press hard to remove the cover and attach the dust-proof plate to it, and arrange the cables through the plate. If you intend to arrange the cables without drilling a hole, use the empty area opposite to the <CAMERA FRONT> label side for the wiring purpose.
6. Mount the main unit onto the bracket.  
Align the marking hole of the main unit with the <CAMERA FRONT> label of the bracket, and turn the unit in the <LOCK> direction.
7. Adjust the lens in a desired direction.  
For adjusting the lens direction, refer to "**Adjusting the monitoring direction for the camera**".
8. Secure the inner cover to the main unit.  
Fit the two holes of the wing-side locks on the inner cover into the corresponding hole of the main unit, and press it down until you hear a click.
9. Fix the cover to the main unit.  
Fit the protruding part inside the cover into the corresponding hole of the main unit, and turn the cover to fix it.

## Adjusting the monitoring direction for the camera



You can adjust the camera direction only when the camera is fixed on the ceiling. Then, turning the camera to the left or right is referred to as "Panning", while tilting the angle is "Tilting". For panning, the panning limit is 220° for the clockwise, and 120° for the counter-clockwise, a total of 340° enabled; further rotation is stopped by the stopper.

## Adjusting the zoom and focus

Watch the camera's real time video and rotate the "**Zoom lever**" to zoom in/out the subject as you want.

Rotate the "**Focus lever**" until the image looks clear.

- For the position of the Zoom lever and Focus lever, refer to the "**Components**" (page 14).



- It is recommended to install the camera 2.5M~10M high above from the floor.

# camera setup

You can configure the camera settings using the Web Viewer.

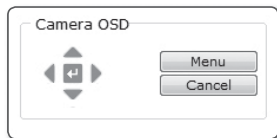


- For accessing the Web Viewer, refer to "**Network Connection and Setup**". (page 34)

## HOW TO USE THE KEYBOARD CONTROLLER

Follow the steps below if you run the Web Viewer for setting the menus.

1. Launch the Web Viewer.
2. From the **[Camera OSD]** menu in the left pane, click **[Menu]**.  
The **<MAIN MENU>** screen appears.
3. Click the Up/Down (**▲▼**) buttons to move to a desired item.
4. Click the four direction (**▲▼◀▶**) buttons to navigate through the menu items.
5. To change the value of a selected item, click the Left/Right (**◀▶**) buttons.
6. Click **[↵]**.  
Your changes will be applied.



- : Exits the menu setup screen.  
Before exiting the setup screen, select **[SAVE]** to save your settings, or **[QUIT]** to cancel them.
- : Saves your settings and returns to the previous screen.
- : Use this icon if you want to save your settings after you specified the mask area and privacy area, etc.  
Once you saved your settings, the changes remain intact even if you select **[QUIT]** on exit.
- : Use this icon if you want to delete a mask, or privacy area, etc.  
Once you deleted your settings, the deletions remain valid even if you select **[QUIT]** on exit.
- : This arrow appears next to a menu that contains sub items.

For the items with the "\*" mark on the right, You can get help from "**Terminology**". (page 71)

## MAIN MENU

You can configure the camera settings to your preference.

- **PROFILE**  
You can select a mode that is appropriate to the camera installation environment.
- **CAMERA SET**  
Configure the camera functions and settings.
- **PRIVACY ZONE**  
You can configure the privacy settings.
- **OTHER SET**  
You can configure more settings including FACTORY DEFAULTS.
- **SYSTEM INFO**  
Shows the camera version and type.



## PROFILE

You can select one from the pre-determined modes as appropriate to your specific camera installation environment.

Your selection on each item in PROFILE will affect all other settings of the camera. For the setting, refer to "PROFILE". (page 70)

For selecting and saving each menu item, refer to "How to use the keyboard controller". (page 24)

- **STANDARD**  
Automatically optimizes the camera settings to the normal environment.
- **ITS**  
This setting enables you to analyze the traffic situation and take the traffic information at a glance.
- **BACKLIGHT**  
This setting enables you to view a sharp background and object even in a severe backlight scene.
- **DAY/NIGHT**  
Automatically optimizes the camera settings to the day and night scene.
- **GAMING**  
This automatically configures the settings so that you can work in a stable illumination condition as indoors.
- **BANK**  
Automatically optimizes the camera settings to the bank environment.
- **CUSTOM**  
Your change to any of the PROFILE settings will switch the display to CUSTOM.



# camera setup

## CAMERA SETUP

You can configure the general settings of the camera module.  
Use the four direction (▲▼◀▶) buttons to select a desired item.

### CAMERA ID

Provide the ID and position for a camera that displays on the screen.

For selecting and saving each menu item, refer to "How to use the keyboard controller". (page 24)

1. Select <CAMERA SET> - <CAMERA ID>.
2. Use the four direction (▲▼◀▶) buttons to select a desired character.  
In the lower input box of the screen, the selected character will be entered.
  - You can enter up to 54 characters including alphabets, numbers and special characters.
3. When done, continue to select <LOCATION> to specify the display position of the camera ID.

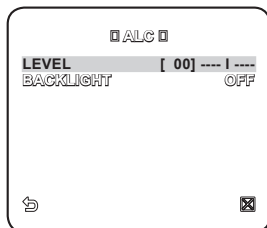


### IRIS

You can set the iris to control the intensity of radiation incoming to the camera.

For selecting and saving each menu item, refer to "How to use the keyboard controller". (page 24)

1. Select <CAMERA SET> - <IRIS>.
2. Use the left/right (◀▶) buttons to select <ALC>.
  - LEVEL : Select an overall brightness level.
  - BACKLIGHT : Select either <BLC> or <WDR>.
    - WDR : Specify the synthesis level in the WEIGHT, and shutter speed in the WDR LEVEL, or select <OUTDOOR> or <INDOOR> in the WHITE BAL.
    - BLC : Set the <BLC> area by specifying the <SIZE> and <POSITION>.



- If the iris is set to <ALC>, fixing the iris is your priority when you adjust AE and the shutter speed.

## MOTION

You can specify a level of AGC for controlling the camera motion.

Select F.FAST if you want to monitor a very fast moving object in a low contrast scene, and S.SLOW if monitoring a very slow moving, inanimate object in the same condition.

As long as DAY/NIGHT is set to AUTO, the <MOTION> menu is not available.

## DNR

Reduces the noise on the screen.

This is useful, especially for a noisy screen.

Set it to <USER>, you can specify the level.

## SHUTTER

The SHUTTER menu is used to set the fixed fast electronic shutter or auto fast electronic shutter.

## SENS-UP

If the brightness of the video signal is too low, the Slow Shutter function will be activated.

Slow Shutter can collect the individual max frame rate to adjust the setting.

## FLICKERLESS

If set to <ON>, the shutter speed will be fixed to 1/100 second. This will prevent possible screen distortion due to a mismatch between the vertical sync frequency and the blinking frequency of the lighting.

- If SHUTTER is set to AUTO, FIX, EXT mode / SENSE UP to FIX / AGC to FIX, the <DIS> menu will be disabled.

## XDR

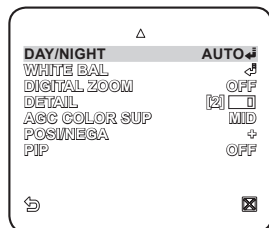
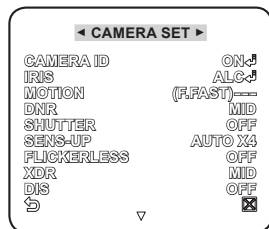
This will correct a brightness difference between different scenes for the optimal visibility. The higher the value is, the higher the correction level is.

## DIS

Automatically compensates for the flicker on the screen.

If set to <ON>, the image will be enlarged with digital zoom as much area as compensated.

- If you set DIS to ON, the compensation area will be enlarged as set in the digital zoom factor. If you set the digital zoom factor to greater than the enlarged zoom factor for the compensation, the DIS function will be deactivated.



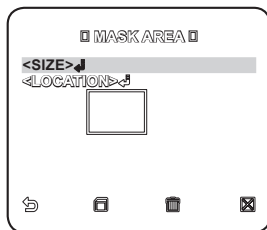
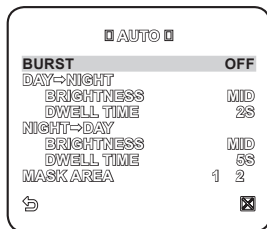
# camera setup

## DAY/NIGHT

You can specify a recording mode according to the scene.

For selecting and saving each menu item, refer to "How to use the keyboard controller". (page 24)

1. Select <CAMERA SET> - <DAY/NIGHT>.
2. Select a screen transition mode according to the illumination, and set options as appropriate.
  - DAY : Fixed to DAY mode, regardless of the scene.
  - NIGHT : Fixed to NIGHT mode, regardless of the scene.  
If BURST is set to <ON>, the burst signal will output.
  - AUTO : According to the luminance, this will switch DAY to NIGHT mode, or vice versa.
  - DAY→NIGHT / NIGHT→DAY : If set to <AUTO>, you can specify the brightness level triggering the mode switch between DAY and NIGHT as well as the interval.
  - MASK AREA : If there exists a bright spot light source in a night scene, you can specify the size and position as needed.  
Any excessively bright area in a night scene will be masked.



## WHITE BAL

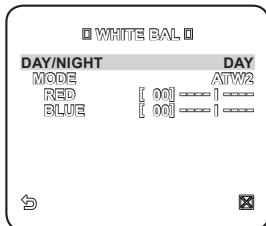
If you need to adjust the screen brightness, use the WHITE BALANCE function.

For selecting and saving each menu item, refer to "How to use the keyboard controller". (page 24)

1. Select <CAMERA SET> - <WHITE BAL>.

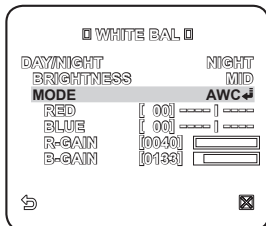
2. Select a mode where you set the balance.

- DAY : You can set the RED, and BLUE value in DAY mode.
- NIGHT : You can adjust the <WHITE BAL> according to the ambient luminance.



3. According to the specified recording mode, select a WHITE BAL mode with necessary options.

- BRIGHTNESS : Specify a brightness level triggering the switch from DAY to NIGHT mode.
- MODE : According to the selected mode, you can adjust the RED and BLUE color level.
  - RED : Adjust the strength of the red color.
  - BLUE : Adjust the strength of the blue color.
  - R-GAIN/B-GAIN : Specify the current color temperature manually.
    - You can set the R-GAIN, and B-GAIN value only in AWC mode.



## DIGITAL ZOOM

You can set the digital zoom factor and position.

When the zoom factor and position are defined, the digital zoom function will operate.

- If you set the digital zoom to a larger factor than the actual enlargement for compensation, the DIS function will be disabled.

## DETAIL

You can adjust the vertical and horizontal sharpness, respectively.

# camera setup

---

## **AGC COLOR SUP**

This will adjust the color scheme according to the AGC value.

## **POSI/NEGA**

This will display the video brightness signal either normally or reversely.

## **PIP**

You can view a main image with a sub image on the same screen.

- If more than one privacy zone is set and the PRIVACY SET is set to ON, the PIP function will be deactivated.

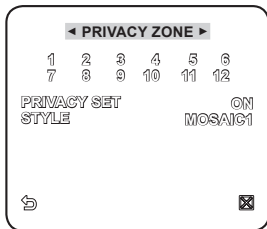
## PRIVACY ZONE

You can set up to 12 privacy zones that will be hidden for privacy of the subject when recording.

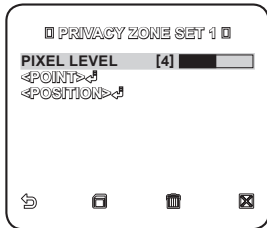
For selecting and saving each menu item, refer to "How to use the keyboard controller". (page 24)

### ZONE SETUP

1. Select <MAIN MENU> - <PRIVACY ZONE>.
2. Use the four direction (▲▼◀▶) buttons to select a desired number.  
The Zone setup screen appears.



3. Select the <PIXEL LEVEL>.  
Specify the pixel unit level for the POSITION setting.
4. Select <POINT>.  
You will see dots on the screen.
5. Use the four direction (▲▼◀▶) buttons to specify the position for each of the four dots.
6. Select <POSITION> and use the four direction (▲▼◀▶) buttons to specify the position for each of the four dots.
7. Save the changes and move to the previous screen and select the <STYLE>.  
Select <COLOR> and pick a desired color.



- Setting one or more privacy zone and enabling privacy function will disable the PIP function.

## OTHERS

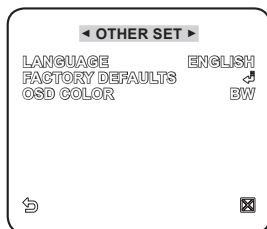
You can reset the camera, or select the OSD font color to your preference.

For selecting and saving each menu item, refer to **"How to use the keyboard controller"**. (page 24)

### LANGUAGE

You can select a preferred language for the screen display.

Select your language by using the left and right keys.



### FACTORY DEFAULT

1. Select <MAIN MENU> - <OTHER SET> - <FACTORY DEFAULTS>.

The FACTORY DEFAULTS setup screen appears.

2. Select <OK>.

All the settings will be restored to the factory default.

However, the language setting will not be restored.



### OSD COLOR

You can set the font color of the user interface.

## SYSTEM INFO

You can check the system information.

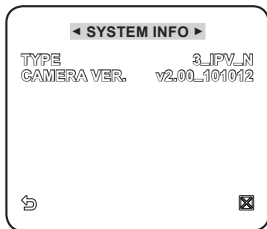
For selecting and saving each menu item, refer to "How to use the keyboard controller". (page 24)

1. Select <MAIN MENU> - <SYSTEM INFO>.

2. The current system information is displayed.



- The camera type may different, depend on the video signal.



# network connection and setup

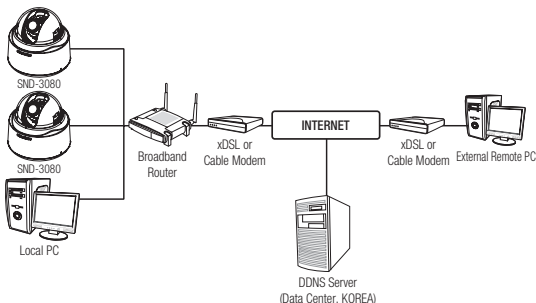
You can set up the network settings according to your network configurations.



- Before installing or while using this program, visit the Samsung website [www.samsungsecurity.com](http://www.samsungsecurity.com) and download and upgrade with the latest S/W version available.

## CONNECTING THE CAMERA TO AN BROADBAND ROUTER WITH THE XDSL/CABLE MODEM

This is for a small network environment such as homes, SOHO and ordinary shops.



### Configuring the network settings of the local PC connected to an Broadband Router

Configuring the network settings of the local PC connected to an Broadband Router, follow the instructions below.

- Select : <Network Neighborhood> → <Properties> → <Local Area Connection> → <Properties> → <General> → <Internet Protocol (TCP/IP)> → <Properties> → <Obtain an IP address automatically> or <Use the following IP address>.
- Follow the instructions below if you select <Use the following IP address>:
  - ex1) If the address (LAN IP) of the Broadband Router is 192.168.1.1  
IP address: 192.168.1.100  
Subnet Mask: 255.255.255.0  
Default Gateway: 192.168.1.1
  - ex2) If the address (LAN IP) of the Broadband Router is 192.168.0.1  
IP address: 192.168.0.100  
Subnet Mask: 255.255.255.0  
Default Gateway: 192.168.0.1

ex3) If the address (LAN IP) of the Broadband Router is 192.168.xxx.1  
IP address: 192.168.xxx.100  
Subnet Mask: 255.255.255.0  
Default Gateway: 192.168.xxx.1



■ For the address of the Broadband Router, refer to the product's documentation.

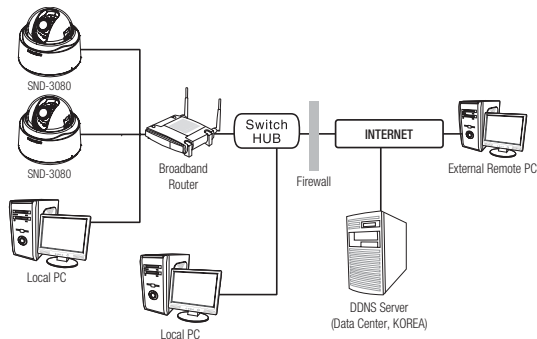
## Checking if the Broadband Router is connected to the xDSL/Cable modem properly

Select **<Status>** from the **Settings** menu of the Broadband Router

- If it is properly connected, **<IP Address>**, **<Subnet Mask>** and **<Gateway>** provided by your ISP are displayed. Please remember these values because they are required so that an external remote computer of the Broadband Router connects to the camera. However, note that certain ISPs change the settings of **<IP Address>**, **<Subnet Mask>** and **<Gateway>** on a regular basis
- If the Broadband Router is not properly connected, press the **[Connect]** button to try to reconnect or check if the settings of the Broadband Router are correct.

## CONNECTING THE CAMERA TO AN BROADBAND ROUTER WITH LOCAL AREA NETWORKING

This is for a large network environment such as corporate office, building, public office and factory.



## Configuring the network settings of the local PC connected to an Broadband Router

Configuring the network settings of the local PC connected to an Broadband Router, follow the instructions below.

- Select : **<Network Neighborhood>** → **<Properties>** → **<Local Area Connection>** → **<Properties>** → **<General>** → **<Internet Protocol (TCP/IP)>** → **<Properties>** → **<Obtain an IP address automatically>** or **<Use the following IP address>**.

# network connection and setup

- Follow the instructions below if you select **<Use the following IP address>**:

ex1) If the address (LAN IP) of the Broadband Router is 192.168.1.1

IP address: 192.168.1.100

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.1.1

ex2) If the address (LAN IP) of the Broadband Router is 192.168.0.1

IP address: 192.168.0.100

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.0.1

ex3) If the address (LAN IP) of the Broadband Router is 192.168.xxx.1

IP address: 192.168.xxx.100

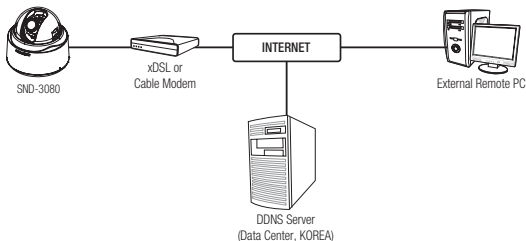
Subnet Mask: 255.255.255.0

Default Gateway: 192.168.xxx.1



- For the address of the Broadband Router, refer to the product's documentation.

## CONNECTING THE CAMERA DIRECTLY TO A DHCP-BASED XDSL/CABLE MODEM



### Setting the Broadband Router

This is enabled for a modem using DHCP.

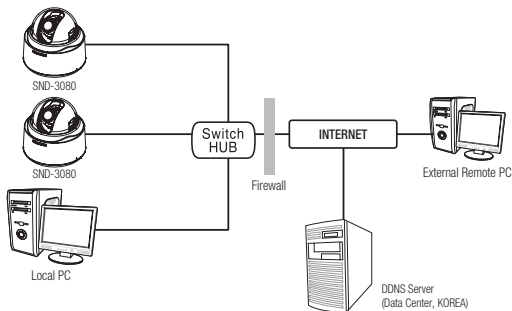
- Set the Static or Dynamic IP address. (pages 39~42)
- Launch an Internet browser on the local PC connected to the Broadband Router.
- Enter the Broadband Router's address in the address bar of the browser.  
ex) <http://192.168.1.1>, <http://192.168.0.1> or <http://192.168.xxx.1>
  - For the DDNS URL address, refer to "To check the DDNS address". (page 46)

4. When the Broadband Router is connected, the login window appears and prompts you to enter the password.
  - For the login IP and the password, refer to the Broadband Router's documentation.
5. When done, you will see the setup window of the Broadband Router. In the setup menu, select "**Automatic Configuration-DHCP**" for Internet Connection Type.
  - For the menu location of Internet Connection Type or DHCP selection, refer to the Broadband Router's documentation.
6. When done, click the [Save] or [Apply] button to save the settings.

## CONNECTING THE CAMERA DIRECTLY TO LOCAL AREA NETWORKING

### Connecting to the camera from a local PC in the LAN

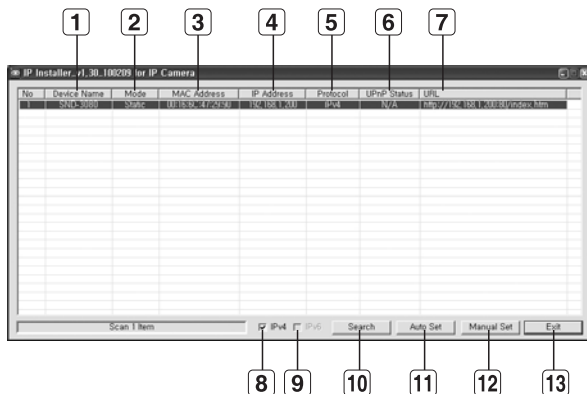
1. Launch an Internet browser on the local PC.
2. Enter the IP address of the camera in the address bar of the browser.



- A remote PC in an external Internet out of the LAN network may not be able to connect to the camera installed in the intranet if the port-forwarding is not properly set or a firewall is set. In this case, to resolve the problem, contact your network administrator.

# network connection and setup

## BUTTONS USED IN IP INSTALLER



| Item                           | Description                                                                                                                                                                 |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b> Device Name           | Model name of the connected camera.<br>Click the column to sort the list by model name.<br>However, search will be stopped if clicked during the search.                    |
| <b>2</b> Mode                  | Displays either <Static> or <Dynamic> for the current network connection status.                                                                                            |
| <b>3</b> MAC(Ethernet) Address | Ethernet address for the connected camera.<br>Click the column to sort the list by Ethernet address.<br>However, search will be stopped if clicked during the search.       |
| <b>4</b> IP Address            | IP address.<br>Click the column to sort the list by IP address.<br>However, search will be stopped if clicked during the search.<br>The factory default is "192.168.1.200". |
| <b>5</b> Protocol              | Network setting for the camera.<br>The factory default is "IPv4".<br>Cameras with the IPv6 setting will be displayed "IPv6".                                                |
| <b>6</b> UPnP Status           | This function is not currently implemented.                                                                                                                                 |

| Item                 | Description                                                                                                                                                      |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>7</b> URL         | DDNS URL address enabling access from the external Internet. However, this will be replaced with the <IP Address> of the camera if DDNS registration has failed. |
| <b>8</b> IPv4        | Scans for cameras with the IPv4 setting.                                                                                                                         |
| <b>9</b> IPv6        | Scans for cameras with the IPv6 setting.                                                                                                                         |
| <b>10</b> Search     | Scans for cameras that are currently connected to the network. However, this button will be grayed out if neither IPv4 nor IPv6 is checked.                      |
| <b>11</b> Auto Set   | <IP Installer> will automatically configure the network settings for you.                                                                                        |
| <b>12</b> Manual Set | You should configure the network settings manually.                                                                                                              |
| <b>13</b> Exit       | Exits the IP Installer program.                                                                                                                                  |

## STATIC IP SETUP

### Manual Network Setup

Run <IP Installer.exe> to display the camera search list.

At the initial startup, both [Auto Set] and [Manual Set] will be grayed out.



- For cameras found with the IPv6 setting, these buttons will be grayed out as the cameras do not support this function.

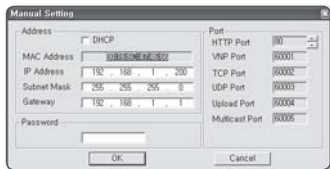
- Select a camera in the search list.  
Find the MAC (Ethernet) address labeled on the rear of the camera.  
Both the [Auto Set] and [Manual Set] buttons will be activated.



- Click [Manual Set].  
The Manual Setting dialog appears.  
The default values of <IP Address>, <Subnet Mask>, <Gateway>, and <HTTP Port> of the camera will be displayed.  
The default <PASSWORD> is 4321.

- In the <ADDRESS> pane, provide the necessary information.

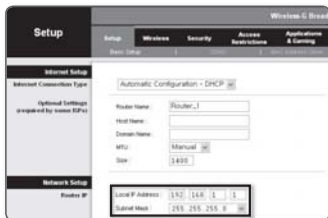
- MAC (Ethernet) Address : The MAC (Ethernet) address of the applicable camera will be set automatically so you don't need to input it manually.



# network connection and setup

## If using an Broadband Router :

- IP Address : Enter an address falling in the IP range provided by the Broadband Router.  
ex) 192.168.1.2~254,  
192.168.0.2~254,  
192.168.XXX.2~254
- Subnet Mask : The <Subnet Mask> of the Broadband Router will be the <Subnet Mask> of the camera.
- Gateway : The <Local IP Address> of the Broadband Router will be the <Gateway> of the camera.



## If not using an Broadband Router :

For setting <IP Address>, <Subnet Mask>, and <Gateway>, contact your network administrator.



- The values of VNP, TCP, UDP, Upload, and Multicast ports can not be changed manually, and will be adjusted according to the HTTP port value.

## 4. In the <Port> pane, provide necessary information.

- HTTP Port : Used to access the camera using the Internet browser, defaulted to 80. Use the spin button to change the HTTP Port value. The start value of the port is 80, and increases or decreases by 6 like 10000, 10006, 10012.
- VNP Port : Used to control the video signal transfer, defaulted to 60001(TCP).
- TCP Port : Video signal transfer port using TCP protocols, defaulted to 60002(TCP).
- UDP Port : Video signal transfer port using the UDP Unicast method, defaulted to 60003(UDP).
- Upload Port : Used to upgrade the software firmware, defaulted to 60004(TCP).
- Multicast Port : Video signal transfer port using the UDP Multicast method, defaulted to 60005(UDP).



## 5. Enter the password.

This is the login password for the "admin" user who accesses the camera.  
The default password is "4321".

6. Click [OK].

Manual network setup will be completed.

7. When the manual setup including <IP> is completed, the camera will restart.

**If the Broadband Router has more than one camera connected**

Configure the IP related settings and the Port related settings distinctly with each other.

| Category              |                | Camera #1     | Camera #2     |
|-----------------------|----------------|---------------|---------------|
| IP related settings   | IP Address     | 192.168.1.200 | 192.168.1.201 |
|                       | Subnet Mask    | 255.255.255.0 | 255.255.255.0 |
|                       | Gateway        | 192.168.1.1   | 192.168.1.1   |
| Port related settings | HTTP Port      | 80            | 10000         |
|                       | VNP Port       | 60001         | 10001         |
|                       | TCP Port       | 60002         | 10002         |
|                       | UDP Port       | 60003         | 10003         |
|                       | Upload Port    | 60004         | 10004         |
|                       | Multicast Port | 60005         | 10005         |



- If the <HTTP Port> is set other than 80, you must provide the <Port> number in the address bar of the Internet browser before you can access the camera.

ex) http://IP address : HTTP Port

http://192.168.1.201:10000

## Auto Network Setup

Run <IP Installer.exe> to display the camera search list.

At the initial startup, both [Auto Set] and [Manual Set] will be grayed out.



- For cameras found with the IPv6 setting, these buttons will be grayed out as the cameras do not support this function.

1. Select a camera in the search list.

Find the MAC (Ethernet) address

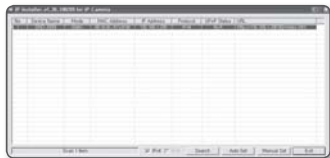
labeled on the rear of the camera.

Both the [Auto Set] and [Manual Set] buttons will be activated.

2. Click [Auto Set].

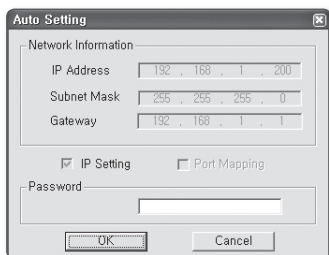
The Auto Setting dialog appears.

The <IP Address>, <Subnet Mask>, and <Gateway> will be set automatically.



# network connection and setup

3. Enter the password.  
This is the login password for the "admin" user who accesses the camera.  
The default password is "4321".
4. Click [OK].  
Auto network setup will be completed.
5. The camera will automatically complete the network setting and restart.



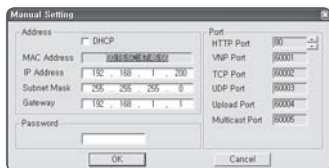
## DYNAMIC IP SETUP

### Dynamic IP Environment Setup

- Example of the dynamic IP environment
  - If an Broadband Router, with cameras connected, is assigned an IP address by the DHCP server
  - If connecting the camera directly to the xDSL or cable modem using the DHCP protocols
  - If IPs are assigned by the internal DHCP server via the LAN

### Checking the dynamic IP

1. From a local PC, run <IP Installer> to display a list of cameras that are assigned <Dynamic IP>.
2. Select a camera in the list, and click [Manual Set] to check the <Dynamic IP> of the camera.  
If you uncheck <DHCP>, you can change <IP> or <Port> to <STATIC>.

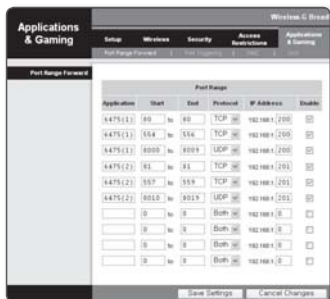


## PORT RANGE FORWARD (PORT MAPPING) SETUP

If you have installed an Broadband Router with a camera connected, you must set the port range forwarding on the Broadband Router so that a remote PC can access the camera in it.

### Manual Port Range Forwarding

1. From the Setup menu of the Broadband Router, select **<Applications & Gaming>** - **<Port Range Forward>**. For setting the port range forward for a third-party Broadband Router, refer to the user guide of that Broadband Router.
2. Select **<TCP>** and **<UDP Port>** for each connected camera to the Broadband Router. Each port number for the Broadband Router should match that specified in **<Basic>** - **<IP>** from the camera's Setup menu.
3. When done, click **[Save Settings]**. Your settings will be saved.



# network connection and setup

## CONNECTING TO THE CAMERA FROM A SHARED LOCAL PC

1. Launch <IP Installer>.  
It will scan for connected cameras and display a list of them.
2. Double-click a camera to access.  
The Internet browser starts and connects to the camera.



- You can also access the camera in such way you type the IP address of the found camera in the address bar of the Internet browser.

## CONNECTING TO THE CAMERA FROM A REMOTE PC VIA THE INTERNET

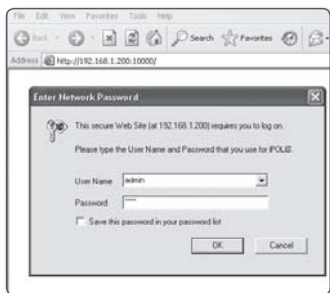
As a remote PC can not directly access <IP Installer>, you should access the camera in the Broadband Router network using DDNS URL of the camera.

1. Before you can access a camera in the Broadband Router network, you should have set the port range forward for the Broadband Router.
2. From the remote PC, launch the Internet browser and type the DDNS URL address of the camera, or the IP address of the Broadband Router in the address bar.  
ex) <http://mffe42.websamsung.net>
  - For the DDNS URL address, refer to "To check the DDNS address". (page 46)

## CONNECTING TO THE CAMERA

### Normally, you would

1. Launch the Internet browser.
2. Type the IP address of the camera in the address bar.
  - ex) • IP address (IPv4) : 192.168.1.200  
→ http://192.168.1.200
  - the Login dialog should appear.
  - IP address (IPv6) : 2001:230:abcd:ffff:0000:0000:ffff:1111  
→ http://[2001:230:abcd:ffff:0000:0000:ffff:1111]



### If the HTTP port is other than 80

1. Launch the Internet browser.
2. Type the IP address and HTTP port number of the camera in the address bar.
  - ex) IP address : 192.168.1.200:Port number(10000) → http://192.168.1.200:10000
  - the Login dialog should appear.

### Using URL

1. Launch the Internet browser.
2. Type the DDNS URL of the camera in the address bar.
  - ex) URL address : http://mfffe42.websamsung.net
  - the Login dialog should appear.

### Connecting via URL (If the HTTP port is other than 80)

1. Launch the Internet browser.
2. Type the DDNS URL and HTTP port number of the camera in the address bar.
  - ex) URL address : http://mfffe42.websamsung.net:Port number(10000)
  - http://mfffe42.websamsung.net:10000
  - the Login dialog should appear.

## To check the DDNS address

The DDNS address consists of: <one of the lower-case letters: c, m, p> + <the last 6 digits of the MAC (Ethernet) address> + <websamsung.net>

The small letter will be <c> if the first 6 digits of the MAC (Ethernet) address is <00:00:f0>, or <m> if they are <00:16:6c>, or <p> for <00:68:36>, or <i> for <00:09:18>.

- ex) - If the MAC (Ethernet) address is 00:00:f0:ff:fe:42: c + ffe42 + websamsung.net = cffe42.websamsung.net
- If the MAC (Ethernet) address is 00:16:6c:ff:fe:42: m + ffe42 + websamsung.net = mffe42.websamsung.net
  - If the MAC (Ethernet) address is 00:68:36:ff:fe:42: p + ffe42 + websamsung.net = pffe42.websamsung.net
  - If the MAC (Ethernet) address is 00:09:18:ff:fe:42: i + ffe42 + websamsung.net = iffe42.websamsung.net



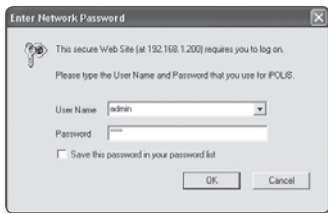
- The above mentioned addresses are simply examples; do not use any of these for connecting purposes.

## LOGIN

---

The default user ID is “**admin**”, and the default password is “**4321**”.

1. Enter “**admin**” in the <User Name> input box.
2. Enter “**4321**” in the <Password> input box.  
If the password is changed, enter the changed password instead.
3. Click [OK].  
If you have logged in successfully, you will the Live Viewer screen.



- For security purposes, ensure that you change the password in <Basic> - <User>. The administrator ID, “**admin**”, is fixed and can not be changed.

- If you check the “**Save this password in your password list**” option when your input is done, you will be logged in automatically without being prompted to enter the login information from next time on.



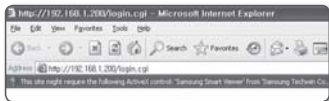
- For this, your computer has installed DirectX 8.1 or later.  
You can get a free download of the latest DirectX from <http://www.microsoft.com/download>.  
If you are using Internet Explorer 7.0 or 8.0 as the default web browser, you can view the best quality image with a screen ratio of 100%. Reducing the ratio may cut the image on the borders.

# INSTALLING ACTIVEX

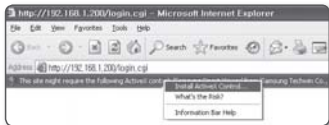
If connecting to a camera for the first time, you will see the installation message. Then, install the required ActiveX to access the camera and control the video from it in real time.

## For Windows XP Service Pack 2 users

1. Click the installation message that pops up when you first access the camera.



2. Click <Install ActiveX Control...>.



3. The security warning popup appears, click [Install].



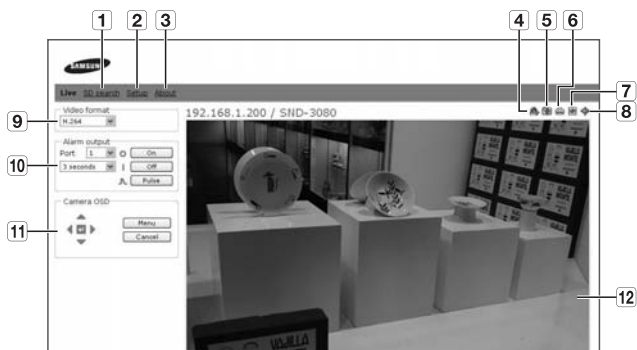
4. When the required ActiveX is installed properly after your access to the camera, the Live screen should appear.



- For normal installation, set the Block Popup setting as follows:  
**Internet Explorer → Tools → Block Popup → Always allow popups from the current site(A)**



## USING THE LIVE SCREEN



| Item                   | Description                                                                                                                                                                                                 |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b> SD search     | Moves to the screen for searching event images from the SD card.                                                                                                                                            |
| <b>2</b> Setup         | Move to the Setup screen.                                                                                                                                                                                   |
| <b>3</b> About         | You can check the firmware version, serial number and manufacturer information.                                                                                                                             |
| <b>4</b> Reset Alarm   | Resets the Alarm icon. (the Alarm and Motion icons disappear.)                                                                                                                                              |
| <b>5</b> Capture       | Saves the snapshot as an image file in the .jpeg or .bmp format.                                                                                                                                            |
| <b>6</b> Print         | Prints out the current image.                                                                                                                                                                               |
| <b>7</b> Record        | Saves the snapshot as a video file in the .avi format.                                                                                                                                                      |
| <b>8</b> Full Screen   | Displays the Live screen in full screen.                                                                                                                                                                    |
| <b>9</b> Video format  | You can set the video format (MJPEG, H.264/MPEG4) for video files.<br>The context menu will differ, depending on the codec specified in <b>&lt;Select H.264 &amp; MPEG4 Video&gt;</b> of the active viewer. |
| <b>10</b> Alarm output | On : Activates the specified Alarm Out port.<br>Off : Deactivates the specified Alarm Out port.<br>Pulse : Activates the Alarm Out port as much time as specified before deactivating it.                   |

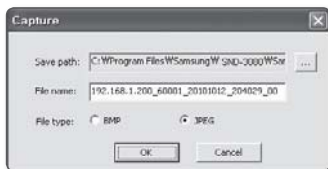
| Item                    | Description                                                                                                                                                |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>11</b> Camera OSD    | Used to retrieve and customize the Camera Setup menu.<br>For selecting and saving each menu item, refer to "How to use the keyboard controller". (page 24) |
| <b>12</b> Viewer Screen | Displays the Live video on the screen.                                                                                                                     |

## BACKUP

You can capture, print out, and save the snapshot in the specified path.

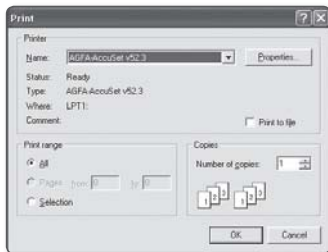
### To capture the snapshot

- Click  on the scene to capture.  
The Capture dialog should appear.
- Click **[OK]**.  
The screenshot will be saved in the specified path.
  - Default file path
    - Windows XP : C:\Program Files\Samsung\SND-3080\SnapShot\Live  
If you want to change the path, click **[Set path (...)]** and specify a path.
    - Windows Vista, Windows 7 : C:\users\[UserID]\Documents\Samsung\SND-3080\SnapShot\Live  
On the Windows Vista, Windows 7 system, the path to save is fixed.
  - The screenshot file will be named automatically in the format of <IP address\_Port number\_YYYYMMDD\_hhmmss\_index>.  
ex) 192.168.1.200\_60001\_20101012\_204029\_00



### To print out the screenshot

- Click  on the scene to print out.  
The Print setup dialog appears.
- Specify the name of the printer connected, and click **[OK]**.

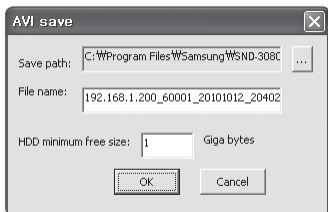


## To record a video

1. Click [RECORD] on the scene to record.

2. You will see the Save AVI dialog; provide the necessary information.

- Save path : You can change the default saving path.
- File name : You can change the default file name.
- HDD minimum free size : If the free space on the HDD is less than the recorded space, recording will be forcibly ended.



3. Click [OK].

Recording will start with the display of <REC> on the viewer screen. The video file will be saved into the specified path.

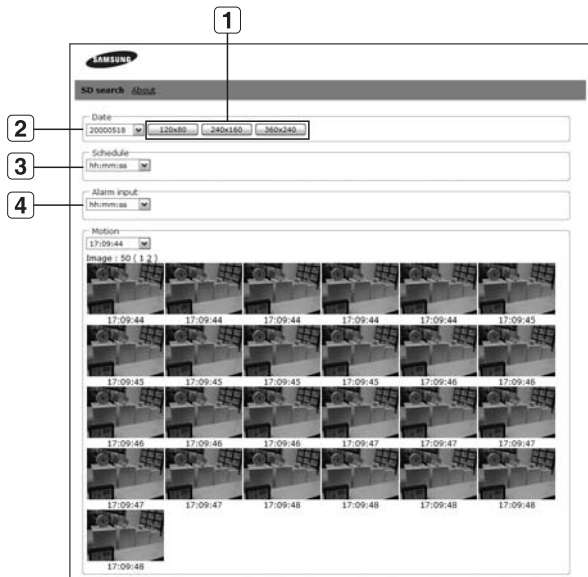
4. If you want to quit recording, click [STOP] again.

- Default file path
  - Windows XP : C:\Program Files\Samsung\SND-3080\VideoClip\Live
  - If you want to change the path, click [Set path (...)] and specify a path.
  - Windows Vista, Windows 7 : C:\users\[UserID]\Documents\Samsung\SND-3080\VideoClip\Live
  - On the Windows Vista, Windows 7 system, the path to save is fixed.
- The screenshot file will be named automatically in the format of <IP address\_Port number\_YYYYMMDD\_hhmmss\_index>.  
ex) 192.168.1.200\_60001\_20101012\_204059\_00
- If you want to play an .avi file, you must have installed the corresponding DivX codec on your system.  
You can get a free download of the DivX from <http://sourceforge.net/projects/ffdshow/>.
- A specific codec to MPEG4 is required before you can play videos in the MPEG4 format.  
You can download the codec for MPEG4 videos from [www.samsungsecurity.com](http://www.samsungsecurity.com).



## USING THE SD SEARCH VIEWER SCREEN

1. Click <SD search> tab in the Live screen.
2. The SD Search Screen appears.



| Name                    | Function and description                                        |
|-------------------------|-----------------------------------------------------------------|
| <b>1</b> Thumbnail Size | The thumbnail images are displayed based on the selected size.  |
| <b>2</b> Date           | You can select the desired date to search for events generated. |
| <b>3</b> Schedule       | You can select the desired time to search the schedule events.  |
| <b>4</b> Alarm input    | You can select the desired time to search the alarm events.     |

# setup screen

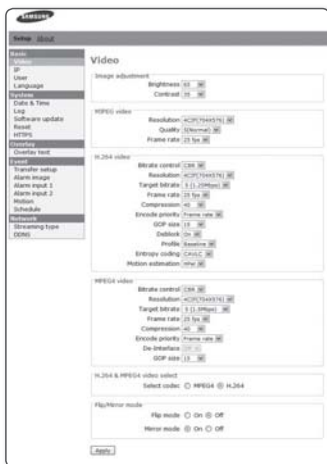
## ACCESSING THE SETUP SCREEN

You can configure the default setting, system, overlay, event and network related settings, and change them as necessary.

1. In the Live screen, click the **<Setup>** tab.



2. The Setup screen appears.



## To configure the video settings

You can set the video resolution and quality, and select the codec required.

### 1. Select <Basic> - <Video>.

The Video setup screen appears.

- **Brightness** : Adjust the screen brightness from 1 to 100.
- **Contrast** : Adjust the contrast from 1 to 100.
- **Resolution** : Set the video size of the MPEG4, H.264, and MPEG files.
  - NTSC : 4CIF(704x480), VGA(640x480), CIF(352x240)
  - PAL : 4CIF(704x576), VGA(640x480), CIF(352x288)
- **Quality** : Adjust the picture quality from 1 to 10.
- **Frame rate** :
  - NTSC : Select one from 30 fps, 15 fps, 8 fps, 3 fps, and 1 fps.
  - PAL : Select one from 25 fps, 13fps, 6fps, 3fps and 1fps.
- **Bitrate control\*** : Select CBR (Constant Bit Rate) or VBR (Variable Bit Rate) for the compression method.

■ If selecting VBR, you can not set the target bit rate.

- **Target bitrate** : Transfers video signal at a specified bit rate.
- **Compression** : Adjust the compression rate from 5 through 100 by 5.
- **Encode priority** : Set the video transfer method to Frame rate or Quality.
- **GOP\* size** : Select a GOP size between 5 and 15.
- **Deblock** : This will soften the edges between macro blocks.
- **De-interlace** : You can set the grid noise reduction function.
  - This can be set only if the resolution of MPEG4 video is 4CIF.
- **Profile** : Select Baseline or Main for the H.264 profiling method.
- **Entropy coding\*** : Reduces the compression loss due to encoding.
- **Motion estimation** : Estimates the movement of pixels by determining the motion vector.

The screenshot shows the 'Video' configuration menu. It is divided into several sections: 'Image adjustment' with sliders for Brightness (65) and Contrast (35); 'MPEG video' with dropdowns for Resolution (4CIF(704x576)), Quality (5(Normal)), and Frame rate (25 fps); 'H.264 video' with settings for Bitrate control (CBR), Resolution (4CIF(704x576)), Target bitrate (5 (1.5Mbps)), Frame rate (25 fps), Compression (40), Encode priority (Frame rate), GOP size (15), Deblock (On), Profile (Baseline), Entropy coding (CavLC), and Motion estimation (vbr); 'MPEG4 video' with similar settings to H.264; and 'H.264 & MPEG4 video select' where 'Select codec' is set to 'MPEG4'. At the bottom, 'Flip/Mirror mode' has 'Flip mode' set to 'Off' and 'Mirror mode' set to 'On'. An 'Apply' button is at the bottom left.

# setup screen

- Flip mode : Turn upside down the image that is captured by the camera.
- Mirror mode : Flip horizontal the image that is captured by the camera.



- If you set the profile to Baseline, the entropy coding is available only for CAVLC\*; if you set it to MAIN, the entropy coding is available for both CAVLC\* and CABAC\*.
- If you set WDR to <OFF>, or the resolution of MPEG4 video is other than 4CIF, De-Interlace of MPEG4 codec will not be available.

## 2. When done, click [Apply].

Your settings will be saved.

## To configure the IP settings

### 1. Select <Basic> - <IP>.

The IP setup window appears.

- IP configuration : Set the IP and port settings for the camera.
  - IP type : Select one from <Static IP>, <Dynamic IP>, and <PPPoE IP>.
    - If you select <PPPoE IP>, you can provide the optional ADSL IP and password. However, the multicast items (multicast address, port, TTL) for VNP and RTP will disappear.
  - MAC address : Displays the Ethernet MAC address. This is used for creating a DDNS address.
  - IP address : Displays the current IP address.
  - Subnet mask : Displays the <Subnet mask> for the set IP.
  - Gateway : Displays the <Gateway> for the set IP.
  - DNS server : Displays the DNS(Domain Name Service) server address.
  - HTTP webserver port : HTTP port used to access the camera via the web browser. The default is 80(TCP).
  - Upload port (TCP) : Used to upgrade the software firmware, defaulted to 60004(TCP).

**IP**

IP configuration

IP type: Static IP

MAC address: 00:14:00:00:00:00

IP address: 192.168.0.203

Subnet mask: 255.255.255.0

Gateway: 192.168.0.1

DNS server: 168.126.63.1

HTTP webserver port: 80

Upload port (TCP): 60004

IPv6 configuration

IPv6 enable: ☐

VNP configuration

Device port (TCP): 60001

TCP streaming port: 60002

UDP streaming port: 60003

Multicast address: 225.128.1.128

Multicast port: 60005

TTL: 63

RTP configuration

RTP port: 554

Streaming port: 61000 ~ 61999

Multicast address: 225.128.1.128

Multicast port: 62000

TTL: 63

[Apply]

- IPv6 configuration : Obtains the IPv6 address to access the IPv6 network.
- VNP configuration : Set a port used to transfer video signals with the Samsung protocols.
  - Device port (TCP) : Used to control the video signal transfer, defaulted to 60001(TCP).
  - TCP streaming port : Video signal transfer port using TCP protocols, defaulted to 60002(TCP).
  - UDP streaming port : UDP Port used to transfer video signal with the UDP Unicast protocols. The default is 60003(UDP).
  - Multicast address : IP address used to transfer video signal with the UDP Multicast protocols.  
The default is 225.128.1.128, and if you want to change the address, specify it ranging from 224.0.0.0 to 239.255.255.255.
  - Multicast port : UDP Port used to transfer video signal with the UDP Multicast protocols. The default is 60005(UDP).
  - TTL\* : Set the TTL for the VNP packet.  
The default is 63, and if you want to change the address, specify it ranging from 0 to 255.
- RTP configuration : You can set the RTP protocol.
  - RTSP port : You can set the RTSP port.
  - Streaming port : Used to transfer video signal with the RTP protocols.  
The default range is between 61000 and 61999.
  - Multicast address : IP address used to transfer video signal with the RTP protocols.
  - Multicast port : Used to transfer video signal with the RTP-protocol multicasting.
  - TTL\* : You can set the TTL for the RTP packet.

## 2. When done, click **[Apply]**.

Your settings are saved and the system restarts.

The currently opened web browser will be closed.



- If the Broadband Router has more than one camera connected, you should configure IP and port settings differently with each other.

# setup screen

## To set the user account

### 1. Click <Basic> - <User>.

The User setup window appears.

- Login authentication : You can set to authenticate the login by the user.
  - If you select <Enable>, the user should have gone through the login authentication; if selecting <Disable>, every user can access the system without the login authentication, having the ordinary user permissions.
  - When done, click [Apply].
- User login ID/password list : Displays a list of accessible users ID, passwords, and ratings.
  - You can add up to 10 users.
  - The admin ID is "admin".
  - The password for the admin ID can be changed, but not added or deleted.



The screenshot shows the 'User' setup window. It has two main sections. The first section is 'Login authentication' with radio buttons for 'Enable' (selected) and 'Disable'. Below it is an 'Apply' button. The second section is 'User login ID/password list'. It contains a table with columns 'Select', 'User ID', 'Password', and 'Level'. There is one row with a radio button in the 'Select' column, 'admin' in 'User ID', '\*\*\*\*' in 'Password', and 'Administrator' in 'Level'. Below the table are buttons for 'Insert', 'Modify', and 'Delete'.

### 2. When done, click [Apply].

Your settings will be saved.

The currently opened web browser will be closed.

## User Registration

### 1. From the User setup window, click [Insert].

The Register User window appears.

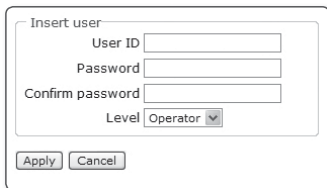
### 2. Provide the <User ID>, <Password>, and <Confirm password>, respectively. You can enter up to 9 alphanumeric or special characters (some excluded) for the user ID and password, respectively.

### 3. Select a user level.

Select either <Operator> or <User> for a new user's permission.

### 4. Click [Apply].

The user registration is completed.



The screenshot shows the 'Insert user' window. It has four input fields: 'User ID', 'Password', and 'Confirm password', each with a text box. Below these is a 'Level' dropdown menu with 'Operator' selected. At the bottom are 'Apply' and 'Cancel' buttons.



- An existing user ID can not be added duplicate.
- Neither admin ID nor guest ID can be registered.

## To edit a registered user account

1. From the User setup window, select a user ID to change.
2. From the User setup window, click **[Modify]**.  
The Modify user window appears.
3. Change the <User ID>, <Password>, <Confirm password>, and <Level> as you wish.
4. Click **[Apply]**.  
The selected user ID will be changed.

## To delete a user ID

1. From the User setup window, select a user ID to delete.
2. From the User setup window, click **[Delete]**.  
The selected user ID will be deleted.



### ■ About the user permission

Administrator : Can use all functions (change/control settings).

Operator : Can use only the functions available in the Live Viewer.

User : Can only view the video on the Live Viewer.

## To set the display language

1. Click <Basic> - <Language>.  
The Language setup window appears.  
You can select one from 7 languages (English/Korean/Chinese/French/Italian/Spanish/German).
2. When done, click **[Apply]**.  
The selected language will be applied.

## SYSTEM SETUP

### To set the date/time

You can obtain the current system time from the NTP server or your PC for your time setting.

1. Select **<System> - <Date & Time>**.

The Date & Time setup window appears.

2. If you select Manual, input the date and time manually.

Your settings will be saved.

- Current system time : The specified time in System Time Setup will be applied.
- System time setup : You can synchronize the system time with the NTP server (time server) or your PC, or specify it manually.



- You can specify the time between January 1, 2000 and December 31, 2037.

### To set the system time

1. Select a desired address in **<Address>** or select **<Synchronize with PC viewer>**.

2. If you select Manual, input the date and time manually.

3. Click **[Apply]**.

The specified system time will be applied.



- **<NTP Server IP>** is provided by a public agency, the list of which is subject to change from time to time.

- In a local network, a separate NTP server must be manually defined.



- The current time can vary depending on the computers regional (GMT and DST) and country (PC time configuration) settings.

## To check the log information

Select **<System>** - **<Log>**.

The Log information list appears.

- **System log list** : Shows the log information about the system changes along with time and IP address.

- User login : Shows the current login user to the camera.
- Video configuration change : Show video setting changes.
- System time change : Shows the time changes.
- System started : Shows time when the camera is turned on.

**Log**

System log list

First Previous 1/4 Next Last

| Time               | Item           | IP            |
|--------------------|----------------|---------------|
| 2009-7-23 20:39:32 | User login     | 192.168.0.24  |
| 2009-7-23 20:58:35 | User login     | 192.168.0.24  |
| 2009-7-23 20:54:28 | User login     | 192.168.0.65  |
| 2009-7-23 20:34:10 | User login     | 192.168.0.65  |
| 2009-7-22 18:06:28 | User login     | 192.168.0.24  |
| 2009-7-21 15:18:46 | User login     | 192.168.0.24  |
| 2009-7-21 12:02:00 | User login     | 192.168.0.24  |
| 2009-7-21 11:58:01 | Network is up  | 192.168.0.203 |
| 2009-7-21 11:57:39 | System started | 192.168.0.203 |
| 2009-7-20 20:27:35 | User login     | 192.168.0.24  |
| 2009-7-20 16:04:27 | User login     | 192.168.0.11  |



- The maximum of 2000 logs can be recorded.

If the log number is over 2000, the log in the bottom of the log list will be replaced with a new log.

## To update the software

Select **<System>** - **<Software update>**.

The Software update window appears.



### How to update the software

1. From the software update window, click **[Browse...]**.  
The Open dialog appears.
2. Select an updatable file and click **[Open]**.
3. From the software update window, click **[Install]**.  
The selected file will be unzipped with a start of the update.  
It may take a several minutes to complete the update.
4. When the software update is completed, you will be prompted to restart the system.
5. Click **[OK]** to restart the system.  
Since the current connection is disconnected, you have to connect to the system again.



# setup screen



- If the network is disconnected, the power supply fails, or the PC abnormally operates during the update, the system does not work at all.

## To reset the system

Restart or reset the system if it does not work properly or causes a problem.

Select **<System>** - **<Reset>**.

The Reset window appears.



- Restart : Restarts the system.
- Factory default : Resets the system settings to the factory defaults with following two options:
  - Except network parameter : Resets all settings except for the Network Parameters.
  - All : Restores all settings to the default.

This works the same as pressing the **[RESET]** button on the inside of the camera.



- After the system is reset or restarts, you should try to connect to the camera again.
- It takes several minutes until the system completes rebooting. Wait until the system rebooting is completed and try to connect again.
- After executing **<Factory default>**, you must run the **<IP Installer.exe>** program to change the basic network settings such as IP address, Subnet mask, Gateway, etc., before you can connect to the Internet.

## To set the HTTPS

1. Select **<System>** - **<HTTPS>**.

The HTTPS setup window appears.

- Secure connection system : Select a secure connection system to use. To use the secure connection mode requiring the public certificate for the secure connection system, you must have installed a signed certificate issued by a certificate authority on your system.



- Install a public certificate : To install the certificate to camera, you need to type a certificate name (it can be arbitrarily assigned by user), certificate file issued from the authority and a key file. When done, click **[Install]**.  
If the certificate is installed successfully, the user-defined certificate name will be displayed. Also, the option button of **<HTTPS (Secure connection mode using the public certificate)>** in the upper side becomes activated.



- To access the camera using HTTPS mode, you have to type the IP address for the camera in the form of "https://<Camera\_IP>".

2. When done, click **[Apply]**.  
The web viewer will switch to the set secure connection system.

## OVERLAY SETUP

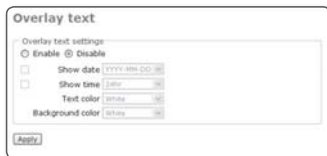
You can display text on the screen.

### To set the text

1. Select **<Overlay>** - **<Overlay text>**.

The Overlay Text setup window appears.

2. When done, click **[Apply]**.  
Your settings will be saved.



- Overlay text settings : If you select **<Disable>**, the overlay text will not be displayed; If selecting **<Enable>**, it will display on the screen.
- Show date : Set to display the date information on the bottom screen.
  - Output Format : Select a display format of the date information.  
YYYY-MM-DD : Year-Month-Day / MM-DD-YYYY : Month-Day-Year / DD-MM-YYYY : Day-Month-Year
- Show time : Set to display the time information on the bottom screen.
  - Output Format : Select a display format of the time information.  
24hr : Displays the time in the 24-hour format.  
12hr : Displays the time in the 12-hour format.
- Text color : Select black or white for the text color.
- Background color : Select black or white for the background color.

## EVENT SETUP

### To set the event transfer function

You can set the FTP/email server (SMTP) to transfer the alarm images present in the camera, in case an alarm event occurs.

Select **<Event>** - **<Transfer setup>**.

The Image transfer setup window appears.



- For more information on commercial SMTP services, contact the SMTP service provider.

**Transfer setup**

FTP transfer  
( Not verified )

☒ Use passive mode

FTP server address

Upload path

Port

User ID

Password

E-mail(SMTP) transfer  
( Not verified )

☐ Use SSL/TLS

SMTP server address

Port

User ID

Password

E-mail sender

E-mail receiver

Title

Message

### To test the FTP transfer

Click **[Test]**.

This will test if the image is transferred to the specified FTP server properly.

When the test on the FTP server connection and transfer is done, a message of **<( Verified )>** will be displayed.

You will see an error message if the test fails. If this is the case, check the FTP server status or the settings again.

**Transfer setup**

FTP transfer  
( Not verified )

☒ Use passive mode

FTP server address

Upload path

Port

User ID

Password

- **FTP transfer** : With this, you can transfer alarm images to the FTP server. If the initial FTP server setting and the connection status are not verified, the **<( Not verified )>** message appears.
  - Use passive mode : Select this option when the passive mode connection is inevitable due to the firewall or FTP server setting.
  - FTP server address : Enter the IP address of a FTP server to which an alarm image will be transferred.

- Upload path : You can specify the path of the FTP directory to which you will transfer an alarm image.  
You can specify the path by just typing </**directory name**> or <**directory name**> in this field.  
If nothing is specified, the path will be defaulted to the root directory of the FTP server.
- Port : The FTP port is defaulted to 21. This value can be changed according to the FTP server setting.
- User ID : Provide the user account ID to access the FTP server.
- Password : Provide the user account password to access the FTP server.
- **E-mail(SMTP) transfer** : With this setting, you can transfer alarm images to the email server. This function is available only for the SMTP email server. When the initial SMTP server setting and connection are not verified, the <**Not verified**> message appears.
  - SMTP server address : Enter the SMTP server address to use when you send an email.  
ex) 10.240.56.228
  - Port : Enter a port number to use when you send an email. The default is 25.
  - User ID : Provide the user account ID to access the SMTP server.
  - Password : Provide the user account password to access the SMTP server.
  - E-mail sender : Enter the address of the email sender. If the sender address is incorrect, the email from the sender may be classified as SPAM by the SMTP server and may not be sent.
  - E-mail receiver : Enter the address of the email receiver.
  - Title : Enter the subject of the email to send.
  - Message : Enter the content of the email to send.

# setup screen

## To test the email transfer

Click **[Test]**.

This will test if the image is transferred to the specified SMTP server properly. When the test on the SMTP server connection and transfer is done, a message of **<(Verified)>** will be displayed.

You will see an error message if the test fails.

If this is the case, check the SMTP server status or the settings again.

The screenshot shows the 'E-mail(SMTP) transfer' screen with the status '(Not verified)'. It includes a checkbox for 'Use SSL/TLS'. Below this are input fields for 'SMTP server address', 'Port' (set to 25), 'User ID', 'Password', 'E-mail sender', 'E-mail receiver', and 'Title'. A large text area for 'Message' is at the bottom, followed by a 'Test' button.

## To setup the record

1. Click **<Event>** - **<Record setup>**.

The Record setup window appears.

2. To complete the setting, click the **[Apply]** button.

The settings are saved.

- SD card : Enables you to verify data saved on the SD memory card and format the memory card itself.

It is possible to set to automatically delete movie clips recorded before a certain period of time (e.g. 1 week, 1 month, or 1 year).

- Options : Determine whether or not you wish to receive Email notification of insufficient capacity warnings.

The screenshot shows the 'Record setup' screen. Under 'SD card', there is a 'Storage information' section with a progress bar showing 321 MB (32 %) used out of 975 MB. It includes a 'Format' button and a 'Delete (except 1 week)' button. Below this is an 'Options' section with checkboxes for 'Capacity warning by e-mail' and 'Overwriting mode'. An 'Apply' button is at the bottom left.

## To set an alarm image

You can configure to send message via FTP/E-mail (SMTP) or to save recording into the SD memory card.

Select a transfer method when an event occurs or the schedule transfer function is activated.

### 1. Select <Event> - <Alarm image>.

The Alarm Image setup window appears.

- **Transfer mode** : You can select alarm message notification method among FTP/E-mail transfer and SD Card recording.

- FTP transfer : The image is sent to the specified FTP address.
- E-mail transfer : The image is sent to the specified email address.
- SD Card Record : Saves images into the SD memory card.



- If an SD memory card is not inserted, the corresponding button will be disabled. In this case, insert the SD memory card into the slot and refresh to enable the button.



- If the SD memory card is ejected while the button is checked, the camera automatically restarts.

- **Transferred image naming setup** : You can set the file name of an alarm image to be sent when an alarm is triggered or during the scheduled transfer.
- **Pre/post alarm image** : You can set to save the pre or post alarm image.
  - Number of image : The frame rate per second can be one among 1, 2, 3, and 5.
  - Pre-alarm duration : The pre alarm duration can be one among 5 seconds, 10 seconds, 15 seconds, and 30 seconds. You can send a pre-alarm image of up to 30 seconds before the alarm is triggered. (The max time differs, depending on the frame rate)
  - Post-alarm duration : The post alarm duration can be one among 5 seconds, 10 seconds, 15 seconds, and 30 seconds. You can send a post-alarm image of up to 30 seconds after the alarm is triggered. (The max time differs, depending on the frame rate)



- The pre/post alarm duration is not available in SMTP transfer mode. Only one image at the corresponding time will be transferred.

### 2. When done, click [Apply].

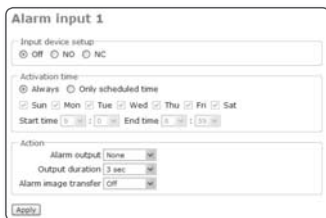
Your settings will be saved.

# setup screen

## To set the alarm input

1. Select **<Event>** - **<Alarm input 1>** or **<Alarm input 2>**.  
The Alarm Input setup window appears.
2. When done, click **[Apply]**.  
Your settings will be saved.

- **Input device setup** : Select an input type according to the characteristics of the alarm sensor on the rear of the camera.
  - Off : Turns off the alarm input setting.
  - NO (Normal Open) : It is normally open, but if it is closed, an alarm will be triggered.
  - NC (Normal Close) : It is normally closed, but if it is open, an alarm will be triggered.
- **Activation time** : You can set a time to execute a specific command when an alarm occurs.
  - Always : Always executes the specified command when an alarm occurs.
  - Only scheduled time : Executes the specified command when an alarm occurs only on a specified weekday, or time.
- **Action** : You can set an action to execute when an alarm occurs.
  - Alarm output : Set the alarm output port to which the alarm signal is transferred.
  - Output duration : Set the period of time to output the alarm signal to the specified alarm output port when an alarm occurs.  
If a new alarm event is detected during the alarm output, the delay time is recalculated based on the detection time of the recent alarm.
  - Alarm image transfer : If you select **<On>**, you can transfer JPEG images to a registered address via FTP or SMTP server or save images into the SD memory card according to the setting in **<Event>** - **<Transfer setup>**.



## To set the Motion Detection

1. Specify the use of motion detection.
2. Select a sensitivity level of the motion detection.
3. Place the cursor at a point in the video and drag it to whatever you need.
  - You can specify up to 4 motion detection areas.
4. Specify the activation time and activation condition.
  - For more information about <Activation time> and <Action>, refer to "Alarm input". (page 66)
5. When done, click [Apply].

### Motion

M.D. function  
☐ Enable ☒ Disable

Sensitivity  
Sensitivity Low

M.D. configuration  


Activation time  
☒ Always ☐ Only scheduled time  
☒ Sun ☒ Mon ☒ Tue ☒ Wed ☒ Thu ☒ Fri ☒ Sat  
Start time 5:00 End time 6:00

Action  
Alarm output None  
Output duration 3 sec  
Alarm image transfer Off

[Apply]

# setup screen

## To set the scheduled transfer

You can set to transfer the JPEG image to the FTP/SMTP server saved in the SD memory card at a specific interval.

1. Select **<Event>** - **<Schedule>**.

The Schedule Transfer setup window appears.

- **Schedule transfer function :**

If selecting **<Enable>**, the schedule transfer function will be activated; if selecting **<Disable>**, it will be deactivated.

- **Transfer interval :** You can set the time interval to transfer images.

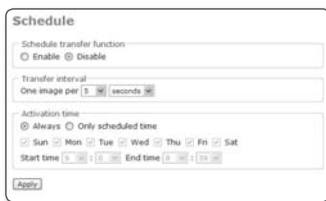
You can set the unit of the interval to **<seconds>** or **<minutes>**; you can also set to transfer one image per 5/15/30/45/60 seconds, or one per 5/15/30/45/60 minutes.

- **Activation time :** You can set a time to execute a specific command when a schedule transfer event occurs.

- Always : Always sends an image at the set interval.
- Only scheduled time : Sends the image only on a specified weekday, or time.

2. When done, click **[Apply]**.

Your settings will be saved.



## To set the video transfer mode

You can control the transfer rate according to the video transfer mode and network speed.

1. Select **<Network>** - **<Streaming type>**.

The Video Transfer setup window appears.



2. When done, click **[Apply]**.

Your settings will be saved.

- **VNP streaming** : You can set the Samsung Protocol (VNP) for the streaming service.
  - Protocol : Select a video transfer protocol from TCP\*, UDP (Unicast)\*, and UDP (Multicast)\*.
    - Multicast backbone (MBone) is not supported; you can access the camera only in the multicast local network environment.
- **RTP streaming** : You can set the RTP Protocol or the streaming service.
  - Protocol : Select a video transfer protocol from UDP (Unicast) and UDP (Multicast).

## To set the DDNS

DDNS is an abbreviation of Dynamic Domain Name Service that converts the IP address of a camera into a general Host Name so that the user can easily remember it and enables connecting a camera with a fixed Host Name even if the IP address of the camera may be dynamically changed.

1. Select **<Network>** - **<DDNS>**.

The DDNS setup window appears.

2. When done, click **[Apply]**.

Your settings will be saved.



- For checking the DDNS address, refer to **"To check the DDNS address"**. (page 46)

## PROFILE

| CAMERA SETUP MENU |            | STANDARD        | ITS             | BACKLIGHT      | DAY/NIGHT       | GAMING         | BANK            |
|-------------------|------------|-----------------|-----------------|----------------|-----------------|----------------|-----------------|
| Parent Menu       | Sub-menus  |                 |                 |                |                 |                |                 |
| IRIS              |            | ALC             | ALC             | ALC            | ALC             | ALC            | ALC             |
|                   | ALC        | -               | -               | -              | -               | -              | -               |
|                   | LENS       | DC              | DC              | DC             | DC              | DC             | DC              |
|                   | LEVEL      | 0               | 0               | 0              | 0               | 0              | 0               |
|                   | BACKLIGHT  | OFF             | OFF             | WDR            | OFF             | OFF            | WDR             |
| MOTION            |            | (F.FAST)<br>--- | (F.FAST)<br>--- | NORM           | (F.FAST)<br>--- | SLOW           | (F.FAST)<br>--- |
| DNR               |            | MID             | MID             | MID            | MID             | MID            | MID             |
| SHUTTER           |            | OFF             | AUTO 1/250      | OFF            | OFF             | OFF            | OFF             |
| SENSE UP          |            | AUTO X4         | AUTO X2         | AUTO X4        | AUTO X4         | AUTO X4        | AUTO X4         |
| XDR               |            | MID             | MID             | MID            | MID             | MID            | MID             |
| DAY/NIGHT         |            | AUTO            | AUTO            | DAY            | AUTO            | DAY            | AUTO            |
|                   | NIGHT      | -               | -               | -              | -               | -              | -               |
|                   | BURST      | OFF             | ON              | OFF            | OFF             | OFF            | OFF             |
| WHITE BAL         |            | DAY             | DAY/NIGHT       | DAY            | DAY/NIGHT       | DAY            | DAY             |
|                   | DAY        | -               | -               | -              | -               | -              | -               |
|                   | MODE       | ATW2            | ATW1            | ATW1           | ATW1            | ATW1           | ATW2            |
|                   | RED        | 0               | 0               | 0              | 0               | 0              | 0               |
|                   | BLUE       | 0               | 0               | 0              | 0               | 0              | 0               |
|                   | NIGHT      | -               | -               | -              | -               | -              | -               |
|                   | BRIGHTNESS | Custom Setting  | MID             | Custom Setting | MID             | Custom Setting | Custom Setting  |
|                   | MODE       | OFF             | ATW2            | OFF            | ATW2            | OFF            | OFF             |
|                   | RED        | Custom Setting  | 0               | Custom Setting | 0               | Custom Setting | Custom Setting  |
|                   | BLUE       | Custom Setting  | 0               | Custom Setting | 0               | Custom Setting | Custom Setting  |
| DETAIL            |            | 2               | 2               | 2              | 2               | 2              | 2               |

- **GOP** : The default is 15, and if set to 15, one I-Frame will be output per 15 frames as one I-Frame and 14 P-Frames constitute the GOP.  
The lower the GOP size is, the better the quality is; however, the bit rate as well as the data size will increase, causing a lower of the fps. GOP(Group of Pictures) is a set of video frames for MPEG4 and H.264 format compression, indicating a collection of frames from the initial I-Frame (key frame) to the next I-Frame. GOP consists of 2 kinds of frames: I-Frame and P-Frame. I-Frame is the basic frame for the compression, also known as Key Frame, which contains one complete image data. P-Frame contains only the data that has changed from the preceding I-Frame.
- **Entropy coding** : Data transfer technology used to reduce the compression loss from encoding.
  - **CAVLC** (Context-adaptive variable-length coding): Records a higher compression loss rate than CABAC.
  - **CABAC** (Context-adaptive binary arithmetic coding): Shows a lesser compression loss than CAVLC.
- **Bitrate Control**
  - **CBR**(Constant Bitrate)  
This will transfer video data in an equal size at all times, regardless of the video complexity. The video quality may be deteriorated, depending on the video complexity.
  - **VBR**(Variable Bitrate)  
The amount of video data to transfer may differ, depending on the video complexity. This enables receiving video data in an equal quality at all times.
- **TTL** : TTL stands for "Time To Live", which you can specify to prevent loss of data packet that passes through multiple-staged routers. Each router decreases the TTL value by one each time a packet passes it through; If the TTL value reaches 0, the packet cannot further pass through a router.
- **TCP** : It is a general purpose protocol used for transmission that requires reliability. With constant communication between the sender and recipient, it provides high reliability against transmission data loss; however, it has imitation to transmit a large amount of data in real time at a high speed.  
It enables reliable data transmission over xDSL and cable network at a relatively slow speed.
- **UDP (Unicast)**: It refers to a system that transmits data between only one transmitter and one receiver (1:1).
- **UDP (Multicast)**: It refers to the data transfer protocol in one-to-many (1:N) between the transmitting and receiving terminals; although it alleviates the network load, it requires <Multicast> router.  
For more information such as whether the network over which the camera is installed supports <Multicast>, contact the network administrator.
- **UDP** : It is a protocol appropriate to transmit a large amount of data such as multimedia data at a high speed. However, with its nonconnection structure, it records a higher transmission efficiency than TCP especially in a high LAN environment faster than 100Mbps.

## SPECIFICATIONS

| Item                    |                             |           | Description                                                                                                                                                      |                 |
|-------------------------|-----------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
|                         |                             |           | NTSC                                                                                                                                                             | PAL             |
| Camera Type             | Color/BW                    |           | Color                                                                                                                                                            |                 |
| Image                   | Device                      |           | 1/3" Super-HAD PS CCD                                                                                                                                            |                 |
|                         | Pixels                      | Total     | 811 x 508                                                                                                                                                        | 795 x 596       |
|                         |                             | Effective | 768 x 494                                                                                                                                                        | 752 x 582       |
| Scanning                | System                      |           | Progressive                                                                                                                                                      |                 |
|                         | Horizontal Frequency        |           | 15.734 Hz                                                                                                                                                        | 15.625 Hz       |
|                         | Vertical Frequency          |           | 59.94 Hz                                                                                                                                                         | 50 Hz           |
| Min. Scene Illumination | Color                       |           | Sens off : 0.12 Lux(15 IRE), 0.2 Lux(30 IRE),<br>0.4Lux(50 IRE)@F1.2<br>Sens up x512 : 0.00023 Lux(15 IRE), 0.0005 Lux(30 IRE),<br>0.0008 Lux(50 IRE)@F1.2       |                 |
|                         | B/W                         |           | Sens off : 0.012 Lux(15 IRE), 0.02 Lux(30 IRE),<br>0.04Lux(50 IRE)@F1.2<br>Sens up x512 : 0.000023 Lux(15 IRE), 0.00005 Lux(30 IRE),<br>0.00008 Lux(50 IRE)@F1.2 |                 |
| Functions               | Number of Privacy Zone      |           | 12 ea                                                                                                                                                            |                 |
|                         | Day/Night                   |           | Day/Night/AUTO(Soft Method)                                                                                                                                      |                 |
|                         | Extended Dynamic Range      |           | Off/On (Level Setting)                                                                                                                                           |                 |
|                         | WDR                         |           | Off/On (128)                                                                                                                                                     | Off/On (160)    |
|                         | D-Zoom                      |           | x1 ~ x16 (x0.1 STEP)                                                                                                                                             |                 |
|                         | PIP                         |           | Off/On (Advanced)                                                                                                                                                |                 |
|                         | High Speed Shutter          |           | 1/60 ~ 1/10Ksec                                                                                                                                                  | 1/50 ~ 1/10Ksec |
|                         | Flickerless                 |           | Off/On                                                                                                                                                           |                 |
|                         | Sens Up                     |           | x2 ~ x512                                                                                                                                                        |                 |
|                         | BLC                         |           | Off/On (Area Setting)                                                                                                                                            |                 |
|                         | AGC                         |           | Off/On (Max.Level Setting)                                                                                                                                       |                 |
|                         | Camera ID                   |           | Off/On (Max.54ea/2Line)                                                                                                                                          |                 |
|                         | White Balance               |           | ATW1/ATW2/AWC/MANUAL                                                                                                                                             |                 |
|                         | Digital Noise Reduction     |           | Off/On (Adaptive 3D+2D)                                                                                                                                          |                 |
|                         | Digital Image Stabilization |           | Off/On                                                                                                                                                           |                 |
|                         | Etc. Function               |           | Detail, Reverse(H/V), Posi/Nega                                                                                                                                  |                 |

| Item             |                               |              | Description                                                                                                         |                     |
|------------------|-------------------------------|--------------|---------------------------------------------------------------------------------------------------------------------|---------------------|
|                  |                               |              | NTSC                                                                                                                | PAL                 |
| Resolution       | Horizontal                    |              | 600 TV Lines                                                                                                        |                     |
|                  | Vertical                      |              | 350 TV Lines                                                                                                        |                     |
| Video Output     | Video Output                  |              | VBS 1.0Vp-p                                                                                                         |                     |
| S/N Ratio        | S/N Ratio                     |              | about 52 dB                                                                                                         |                     |
| Lens             | Lens Drive Type               |              | AI (DC)                                                                                                             |                     |
|                  | Mount Type                    |              | Board Type                                                                                                          |                     |
| Network Board    | OS                            |              | Embedded Linux                                                                                                      |                     |
|                  | Hardware                      | Flash memory | 32M byte                                                                                                            |                     |
|                  |                               | RAM          | 256M byte                                                                                                           |                     |
|                  |                               | DSP          | TI Davinci                                                                                                          |                     |
|                  |                               | Ethernet     | RJ-45 (10/100BASE-T)                                                                                                |                     |
|                  |                               | PoE          | Yes (IEEE802.3af)                                                                                                   |                     |
| Alarm            | Input                         |              | 2 ea                                                                                                                |                     |
|                  | Output                        |              | 2 ea                                                                                                                |                     |
| Video            | Compression                   |              | H.264 / MPEG4 / MJPEG Multiple Codec<br>(H.264 / MPEG4 selectable)<br>Simultaneous Dual Streaming                   |                     |
|                  | Resolution                    | 4CIF         | 704x480                                                                                                             | 704x576             |
|                  |                               | VGA          | 640x480                                                                                                             |                     |
|                  |                               | CIF          | 352x240                                                                                                             | 352x288             |
|                  | Frame Rate                    |              | 30, 15, 8, 3, 1 fps                                                                                                 | 25, 13, 6, 3, 1 fps |
|                  | Quality                       |              | 1 ~ 10 level                                                                                                        |                     |
| OSD              | Camera Control and Adjustment |              | OSD menu on Video<br>(Menu enter/exit, move by Web UI)<br>* Some key adjustment menus will be supported by CGI API. |                     |
| Motion Detection | Sensitivity and Area Setting  |              | High, Medium, Low                                                                                                   |                     |

# appendix

| Item                         |                     |               | Description                                                                                                                                       |     |
|------------------------------|---------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----|
|                              |                     |               | NTSC                                                                                                                                              | PAL |
| Protocol                     | IP                  |               | IPv4 / IPv6                                                                                                                                       |     |
|                              | Network Protocol    | IPv4          | TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTSP, NTP, HTTP, HTTPS, SSL, DHCP<br>PPPoE, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, VSIP |     |
|                              |                     | IPv6          | TCP/IP, HTTP, HTTPS, SSL, DHCP                                                                                                                    |     |
|                              | Streaming           |               | Unicast (TCP, UDP), Multicast (UDP)                                                                                                               |     |
|                              | Security            |               | HTTPS Login Authentication<br>Digest Login Authentication                                                                                         |     |
|                              | DDNS                |               | Supporting Samsung DDNS and Public DDNS services                                                                                                  |     |
|                              | ONVIF Conformance   |               | Yes                                                                                                                                               |     |
| Connection                   | Maximum User Access |               | Max 10 Users at Unicast (TCP, UDP) Mode<br>Max 20 Users at Multicast (UDP) Mode                                                                   |     |
|                              | User Access Level   | Administrator | Live Monitoring, Alarm I/O control, OSD menu control, SETUP                                                                                       |     |
|                              |                     | Operator      | Live Monitoring, Alarm I/O control                                                                                                                |     |
|                              |                     | User          | Live Monitoring                                                                                                                                   |     |
| Event Management             | Alarm Input         |               | JPEG Image transfer : FTP, SMTP, SD Card<br>Notification : notify to viewer or by E-mail (one image attachment)<br>Alarm Out                      |     |
|                              | Motion Detection    |               |                                                                                                                                                   |     |
|                              | Schedule            |               | JPEG Image transfer : FTP, SMTP, SD Card                                                                                                          |     |
| Web Browser Viewer (Default) | Supported OS        |               | Windows XP, Windows VISTA, Windows 7                                                                                                              |     |
|                              | Supported Browser   |               | Internet Explorer 6.0 or Higher                                                                                                                   |     |
|                              | UI Language         |               | E/F/G/S/I/C/K                                                                                                                                     |     |
|                              | S/W upgrade         |               | Support                                                                                                                                           |     |
| Video Player                 | RTP/RTSP streaming  |               | Quicktime, VLC player                                                                                                                             |     |
| Video Management Software    |                     |               | Samsung iPOLiS<br>3rd Party S/W application                                                                                                       |     |
| Application                  | IP Installation     |               | IP Installer Application for All Samsung IP Devices                                                                                               |     |

| Item               |              |             | Description                                                                                                                                     |     |
|--------------------|--------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----|
|                    |              |             | NTSC                                                                                                                                            | PAL |
| SDK                | HTTP API     | CGI Command | Provides functionality to control cameras and set/retrieve internal parameter values.<br>Get JPEG image or MJPEG stream<br>Alarm In/Out control |     |
|                    | RTP/RTSP API |             | RTP Header, RTSP Command Document                                                                                                               |     |
|                    | ActiveX      | SDK         | ActiveX API for viewing data streams from IP camera.                                                                                            |     |
| Power              |              |             | AC24V±10%(60Hz±0.3Hz)/ DC12V+10%/-5% / PoE (Power over Ethernet)                                                                                |     |
| Power Consumption  |              |             | Max. 6W(DC12V), Max. 7W(AC24V), Max. 8W(PoE)                                                                                                    |     |
| Operating Temp.    |              |             | -10°C~50°C                                                                                                                                      |     |
| Operating Humidity |              |             | ~90%                                                                                                                                            |     |
| Dimension (Ø x H)  |              |             | 133.0(Ø) x 129.4(H)mm                                                                                                                           |     |
| Weight             |              |             | About 523g                                                                                                                                      |     |

## FRAME RATE (NTSC)



■ Test Condition: MJPEG - Resolution(CIF), Quality(1), Frame rate(1)

H.264 - Bitrate control(CBR), Compression(40), Encode Priority(Frame rate),  
GOP size(15), Deblock(ON), Profile(Baseline), Entropy coding(CAVLC), Motion  
estimation(HPel)

MPEG4 - Bitrate control(CBR), Compression(40), Encode Priority(Frame rate),  
De-Interlace(ON), GOP size(15)

### ❖ MPEG4 (4CIF)

| Frame Rate<br>Quality | 30 FPS              | 15 FPS              | 8 FPS              | 3 FPS             | 1 FPS             |
|-----------------------|---------------------|---------------------|--------------------|-------------------|-------------------|
| LEVEL10               | 4239 Kbps<br>23 FPS | 2765 Kbps<br>15 FPS | 1290 Kbps<br>7 FPS | 737 Kbps<br>4 FPS | 221 Kbps<br>1 FPS |
| LEVEL9                | 3686 Kbps<br>24 FPS | 2304 Kbps<br>15 FPS | 1075 Kbps<br>7 FPS | 614 Kbps<br>4 FPS | 184 Kbps<br>1 FPS |
| LEVEL8                | 3072 Kbps<br>25 FPS | 1843 Kbps<br>15 FPS | 860 Kbps<br>7 FPS  | 492 Kbps<br>4 FPS | 147 Kbps<br>1 FPS |
| LEVEL7                | 2396 Kbps<br>26 FPS | 1382 Kbps<br>15 FPS | 645 Kbps<br>7 FPS  | 369 Kbps<br>4 FPS | 111 Kbps<br>1 FPS |
| LEVEL6                | 1659 Kbps<br>27 FPS | 922 Kbps<br>15 FPS  | 430 Kbps<br>7 FPS  | 246 Kbps<br>4 FPS | 74 Kbps<br>1 FPS  |
| LEVEL5                | 1336 Kbps<br>29 FPS | 691 Kbps<br>15 FPS  | 323 Kbps<br>7 FPS  | 184 Kbps<br>4 FPS | 55 Kbps<br>1 FPS  |
| LEVEL4                | 1133 Kbps<br>30 FPS | 576 Kbps<br>15 FPS  | 269 Kbps<br>7 FPS  | 154 Kbps<br>4 FPS | 46 Kbps<br>1 FPS  |
| LEVEL3                | 922 Kbps<br>30 FPS  | 461 Kbps<br>15 FPS  | 215 Kbps<br>7 FPS  | 123 Kbps<br>4 FPS | 37 Kbps<br>1 FPS  |
| LEVEL2                | 691 Kbps<br>30 FPS  | 346 Kbps<br>15 FPS  | 161 Kbps<br>7 FPS  | 92 Kbps<br>4 FPS  | 28 Kbps<br>1 FPS  |
| LEVEL1                | 461 Kbps<br>30 FPS  | 230 Kbps<br>15 FPS  | 108 Kbps<br>7 FPS  | 61 Kbps<br>4 FPS  | 18 Kbps<br>1 FPS  |

## ❖ H.264 (4CIF)

| Frame Rate<br>Quality | 30 FPS              | 15 FPS              | 8 FPS             | 3 FPS             | 1 FPS             |
|-----------------------|---------------------|---------------------|-------------------|-------------------|-------------------|
| LEVEL10               | 2298 Kbps<br>19 FPS | 1229 Kbps<br>10 FPS | 737 Kbps<br>6 FPS | 369 Kbps<br>3 FPS | 147 Kbps<br>1 FPS |
| LEVEL9                | 1751 Kbps<br>19 FPS | 1198 Kbps<br>13 FPS | 645 Kbps<br>7 FPS | 369 Kbps<br>4 FPS | 111 Kbps<br>1 FPS |
| LEVEL8                | 1536 Kbps<br>20 FPS | 1075 Kbps<br>14 FPS | 538 Kbps<br>7 FPS | 307 Kbps<br>4 FPS | 92 Kbps<br>1 FPS  |
| LEVEL7                | 1352 Kbps<br>22 FPS | 897 Kbps<br>15 FPS  | 430 Kbps<br>7 FPS | 246 Kbps<br>4 FPS | 74 Kbps<br>1 FPS  |
| LEVEL6                | 1129 Kbps<br>25 FPS | 691 Kbps<br>15 FPS  | 369 Kbps<br>8 FPS | 184 Kbps<br>4 FPS | 55 Kbps<br>1 FPS  |
| LEVEL5                | 960 Kbps<br>25 FPS  | 576 Kbps<br>15 FPS  | 307 Kbps<br>8 FPS | 154 Kbps<br>4 FPS | 46 Kbps<br>1 FPS  |
| LEVEL4                | 799 Kbps<br>26 FPS  | 461 Kbps<br>15 FPS  | 246 Kbps<br>8 FPS | 123 Kbps<br>4 FPS | 37 Kbps<br>1 FPS  |
| LEVEL3                | 622 Kbps<br>27 FPS  | 346 Kbps<br>15 FPS  | 184 Kbps<br>8 FPS | 92 Kbps<br>4 FPS  | 28 Kbps<br>1 FPS  |
| LEVEL2                | 445 Kbps<br>29 FPS  | 230 Kbps<br>15 FPS  | 123 Kbps<br>8 FPS | 61 Kbps<br>4 FPS  | 18 Kbps<br>1 FPS  |
| LEVEL1                | 223 Kbps<br>29 FPS  | 115 Kbps<br>15 FPS  | 61 Kbps<br>8 FPS  | 31 Kbps<br>4 FPS  | 9 Kbps<br>1 FPS   |

# appendix

## ❖ MPEG4 (VGA)

| Quality \ Frame Rate | 30 FPS              | 15 FPS              | 8 FPS              | 3 FPS             | 1 FPS             |
|----------------------|---------------------|---------------------|--------------------|-------------------|-------------------|
| LEVEL10              | 4055 Kbps<br>22 FPS | 2580 Kbps<br>14 FPS | 1290 Kbps<br>7 FPS | 737 Kbps<br>4 FPS | 221 Kbps<br>1 FPS |
| LEVEL9               | 3533 Kbps<br>23 FPS | 2304 Kbps<br>15 FPS | 1075 Kbps<br>7 FPS | 614 Kbps<br>4 FPS | 184 Kbps<br>1 FPS |
| LEVEL8               | 2949 Kbps<br>24 FPS | 1843 Kbps<br>15 FPS | 860 Kbps<br>7 FPS  | 492 Kbps<br>4 FPS | 147 Kbps<br>1 FPS |
| LEVEL7               | 2304 Kbps<br>25 FPS | 1382 Kbps<br>15 FPS | 645 Kbps<br>7 FPS  | 369 Kbps<br>4 FPS | 111 Kbps<br>1 FPS |
| LEVEL6               | 1536 Kbps<br>25 FPS | 922 Kbps<br>15 FPS  | 430 Kbps<br>7 FPS  | 246 Kbps<br>4 FPS | 74 Kbps<br>1 FPS  |
| LEVEL5               | 1152 Kbps<br>25 FPS | 691 Kbps<br>15 FPS  | 323 Kbps<br>7 FPS  | 184 Kbps<br>4 FPS | 55 Kbps<br>1 FPS  |
| LEVEL4               | 998 Kbps<br>26 FPS  | 576 Kbps<br>15 FPS  | 269 Kbps<br>7 FPS  | 154 Kbps<br>4 FPS | 46 Kbps<br>1 FPS  |
| LEVEL3               | 799 Kbps<br>26 FPS  | 461 Kbps<br>15 FPS  | 246 Kbps<br>8 FPS  | 123 Kbps<br>4 FPS | 37 Kbps<br>1 FPS  |
| LEVEL2               | 622 Kbps<br>27 FPS  | 346 Kbps<br>15 FPS  | 184 Kbps<br>8 FPS  | 92 Kbps<br>4 FPS  | 28 Kbps<br>1 FPS  |
| LEVEL1               | 415 Kbps<br>27 FPS  | 230 Kbps<br>15 FPS  | 123 Kbps<br>8 FPS  | 61 Kbps<br>4 FPS  | 18 Kbps<br>1 FPS  |

## ❖ H.264 (VGA)

| Frame Rate<br>Quality | 30 FPS              | 15 FPS              | 8 FPS             | 3 FPS             | 1 FPS             |
|-----------------------|---------------------|---------------------|-------------------|-------------------|-------------------|
| LEVEL10               | 2089 Kbps<br>17 FPS | 1229 Kbps<br>10 FPS | 737 Kbps<br>6 FPS | 369 Kbps<br>3 FPS | 147 Kbps<br>1 FPS |
| LEVEL9                | 1659 Kbps<br>18 FPS | 1014 Kbps<br>11 FPS | 553 Kbps<br>6 FPS | 276 Kbps<br>3 FPS | 111 Kbps<br>1 FPS |
| LEVEL8                | 1459 Kbps<br>19 FPS | 845 Kbps<br>11 FPS  | 538 Kbps<br>7 FPS | 307 Kbps<br>4 FPS | 92 Kbps<br>1 FPS  |
| LEVEL7                | 1229 Kbps<br>20 FPS | 737 Kbps<br>12 FPS  | 430 Kbps<br>7 FPS | 246 Kbps<br>4 FPS | 74 Kbps<br>1 FPS  |
| LEVEL6                | 1014 Kbps<br>22 FPS | 691 Kbps<br>15 FPS  | 323 Kbps<br>7 FPS | 184 Kbps<br>4 FPS | 55 Kbps<br>1 FPS  |
| LEVEL5                | 883 Kbps<br>23 FPS  | 576 Kbps<br>15 FPS  | 269 Kbps<br>7 FPS | 154 Kbps<br>4 FPS | 46 Kbps<br>1 FPS  |
| LEVEL4                | 707 Kbps<br>23 FPS  | 461 Kbps<br>15 FPS  | 215 Kbps<br>7 FPS | 123 Kbps<br>4 FPS | 37 Kbps<br>1 FPS  |
| LEVEL3                | 553 Kbps<br>24 FPS  | 346 Kbps<br>15 FPS  | 161 Kbps<br>7 FPS | 92 Kbps<br>4 FPS  | 28 Kbps<br>1 FPS  |
| LEVEL2                | 384 Kbps<br>25 FPS  | 230 Kbps<br>15 FPS  | 108 Kbps<br>7 FPS | 61 Kbps<br>4 FPS  | 18 Kbps<br>1 FPS  |
| LEVEL1                | 200 Kbps<br>26 FPS  | 115 Kbps<br>15 FPS  | 54 Kbps<br>7 FPS  | 31 Kbps<br>4 FPS  | 9 Kbps<br>1 FPS   |

## ❖ MPEG4 (CIF)

| Quality \ Frame Rate | 30 FPS              | 15 FPS             | 8 FPS             | 3 FPS             | 1 FPS            |
|----------------------|---------------------|--------------------|-------------------|-------------------|------------------|
| LEVEL10              | 1382 Kbps<br>30 FPS | 691 Kbps<br>15 FPS | 369 Kbps<br>8 FPS | 184 Kbps<br>4 FPS | 55 Kbps<br>1 FPS |
| LEVEL9               | 1152 Kbps<br>30 FPS | 576 Kbps<br>15 FPS | 307 Kbps<br>8 FPS | 154 Kbps<br>4 FPS | 46 Kbps<br>1 FPS |
| LEVEL8               | 922 Kbps<br>30 FPS  | 461 Kbps<br>15 FPS | 246 Kbps<br>8 FPS | 123 Kbps<br>4 FPS | 37 Kbps<br>1 FPS |
| LEVEL7               | 691 Kbps<br>30 FPS  | 346 Kbps<br>15 FPS | 184 Kbps<br>8 FPS | 92 Kbps<br>4 FPS  | 28 Kbps<br>1 FPS |
| LEVEL6               | 461 Kbps<br>30 FPS  | 230 Kbps<br>15 FPS | 123 Kbps<br>8 FPS | 61 Kbps<br>4 FPS  | 18 Kbps<br>1 FPS |
| LEVEL5               | 346 Kbps<br>30 FPS  | 173 Kbps<br>15 FPS | 92 Kbps<br>8 FPS  | 46 Kbps<br>4 FPS  | 14 Kbps<br>1 FPS |
| LEVEL4               | 288 Kbps<br>30 FPS  | 144 Kbps<br>15 FPS | 77 Kbps<br>8 FPS  | 38 Kbps<br>4 FPS  | 12 Kbps<br>1 FPS |
| LEVEL3               | 230 Kbps<br>30 FPS  | 115 Kbps<br>15 FPS | 61 Kbps<br>8 FPS  | 31 Kbps<br>4 FPS  | 9 Kbps<br>1 FPS  |
| LEVEL2               | 173 Kbps<br>30 FPS  | 86 Kbps<br>15 FPS  | 46 Kbps<br>8 FPS  | 23 Kbps<br>4 FPS  | 7 Kbps<br>1 FPS  |
| LEVEL1               | 151 Kbps<br>30 FPS  | 76 Kbps<br>15 FPS  | 40 Kbps<br>8 FPS  | 20 Kbps<br>4 FPS  | 6 Kbps<br>1 FPS  |

## ❖ H.264 (CIF)

| Frame Rate<br>Quality | 30 FPS             | 15 FPS             | 8 FPS             | 3 FPS             | 1 FPS            |
|-----------------------|--------------------|--------------------|-------------------|-------------------|------------------|
| LEVEL10               | 922 Kbps<br>30 FPS | 461 Kbps<br>15 FPS | 215 Kbps<br>7 FPS | 123 Kbps<br>4 FPS | 37 Kbps<br>1 FPS |
| LEVEL9                | 691 Kbps<br>30 FPS | 346 Kbps<br>15 FPS | 184 Kbps<br>8 FPS | 92 Kbps<br>4 FPS  | 28 Kbps<br>1 FPS |
| LEVEL8                | 576 Kbps<br>30 FPS | 288 Kbps<br>15 FPS | 134 Kbps<br>7 FPS | 77 Kbps<br>4 FPS  | 23 Kbps<br>1 FPS |
| LEVEL7                | 461 Kbps<br>30 FPS | 230 Kbps<br>15 FPS | 108 Kbps<br>7 FPS | 61 Kbps<br>4 FPS  | 18 Kbps<br>1 FPS |
| LEVEL6                | 346 Kbps<br>30 FPS | 173 Kbps<br>15 FPS | 81 Kbps<br>7 FPS  | 46 Kbps<br>4 FPS  | 14 Kbps<br>1 FPS |
| LEVEL5                | 288 Kbps<br>30 FPS | 144 Kbps<br>15 FPS | 67 Kbps<br>7 FPS  | 38 Kbps<br>4 FPS  | 12 Kbps<br>1 FPS |
| LEVEL4                | 230 Kbps<br>30 FPS | 115 Kbps<br>15 FPS | 54 Kbps<br>7 FPS  | 31 Kbps<br>4 FPS  | 9 Kbps<br>1 FPS  |
| LEVEL3                | 173 Kbps<br>30 FPS | 86 Kbps<br>15 FPS  | 40 Kbps<br>7 FPS  | 23 Kbps<br>4 FPS  | 7 Kbps<br>1 FPS  |
| LEVEL2                | 115 Kbps<br>30 FPS | 58 Kbps<br>15 FPS  | 27 Kbps<br>7 FPS  | 15 Kbps<br>4 FPS  | 5 Kbps<br>1 FPS  |
| LEVEL1                | 58 Kbps<br>30 FPS  | 29 Kbps<br>15 FPS  | 13 Kbps<br>7 FPS  | 8 Kbps<br>4 FPS   | 2 Kbps<br>1 FPS  |

## FRAME RATE (PAL)



■ Test Condition: MJPEG - Resolution(CIF), Quality(1), Frame rate(1)

H.264 - Bitrate control(CBR), Compression(40), Encode Priority(Frame rate),  
GOP size(15), Deblock(ON), Profile(Baseline), Entropy coding(CAVLC), Motion  
estimation(HPel)

MPEG4 - Bitrate control(CBR), Compression(40), Encode Priority(Frame rate),  
De-Interlace(ON), GOP size(15)

### ❖ MPEG4 (4CIF)

| Frame Rate<br>Quality | 25 FPS              | 13 FPS              | 6 FPS              | 3 FPS             | 1 FPS             |
|-----------------------|---------------------|---------------------|--------------------|-------------------|-------------------|
| LEVEL10               | 4645 Kbps<br>21 FPS | 2654 Kbps<br>12 FPS | 1327 Kbps<br>6 FPS | 664 Kbps<br>3 FPS | 221 Kbps<br>1 FPS |
| LEVEL9                | 4055 Kbps<br>22 FPS | 2212 Kbps<br>12 FPS | 1106 Kbps<br>6 FPS | 553 Kbps<br>3 FPS | 184 Kbps<br>1 FPS |
| LEVEL8                | 3391 Kbps<br>23 FPS | 1769 Kbps<br>12 FPS | 885 Kbps<br>6 FPS  | 442 Kbps<br>3 FPS | 147 Kbps<br>1 FPS |
| LEVEL7                | 2544 Kbps<br>23 FPS | 1327 Kbps<br>12 FPS | 664 Kbps<br>6 FPS  | 332 Kbps<br>3 FPS | 111 Kbps<br>1 FPS |
| LEVEL6                | 1769 Kbps<br>24 FPS | 885 Kbps<br>12 FPS  | 442 Kbps<br>6 FPS  | 221 Kbps<br>3 FPS | 74 Kbps<br>1 FPS  |
| LEVEL5                | 1382 Kbps<br>25 FPS | 664 Kbps<br>12 FPS  | 332 Kbps<br>6 FPS  | 166 Kbps<br>3 FPS | 55 Kbps<br>1 FPS  |
| LEVEL4                | 1152 Kbps<br>25 FPS | 553 Kbps<br>12 FPS  | 276 Kbps<br>6 FPS  | 138 Kbps<br>3 FPS | 46 Kbps<br>1 FPS  |
| LEVEL3                | 922 Kbps<br>25 FPS  | 442 Kbps<br>12 FPS  | 221 Kbps<br>6 FPS  | 111 Kbps<br>3 FPS | 37 Kbps<br>1 FPS  |
| LEVEL2                | 691 Kbps<br>25 FPS  | 332 Kbps<br>12 FPS  | 166 Kbps<br>6 FPS  | 83 Kbps<br>3 FPS  | 28 Kbps<br>1 FPS  |
| LEVEL1                | 461 Kbps<br>25 FPS  | 221 Kbps<br>12 FPS  | 111 Kbps<br>6 FPS  | 55 Kbps<br>3 FPS  | 18 Kbps<br>1 FPS  |

## ❖ H.264 (4CIF)

| Frame Rate<br>Quality | 25 FPS              | 13 FPS              | 6 FPS             | 3 FPS             | 1 FPS             |
|-----------------------|---------------------|---------------------|-------------------|-------------------|-------------------|
| LEVEL10               | 2359 Kbps<br>16 FPS | 1180 Kbps<br>8 FPS  | 737 Kbps<br>5 FPS | 442 Kbps<br>3 FPS | 147 Kbps<br>1 FPS |
| LEVEL9                | 1991 Kbps<br>18 FPS | 1106 Kbps<br>10 FPS | 664 Kbps<br>6 FPS | 332 Kbps<br>3 FPS | 111 Kbps<br>1 FPS |
| LEVEL8                | 1751 Kbps<br>19 FPS | 1014 Kbps<br>11 FPS | 553 Kbps<br>6 FPS | 276 Kbps<br>3 FPS | 92 Kbps<br>1 FPS  |
| LEVEL7                | 1475 Kbps<br>20 FPS | 885 Kbps<br>12 FPS  | 442 Kbps<br>6 FPS | 221 Kbps<br>3 FPS | 74 Kbps<br>1 FPS  |
| LEVEL6                | 1161 Kbps<br>21 FPS | 664 Kbps<br>12 FPS  | 332 Kbps<br>6 FPS | 166 Kbps<br>3 FPS | 55 Kbps<br>1 FPS  |
| LEVEL5                | 968 Kbps<br>21 FPS  | 553 Kbps<br>12 FPS  | 276 Kbps<br>6 FPS | 138 Kbps<br>3 FPS | 46 Kbps<br>1 FPS  |
| LEVEL4                | 811 Kbps<br>22 FPS  | 442 Kbps<br>12 FPS  | 221 Kbps<br>6 FPS | 111 Kbps<br>3 FPS | 37 Kbps<br>1 FPS  |
| LEVEL3                | 608 Kbps<br>22 FPS  | 332 Kbps<br>12 FPS  | 166 Kbps<br>6 FPS | 83 Kbps<br>3 FPS  | 28 Kbps<br>1 FPS  |
| LEVEL2                | 424 Kbps<br>23 FPS  | 221 Kbps<br>12 FPS  | 111 Kbps<br>6 FPS | 55 Kbps<br>3 FPS  | 18 Kbps<br>1 FPS  |
| LEVEL1                | 230 Kbps<br>25 FPS  | 111 Kbps<br>12 FPS  | 55 Kbps<br>6 FPS  | 28 Kbps<br>3 FPS  | 9 Kbps<br>1 FPS   |

## ❖ MPEG4 (VGA)

| Quality \ Frame Rate | 25 FPS              | 13 FPS              | 6 FPS              | 3 FPS             | 1 FPS             |
|----------------------|---------------------|---------------------|--------------------|-------------------|-------------------|
| LEVEL10              | 4424 Kbps<br>20 FPS | 2654 Kbps<br>12 FPS | 1327 Kbps<br>6 FPS | 664 Kbps<br>3 FPS | 221 Kbps<br>1 FPS |
| LEVEL9               | 3871 Kbps<br>21 FPS | 2212 Kbps<br>12 FPS | 1106 Kbps<br>6 FPS | 553 Kbps<br>3 FPS | 184 Kbps<br>1 FPS |
| LEVEL8               | 3097 Kbps<br>21 FPS | 1769 Kbps<br>12 FPS | 885 Kbps<br>6 FPS  | 442 Kbps<br>3 FPS | 147 Kbps<br>1 FPS |
| LEVEL7               | 2433 Kbps<br>22 FPS | 1327 Kbps<br>12 FPS | 664 Kbps<br>6 FPS  | 332 Kbps<br>3 FPS | 111 Kbps<br>1 FPS |
| LEVEL6               | 1769 Kbps<br>24 FPS | 885 Kbps<br>12 FPS  | 442 Kbps<br>6 FPS  | 221 Kbps<br>3 FPS | 74 Kbps<br>1 FPS  |
| LEVEL5               | 1382 Kbps<br>25 FPS | 664 Kbps<br>12 FPS  | 332 Kbps<br>6 FPS  | 166 Kbps<br>3 FPS | 55 Kbps<br>1 FPS  |
| LEVEL4               | 1152 Kbps<br>25 FPS | 553 Kbps<br>12 FPS  | 276 Kbps<br>6 FPS  | 138 Kbps<br>3 FPS | 46 Kbps<br>1 FPS  |
| LEVEL3               | 922 Kbps<br>25 FPS  | 442 Kbps<br>12 FPS  | 221 Kbps<br>6 FPS  | 111 Kbps<br>3 FPS | 37 Kbps<br>1 FPS  |
| LEVEL2               | 691 Kbps<br>25 FPS  | 332 Kbps<br>12 FPS  | 166 Kbps<br>6 FPS  | 83 Kbps<br>3 FPS  | 28 Kbps<br>1 FPS  |
| LEVEL1               | 461 Kbps<br>25 FPS  | 221 Kbps<br>12 FPS  | 111 Kbps<br>6 FPS  | 55 Kbps<br>3 FPS  | 18 Kbps<br>1 FPS  |

## ❖ H.264 (VGA)

| Frame Rate<br>Quality | 25 FPS              | 13 FPS              | 6 FPS             | 3 FPS             | 1 FPS             |
|-----------------------|---------------------|---------------------|-------------------|-------------------|-------------------|
| LEVEL10               | 2507 Kbps<br>17 FPS | 1327 Kbps<br>9 FPS  | 737 Kbps<br>5 FPS | 442 Kbps<br>3 FPS | 147 Kbps<br>1 FPS |
| LEVEL9                | 1991 Kbps<br>18 FPS | 1217 Kbps<br>11 FPS | 664 Kbps<br>6 FPS | 332 Kbps<br>3 FPS | 111 Kbps<br>1 FPS |
| LEVEL8                | 1659 Kbps<br>18 FPS | 1106 Kbps<br>12 FPS | 553 Kbps<br>6 FPS | 276 Kbps<br>3 FPS | 92 Kbps<br>1 FPS  |
| LEVEL7                | 1401 Kbps<br>19 FPS | 885 Kbps<br>12 FPS  | 442 Kbps<br>6 FPS | 221 Kbps<br>3 FPS | 74 Kbps<br>1 FPS  |
| LEVEL6                | 1106 Kbps<br>20 FPS | 664 Kbps<br>12 FPS  | 332 Kbps<br>6 FPS | 166 Kbps<br>3 FPS | 55 Kbps<br>1 FPS  |
| LEVEL5                | 968 Kbps<br>21 FPS  | 553 Kbps<br>12 FPS  | 276 Kbps<br>6 FPS | 138 Kbps<br>3 FPS | 46 Kbps<br>1 FPS  |
| LEVEL4                | 774 Kbps<br>21 FPS  | 442 Kbps<br>12 FPS  | 221 Kbps<br>6 FPS | 111 Kbps<br>3 FPS | 37 Kbps<br>1 FPS  |
| LEVEL3                | 608 Kbps<br>22 FPS  | 332 Kbps<br>12 FPS  | 166 Kbps<br>6 FPS | 83 Kbps<br>3 FPS  | 28 Kbps<br>1 FPS  |
| LEVEL2                | 424 Kbps<br>23 FPS  | 221 Kbps<br>12 FPS  | 111 Kbps<br>6 FPS | 55 Kbps<br>3 FPS  | 18 Kbps<br>1 FPS  |
| LEVEL1                | 230 Kbps<br>25 FPS  | 111 Kbps<br>12 FPS  | 55 Kbps<br>6 FPS  | 28 Kbps<br>3 FPS  | 9 Kbps<br>1 FPS   |

## ❖ MPEG4 (CIF)

| Quality \ Frame Rate | 25 FPS              | 13 FPS             | 6 FPS             | 3 FPS             | 1 FPS            |
|----------------------|---------------------|--------------------|-------------------|-------------------|------------------|
| LEVEL10              | 1382 Kbps<br>25 FPS | 664 Kbps<br>12 FPS | 332 Kbps<br>6 FPS | 166 Kbps<br>3 FPS | 55 Kbps<br>1 FPS |
| LEVEL9               | 1152 Kbps<br>25 FPS | 553 Kbps<br>12 FPS | 276 Kbps<br>6 FPS | 138 Kbps<br>3 FPS | 46 Kbps<br>1 FPS |
| LEVEL8               | 922 Kbps<br>25 FPS  | 442 Kbps<br>12 FPS | 221 Kbps<br>6 FPS | 111 Kbps<br>3 FPS | 37 Kbps<br>1 FPS |
| LEVEL7               | 691 Kbps<br>25 FPS  | 332 Kbps<br>12 FPS | 166 Kbps<br>6 FPS | 83 Kbps<br>3 FPS  | 28 Kbps<br>1 FPS |
| LEVEL6               | 461 Kbps<br>25 FPS  | 221 Kbps<br>12 FPS | 111 Kbps<br>6 FPS | 55 Kbps<br>3 FPS  | 18 Kbps<br>1 FPS |
| LEVEL5               | 346 Kbps<br>25 FPS  | 166 Kbps<br>12 FPS | 83 Kbps<br>6 FPS  | 41 Kbps<br>3 FPS  | 14 Kbps<br>1 FPS |
| LEVEL4               | 288 Kbps<br>25 FPS  | 138 Kbps<br>12 FPS | 69 Kbps<br>6 FPS  | 35 Kbps<br>3 FPS  | 12 Kbps<br>1 FPS |
| LEVEL3               | 230 Kbps<br>25 FPS  | 111 Kbps<br>12 FPS | 55 Kbps<br>6 FPS  | 28 Kbps<br>3 FPS  | 9 Kbps<br>1 FPS  |
| LEVEL2               | 173 Kbps<br>25 FPS  | 83 Kbps<br>12 FPS  | 41 Kbps<br>6 FPS  | 21 Kbps<br>3 FPS  | 7 Kbps<br>1 FPS  |
| LEVEL1               | 151 Kbps<br>25 FPS  | 73 Kbps<br>12 FPS  | 36 Kbps<br>6 FPS  | 18 Kbps<br>3 FPS  | 6 Kbps<br>1 FPS  |

## ❖ H.264 (CIF)

| Frame Rate<br>Quality | 25 FPS             | 13 FPS             | 6 FPS             | 3 FPS             | 1 FPS            |
|-----------------------|--------------------|--------------------|-------------------|-------------------|------------------|
| LEVEL10               | 922 Kbps<br>25 FPS | 442 Kbps<br>12 FPS | 221 Kbps<br>6 FPS | 111 Kbps<br>3 FPS | 37 Kbps<br>1 FPS |
| LEVEL9                | 691 Kbps<br>25 FPS | 332 Kbps<br>12 FPS | 166 Kbps<br>6 FPS | 83 Kbps<br>3 FPS  | 28 Kbps<br>1 FPS |
| LEVEL8                | 576 Kbps<br>25 FPS | 276 Kbps<br>12 FPS | 138 Kbps<br>6 FPS | 69 Kbps<br>3 FPS  | 23 Kbps<br>1 FPS |
| LEVEL7                | 461 Kbps<br>25 FPS | 221 Kbps<br>12 FPS | 111 Kbps<br>6 FPS | 55 Kbps<br>3 FPS  | 18 Kbps<br>1 FPS |
| LEVEL6                | 346 Kbps<br>25 FPS | 166 Kbps<br>12 FPS | 83 Kbps<br>6 FPS  | 41 Kbps<br>3 FPS  | 14 Kbps<br>1 FPS |
| LEVEL5                | 288 Kbps<br>25 FPS | 138 Kbps<br>12 FPS | 69 Kbps<br>6 FPS  | 35 Kbps<br>3 FPS  | 12 Kbps<br>1 FPS |
| LEVEL4                | 230 Kbps<br>25 FPS | 111 Kbps<br>12 FPS | 55 Kbps<br>6 FPS  | 28 Kbps<br>3 FPS  | 9 Kbps<br>1 FPS  |
| LEVEL3                | 173 Kbps<br>25 FPS | 83 Kbps<br>12 FPS  | 41 Kbps<br>6 FPS  | 21 Kbps<br>3 FPS  | 7 Kbps<br>1 FPS  |
| LEVEL2                | 115 Kbps<br>25 FPS | 55 Kbps<br>12 FPS  | 28 Kbps<br>6 FPS  | 14 Kbps<br>3 FPS  | 5 Kbps<br>1 FPS  |
| LEVEL1                | 58 Kbps<br>25 FPS  | 28 Kbps<br>12 FPS  | 14 Kbps<br>6 FPS  | 7 Kbps<br>3 FPS   | 2 Kbps<br>1 FPS  |

## TROUBLESHOOTING

| PROBLEM                                                                          | SOLUTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I can't access the camera from a web browser.                                    | <ul style="list-style-type: none"> <li>• Check to make sure that the camera's Network settings are appropriate.</li> <li>• Check to make sure that all network cables have been connected properly.</li> <li>• If connected using DHCP, verify that the camera is able to acquire dynamic IP addresses without any problem.</li> <li>• If connected using a DDNS URL, verify that the MAC address has been properly entered.</li> <li>• If the camera is connected to a router, verify that port forwarding is properly configured.</li> </ul> |
| Viewer got disconnected during monitoring.                                       | <ul style="list-style-type: none"> <li>• Connected Viewers become disconnected upon any change to camera or network configurations.</li> <li>• Check all network connections.</li> <li>• If the camera is connected over an xDSL network, it's possible for Viewer to disconnect under poor network conditions.</li> </ul>                                                                                                                                                                                                                     |
| I cannot connect to the system using a tab browser of Internet Explorer 7.0.     | <ul style="list-style-type: none"> <li>• When you try to connect to the system using a tab browser, the same cookie information is shared, resulting in errors when connected. Therefore, instead of using a tab browser, open a new browser window to connect to the system.</li> </ul>                                                                                                                                                                                                                                                       |
| The camera connected to the network is not detected in the IP installer program. | <ul style="list-style-type: none"> <li>• Turn off the firewall settings on your PC and then search the camera again.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                |
| Images overlap.                                                                  | <ul style="list-style-type: none"> <li>• Check whether two or more cameras are set to a single multicast address instead of different addresses. If a single address is used for multiple cameras, the images may overlap.</li> </ul>                                                                                                                                                                                                                                                                                                          |
| No image appears.                                                                | <ul style="list-style-type: none"> <li>• If the transmission method is set to multicast, check whether there is a router that supports multicast in the LAN the camera is connected to.</li> </ul>                                                                                                                                                                                                                                                                                                                                             |

| PROBLEM                                                                                                                                                           | SOLUTION                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I enabled Motion Detection Feature under Motion Detection, but .jpg files are not getting sent over FTP/SMTP even after motion detection occurs at the FT camera. | <ul style="list-style-type: none"> <li>Verify the settings in the following sequence:               <ul style="list-style-type: none"> <li>A. NTP must be properly configured.</li> <li>B. Motion Detection Feature must be enabled.</li> <li>C. Alarm Video Transmission must be enabled.</li> <li>D. Check for scheduling conflict.</li> </ul> </li> </ul> |
| Is it possible to configure Motion Zone with Motion Detection Feature disabled?                                                                                   | <ul style="list-style-type: none"> <li>Yes. Motion Zone can be configured independently of whether or not Motion Detection Feature is in use.</li> </ul>                                                                                                                                                                                                     |
| A motion event took place but didn't trigger an alarm.                                                                                                            | <ul style="list-style-type: none"> <li>Check alarm output port settings.</li> </ul>                                                                                                                                                                                                                                                                          |
| Cannot record into the SD memory card.                                                                                                                            | <ul style="list-style-type: none"> <li>Check if the memory card is defective.</li> <li>Check if the write protection tab of the memory card is set to "Lock".</li> </ul>                                                                                                                                                                                     |
| SD memory indicator does not turn on even when the SD memory card is inserted.                                                                                    | <ul style="list-style-type: none"> <li>Check if the memory card is defective.</li> <li>Check if the &lt;Record&gt; is checked in &lt;Setup&gt; → &lt;Event&gt; → &lt;SD Card Record&gt; menu.</li> </ul>                                                                                                                                                     |
| SD memory card is inserted but the camera does not operate properly.                                                                                              | <ul style="list-style-type: none"> <li>Check if the memory card is inserted in the proper direction. Operation of memory card that is formatted by other devices is not guaranteed with this camera unit</li> <li>Format the memory card again in &lt;Setup&gt; → &lt;Event&gt; → &lt;SD Card&gt; menu.</li> </ul>                                           |
| Cannot format the SD memory card.                                                                                                                                 | <ul style="list-style-type: none"> <li>Check if the write protection tab of the memory card is set to "Lock".</li> </ul>                                                                                                                                                                                                                                     |

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