PT127XT-IP

Outdoor Vandal Proof 27x IP PTZ Dome

CBC (AMERICA) Corp.

User Manual

NY: 55 Mall Drive • Commack, NY 11725 (800) 422-6707
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CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION : TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT OPEN THE COVERS.
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONAL

This lightning flash with arrowhead symbol is intended to alert the user to the presence of un-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

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

This Device compiles with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interface, and

(2) This device must accept any interference received, including interference that may cause undesired operations.

Important Safety Guide

1. Read, heed and follow all the Instructions
   Read all the safety and operating instructions before using the product.

2. Keep this manual
   Keep this manual for reference in future.

3. Attachments / Accessories
   Use only the attachments or accessories specified by the manufacturer.

4. Installation
   - Do not install near any heat resources such as radiators, heat registers, stoves, or other appratus including amplifiers that product heat. Improperly installed product may fall, cause serious injury to a child or adult and damage the product.
   - Do not block any ventilation holes or openings. Install in accordance with the manufacturer's instructions.
   - Use only with the cart, stand, tripod, bracket, mounting devices, or table specified by the manufacturer.
   - Installation should be done only by qualified personnel and conform to all the instructions by the manufacturer.
   - Refer all servicing to qualified service personnel.
   - Unless the product is specifically marked as IP67, more than IP67 or confirmed by the manufacturer, it is designed for indoor use only and it must not be installed where exposed to rain and moisture.
   - Do not load on the product.
   - Use stainless steel hardware to fasten the mount.
   - To prevent damage from water leakage when installing a mount outdoors on a roof or wall, apply sealant properly around holes.
   - These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other that contained in the operationg instructions unless you are qualified to do so.
   - Use only replacement parts specified by the manufacturer.

5. **Power source**
   This product should be operated only from the type of the power source indicated on the marking label.

Caution

- **Operating**
  - Before using, make sure that the power supply and others are properly installed.
  - While operating, if any abnormal condition or malfunction is observed, stop using the product immediately and then contact your local dealer.
- **Handling**
  - Do not disassemble or tamper with the parts inside the product.
  - Do not drop or subject the product to shock and vibration as this can damage the product.
  - Care must be taken when you clean the clear dome cover. Especially, scratch and dust will ruin the quality of the product.
- **Installation and Storage**
  - Do not install the product in areas of extreme temperature, which exceed the allowable range.
  - Avoid installing in humid or dusty places.
  - Avoid installing in places where radiation is present.
  - Avoid installing in places where there are strong magnetic fields and electric signals.
  - Avoid installing in places where the product would be subject to strong vibrations.

Chapter 1.

INTRODUCTION

Features

❑ Powerful Zoom Camera & Setup Options

- Image Sensor : 1/4" Super HAD color CCD
- Zoom : ×27 Optical Zoom, ×12 Digital Zoom
- Day & Night, Privacy Mask
- SNR (Super Noise Reduction) Function
- Various Focus Mode : Auto-Focus, Manual Focus, Semi-Auto Focus
- Various Setup Options in OSD Menu.

❑ Powerful Pan/Tilt Functions

- MAX. 360°/sec High Speed Pan/Tilt Motion
- With the Vector Drive Technology, Pan/Tilt motions are accomplished along the shortest path. As a result, the time to target view is remarkably short and the video on the monitor is very natural in monitoring.
- With the Micro-Stepping Control Technology, the video looks very natural at high zoom magnification during a jog operation on a controller since the camera can be controlled by 0.05°/sec. Hence it is very easy to make the camera focus on desired target views at high zoom magnification. Additionally it is easy to make the camera focus on desired positions with zoom-proportional pan/tilt movement.

❑ Preset, Pattern, Swing, Group, Privacy Mask and More…

- MAX. 127 Presets are programmable and each preset can have its own parameter values independently from the other presets.

  For an example, refer to the below table.

Preset No.	White Balance	Auto Exposure	•••	Label	Remarks
Preset 1	Case A	Case 3		"ENTRANCE"	
Preset 2	Case C	Case 5		"WAREHOUSE"	
Preset 3	Case V	Case 2		"OFFICE"	
•••					
Preset 95	–	–	–	–	Reserved for OSD Menu
•••					
Preset 128	Case K	Case 9		"TERRACE"	

- MAX. 8 sets of Swing are programmable. This function is that the camera moves repetitively between two preset positions at programmed speeds.
- MAX. 4 Patterns are programmable. This function is that the camera memorizes the path (mostly curve path) by the joystick of the controller and revives the trajectory operated by the joystick as closely as possible.
- MAX. 8 sets of Group are programmable. This function is that the camera memorizes the combination of Presets, Pattern and/or Swings sequently and runs Presets, Pattern and/or Swings repetitively. A Group can be combined upto 20 functions with any of Preset/Pattern/Swing.
- MAX. 8 Privacy Masks are programmable, not to intrude on any other's privacy.

❑ PTZ(Pan/Tilt/Zoom) Control

- With the RS-485 communication connection, MAX. 255 units of cameras can be connected to a single controller.
- Pelco-D or Pelco-P protocols can be selected as a control protocol in the current firmware version.

❑ OSD(On Screen Display) Menu

- OSD menu is provided to display the status of camera and to configure the functions interactively.
- The information such as Camera ID, Pan/Tilt Angle, Direction, Alarm Input and Preset is displayed on screen.

❑ Alarm In/Out Function

- 3 alarm sensor inputs and 1 alarm sensor outputs are available.
- Alarm sensor input is decoupled with photo-couplers to avoid external electric noise and shock perfectly.
- Both of N.O.(Normal Open) sensors and N.C.(Normal Close) sensors can be used and the signal range of the Alarm output is from DC 5.0V to 12.0V for various applications.
- The camera can be set to move to a Preset position or to run functions such as Pattern, Swing and Group when there are external sensor activations. Also "Post Alarm" function is possible, which is supposed to activate after user-defined time period and sequentially in succession to the action by external sensor activations.

❑ Reserved Presets(Hot Keys)

- Most camera setup options can be set up easily and directly with the reserved presets (Hot Keys), without entering into OSD menu. For more information, refer to "Reserved Presets(Hot Keys)" in this manual.

❑ **Perfect Outdoor Environment Compatibility and Easy Installation**

- The fans and heaters are built-in in the camera for cold and hot temperature environment. Also idealistic mechanical design protects the camera from water and dust. (IP67 when installed properly with wall mount bracket only / Only for outdoor models)
- It is easy to install and repair the camera.

❑ **Audio**

- Various Transmission Mode : Unidirectional Mode (IP-server to Client PC), Bi-directional Mode

❑ **Video**

- High-Quality Compression Algorithm, H.264
- Compression into Various Resolution : CIF, Half-D1, D1
- Wide Range of Video Transmission Rate : 32kbps ~ 4Mbps
- Various Transmission Mode : CBR, VBR
- Motion Detection

❑ **Network**

- Static IP and Dynamic IP(DHCP, PPPoE) Support
- One to One Connection and One to Multiple Connection
- Multi-Casting
- Automatic Transmission Rate Control by Network Condition

❑ **User Interface**

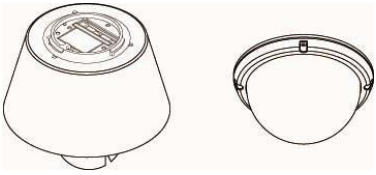
- System Status Display with OSD(On Screen Display)
- System Configuration via Internet Explorer

❑ **Reliability**

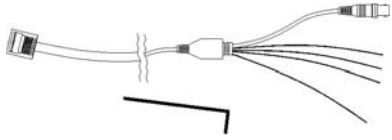
- Reliable Embedded System
- System Recovery with Dual Watch-Dog Function

Package Component

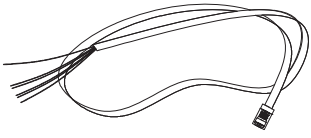
❑ Product & Accessories



● Main Body & Surface Mount Bracket

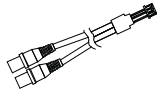


● Default Accessories
[Main Cable, Wrench]



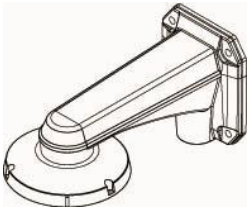
● Accessories for The Models with Alarm In/Out Function [I/O Cable]

● Lan Cable



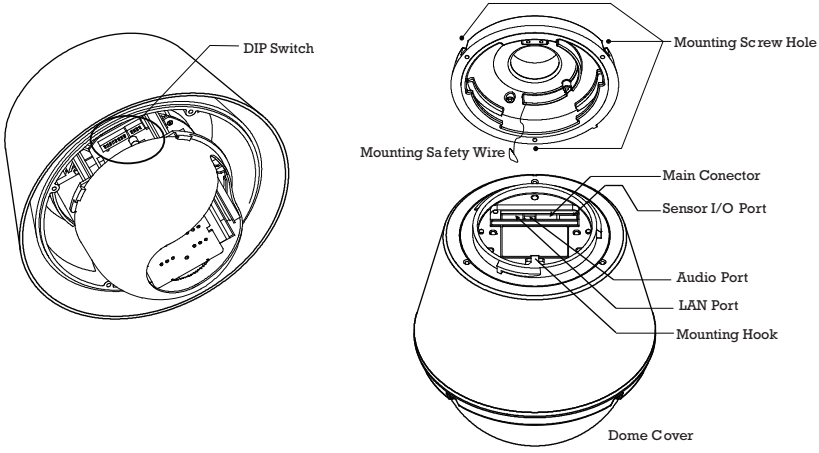
● Audio Cable

❑ Brackets



● Wall Mount Bracket
[Screws : Machine M5×15, Hex Lag #14×50]

Main Part Description



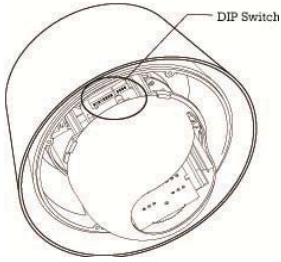
● Dome Cover	Do not detach the protection vinyl from the dome cover before finishing all the installation process to protect the dome cover from scratches or dust.
● DIP Switch	Used to set up camera IDs and protocols.
● Mounting Safety Wire	Used to protect the product from being dropped by connecting safety wire of bracket to hook of main body when being installed.
● Mounting Screw Hole	Used to assemble the main body with a bracket with screws.
● Main Connector	Used for the power wire, the video cable and the RS-485 communication cable connection.
● Sensor I/O Port	Used for the sensor in/out connection. (The sensor I/O function possible models only)
● LAN	Used for RJ-45 Cable connection.
● AUDIO	Connect to a speaker, MIC, and Ground Wire with an appropriate wire.

Chapter 2.

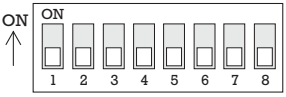
INSTALLATION

DIP Switch Setup

Before installing the camera, set up the DIP switch to configure the camera ID and the communication protocol.



❑ Camera ID Setup



- The ID number of camera is set using a binary number. Examples shown below.
- The range of ID is 1~255. **Do not use 0 as camera ID**. Factory default of Camera ID is 1.
- If you want to control a certain camera, you must match the camera ID with Cam ID setting of DVR or Controller.

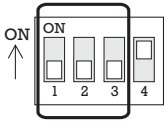
Pin	1	2	3	4	5	6	7	8
ID	1	2	4	8	16	32	64	128
1	on	off	off	off	off	off	off	off
2	off	on	off	off	off	off	off	off
3	on	on	off	off	off	off	off	off
4	off	off	on	off	off	off	off	off
5	on	off	on	off	off	off	off	off
6	off	on	on	off	off	off	off	off
7	on	on	on	off	off	off	off	off
8	off	off	off	on	off	off	off	off
9	on	off	off	on	off	off	off	off
10	off	on	off	on	off	off	off	off

Pin	1	2	3	4	5	6	7	8
ID	1	2	4	8	16	32	64	128
11	on	on	off	on	off	off	off	off
12	off	off	on	on	off	off	off	off
13	on	off	on	on	off	off	off	off
14	off	on	on	on	off	off	off	off
15	on	on	on	on	off	off	off	Off
16	off	off	off	off	on	off	off	off
17	on	off	off	off	on	off	off	off
18	off	on	off	off	on	off	off	off
19	on	on	off	Off	on	off	off	off
20	off	off	on	off	on	off	off	off

Pin	1	2	3	4	5	6	7	8
ID	1	2	4	8	16	32	64	128
21	**on**	off	**on**	off	**on**	off	off	off
22	off	**on**	**on**	off	**on**	off	off	off
23	**on**	**on**	**on**	off	**on**	off	off	off
24	off	off	off	**on**	**on**	off	off	off
25	**on**	off	off	**on**	**on**	off	off	off
26	off	**on**	off	**on**	**on**	off	off	off
27	**on**	**on**	off	**on**	**on**	off	off	off
28	off	off	**on**	**on**	**on**	off	off	off
29	**on**	off	**on**	**on**	**on**	off	off	off
30	off	**on**	**on**	**on**	**on**	off	off	off

Pin	1	2	3	4	5	6	7	8
ID	1	2	4	8	16	32	64	128
31	**on**	**on**	**on**	**on**	**on**	off	off	off
32	off	off	off	off	off	**on**	off	off
33	**on**	off	off	off	off	**on**	off	off
34	off	**on**	off	off	off	**on**	off	off
35	**on**	**on**	off	off	off	**on**	off	Off
36	off	off	**on**	off	Off	**on**	off	off
37	**on**	off	**on**	off	Off	**on**	off	off
38	off	**on**	**on**	off	Off	**on**	off	off
39	**on**	**on**	**on**	off	Off	**on**	off	off
40	off	off	off	**on**	Off	**on**	off	off

❑Communication Protocol Setup



- Select an appropriate Protocol with the DIP switch combination.

Switch Mode			Protocol
P0 (Pin 1)	P1 (Pin 2)	P2 (Pin 3)	
OFF	OFF	OFF	PELCO-D, 2400 bps
ON	OFF	OFF	PELCO-D, 9600 bps
OFF	ON	OFF	PELCO-P, 4800 bps
ON	ON	OFF	PELCO-P, 9600 bps
Others			Reserved

- Match the camera protocol with the camera protocol in the setting of your DVR or controller to control the camera.
- Adjust the DIP switch after turning off the camera. If you changed the camera protocol by changing the DIP S/W, the change will be effective after you reboot the camera.
- The factory default protocol is "Pelco-D, 2400 bps".

❑ Terminal Resistor Setup

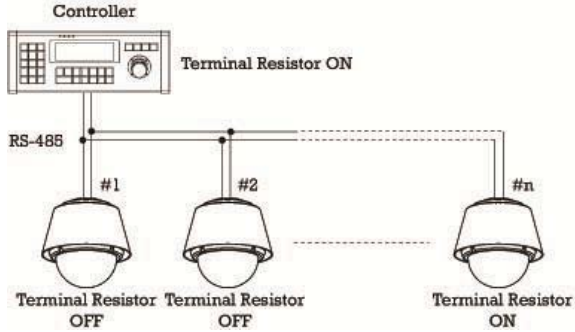
The terminal resistor is used for the following cases.

- **Case 1 : In case that the control cable length between a camera and a controller is relatively very long (1:1 Connection)**

  If the communication cable length is very long, the electrical signal will bound in the terminal point. This reflected signal causes distortion of original signal. Accordingly, the camera can be out of control. In this case, the terminal resistor of both sides i.e. the camera and the controller must be set to 'ON' state.

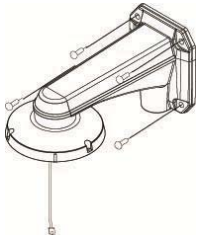
- **Case 2 : In case that multiple cameras are connected to a controller.**

  Due to similar reasons with the case 1, the terminal resister of the controller and the last camera must be set to 'ON' state. The last camera means the camera farthest in cable length from the controller. Do not turn on the terminal resistor of all the cameras on the same communication cable.



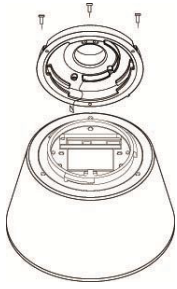
Installation with Wall Mount Bracket

① Make a hole whose diameter is 30~40mm on the mounting surface to pass the wire(s) and cable(s) through the mounting surface. (In case of the wiring and cabling through the mounting surface only) Then prepare the wall mount bracket. Pull the wire(s) and cable(s) for the system as below. Attach the wall mount bracket to the mounting surface. (Hex Lag #14×50)

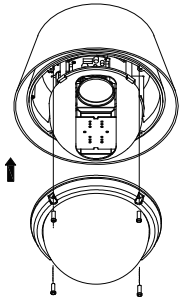


② Pull the wire(s) and cable(s) for the system as below. Wire the cable(s) to the ports. After assembling hook of camera main body with safety wire inside the adaptor. After assembly, fix it with 3r screws.

(Machine M5×15)



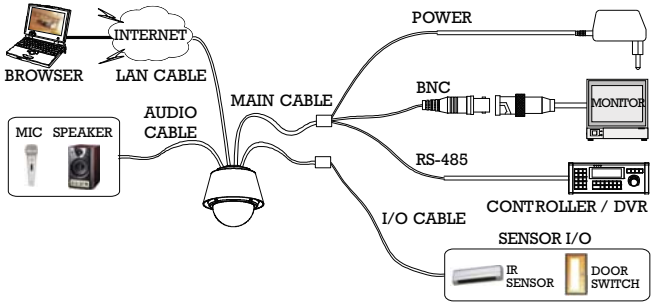
③ Assembles dome cover with screws main body with dome cover. After assembly, remove protection vinyl from dome cover.



Important Notice

- Before starting the installation, make sure that the Camera ID and Protocol are set up properly.

Wiring and Cabling



❑ Port Description

- Main Cable

Port Pin Number (RJ45)	Connector / Wire Color	Signal
1	BNC Connector	Video +
2,4		Video –
5	Red	RS-485 +
3	Yellow	RS-485 –
7	Orange	Power +
6,8	White	Power –

- I/O Cable

Port Pin Number (RJ25)	Wire Color	Signal
1	Blue	IN COM +
2	Yellow	IN 1 –
3	Green	IN 2 –
4	Red	IN 3 –
5	Black	OUT A
6	White	OUT B

❑ Power Description

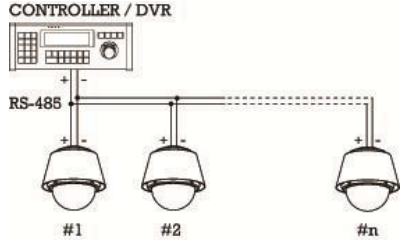
- Carefully check the voltage and current capacity of the rated power. The rated power is indicated in the back of main unit.

Rated Power	Input Voltage Range	Current Consumption
DC12V	DC 11V~18V	3.0A

- In case that the length of the power wire is very long, there may be voltage drop and the syatem may not work properly. Make the length of the power wire as short as possible.

❑ RS-485 Communication

- For PTZ control, connect the cable(s) to your keyboard or DVR. To connect multiple cameras to a single controller, RS-485 communication should be connected in parallel as shown below. If you are connecting a single camera to a controller, terminate the camera. When connecting more than one camera to a single controller, terminate the last camera on the communication line. The last camera means the camera farthest in cable length from the controller. Note that the total length of the communication cable between a controller and the camera(s) on the same communication line must be less than 1.2Km.

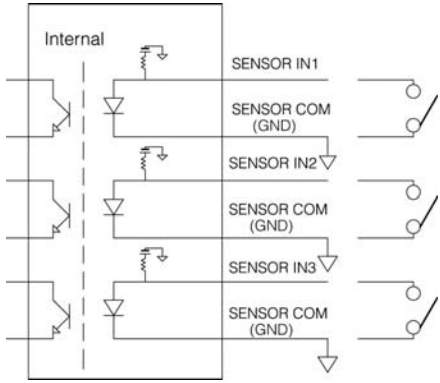


❑ Video

- Use BNC coaxial cable only.

❑ Alarm Input

- Sensor Input



Before connecting sensors, check driving voltages and output signal types of the sensors. Since output signal types of the sensors are divided into Open Collector type and Voltage Output type in general, the wiring must be done properly after considering those types.

Signal	Description
IN COM+	The electric power source to drive input circuit. Connect the (+) wire of electric power source to drive the Sensors to this port as shown in the above circuit.
IN1 -, IN2 -, IN3 -	Connect the outputs of sensors to each port as shown in the above circuit.

If you want to use Alarm Input, the types of sensors must be selected in OSD menu. The sensor types are divided into Normal Open and Normal Close. If wrong sensor types are selected, alarms should be activated reversely to sensor inputs.

⊙ Normal Open	Output Voltage is high state when sensor is activated
⊙ Normal Close	Output Voltage is high state when sensor is not activated

❑ Relay Output

The maximum loads are as follows.

Power Type	DC Power
Maximum Load	MAX. DC 24V, 1A

Chapter 3.

OPERATION

Check Points before Operation

- Before turning on the system, check if the wire(s) and cable(s) are connected properly.
- Check if the camera ID on the controller is properly selected. The camera ID must be identical to that of the target camera. The camera ID can be checked by reading the DIP switch of the camera or on OSD.
- If your controller supports multi-protocols, the protocol must be changed to match to that of the camera.
- Adjust the DIP switch after turning off the camera. If you changed the camera protocol by changing the DIP S/W, the change will be effective after you reboot the camera.
- Since the operation method can be different by controllers, refer to your controller manual if the camera can not be controlled properly. The operation of this manual is based on the standard Pelco® Controller.

Check Points for Preset and Pattern Function before Operation

- Check fully how to operate preset function and pattern function with your controller or DVR in advance to operate the camera functions when using a controller or a DVR.
- Refer to the following table when using standard Pelco® protocol controllers.

< Go Preset >	Input [Preset Number] and press [Preset] button shortly.
< Set Preset >	Input [Preset Number] and keep pressing [Preset] button for more than 2 seconds.
< Run Pattern >	Input [Pattern Number] and press [Pattern] button shortly.
< Set Pattern >	Input [Pattern Number] and keep pressing [Pattern] button for more than 2 seconds.

- If your controller or DVR has no pattern button or function, use the Hot Keys with preset numbers. For more information, refer to **"Reserved Presets(Hot Keys)"** in this manual.

OSD Menu

- Function — With OSD menu, the system can be properly configured for each application.
- Entering into OSD — Go Preset [95]

Reserved Presets (Hot Keys)

- Description — Some Preset numbers are reserved to change some parameters without entering into OSD menu.
- Hot Keys

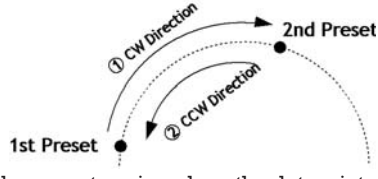
Go Preset [95]	:Entering into OSD menu
Go Preset [131~134]	:Running Pattern Function 1 ~ 4
Go Preset [141~148]	:Running Swing Function 1 ~ 8
Go Preset [151~158]	:Running Group Function 1 ~ 8
Go Preset [161]	:Turning off Relay Output
Set Preset [161]	:Turning on Relay Output
Go Preset [167]	:Setting Zoom Proportional Function to ON
Set Preset [167]	:Setting Zoom Proportional Function to OFF
Go Preset [170]	:Setting Camera BLC/WDR Mode to OFF
Go Preset [171]	:Setting Camera BLC/WDR Mode to ON
Go Preset [174]	:Setting Camera Focus Mode to AUTO
Go Preset [175]	:Setting Camera Focus Mode to Manual
Go Preset [176]	:Setting Camera Focus Mode to SEMI-AUTO
Go Preset [177]	:Setting Day & Night Mode to AUTO
Go Preset [178]	:Setting Day & Night Mode to NIGHT
Go Preset [179]	:Setting Day & Night Mode to DAY
Go Preset [190]	:Setting OSD Display Mode to AUTO (Except Privacy Mask)
Go Preset [191]	:Setting OSD Display Mode to OFF (Except Privacy Mask)
Go Preset [192]	:Setting OSD Display Mode to ON (Except Privacy Mask)
Go Preset [193]	:Setting all Privacy Mask Display to OFF
Go Preset [194]	:Setting all Privacy Mask Display to ON

Preset

- Function — MAX. 127 positions are programmable. The Preset number can be assigned from 1 to 128 except 95. Preset 95 is reserved for entering into OSD menu. Camera parameters such as White Balance, Auto Exposure and others can be set up independently and each preset can have its own parameter values independently from the other persets. When setting up presets with a controller, Label should be blank and "Camera Adjust" should be set to "GLOBAL" as the default. To change the parameters, enter into OSD menu.
- Setting Presets — Set Preset [1~128]
- Running Presets — Go Preset [1~128]
- Deleting Presets — To delete Presets, enter into OSD menu.

Swing

- Function — This function is that the camera moves repetitively between two preset positions at programmed speeds. When a swing function runs, the camera moves from the preset assigned as the 1st point to the preset assigned as the 2nd point in CW(Clockwise) direction. Then the camera moves from the preset assigned as the 2nd point to the preset assigned as the 1st point in CCW(Counterclockwise) direction.



In case that the preset assigned as the 1st point and the preset assigned as the 2nd point are same, the camera turns on its axis by 360° in CW(Clockwise) direction and then it turns back on its axis by 360° in CCW(Counterclockwise) direction. The Swing speed is defined from 1°/sec to 180°/sec.

- Setting Swings — To set Swing, enter into OSD menu.
- Running Swings — Method 1) <Run Pattern> [Swing NO. + 10] ex) Run Swing 3 : <Run Pattern> [13]
  Method 2) <Go Preset> [Swing NO. + 140] ex) Run Swing 3 : <Go Preset> [143]
- Deleting Swings — To delete Swings, enter into OSD menu.

Pattern

● Function

This function is that the camera memorizes the path (mostly curve path) by the joystick of the controller and revives the trajectory operated by joystick as closely as possible.

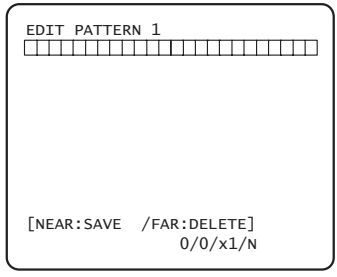
MAX. 4 Patterns are programmable and Maximum 1200 communication commands can be programmed in a pattern.

● Setting Patterns

A Pattern can be created by the following methods.

Method 1) <Set Pattern> [Pattern NO.]

○ The Pattern programming window appears on the monitor as below.



○ The movement by Joystick and the preset movement can be memorized in a pattern.

○ After a pattern is programmed, the remaining storage is displayed in progress bar on the screen.

○ To save the recording, press **NEAR** key and to cancel, press **FAR** key.

Method 2) Programming in OSD Menu : See the section "How to use OSD Menu".

● Running Patterns

Method 1) <Run Pattern> [Pattern NO.] ex) Run Pattern 2 : <Run Pattern> [2]

Method 2) <Go Preset> [Pattern NO. + 130] ex) Run Pattern 2 : <Go Preset> [132]

● Deleting Patterns

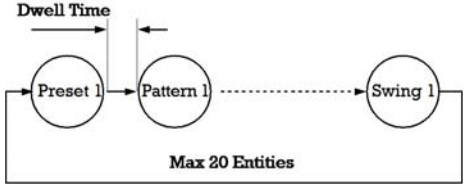
To delete Patterns, enter into OSD menu.

Note) When the system memorizes Patterns, the commands are stored in the momories, not the positions of Pan/Tilt/Zoom. Hence there might be small differences between the original path and the revived path by path type of Patterns. Note that it is not a problem in position precision.

Group

- Function

This function is that the camera memorizes the combination of Presets, Pattern and/or Swings sequently and runs Presets, Pattern and/or Swings repetitively. MAX. 8 sets of Group are programmable. Each group can have MAX. 20 actions which are the combination of Preset, Pattern and Swing. Preset speed can be set up and the repeat number of Pattern & Swing can be set up in Group setup. Dwell time between actions can be set up also.



- Setting Groups

To set Groups, enter into OSD menu.

- Running Groups

Method 1) <Run Pattern> [Group NO. + 20] ex) Run Group 7 : <Run Pattern> [27]
Method 2) <Go Preset> [Group NO. + 150] ex) Run Group 7 : <Go Preset> [157]

- Deleting Groups

To delete Groups, enter into OSD menu.

Other Functions

- Power Up Action

This setting defines a specific activity (Preset, Pattern, Swing and Group) to be performed in the event that the power to the camera is cycled. This function enables the user to resume, after turning on power, the last action being executed before turning off the power. Most of actions such as Preset, Pattern, Swing and Group are available for this function but Jog actions are not available to resume.

- Auto Flip

In case that tilt angle arrives at the top of tilt orbit(90°), zoom module camera turns on its axis by 180° at the top of tilt orbit and moves to opposite tilt direction (180°) to keep tracing targets.

- Parking Action

This feature allows the camera to begin a specified operation after a programmed time of inactivity. This function makes the camera automatically run a pre-defined action if there is no command from controller for a pre-defined time period. "Wait Time" means how long a camera should wait for from the previous-last (most recent) command before running the pre-defined action. It can be set to 1 second ~ 3 hours.

- **Alarm Input**

  3 Alarm Inputs are available. When external sensors activate, the camera runs pre-defined actions such as Preset, Pattern, Swing and Group. After the pre-defined time period passed, "Post Alarm" activates, which is pre-defined. Note that only the latest alarm input is effective when multiple sensors are activated at the same time.

- **Privacy Zone Mask**

  Privacy Zone Mask allows the user to program 8 rectangulars that can not be viewed by the operator of the system. To protect others' privacy, MAX. 8 Privacy Masks can be created on the arbitrary position to hide objects such as windows, shops or private house. With the Spherical Coordinates system, powerful Privacy Zone Mask function is possible. A mask area will move with pan and tilt functions and automatically adjust in size as the lens zooms telephoto and wide.

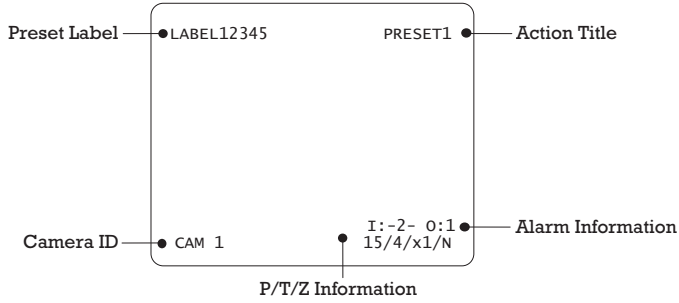
- **GLOBAL/LOCAL Image Setup**

  WB(White Balance) and AE(Auto Exposure) can be set up independently for each preset. There are 2 modes, "Global" mode & "Local" mode. The Global mode is that WB and/or AE are/is set up totally and simultaneously for all presets. The Global parameter setup such as WB and AE can be done in "ZOOM CAMERA SETUP" menu. The Local mode is that WB and/or AE are/is set up independently or separately for each preset. The Local parameter setup for WB and AE can be done in each preset setup menu. Each Local parameter such as WB and AE activates correspondingly when the camera arrives at each preset position. During jog operation, Global WB/AE value should be applied. All Local WB/AE values do not change although Global WB/AE value changes. The Local mode has the prior to the Global mode.

- **Semi-Auto Focus**

  This mode automatically exchanges focus modes between Manual Focus mode and Auto Focus mode by operation. Manual Focus mode activates in preset operation and Auto Focus mode activates during jog operation. With Manual mode at presets, Focus data is memorized in each preset in advance and the camera calls focus data in correspondence with presets as soon as the camera arrives at presets. It should shorten time to get focuses. The focus mode automatically changes to Auto Focus mode when jog operation starts.

OSD Display

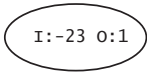


- **P/T/Z Information** Displays the amount of pan from zero degree vertical, the amount of tilt from zero degree horizontal and current compass direction. Also identifies the amount of the zoom magnification.
- **Camera ID** Displays the selected Camera ID (Address).
- **Action Title** Identfies Actions

"SET PRESET xxx"	When Preset xxx is memorized.
"PRESET xxx"	When the camera reaches Preset xxx.
"PATTERN x"	When Pattern x is in action.
"SWG×/PRESET xxx"	When Swing x is in action. Displays both of Swing number and Preset number.
"UNDEFINED"	When a undefined function is called to run

- **Preset Label** Displays preset labels when the camera arrives at presets.
- **Alarm Information** Displays activated alarms. This information shows current state of Alarm Inputs and Relay Outputs. If an Input point is **ON** state, it will show a number corresponding to each point. If an Input point is **OFF** state, '–' will be displayed.

  Example) The point 2 & 3 of inputs are **ON** and Output is **ON**, OSD will show as below.



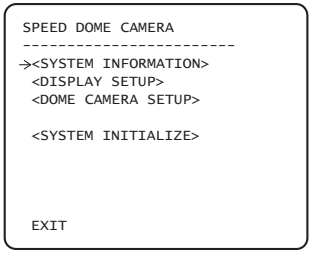
Chapter 4.

OSD MENU

Quick Programming Guide

- The menu items with < > always have sub-menus.
- To go to submenus or make the cursor move to the right, press **NEAR** key.
- To go to the previous-upper level menus, press **FAR** key.
- To make a selection, press **NEAR** key
- To cancel a selection, press **FAR** key
- To move the cursor in the menu, use the joystick to the **Up/Down** direction or **Left/Right** direction.
- To change a value of an item, use **Up/Down** of the joystick in the controller.
- To save changes, press **NEAR** key.
- To cancel changes, press **FAR** key.

Main Menu



● System Information	Displays the system information and configuration. The system setting can not be changed using the OSD menu and the information is for reference only.
● Display Setup	Enables the user to program how labels are displayed on the monitor.
● Dome Camera Setup	Enables the user to configure various functions of the camera.
● System Initialize	Initializes all system configurations and all data to the factory default parameters.

Display Setup

```
DISPLAY SETUP
-------------------------
→CAMERA ID            ON
 PTZ INFORMATION      AUTO
 ACTION TITLE         AUTO
 PRESET LABEL         AUTO
 ALARM I/O            AUTO
 <SET NORTH DIRECTION>
 <PRIVACY ZONE>

 BACK
 EXIT
```

Display setup allows you to program how labels are displayed on the monitor. In case of AUTO, the labels are displayed on the monitor when there are any changes in parameters.

- **Camera ID** [ON/OFF]
  Displays the selected Camera ID (Address).

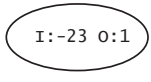
- **PTZ Information** [ON/OFF/AUTO]
  Displays the amount of pan from zero degree vertical, the amount of tilt from zero degree horizontal and current compass direction. Also identifies the amount of the zoom magnification.

- **Action Title** [ON/OFF/AUTO]
  Identfies Actions.
  "SET PRESET xxx"
  "PRESET xxx"
  "PATTERN x"
  "SWG/PRESET xxx"
  "UNDEFINED"

- **Preset Label** [ON/OFF/AUTO]
  Displays the preset labels when the camera arrives at presets.

- **Alarm I/O** [ON/OFF/AUTO]
  Displays the activated alarms. This information shows the current state of Alarm Inputs and Relay Outputs. If an Input point is **ON** state, it will show a number corresponding to each point. If an Input point is **OFF** state, '-' will be displayed.

  Example) The point 2 & 3 of inputs are **ON** and Output is **ON**, OSD will show as below.

❑ Compass Direction Setup

```
SET NORTH DIRECTION
------------------------




MOVE TO TARGET POSITION
[NEAR:SAVE  /FAR:CANCEL
```

Move the camera to a target position and press **NEAR** button to save the direction as North. The direction is the reference direction to assign other compass directions.

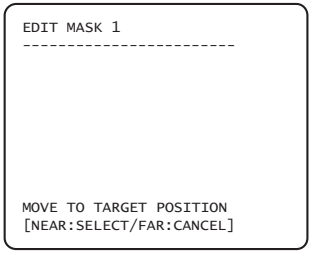
Privacy Zone Mask Setup

```
PRIVACY ZONE
------------------------
→MASK NO        1
                UNDEFINED
 DISPLAY        OFF
 CLEAR MASK     CANCEL
 <EDIT MASK>



 BACK
 EXIT
```

Privacy Zone Mask allows the user to program 8 rectangulars that can not be viewed by the operator of the system. To protect privacy, MAX. 8 Privacy Masks can be created on the arbitrary position to hide objects such as windows, shops or private house. With the Spherical Coordinates system, powerful Privacy Zone Mask function is possible. A mask area will move with pan and tilt functions and automatically adjust in size as the lens zooms telephoto and wide.

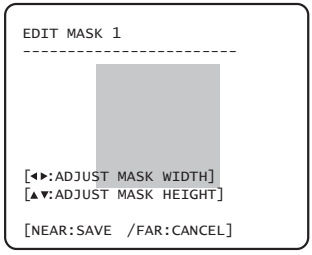
- Mask NO [1~8]
  Selects a Mask number to program. If the selected mask has already data, the camera moves as it was programmed. Otherwise, "UNDEFINED" will be displayed under the Mask number.
- Display [ON/OFF]
  Sets if the mask of the selected mask number shows or not on the screen.
- Clear Mask [CANCEL/OK]
  Deletes the mask data of the selected mask number.

❑ Privacy Zone Mask Area Setup



Move your camera to an area to mask. Then a mask and the menu to adjust the mask size will be displayed.

❑ Privacy Zone Mask Size Setup



Adjusts the mask size. Use the joystick or the arrow buttons of your controller to adjust mask size.

- ◂ ▸ (Left/Right) Adjusts the mask width.
- ▲ ▼ (Up/Down) Adjusts the mask height.

Camera Setup

```
ZOOM CAMERA SETUP
-------------------------
→FOCUS MODE      SEMIAUTO
 DIGITAL ZOOM    ON
 IMAGE FLIP      OFF
 SHARPNESS       16
 STABILIZATION   OFF
 <WHITE BALANCE SETUP>
 <AUTO EXPOSURE SETUP>

 BACK
 EXIT
```

Sets the general functions of zoom camera module.

- Focus Mode [AUTO/MANUAL/SEMIAUTO]

  Sets camera Focus mode.

  ○ SEMIAUTO Mode

  This mode automatically exchanges focus modes between Manual Focus mode and Auto Focus mode by operation. Manual Focus mode activates in preset operation and Auto Focus mode activates during jog operation. With Manual mode at presets, Focus data is memorized in each preset in advance and the camera calls focus data in correspondence with presets as soon as camera arrives at presets. It should shorten time to get focuses. Focus mode automatically changes to Auto Focus mode when jog operation starts.

- Digital Zoom [ON/OFF]

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

- Image Flip [ON/OFF]

  Sets System Image Flip Function to ON/OFF. When this function is set to ON, flipped images always come out. When the camera is installed as Desktop type, set to ON to get proper images.

- Sharpness [0-32]

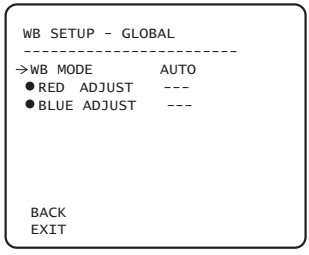
  Sets image sharpness to enhance pictures.

● Stabilization [ON/OFF]

Compensates image vibrations by wind or others. The images with vibrations are compensated by Digital Zoom function and the image resolution with this function should be lower than normal image resolution when this function is turned on. Also this function may not work properly in the following cases.

- Dark scene or Low contrast scene
- High frequency vibration
- During Pan/Tilt/Zoom/Focus moving
- During Iris/Shutter/Gain moving

❑ White Balance Setup



● WB Mode [AUTO/MANUAL]

Retains color balance over a color temperature range. In auto mode, this feature automatically processes the viewed image. In Manual mode, Red and Blue level can be set up manually.

● Red Adjust [0-255]

Adjusts the picture output in the red range.

● Blue Adjust [0-255]

Adjusts the picture output in the blue range.

❑ Auto Exposure Setup

```
AE SETUP - GLOBAL
-------------------------
→BACKLIGHT        OFF
 DAY/NIGHT        AUTO
 BRIGHTNESS       50
 IRIS             AUTO
 SHUTTER          ESC
 AGC              MIDDLE
 SSNR             MIDDLE
 SENS-UP          <AUTO>
 BACK
 EXIT
```

● Backlight [OFF/WDR/BLC/HLC] or [OFF/BLC/HLC]

Sets Backlight Compensation. If a bright backlight is present, the subjects in the picture may appear dark or as a silhouette. Backlight compensation enhances objects in the center of the picture. The camera uses the center of the picture to adjust the iris. If there is a bright light source outside of this area, it will wash out to white. The camera will adjust the iris so that the object in the sensitive area is properly exposed.

Some modles has WDR(Wide Dynamic Range) function, which are better function than BLC. HLC(High Light Compensation) function removes the high light in a limited environment such as parking garage.

● Day/Night [AUTO/DAY/NIGHT]

Sets Day&Night mode.

● Brightness [0~100]

Adjusts the brightness of the images. Iris, The Shutter Speed and Gain are adjusted automatically in correspondence with each numeric value.

● IRIS [AUTO/MANUAL(F1.6~F28)]

Sets Iris to operate automatically or at a user-defined level. If Iris is set to Auto, Iris has higher priority in adjusting AE and Shutter Speed is fixed. Auto iris is the lens function that automatically opens closes the iris in response to changing light conditions.

If Iris is set to Manual, Iris is fixed and Iris has lower priority in adjusting AE, in comparison with others.

● Shutter Speed [ESC/A.Flicker/Manual(×256~1/120000 sec)]

Sets Shutter Speed. Shutter Speed is the duration of the electronic shutter. If Iris is set to Manual and Shutter Speed is set to ESC, Shutter Speed has higher priority. If Shutter Speed is set to A.Flicker, to remove Flicker, Shutter Speed should be set to 1/100 sec. for NTSC and 1/120 for PAL.

● AGC [OFF/LOW/MIDDLE/HIGH/MANUAL(5~41dB)]

Sets AGC. This setting enhances image brightness automatically in case that luminance level of image signal is too low.

● SSNR [OFF/LOW/MIDDLE/HIGH]

Sets SSNR. This setting enhances the images by deducting noises when the gain level of the mages is too high.

● SENS-UP [AUTO(2~256)/OFF]

Sets SENS-UP. This setting activates Slow Shutter function when luminance of image (signal) is too dark.

It is possible to set up the maximum number of frames piled up one on another by Slow Shutter function.

Motion Setup

```
MOTION SETUP
------------------------
→MOTION LOCK      OFF
 PWR UP ACTION    ON
 AUTO FLIP        ON
 JOG MAX SPEED    120/SEC
 JOG DIRECTION    INVERSE
 FRZ IN PRESET    OFF
 <PARKING ACTION SETUP>
 <ALARM INPUT SETUP>
 BACK
 EXIT
```

Sets the general functions of Pan/Tilt motions.

- **Motion Lock** [ON/OFF]
  If Motion Lock is set to ON, it is impossible to set up and delete Preset, Swing, Pattern and Group. It is possible only to run those functions. To set up and delete those functions, enter into OSD menu.
- **Power Up Action** [ON/OFF]
  Refer to "Other Functions" section.
- **Auto Flip** [ON/OFF]
  Refer to "Other Functions" section.
- **Jog Max Speed** [1°/sec ~360°/sec]
  Sets the maximum jog speed. Jog speed is inversely proportional to the zoom magnifications. As the zoom magnification goes up, the pan/tilt speed goes down.
- **Jog Direction** [INVERSE/NORMAL]
  Sets the Jog Direction. If this is set to 'Inverse', the view direction in the screen is same as the direction of joystick. If this is set to 'Normal', the view direction in the screen is the reverse dirction of joystick.
- **Freeze in Preset** [ON/OFF]
  Sets Frame Freeze Function. This feature freezes the scene on the monitor when going to a preset. At the start point of a preset movement, a camera starts freezing the image of the start point. Camera keeps displaying the image of the start point during preset movement and does not display the images which camera gets during preset movement. As soon as camera stops at preset end point, camera starts displaying live images which it gets at the end preset point. This feature also reduces bandwidth when working with digital systems or digital network systems.

  This function availability should be different by models.

❑ Parking Action Setup

```
PARKING ACTION SETUP
------------------------
→PARK ENABLE    OFF
 WAIT TIME      00:10:00
 PARK ACTION    HOME




 BACK
 EXIT
```

This feature allows the camera to begin a specified action after a programmed time of inactivity.

- Park Enable [ON/OFF]

  If Park Enable is set to ON, the camera runs an assigned function automatically if there is no PTZ command during the programmed "Wait Time".

- Wait Time [1~59 sec. / 1~180 min.]

  Wait Time can be programmed from 1 second to 180 minutes.

- Park Action [HOME/PRESET/PATTERN/SWING/GROUP/PREV ACTION]

  This feature defines the activity when the camera parks. If Park Action is set to "HOME", the camera moves to the home position which is memorized when the system boots. If Park Action is set to "PREV. ACTION", the camera runs the previous action which it ran most recently.

❑ Alarm Input Setup

```
ALARM INPUT SETUP
------------------------
→ALARM NO.      1

 TYPE           N.OPEN
 ACTION         NOT USED
 HOLD TIME      ENDLESS
 POST ACTION    HOME


 BACK
 EXIT
```

Defines Alarm Function. When an alarm is receive, an input signal to the camera triggers the user-defined action programmed for the alarm.

- Alarm No [1~3]
  Selects a sensor number to set up.
- Type [Normal OPEN/Normal CLOSE]
  Selects sensor operation type.
- Action [NOT USED/PRESET/PATTERN/SWING/GROUP]
  Selects an action to run when a sensor signal is input.
- Hold Time [ENDLESS / 1~59 SEC. / 1~180 MIN.]
  Sets the time period for the action which is run by external sensor activation. After the time period passes, the action pre-defined in "Post Action" runs sequentially in succession to the action by external sensor activation. If this option is set to "ENDLESS", "Post Action" does not activate.
- Post Action [HOME/PRESET/PATTERN/SWING/GROUP /PREV ACTION]
  Selects the action that a camera will run after the time period in "HOLD TIME" passes. If Post Action is set to "PREV. ACTION", the camera runs the previous action which it ran most recently.

Preset Setup

```
PRESET SETUP
------------------------
→PRESET NO.     1

 CLR PRESET     CANCEL
 <EDIT SCENE>
 <EDIT LABEL>   LABEL123
 RELAY OUT      OFF
 CAM ADJUST     GLOBAL

 BACK
 EXIT
```

- **Preset Number** [1~128]
  Selects a preset number to set up. If a selected preset is already defined, the camera moves to the pre-defined position and preset parameters such as Label and CAM Adjust show on the monitor. If a selected preset is not defined, "UNDEFINED" shows on the monitor.
- **Clear Preset** [CANCEL/OK]
  Deletes the data of the selected Preset.
- **Edit Preset Scene**
  Re-defines the scene position of the selected Preset.
- **Edit Preset Label**
  Edits the label of the selected Preset to show on the monitor when the preset runs. MAX. 10 alphanuberic characteristics are allowed.
- **Relay Out**
  Defines the relay output.
- **CAM Adjust** [GLOBAL/LOCAL]
  WB(White Balance) and AE(Auto Exposure) can be set up independently for each preset. There are 2 modes, "Global" mode & "Local" mode. The Global mode is that WB and/or AE are/is set up totally and simultaneously for all presets. The Global parameter setup such as WB and AE can be done in "ZOOM CAMERA SETUP" menu. The Local mode is that WB and/or AE are/is set up independently or separately for each preset. The Local parameter setup for WB and AE can be done in each preset setup menu. Each Local parameter such as WB and AE activates correspondingly when the camera arrives at each preset position. During jog operation, Global WB/AE value should be applied. All Local WB/AE values do not change although Global WB/AE value changes. The Local mode has the prior to the Global mode.

❑ Preset Scene Setup

```
EDIT SCENE - PRESET 1
-------------------------




MOVE TO TARGET POSITION
[NEAR:SAVE  /FAR:CANCEL]
```

① Use the Joystick to move the camera to a desired position.

② Save the preset position by pressing **NEAR** key.

③ Press **FAR** key to cancel targeting the preset position.

❑ Preset Label Setup

```
EDIT LABEL - PRESET 1
-------------------------
  [ ▉       ]
   ----------
   1234567890     OK
   ABCDEFGHIJ     CANCEL
   KLMNOPQRST
   UVWXYZabcd
   efghijklmn
   opqrstuvwx
   yz<>-/:.    ←
   ----------
```

Edit the label of the selected preset to show on the monitor when camera arrives at the preset. In the Edit Label menu, the dark rectangular is the cursor. As soon as finishing selecting an alphabet or a number, the cursor moves to the next digit.

```
[ ▉          ]
  ↑
```

Current Cursor Position

① With **Left/Right/Up/Down** of the joystick, move to a desired Alphabet or a desired number in the Alphanumeric set. To select a desired Alphabet or a desired number, press the **NEAR** key.

```
----------
1234567890
ABCDEFGHIJ
KLMNOPQRST
UVWXYZabcd
efghijklmn
opqrstuvwx
yz<>-/:.   ←
----------
```

Space Char. Back Space Char.

If you want to use a blank, select the double quotation mark (" "). If you want to delete an Alphabet or a number, use the back space character (" ←").

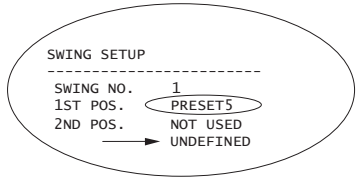
② If you complete the Label editing, move the cursor to "OK" and press the **NEAR** key to save the completed label. To abort the current change, move the cursor to "Cancel" and press the **NEAR** key.

Swing Setup

```
SWING SETUP
------------------------
→SWING NO.      1
 1ST POS.       NOT USED
 2ND POS.       NOT USED

 SWING SPEED    30/SEC
 CLEAR SWING    CANCEL
 RUN SWING

 BACK
 EXIT
```

● Swing Number [1~8]
Selects a Swing number to edit. If the selected Swing is not defined, "NOT USED" is displayed in the 1st Position and the 2nd Position.

● 1st Position 2nd Position [PRESET 1~128]
Sets the 2 positions for a Swing function. If the selected preset is not defined, "UNDEFINED" is displayed as shown below.



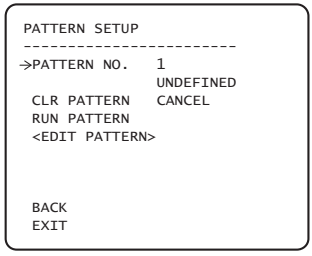
When a swing function runs, the camera moves from the preset assigned as the 1st point to the preset assigned as the 2nd point in CW(Clockwise) direction. Then the camera moves from the preset assigned as the 2nd point to the preset assigned as the 1st point in CCW (Counterclockwise) direction. In case that the preset assigned as the 1st point and the preset assigned as the 2nd point are same or only 1 Preset position is assigned, the camera turns on its axis by 360° in CW direction and then it turns on its axis by 360° in CCW direction.

● Swing Speed [1°/sec. ~180°/sec.]
Defines Swing speed between the 2 Preset positions from 1°/sec to 180°/sec

● Clear Swing [CANCEL/OK]
Deletes the data of the selected Swing.

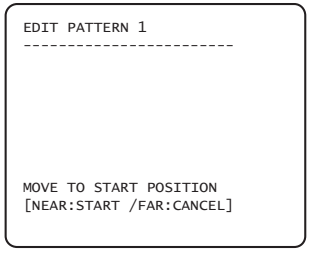
● Run Swing Runs Swing for the test purposes to check if it works properly.

Pattern Setup

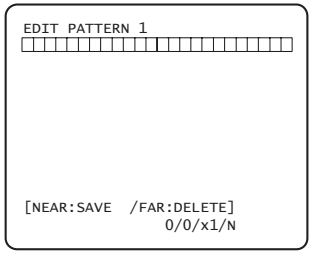


- **Pattern Number** [1~4]
  Selects a Pattern number to edit. If the selected pattern number is not defined, "UNDEFINED" will be displayed under the selected pattern number.
- **Clear Pattern** [CANCEL/OK]
  Deletes the data of the selected pattern.
- **Run Pattern** Runs the Pattern for the test purposes to check if it works properly.
- **Edit Pattern** Edits the selected pattern.

❑ Pattern Edit



① With the Joystick of your controller, move the camera to the start position with an appropriate zoom magnafication. To start the pattern recording, press **NEAR** key. To exit, press **FAR** key.



② Move camera with joystick of controller or run preset function to memorize the path (mostly curve path) in the selected pattern. The movement by Joystick and preset movement will be memorized in a pattern. After a pattern is programmed, the remaining storage is displayed in progress bar on the screen.

③ To save the data and exit, press **NEAR** key. To cancel saving the data and delete the data, press **FAR** key.

Group Setup

```
GROUP SETUP
------------------------
→GROUP NO.      1
                UNDEFINED
 CLEAR GROUP    CANCEL
 RUN GROUP
 <EDIT GROUP>



 BACK
 EXIT
```

- **Group Number** [1~8]
  Selects a Group number to edit.
  If the selected Group number is not defined, "UNDEFINED" will be displayed under the selected Group number.
- **Clear Group** [CANCEL/OK]
  Deletes the data of the selected Group.
- **Run Group** Runs the Group for the test purposes to check if it works properly.
- **Edit Group** Edit the selected Group.

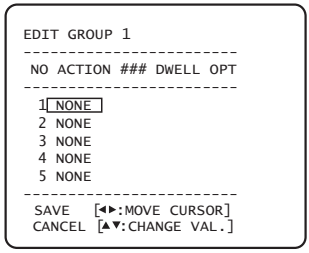
❑ Group Edit

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

① Press **Near** key when the cursor is at "NO" to start editing the selected Group.

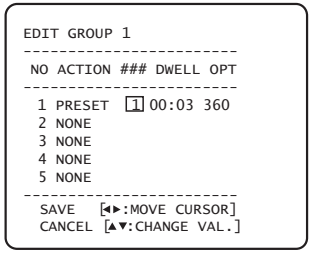
```
EDIT GROUP 1
------------------------
 NO ACTION ### DWELL OPT
------------------------
→ 1 NONE
  2 NONE
  3 NONE
  4 NONE
  5 NONE
------------------------
 SAVE    [NEAR:EDIT ACT]
 CANCEL  [FAR :EDIT END]
```

② Note that MAX. 20 actions are allowed in a Group. Move the cursor up/down to select an Action. Press **Near** key to edit.

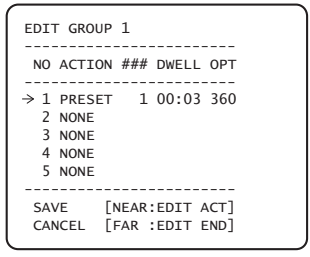


③ Define Action, Dwell time and Option. Note that the dark rectangular is the cursor. Move the cursor **Left/Right** to select an item and move cursor **Up/Down** to change each parameter.

- Action ### [NONE/PRESET/SWING/PATTERN]
- DWELL [0 SEC. ~ 4 MIN.]
  Sets the Dwell Time between functions.
- OPT Option. It is a preset speed when a preset is selected in the Action. It is the number of repeat when a Pattern or a Swing is selected in the Action.



④ Edit the items such as Action, ###, Dwell and OPT by moving the cursor.

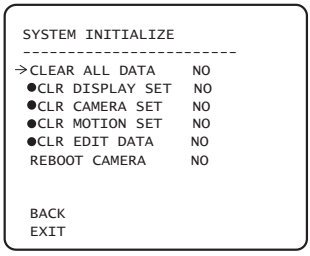


⑤ After finishing editing a Action, press **Near** key to go to the previous-upper level menu (Step ②). Move the cursor **Up/Down** to select an Action number and repeat Step ② ~ Step ④ to keep editing the selected Group.

```
EDIT GROUP 1
------------------------
 NO ACTION ### DWELL OPT
------------------------
  1 PRESET   1 00:03 360
  2 NONE
  3 NONE
  4 NONE
  5 NONE
------------------------
→SAVE
 CANCEL
```

⑥ After finishing setting up, press **FAR** key to exit. Then the cursor will move to "SAVE". Press **Near** key to save the data.

System Initialization



- **Clear All Data** — Deletes all configuration data and the system is set to the factory default.
- **Clear Display Set** — Initializes all the configuration data for Display.
- **Clear Camera Set** — Initializes all the configuration data for Camera.
- **Clear Motion Set** — Initializes all the configuration data for Motion.
- **Clear Edit Data** — Deletes all the configuration data for Preset, Swing, Pattern and Group.
- **Reboot Camera** — Reboots the zoom camera module.

❑ Factory Default

● Display Parameters	
Camera ID	ON
PTZ Information	AUTO
Action Title	AUTO
Preset Label	AUTO
Alarm I/O	AUTO
North Direction	Pan 0°
Privacy Zone	Undefined

● Motion Parameters	
Motion Lock	OFF
Power Up Action	ON
Auto Flip	ON
Jog Max Speed	120°/sec
Jog Direction	INVERSE
Freeze In Preset	OFF
Park Action	OFF
Alarm Action	OFF

● Camera Parameters	
Focus Mode	SemiAuto
Digital Zoom	ON
Image Flip	OFF
Sharpness	16
Stabilization	OFF
White Balance	AUTO
Backlight	OFF
Day&Night	AUTO
Brightness	50
Iris	AUTO
Shutter	ESC
AGC	MIDDLE
SSNR	MIDDLE
SENS-UP	AUTO

● User-Defined Data	
Preset 1~128	Undefined
Swing 1~8	Undefined
Pattern 1~4	Undefined
Group 1~8	Undefined

Chapter 5.

REMOTE VIDEO MONITORING

Remote video Monitoring

There are two ways to view video between the site and center system. In order for a proper operation, an IP address must be set accordingly.

Default ID : admin	Default Password : 1234

❑ Video Monitoring using Internet Explorer

If an encoder's IP address is entered on the Internet Explorer, the system will ask for confirmation to install Active-X control. Once authorized, the Internet Explorer will start to display video images from the encoder as shown below.

http://192.168.10.100

❑ Remote controller in live view

-View Size : Change screen size according to your monitor. Default value is 'x1' and this means original size.

-Moving control : place your mouse in the circle and click. PTZ moves on that way

-Zoom In/Out(Tele/Wide) : zoom in & out current watching.
-HOME : Move to home position. *for more details, see 'Motion Setup->Park Action' setup.
-Focus Near/Far & auto focus button : only works on 'Manual focus' setup. *Not working if it is on 'auto focus' status'.
-IRIS Close/Open & Auto Iris : Close Iris on high light condition and open in low.
-MENU ON : display text menu of IP CAMERA
-Enter : Enter selected menu.(SAVE)
-ESC : cancel current setting and exit to previous page
Set preset position : 1. Place camera on your desired place. 2. Select preset number. 3. Press set.
Move to preset position : 1. Choose preset number, 2. Press 'GOTO' button. *use '**clear**' button to remove preset position

Select the number of tour and type(pattern, Swing, Group) * this should be defined first in each menu(see operation page, pattern, Swing, Group)

Snapshot : snapshot on current live image as still cut.

Talk : voice talk over connected devices. * Camera only can send sound to client. To hear the sound from camera, you should connect microphone on camera and speaker

Initialize System IP

If a system IP address is lost, the system can be reset to the system default IP address using the reset button in the back side of the system.

① While system is in operation, press the reset button for more than 5 seconds.
② The system will reboot automatically
③ Once the system reboots, IP address will be set to the system default as below.

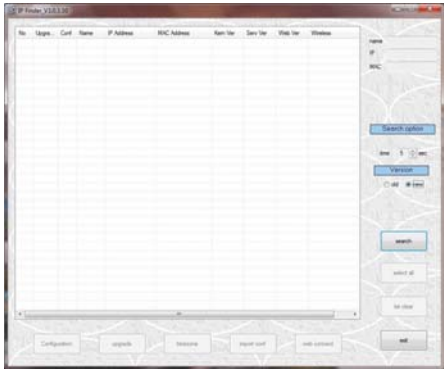
• IP mode	**Fixed IP**	**• IP address**	**192.168.10.100**
• Subnet mask	**255.255.255.0**	**• Gateway**	**192.168.10.1**
• Base port	**2222**	**• HTTP port**	**80**

IP finder in remote client

To use IP camera over network, you should set IP address first on your IP camera.

- Prepare Network cable
- Connect to available Network port.
- Find IP address of the network camera with IP installer or IP remote s.w
  * IP installer : Find IP address of registered device, update and web connection

❑ IP finder



IP finder searches all available devices on connected network.

(Available menu is differ to each model)

To find your device, click 'Search' button and then you can do following process.

-Configuration : Change IP address

-Upgrade : upgrade firmware

-Time zone : change time zone

-import setup : import setup configuration files

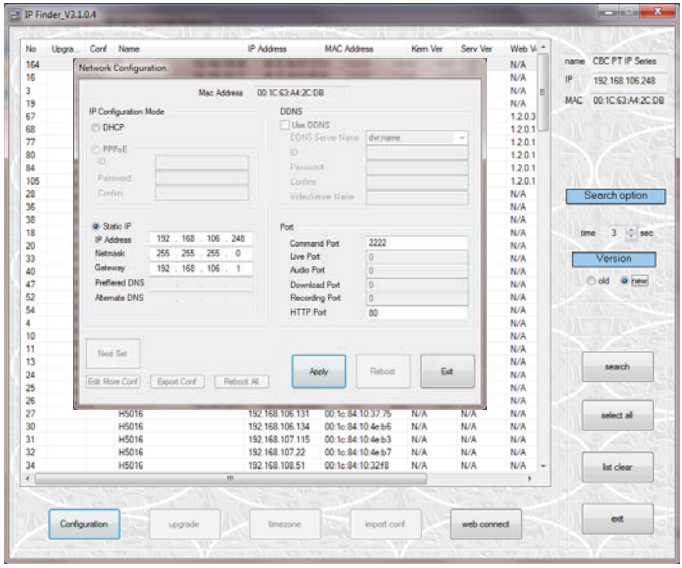
-Web connection : Connect through I.explorer.

After Searching, select a device and change IP address according to your network information and connect through 'Web Connect'.

IP finder Configuration

❑ Configuration

In Configuration page, user can setup connection type and IP address information.



- DHCP : Once you select DHCP, it disables IP address information field. To use this option, you must check your network support DHCP.
- PPPoE : Use this option when you use WAN service. To use WAN service, you need ID & Password from your service provider.
- Static IP : if you know all IP information, select this option.
- Use DDNS : check this option when you use DDNS service.
- Port : shows port numbers which required in communication.

❑ Web connect

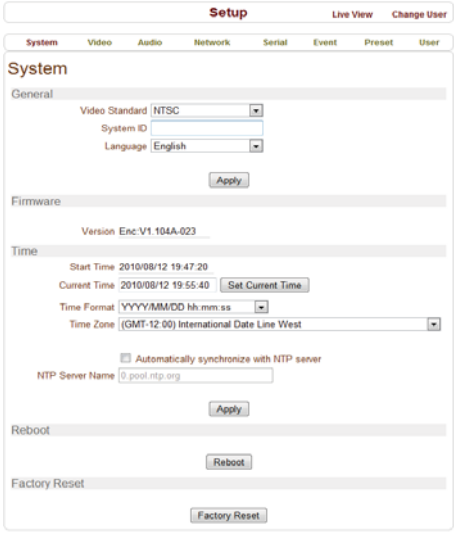
Access directly to camera with I.Explorer and user can do remote setup. See more details on next page.

Use Internet Explorer

The server can be configured using web browser. Type IP address in the address input area of Internet Explorer, then a live viewing screen will be displayed. Press **Setup** button located in the upper right area of the monitoring screen, then the setup page for server setup will be displayed.

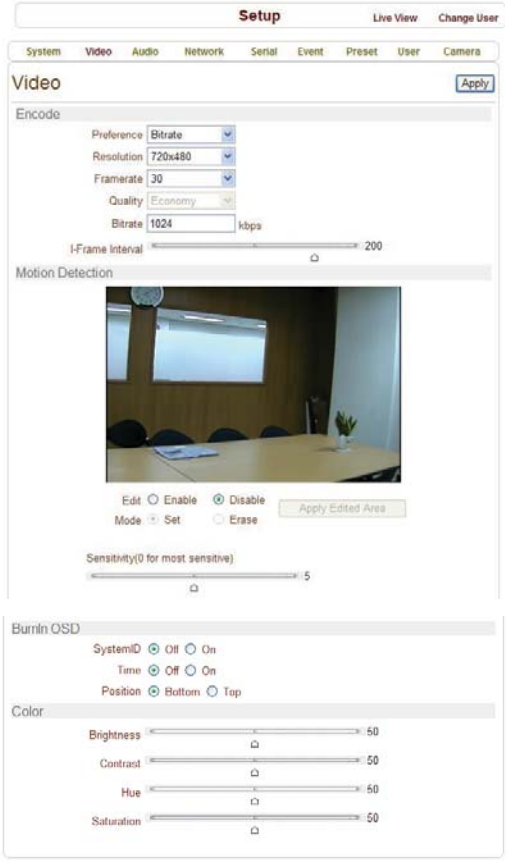
The configurations are grouped into 8 categories: **System**, **Video**, **Audio**, **Network**, **Serial**, **Event, Preset** and **User**. Any configuration changes are not applied until **Apply** is pressed. Leaving the page without pressing **Apply** button, changes in the page will be discarded.

System



❑ Video StandarD	Select NTSC or PAL
❑ System ID	Alphanumeric System ID to be transferred to remote software
❑ Language	Language to be used for web-based configuration(English, Japanese and Korean)
❑ Firmware version	Current firmware version
❑ Start Time	Latest system boot date and time
❑ Current Time	Enter a new date and time and press **Set Current Time** button to update date & time
❑ Time Zone	Select time zone of where the system is installed. Depending on the time zone, Daylight Saving Time will work automatically
❑ Automatically synchronize with NTP server	Synchronize system time with an NTP server using NTP(network time protocol). Name of the NTP server should be registered on NTP server Name.
❑ Reboot Server	Pressing **Reboot Server** button will cause the system to reboot. Do not press the Reboot button unless the server needs a reboot.
❑ Factory Reset	Back to default(factory default)

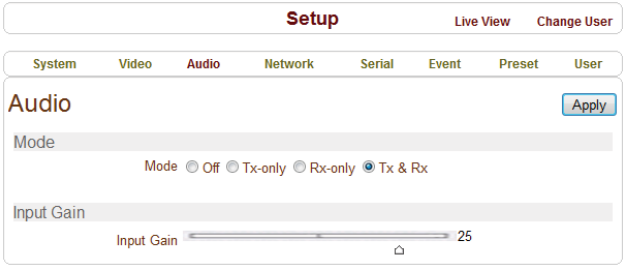
Video


Setup
Live View
Change User
System
Video
Audio
Network
Serial
Event
Preset
User
Camera
Video
Apply
Encode
Preference
Bitrate
Resolution
720x480
Framerate
30
Quality
Economy
Bitrate
1024
kbps
I-Frame Interval
200
Motion Detection
Edit
Enable
Disable
Mode
Set
Erase
Apply Edited Area
Sensitivity(0 for most sensitive)
5
BurnIn OSD
SystemID
Off
On
Time
Off
On
Position
Bottom
Top
Color
Brightness
50
Contrast
50
Hue
50
Saturation
50

❑ Preference	Preference in video compression and transmission: With 'Bitrate' selected, the video compression will be effected by the 'Bitrate' value entered. With 'Quality' selected, the video compression will be effected by the quality of image selected. Therefore, 'Bitrate' and 'Quality' corresponds to CBR and VBR respectively
❑ Resolution	Selectable video compression resolution: NTSC: 720×480, 720×240, 352×480, 352×240 PAL: 720×576, 720×288, 352×576, 352×288
❑ Frame rate	Selectable video frame rate: Determine the maximum number of frames of video images to compress. The frame rate of actually transmitted video can be affected by the network bandwidth limitation
❑ Quality	The selection is possible with Preference is set to 'Quality'
❑ Bitrate	The value is applicable when Preference is set to 'Bit rate'
❑ I-Frame Interval	Possible values between 0 and 255. There will be no I-frames if 0 is selected.
❑ Motion Detection Area Editing	Configure regions for motion detection. Regions of arbitrary shape can be configured by the following steps. ① Enable **Edit** item. ② Select editing Mode. **Set** is for including cells to motion detection region and **Erase** is for excluding. ③ Select cells using the left button of the mouse. Multiple cells can be selected conveniently by press and dragging. ④ Press **Apply Edited Area** to save the editing. 
❑ Sensitivity	A condition to trigger an event with motion detection. The value determines the sensitivity of the motion detection within a block: the smaller, the more sensitive
❑ Brightness	Controls input video brightness by selecting values between 0 and 100.
❑ Contrast	Controls input video contrast by selecting values between 0 and 100
❑ Hue	Controls input video Hue by selecting values between 0 and 100

❑ Saturation	Controls input video saturation by selecting values between 0 and 100.
❑ Burn-in OSD	Inserts system ID and date/time in the compressed video. Separately **System ID** and **Time** can be turned On or Off in the video. **Position** specifies the position of such data

Audio

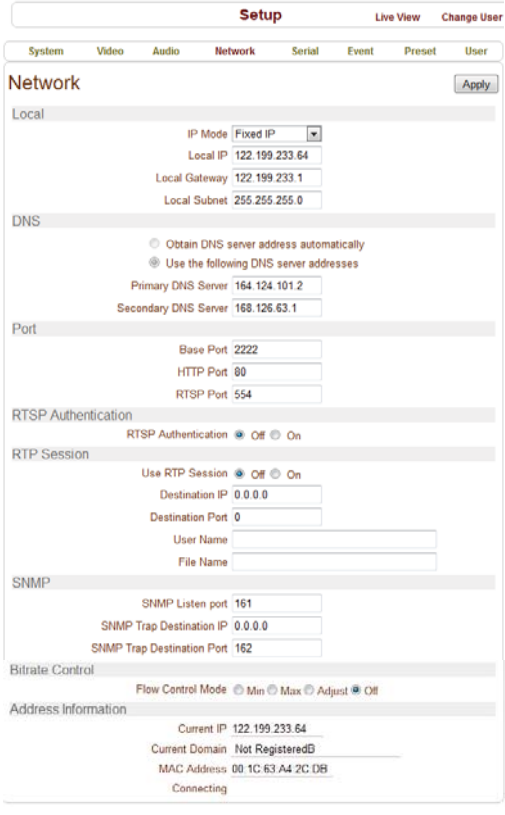


❑ Mode	Select audio operation mode

Mode	Action
Off	No operation
Tx-Only	Transmit only
Rx-Only	Receive only
Tx & Rx	Transmit and Receive

❑ Input Gain	Set audio input gain

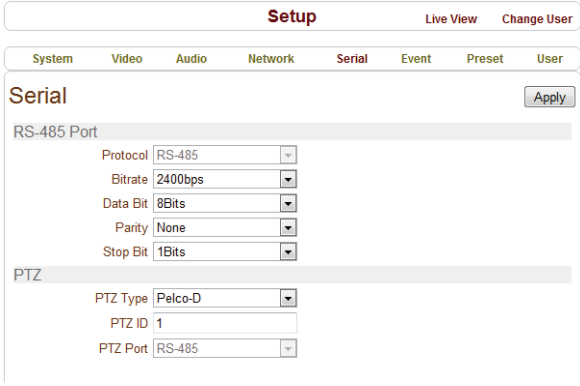
Network


Setup
Live View
Change User
System
Video
Audio
Network
Serial
Event
Preset
User
Network
Apply
Local
IP Mode
Fixed IP
Local IP
122.199.233.64
Local Gateway
122.199.233.1
Local Subnet
255.255.255.0
DNS
Obtain DNS server address automatically
Use the following DNS server addresses
Primary DNS Server
164.124.101.2
Secondary DNS Server
168.126.63.1
Port
Base Port
2222
HTTP Port
80
RTSP Port
554
RTSP Authentication
RTSP Authentication
Off
On
RTP Session
Use RTP Session
Off
On
Destination IP
0.0.0.0
Destination Port
0
User Name
File Name
SNMP
SNMP Listen port
161
SNMP Trap Destination IP
0.0.0.0
SNMP Trap Destination Port
162
Bitrate Control
Flow Control Mode
Min
Max
Adjust
Off
Address Information
Current IP
122.199.233.64
Current Domain
Not RegisteredD
MAC Address
00:1C:63:A4:2C:DB
Connecting

<table>
<tr><td>❑ IP Mode</td><td>Three IP modes are supported. Depending on the selected mode, further configuration items come as follows.
<table>
<tr><th>IP Mode</th><th>Selection</th><th>Description</th></tr>
<tr><td rowspan="3">Fixed IP</td><td>Local IP</td><td>Fixed IP address</td></tr>
<tr><td>Local Gateway</td><td>Gateway IP address</td></tr>
<tr><td>Local Subnet</td><td>Subnet mask</td></tr>
</table>
☞ Please ask an IP address information from ISP provider or network manager</td></tr>
<tr><td>❑ DNS</td><td>Set DNS server IP address.</td></tr>
<tr><td>❑ PORT</td><td>Base Port : communication port for each connection.
HTTP Port : web port(Default is 80)
RTSP Port : default 554</td></tr>
<tr><td>❑ RTSP authentication</td><td>Use when you need RTSP authentication</td></tr>
<tr><td>❑ RTSP Session</td><td></td></tr>
<tr><td>❑ SNMP</td><td></td></tr>
<tr><td>❑ Bitrate control</td><td>When several clients connect to a server, bandwidths of networks clients may differ and some clients may not receive encoded stream fully. To handle such situation, three flow control modes which can be chosen according to users' preference are provided
<table>
<tr><th>Mode</th><th>Description</th></tr>
<tr><td>Min</td><td>The bitrate is automatically adjusted to a client with smallest network bandwidth</td></tr>
<tr><td>Max</td><td>The bitrate automatically adjusted to a client with largest network bandwidth size. When set to this mode, a client with smaller bandwidth will not receive all frames of video</td></tr>
<tr><td>Adjust</td><td>The bitrate is adjusted to most optimum rate by learning the network bandwidth</td></tr>
<tr><td>Off</td><td>Flow control is off</td></tr>
</table></td></tr>
<tr><td>❑ Address Info</td><td>Display network related information
<table>
<tr><td>IP Address</td><td>The server own IP address. This information is useful when the server's IP mode is set to DHCP</td></tr>
<tr><td>Current Domain</td><td>In case the server is registered with DDNS server, the registered domain name is displayed</td></tr>
<tr><td>MAC Address</td><td>Display the MAC address of the server. In case the server is registered with DDNS server, the MAC address is used in DDNS registration</td></tr>
</table></td></tr>
</table>

Serial

This page is used only for developer and test purpose. In this page, user can define serial connection of camera and this is only used when user control camera as RS485 telemetry. No available in IP connection control

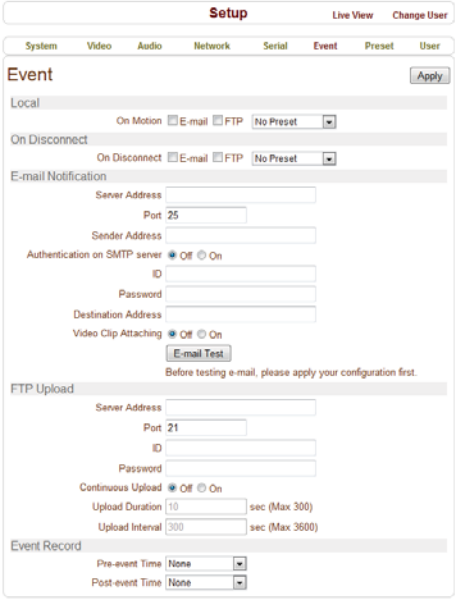


❑ RS485 port	Set connection type with each connection information. To get detail of RS-485 connection, refer to PTZ camera's instructions.
❑ PTZ	Set PTZ type and ID according to configured setup.
❑ Sensor type	Set Sensor on/off and connection type.
❑ Sensor schedule	Set activating time of sensor on sensor schedule **Select** Sensor off : no use sensor Sensor on : Activate sensor by schedule *To select all, click the rectangle between '0' and 'SUN'.

*Serial communication information should be synchronized to Analog camera communication setup.

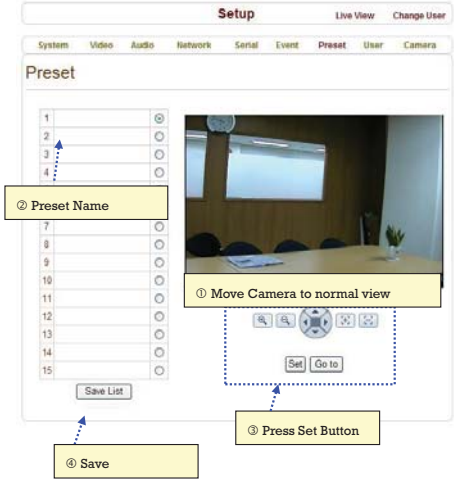
Event

In this page, user can define alarm activity and notification from local to remote.



❑ Local	Define what type of reaction in local followed by each event. There are E-mail, FTP and Move to preset position option.
❑ On Disconnect	Define what type of reaction will be on when system is disconnected.
❑ E-mail Notification	Set mail server information to send out e-mail to specified user. Check if you will include Video Clip or not.
❑ FTP upload	Set FTP server to upload event triggered image data.
❑ Event Record	Set PRE & POST Recording time and POST Event type.

Preset



❑ Preset Configuration

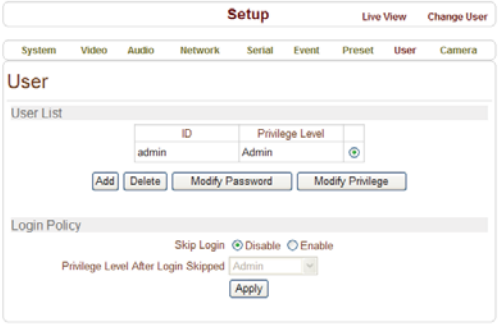
Set the PTZ Presets by following the next steps.

① Move cameras to desired view using PTZ control buttons.
② Enter Preset name.
③ Press **Set** button.
④ Once all the presets are set, press **Save List** button.

❑ Move to Preset Position

Select a preset from the Preset and press **Go To** button, then, the camera will move to the selected preset position.

User

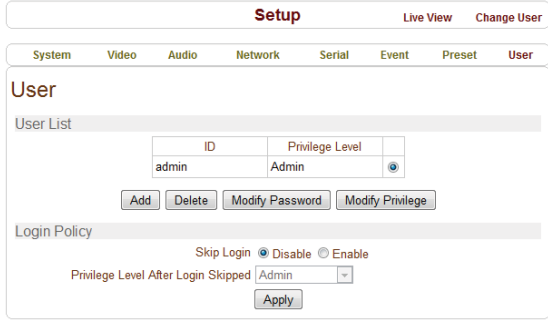


User can be registered and authority level of a user can be specified. User configuration is allowed only to admin user. MAX. 16 users can be registered and each user can have one of four authorities.

Authority Level	Allowed Operations	Remarks
Admin	All operations	User ID = admin
Manager	All operations except for user configuration	
User	Live viewing and PTZ control	
Guest	Live viewing only	

❑ Add User

Page for adding a user comes on pressing **Add** button.



User ID and password need to be entered and privilege level need to be selected. User ID and password consist of alphanumeric string of MAX. 15characters.

❑ Delete User

A user is deleted by pressing **Delete** button.

❑ Change Password

Pressing **Modify Password** button after selecting a user shows a page for changing password. In case of changing admin password, the old password is checked.

❑ Modify Privilege Level

Pressing **Modify Privilege** button after selecting a user shows a page for changing the authority. It is not allowed to change the authority level of admin user.

❑ Login Policy

Skip Login is provided for convenient access to the server when authentication is not required. When **Skip Login** is set to Enable, login step is skipped. The privilege level after login in this way is determined by the setting of **Privilege Level After Login Skipped**.

Chapter 6.

SPECIFICATIONS

Specifications

NETWORK			
Network	Network Interface	Ethernet 10/100 Base-T(RJ45)	
	Network Protocol	TCP/IP,UDP, Multicast, DHCP, PPPoE, SMTP, HTTP, SNMP	
Video	Standard	H.264	
	Data Rate	32Kbps ~ 4Mbps	
	Resolution	NTSC : 720×480, 720×240, 352×480, 352×240	
		PAL : 720×576, 720×288, 352×576, 352×288	
	Max Frame Rate	NTSC : Max. 30fps	PAL : Max. 25fps
	Frame Rate Range	NTSC : 0.2 ~ 30fps	PAL : 0.2 ~ 25fps
	Motion Detection	Sensitivity adjustable	
Audio	Standard	G.711	
	Sample Rate	8KHz	
	Data Rate	64Kbps	
	Input	1 Line-In (Mini-Stereo)	
	Output	1 Line-Out (Mini-Stereo)	
Video Access from Web-Browser		Camera Live View & Audio/Video snapshot, PTZ control, Remote Setup, Remote Upgrade	
Security		Multiple user access levels with password protection, IP address filtering, HTTPS encryption, IEEE 802.1× authentication	
CMS	Live Monitoring	Max 36 Channel Monitoring simultaneously PTZ Control Event Monitoring Bi-directional Audio communication	
	Search/Playback	Time/Camera-Base/Event-Base Multi-channel viewing of recorded status on timeline	
	Backup	Export to AVI file Snapshot to BMP file	

CAMERA PART		
Video Signal Format	NTSC	PAL
Image Sensor	1/4" Super HAD color CCD	
Total Pixels	811(H)×508(V) 410K	795(H)×596(V) 470K
Effective Pixels	768(H)×494(V) 380K	752(H)×582(V) 440K
Horizontal Resolution	550 TV Lines(Color), 680 TV Lines(B/W)	
Video Signal-to-Noise	50 dB (AGC Off)	
Zoom	×27 Optical Zoom, ×12 Digital Zoom	
Forcal Length	F1.6~2.9, f=3.5~94.5mm	
Angle of View	H : 55.5°(Wide)~2.24°(Tele) / V : 42.5°(Wide)~1.79°(Tele)	
Zoom Speed	1.8 sec (Wide to Tele)	
Minimum Illuminance	0.4 Lux (Color) / 0. 02 Lux (B/W), 50 IRE / F1.6	
Day & Night	Auto / Day / Night(ICR)	
Focus	Auto / Manual / SemiAuto	
Iris	Auto / Manual	
Shutter Speed	×256 ~ 1/120000 sec	
AGC	Low / Middle / High / Manual / Off	
White Balance	Auto / Manual(Red, Blue Gain Adjustable. 1800°K~10500°K)	
BLC	BLC / Off	
Flickerless	Selectable	
SSNR	Low / Middle / High / Off	
Privacy Zone	8 Masks, Spherical Coordinate	
Stabilization	ON / OFF	

MECHANISM PART		
Movement Range	Pan	360°(Endless)
	Tilt	90°
Speed	Preset	360°/sec.
	Jog	0.05 ~ 360°/sec. (Proportional to Zoom)
	Swing	1~ 180°/sec.
Preset		127 Presets (Label, Independent Camera Parameter Setting)
Pattern		4 Patterns [1200 Commands(Approx. 5 Minute) / Pattern]
Swing		8 Swings
Group		8 Groups (MAX. 20 Actions with The Combination of Preset, Pattern and Swing)
Other Pan/Tilt Functions		Auto Flip, Auto Parking, Power Up Action and etc.
Communication		RS-485
Protocol		Pelco-D, Pelco-P Selectable
OSD		English, Menu / PTZ information etc
Sensor Input and Alarm Outputs		3 Inputs, Photo-Coupler Type, DC 5V~12V 1 Output, Relay Output, MAX. Load DC24V 1A
Fan		Always ON
Heater		Operation Start from Internal Temperature 10°C
Operation Temperature		-30°C ~ 50°C

RATED POWER	
DC12V	DC 12V / 3.0 A

MECHANICAL		
		Wall Mount
Material	Dome	Polycarbonate
	Internal	Polycarbonate, ABS
	External	Aluminium
Dome Size		∅150mm / ∅ 5.9"
Dimension		310×279.5 mm
Weight		Approx 4.5Kg

[Note]

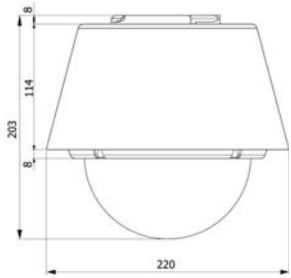
1) Specification and features are subject to change without prior notice.

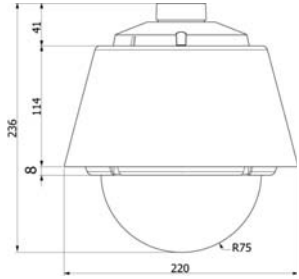
2) Specification and features are different by models.

3) Check the voltage and current capacity of rated power carefully.

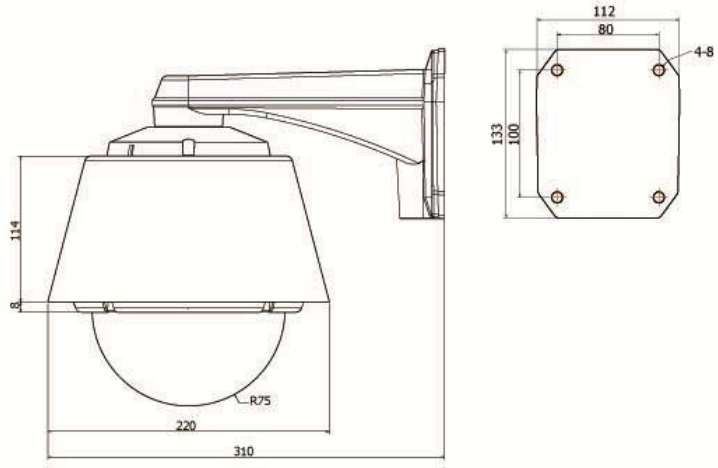
Dimension

- Main Body





- Wall Mount Type



[Unit : mm]