IP SERVER MANUAL Ver 1.0

IP Speed Dome Camera

CONTENTS

About This Manual

This User Manual is to provide information on operation of the high quality IP-server. In this guide, information on operation and configuration of IP-server is explained as well as how to shoot troubles when problems arise.

Features

IP-server is a video and audio surveillance transmission system based on IP network through LAN, ADSL/VDSL, and Wireless LAN.

❑ **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

❑ **Audio**

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

❑ **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

System Connections

IP-server systems can be connected in either 1-to-1 fashion where a server is connected a PC client or a decoder system or 1-to-multiple fashion where a server can be simultaneously connected to many PC and many decoder systems.

❑ Topology

Generally, the IP-server and the PC & decoder are connected in 1-to-1 mode or 1-to-multiple connection is also supported.

● **1:1 Connection (Unidirectional Transmission)**.

Site	Remote Center
IP-server	→ Decoder

Site	Remote Center
IP-server	→ PC
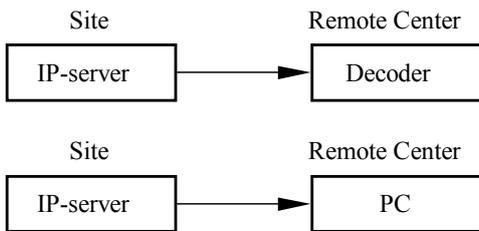
Mostly used configuration is 1 to 1 connection. A IP-server is installed at a site where video images can be transmitted and a PC or a decoder is installed at a center location to receive and view the video images on analog monitor. Audio data are transferred in either direction.

● **1:N Connection (Unidirectional Transmission)**.

| Site	Remote Center
IP-server	→ PC/Decoder
	→ PC/Decoder
	⋮
	→ PC/Decoder
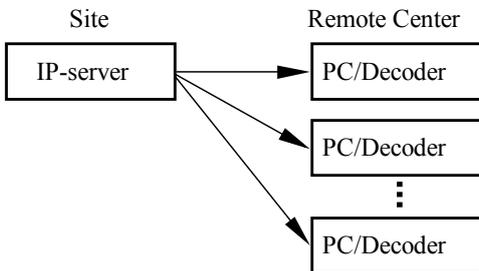
In this configuration, a site can be monitored at many remote center locations. Although up to 64 PCs or decoders can be connected to on IP-server, in the real network environment, network bandwidth can limit the maximum connections.

Functionally, the CMS(Central Monitoring System) software can replace the decoder.

❑ **Multicast Mode**

Within the network that supports multicasting, a large number of decoders can be used to receive video effectively from a IP-server using a single streaming of video and audio.

● **Relaying**

Site	Remote Center #1	Remote Center #2
IP-server	→ Decoder	→ Decoder
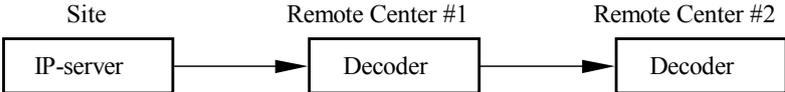
In this arrangement, video and audio can be retransmitted from a center to another center. The arrangement is useful when the network bandwidth to the site is limited while there is more than one center wanting to monitor the site.

● **CMS(Central Monitoring System)**

Site	Remote Center
IP-server	→ CMS

Site	Remote Center	
IP-server	→ PC	→ CMS
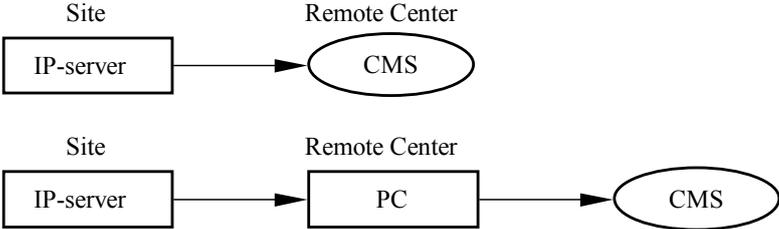
CMS (Central Monitoring System) is a Windows based remote monitoring program to access multiple IP-severs for real-time monitoring or control of the encoders and connected cameras. Please refer to CMS User Manual for more information on CMS.

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 and please refer to **True Manager in Chapter 3** or **Remote Setting in Chapter 4** for a further details.

Default ID : admin	Default Password : 1234

❑ **Video Monitoring with Decoder System**

Once the IP address is set in the remote IP address section of the decoder, the decoder system will connect to the IP-server and start receiving the video images. Normally, a monitor connected to the decoder will display video images.

❑ **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
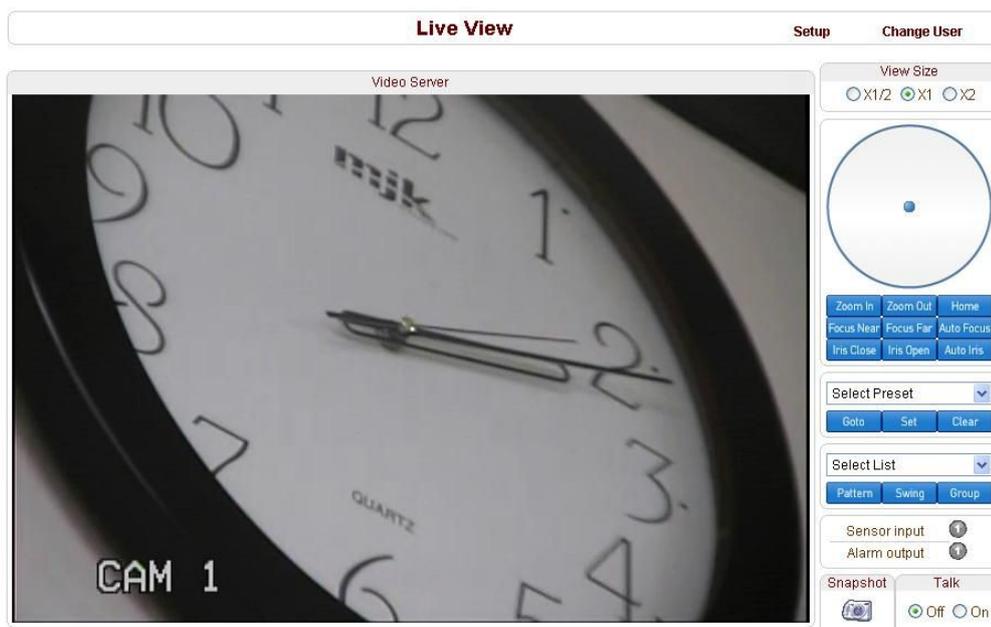
Initialization of IP Address

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

True Manager Software

True Manager is a program used for basic configuration, diagnostics and F/W upgrade of IP-server. **True Manager** provides the following features.

- Finding servers on the LAN and assigning IP address
- Monitoring server status: encoding/decoding etc.
- Diagnostic Function: Ping, Network Bandwidth Measurement, Video/Audio Output Port Check
- F/W Upgrade

Server Registration and Removal

❑ **Server Registration**

In order to manage servers using True manager, the first step is to register the server. The following steps describe the way to register a server.

① Select **Add Server** on **Server** menu.

② Enter information for connecting to the server at **Add Server** dialog.
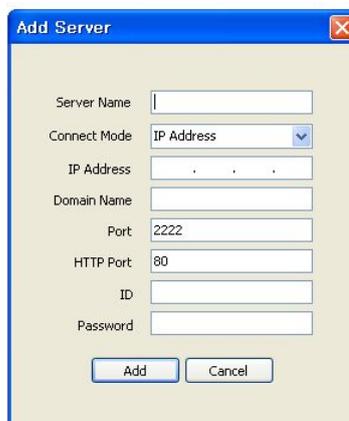
If the server is registered on DDNS server, domain name can be used instead of IP address. When the IP address of the server is forgotten, it is possible to find the IP address of the server with IP Discovery function. (Please refer to IP Discovery section).

③ Press **Add** button.

❑ **Removal of a server**

A server can be removed by the following steps.

① Select a server to remove on **Servers** tab. The server should be highlighted with blue color.

② Select **Remove Server** on **Server** menu.

❑ **Modification of information for a server**

Information on a server can be modified on the dialog invoked by selecting **Modify Server Info** on **Server** menu.

❑ **IP Discovery**

With IP Discovery function, all servers on the same LAN where the PC executing True Manager is located can be found. Furthermore, it is possible to change IP address of a server easily. **IP Discovery** dialog is invoked by pressing **IP Discovery** button on **Add Server** dialog, and it shows all IP-servers on the same LAN.
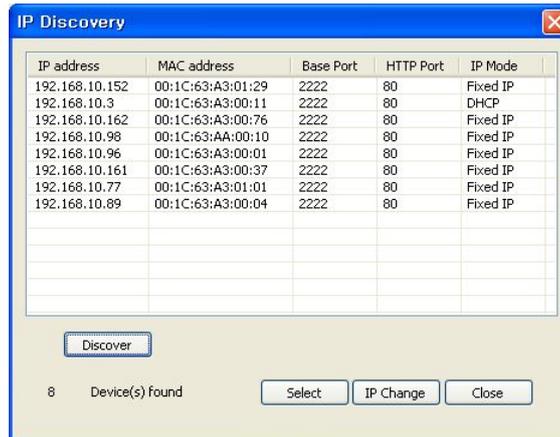
If you press **Select** button after selecting a server, the information on the server is automatically entered on **Add Server** dialog. Pressing **IP Change** button after selecting a server invokes a dialog on which IP address of the server can be changed.
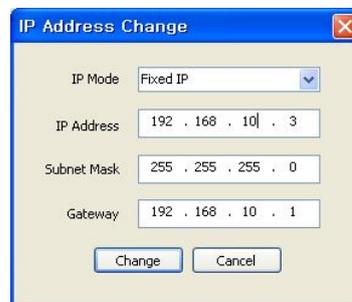
It is possible to change IP address of a server which has IP address of different subnet.

❑ **Grouping of servers**

When there are large numbers of servers, it is convenient to manage servers in several groups. Using **Add Group** and **Remove Group** on **Group** menu, server group can be created and deleted. **Modify Group** menu is used to add servers to a group or to remove servers from a group.

Server Connection Management

❑ **Server connection**

If the check box on the first column in **Servers** (or **Channels/Peripheral**) tab, True Manager tries to connect to the server. If the server is running and the network where the server is in is normal, it will be connected immediately and **State** will be changed to Connected.

Check box to connect or disconnect server

If it fails to connect to the server due to server or network failure, State displays **Trying connection**. As soon as the server or network is recovered, it will be connected automatically. That is, True Manager periodically retries connection to servers with check box checked

❑ **Server disconnection**

If the check box is unchecked, the connection to the server is released and **State** displays **Disconnected**.

Server Status Monitoring

❑ **Servers tab – General information**

Servers tab shows general information on a connected server: MAC address, product model, system mode(Type) F/W version and startup time. This information comes only for connected servers.

❑ **Channels tab - Monitoring of video/audio channel state**

Channels tab displays how video channel and audio channel of servers are working.

Item	Displays
Ch	Channel no.
Conns	Number of clients connected to a server (including True Manager)
Cam	Video loss status
Motion	Motion status
V-E(kbps)	Video encoding bitrate
V-E(fps)	Video encoding framerate
V-D(kbps)	Video decoding bitrate
V-D(fps)	Video decoding framerate
A-E(kbps)	Audio encoding bitrate
A-D(kbps)	Audio decoding bitrate

Depending on the system mode, items which are not relevant to the mode may display 0 always. For example, V-D(kbps) and V-D(fps) are always 0, if the system mode is Encoder.

❑ **Peripherals tab – Monitoring of serial, sensor and relay port**

☞ This function is not available in this product.

Network and System Diagnostics

True Manager provides various diagnostic features.

- Connection between two IP-servers, or between IP-server and CMS(Central Monitoring System) is established.

- Video, audio or serial data are not delivered as configured.

- Video and/or audio outputs don't come on output port.
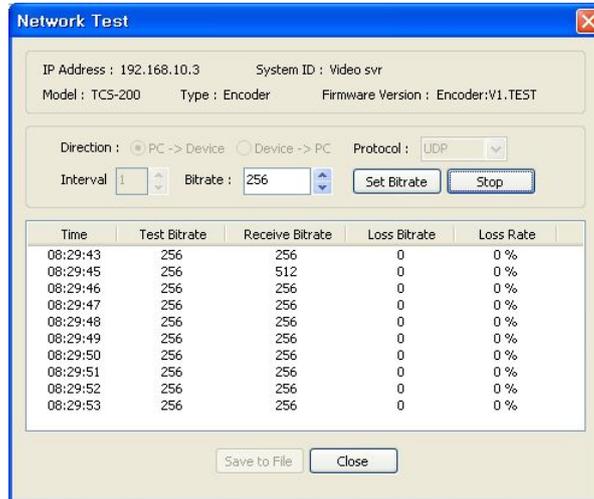
❑ **Ping test**

Ping Test dialog can be invoked by selecting **Ping Test** on **Tools** menu after selecting a server.
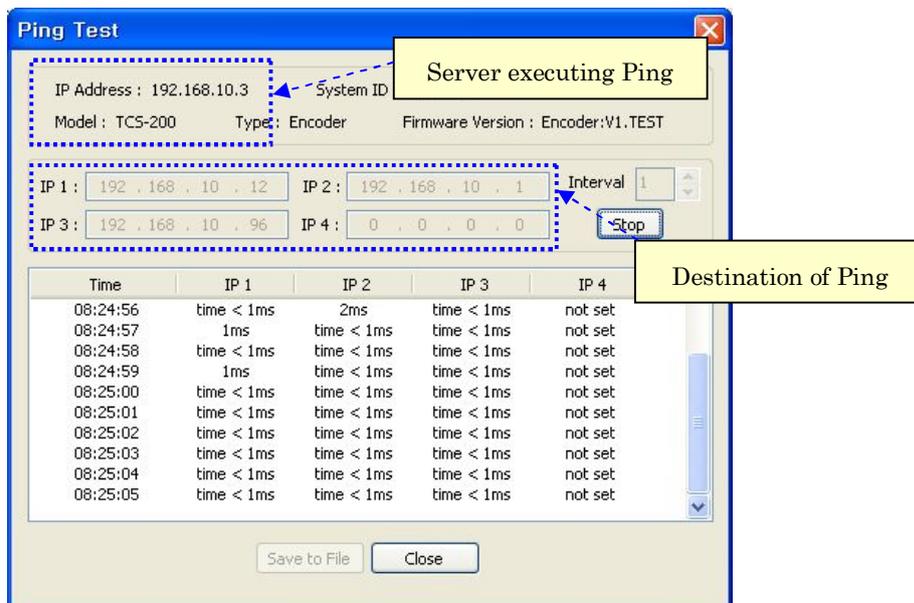
Ping test is useful for checking if one or more remote systems are reachable from a server. Up to 4 systems can be registered as the targets of Ping test, which makes it possible to identify the hop(segment of network) where network failure may happen. For example, local router, remote router and remote Encoder can be pinged from a Decoder simultaneously.

❑ **Network test**

Network Test dialog is invoked by selecting **Network Test** on **Tools** menu.

Network test can be used for measuring effective bandwidth and/or packet loss rate between a server and PC running True Manager by generating test traffic of constant bitrate. This feature is useful for identifying the reason why video quality comes poorer than expected. TCP protocol can be selected for measuring effective bandwidth, while UDP protocol is appropriate for checking if the network is not reliable.

❑ **System test**

Selecting System Test on Tools menu invokes a dialog on which system H/W status, video/audio output function can be diagnosed.
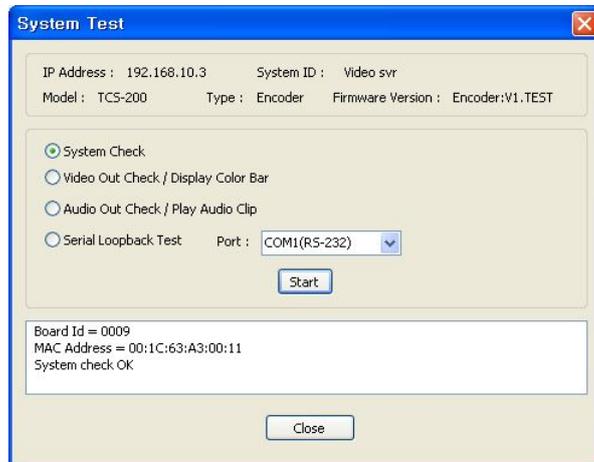
● **System Check**

System Check tests if H/W components are fine and board ID and MAC address are displayed.

● **Video Out Check / Display Color Bar**

It displays color bar on video output port. This function works for Decoder or Duplex mode, and is useful for checking if video output port or external display device is normal.

● **Audio Out Check / Play Audio Clip**

It plays audio clip and outputs to audio output port. This function is useful for checking if audio output function of a server or external audio output devices such as amplifier and speaker are normal.

● **Serial Loopback Test**

☞ This function is not available in this product

❑ **Viewing server's log**

The log in a server can be viewed by selecting **Log** on **Tools** menu.
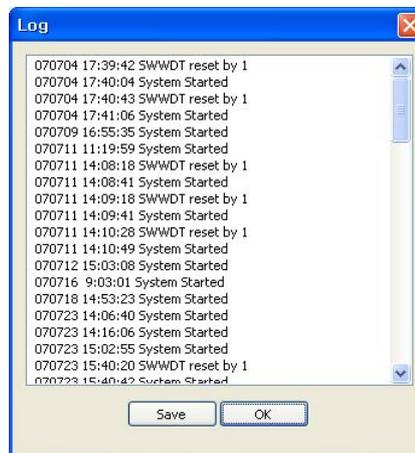
❑ **Remote rebooting of a server**

A server can be rebooted by selecting **Reboot** on **Tools** menu.

F/W Upgrade

When **Update** is selected on **Tools** menu, the dialog for F/W upgrade comes.
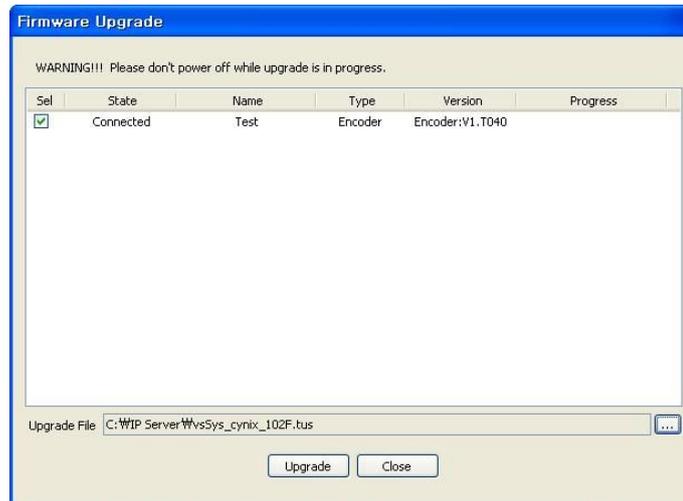
① Select a server to upgrade (check the check box in **Sel** column). More than one server can be upgraded simultaneously.

② Select an upgrade file.

③ Press **Upgrade** button.

④ Wait until **Progress** is changed to **Upgrade succeeded**.

> **Caution: Don't power-off the server while upgrade is in progress. The server may go to irrecoverable state**

When network condition is poor, upgrade may fail. In such case, please retry above procedure after network condition is recovered.

Remove Configuration and Video Monitoring

IP-server provides web-based Setup and video viewing. If **Setup** on **Server** menu is selected, Internet Explorer is invoked and page for remote setup of the server is displayed. If **Viewer** is selected on the menu, Internet Explorer displays the video from the server.

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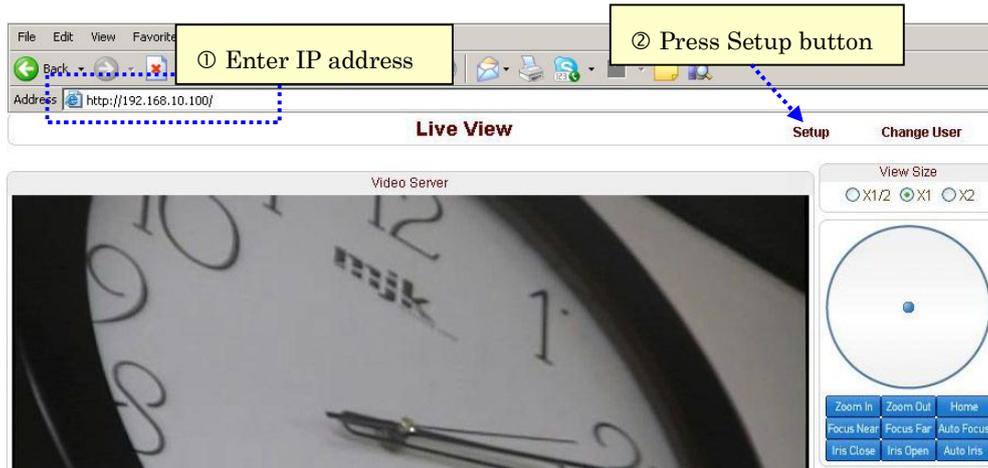
The configurations are grouped into 8 categories: **System**, **Video**, **Audio**, **Network**, **Serial**, **Event, Preset** and **User**. Any configuration changes are not applied until **Apply** is pressed. Leaving the page without pressing **Apply** button, changes in the page will be discarded.

System Configuration

❑ 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.

Video Configuration

❑ 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 'Bitrate'
❑ 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 right 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
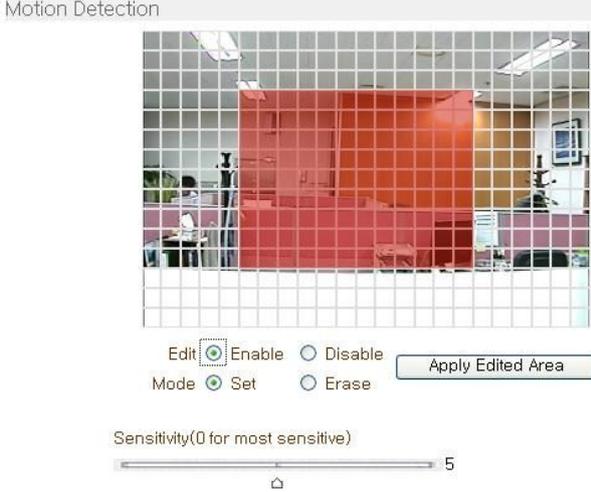
Audio Configuration

❑ 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 Configuration**

❑ IP Mode	Three IP modes are supported. Depending on the selected mode, further configuration items come as follows.

IP Mode	Selection	Description
Fixed IP	Local IP	Fixed IP address
	Local Gateway	Gateway IP address
	Local Subnet	Subnet mask
DHCP	N/A	

☞ Please ask an IP address information from ISP provider or network manager

❑ DNS	Set DNS server IP address

❏ Base Port	Network base port use for communication between systems. In order for the servers and remote systems to be connected together, the port number must be identically set
❏ HTTP Port	HTTP port use for web-based connection
❏ Multicast IP	The multicast IP address selection range is between 224.0.1.0 and 238.255.255.255. The selection can be used only when media protocol is set to Multicast. The multicast address must be the same for the system to be connected using multicast protocol
❏ DDNS	Select the DDNS(Dynamic DNS) server to use
❏ Flow Control Mode	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

Mode	Description
Min	The bitrate is automatically adjusted to a client with smallest network bandwidth
Max	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
Adjust	The bitrate is adjusted to most optimum rate by learning the network bandwidth
Off	Flow control is off

❏ Address Info	Display network related information

IP Address	The server own IP address. This information is useful when the server's IP mode is set to DHCP
Domain Name	In case the server is registered with DDNS server, the registered domain name is displayed
MAC Address	Display the MAC address of the server. In case the server is registered with DDNS server, the MAC address is used in DDNS registration

Serial Port Configuration
☞ This function is not available in this product

Event Configuration

☞ This function is not available in this product

Preset Configuration
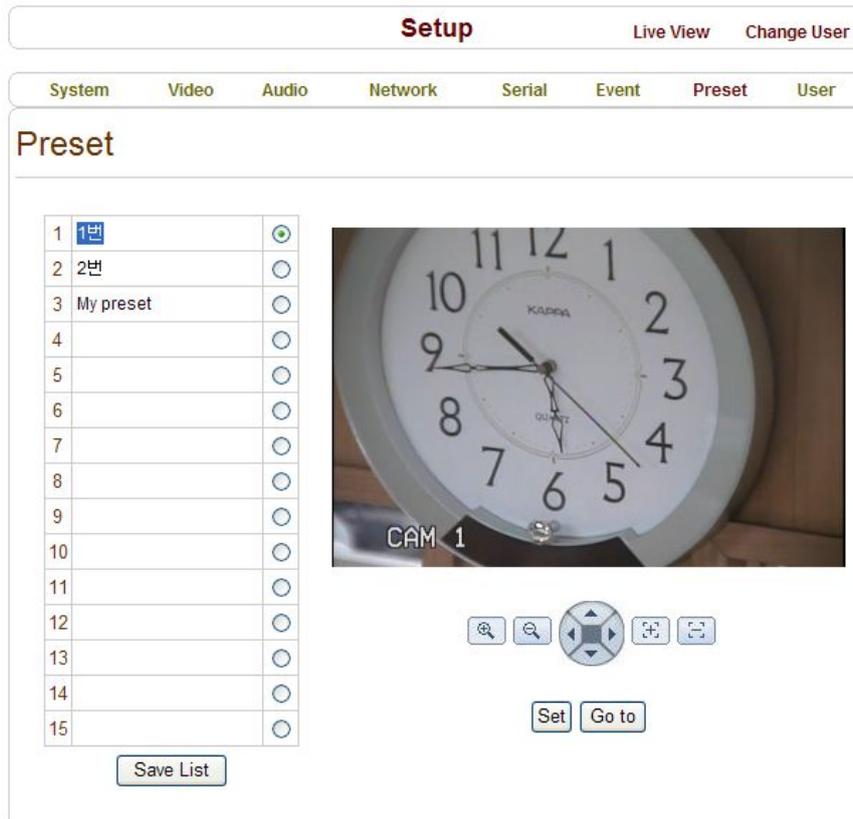
❑ **Preset Configuration**

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 Configuration

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**.

Camera Configuration

☞ This function is not available in this product

Specifications

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	