AMG-DEC

User Manual

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Before You Begin

Read these instructions carefully before installing or operating this product.

Note: This equipment should be installed by a qualified service person and should conform to local and national regulations.

This manual provides installation and operation information. To use this document you must have the following minimum qualifications:

- A basic knowledge of IP networks and configuration.
- A basic knowledge of electrical wiring and low-voltage electrical connections.
- An RJ45 connector that supports the transfer rate of 10/100Mbps.
- A PC with one of the following Web Browsers:
    - Microsoft Internet Explorer
    - Mozilla Firefox
    - Google Chrome

Intended Use

Use this product only for the purpose for which it was designed, as described in this manual.

WARNING:
Improper use or deployment of this equipment could cause severe bodily injury or equipment damage

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CE

1.1. Video Encoder/Decoder

- **Video**
  - High-quality compression algorithm, H.264 & MJPEG support
  - Compression in various resolutions: CIF, Half-D1 and D1
  - Wide range of video transmission rates: 32kbps ~ 8Mbps
  - Various transmission modes: CBR and VBR
  - Motion Detection

- **Audio**
  - Multi-transmission modes: Uni-direction (Encoder -> Decoder, Decoder -> Encoder), Bi-direction

- **Network**
  - Fixed IP & Dynamic IP(DHCP) support
  - 1:1, 1:N support
  - Multicasting
  - Automatic transmit rate control according to network conditions

- **Serial Data**
  - Two serial ports
  - Various PTZ camera protocols
  - Data pass-through mode: Serial data communication between Encoder – Decoder

- **Sensor and Alarm**
  - Support direct connections of external sensors and alarm devices.
  - Event Alarms

- **USB**
  - Connection to internal or external USB storage for remote access

- **User Interface**
  - System status display utilizing OSD (On Screen Display)
  - Diagnose and upgrade through dedicated program called True Manager
  - System configuration using Internet Explorer

- **High Reliability**
  - Reliable embedded system
  - System recovery utilizing dual watch-dog functions

2. Video Encoder/Decoder

2.1. Operation Modes

The Following chart shows possible combinations of video, audio and serial data transmission.

System Mode	Video	Audio	Serial Data
Encoder	Transmit	Transmission/Receive	Transmit/Receive
Decoder	Receive	Transmission /Receive	Transmit/Receive

Therefore, the system modes are defined by the video communication and all system modes are capable of bi-directional transmission of audio or serial data.

2.2. Installation

1. Connecting Video

◈ Encoder System

- Connect camera video output line to the encoder video input port.

◈ Decoder System

- Connect monitor video input line to the decoder video output port.

2. Connecting Audio

Audio is bi-directional in any configuration regardless of the system mode. If necessary, it can be configured to be in transmit-only, receive -only or bi-directional mode.

- Connect audio input and output ports to audio devices accordingly.
- Audio signal is line level 1V PP, therefore, a microphone or speaker with amplification function should be used.

3. Connecting Serial Ports

For camera control, PTZ controller (keyboard) and receiver can be connected to serial ports. Two corresponding serial ports in the encoder and decoder which are connected in a 1-to-1 fashion work in pass-through mode. This means that commands at a local system's COM1 port will be transparently passed to the remote system's COM1 port. Also, a command at a local system COM2 port will pass to the remote system's COM2 port.

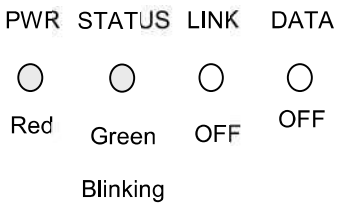
4. Connecting Sensors and Alarms

Connect sensors and alarm devices to corresponding terminals accordingly.

6. Checking Operating

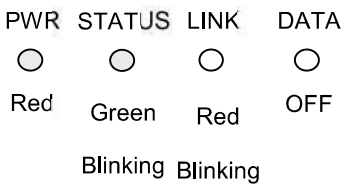
Once the power is supplied to the camera, it will start booting. The system will boot up to an operating mode after approximately 40-60 seconds. The green LED on the Ethernet port will flash indicating the system is ready.
Software provided on the disc called True Manager allows you to check the IP address and other network details of the camera/server. Please refer to the True Manager manual for instructions on how to find the IP address of the camera and if required changing it.

◈ Encoder LED Display



Above LED status display shows that neither camera is connected nor a decoder is connected. Once the encoder is connected to a decoder, colour of link LED will illuminate green and the LED will blink as video or audio transmissions occur.

◈ Decoder LED Display



Above LED status display shows that the encoder has started without connecting to an encoder. Once an encoder is connected, the colour of link LED will be changed to green and the LED will blink as video or audio data transmissions occurs.

2.3. Remote Video Monitoring

There are two ways to view the remote video when the connections are completed between a site and central system. In order for proper operation, an IP address must be set accordingly. Please refer to **True Manager** or **Remote Setting in Chapter 4 and 5** for further details.

■ Video Monitoring with Decoder System

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

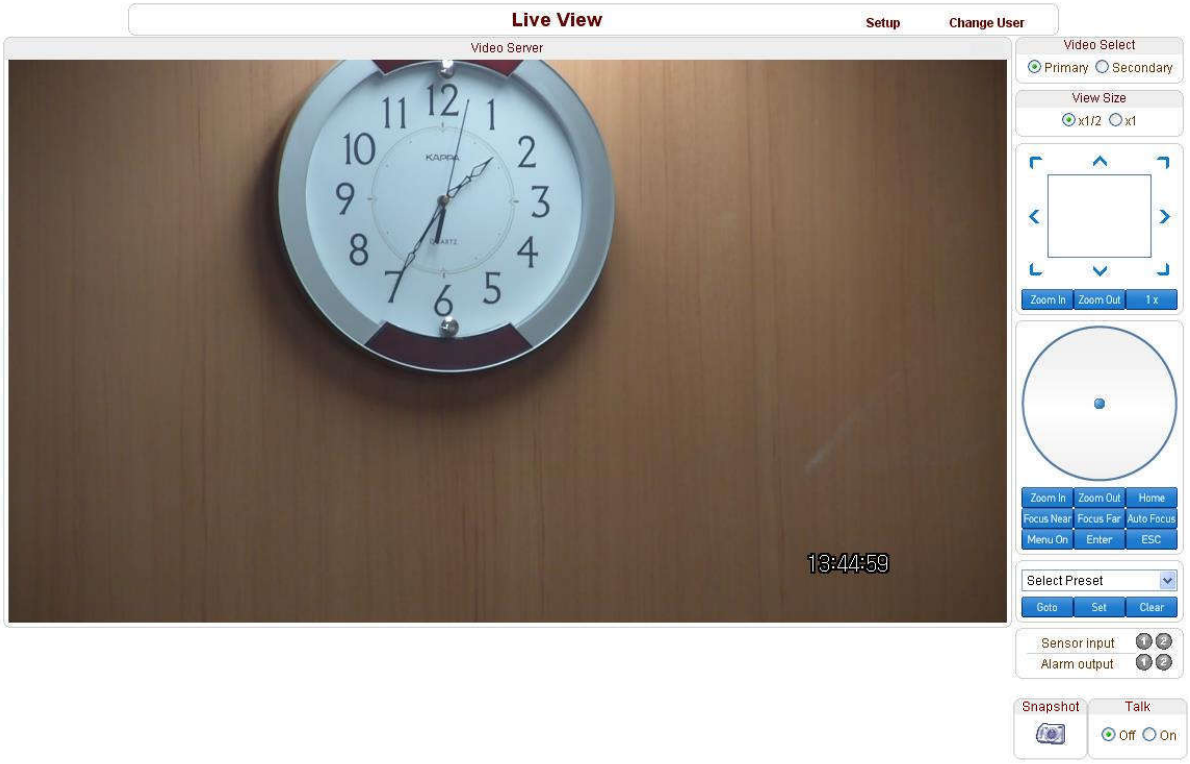
■ Video Monitoring using Internet Explorer

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

http://192.168.10.100

Username: admin

Password: 1234



■ Video Selection
If Primary is selected, Max. 720 x 480 (NTSC) or 704 x 756 (PAL) via H.264 compression algorithm video can be displayed. And once activated Dual Video compression and a Secondary video stream may be selected, H.264 or MJPEG compression algorithm video can be displayed in this case.
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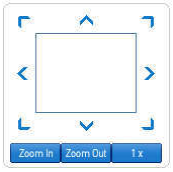
■ Screen Size:
Adjustable Screen Size

■ Digital Zoom:
Max 5x Digital Zoom is available.



■ Focus Near, Focus Far, Auto Focus
Adjust the focus

■ Sensor Input
When the sensor on the encoder/decoder is connected and working, the light turns red.

■ Alarm Output
Alarm Output button can triggered from an event directly from the Live View page.

■ Snapshot
Snapshot button saves a snapshot of the video image currently on display. Captured picture can be stored as a BMP or a JPEG file.

■ Talk
Transfer audio to connected audio device connected to.

2.4. Initialization of IP Address

If a system IP address is lost, the system can be reset to a known IP address using the reset button in the back of the system:

① While system is in operation, press the reset button more than 5 seconds.

② The system will reboot automatically

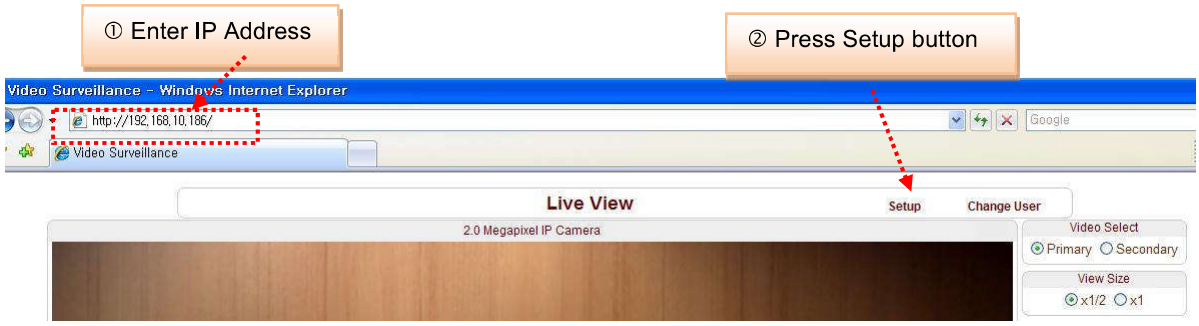
③ Once the system has been rebooted, IP address will be set to the following.

- 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
- Username: admin
- Password: 1234

2.5. Remote Configuration

2.5.1. Remote Configuration

The server can be configured using a web browser. Type the IP address of the encoder/decoder in the address input area of Internet Explorer, then a live view 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.



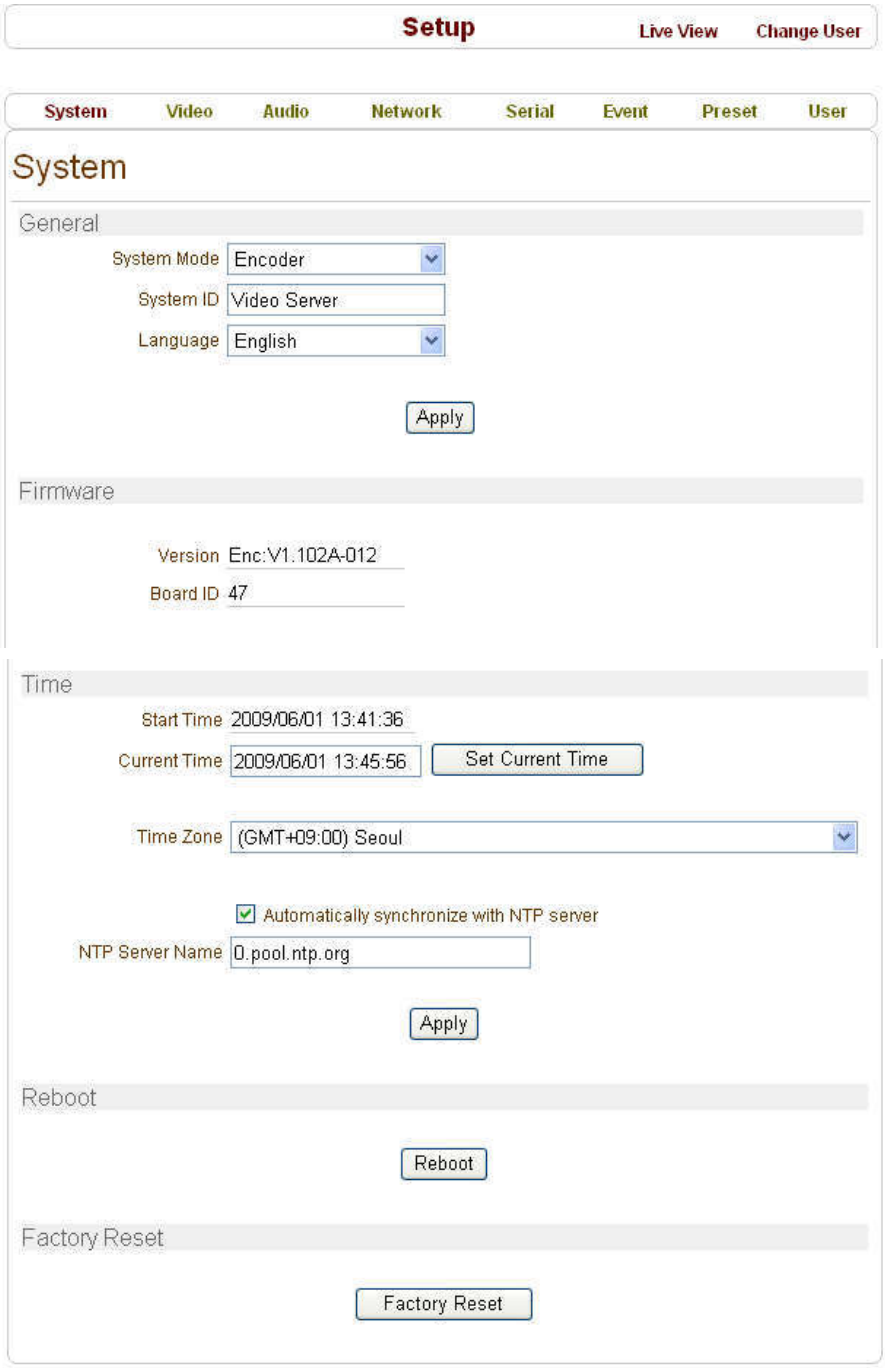
The remote configuration window may be slightly different depending on the system modes (Encoder, Decoder). The general explanation of the configuration in this manual is based on an Encoder system and differences according to the modes will be clarified when needed.

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.

2.5.2. Encoder Configuration

While most configuration items are common for Encoder, Decoder and Duplex mode, there are items which are relevant to specific system modes. All the configuration items for Encoder mode are explained first. Then, items specific only to Decoder and Duplex mode are described later. Sections for Decoder and Duplex will not include items common for all modes.

2.5.2.1. System Configuration



■ System Mode
System mode: Select Encoder, Decoder.

■ System ID
System ID: Alphanumeric System ID to be transferred to remote software

■ Language
Language to be used for web-based configuration

■ Firmware version
Current firmware version

■ Board ID
Network board ID recognized by system

■ Start Time
Latest system boot date and time

■ Current Time
Current date & time: Enter a new date and time and press **Set Current Time** button to update date & time.

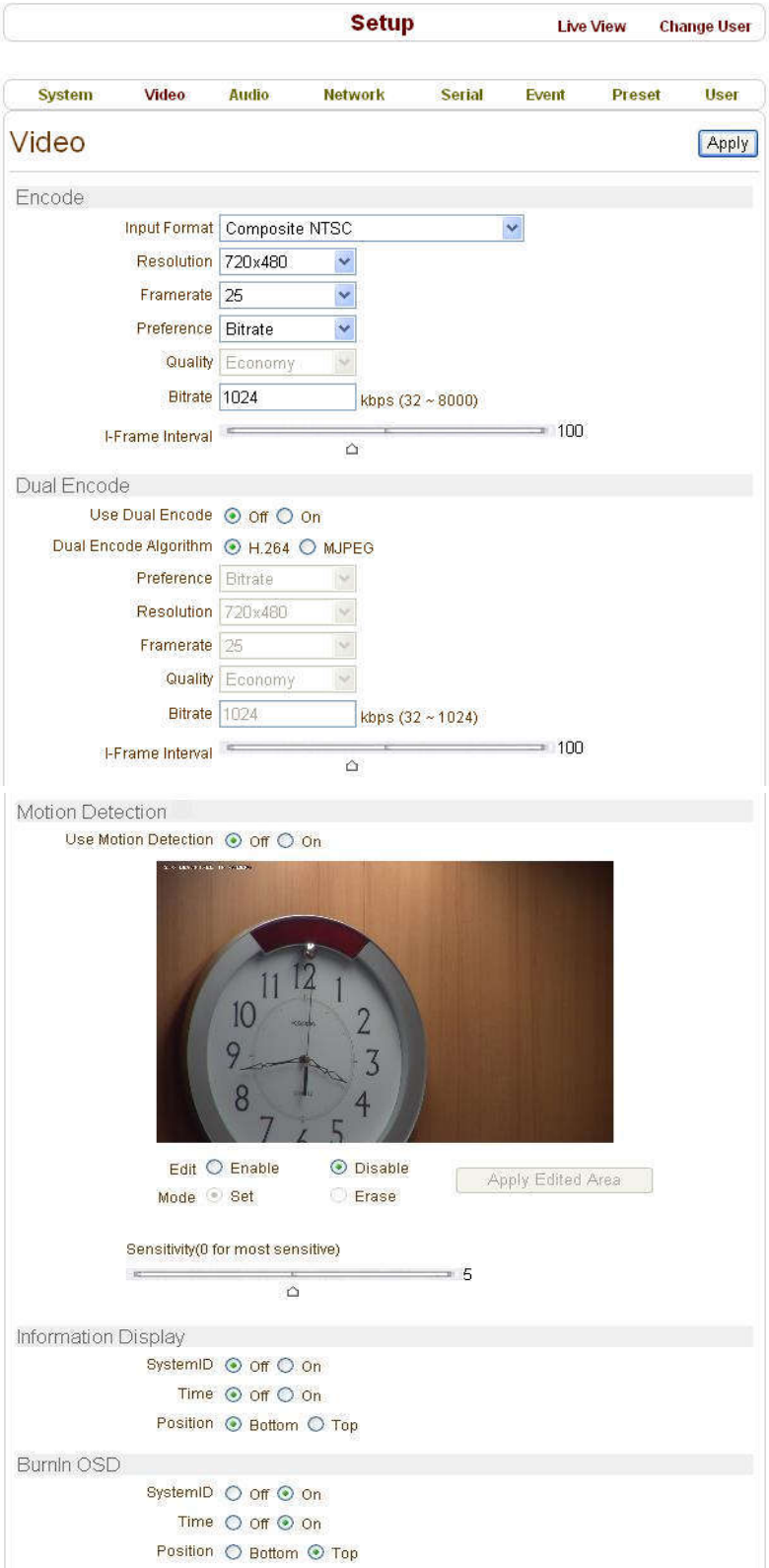
■ Time Zone
Time zone: Select time zone of where the system is installed. Depending on the time zone, Daylight Saving Time will work automatically..

■ 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
Set all settings to the factory default values. System log and user registrations are also cleared. Passwords will NOT be reset though! (take Care to note passwords)

2.5.2.2. Video Configuration



- **ENCODE**

■ Input Format

Select input format ; Composite NTSC or PAL

■ Resolution

Selectable video compression resolutions as below:
NTSC : 720 x 480, 720x 240, 352 x 480, 352 x 240
PAL : 720 x 576, 720 x 288, 352 x 576, 352 x 288

■ Frame Rate

Select video frame rate (the maximum number of frames of video images to compress.)
The frame rate actually transmitted can be affected by the network bandwidth limitations.

■ 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 (Constant Bitrate) and VBR (Variable Bitrate) respectively.

■ Quality

VBR (Variable Bit Rate) adjusts the bit rate according to the image complexity, using up bandwidth for increased activity in the image and less for lower activity in the monitored area. Quality is maintained at the expense of bandwidth

■ Bitrate

CBR (Constant Bit Rate) allows you to set a fixed target average bit rate that consumes a predictable amount of bandwidth. As the bit rate would usually need to be increased for increased image activity, but in this case it is constrained, the frame rate and image quality are affected negatively. Average bit rate is maintained at the expense of quality

■ I-Frame Interval

Setting numbers of P frames to each I frame between 0 and 255.
There will be no P-frame if 0 is set.

- **DUAL ENCODE**

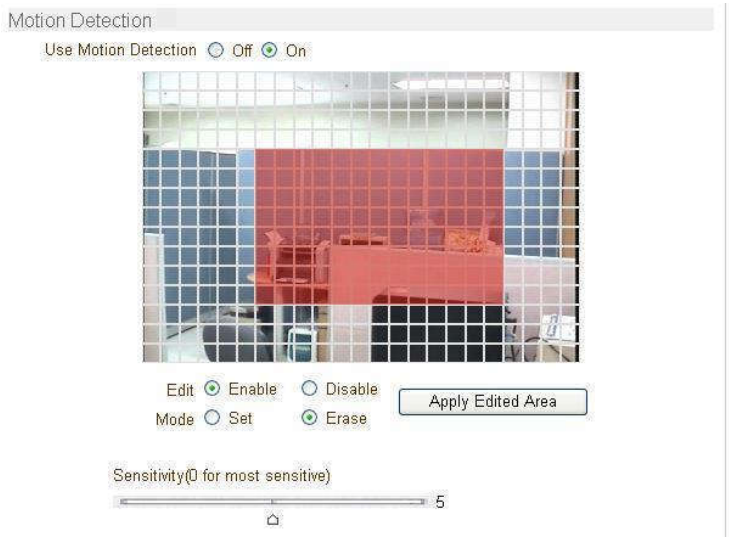
■ Use Dual Encode

Select On to use dual encode

■ Dual Encode Algorithm

H.264 and MJPEG can be selected for secondary streaming. Maximum resolution is 720 x 480 and there are 8 steps of resolution. If MJPEG is selected, Preference supports only Quality mode. Bitrate can be set from 32~1024kbps for Dual Encode.

- **MOTION DETECTION**



■ Use Motion Detection

Select Motion Detection function

■ 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 click and dragging.

④ Press **Apply Edited Area** button to save the editing.

■ Sensitivity

A condition to trigger an event of motion detection. The value determines the sensitivity of the motion detection within a block: the smaller, the more sensitive. It is selectable from 0 to 10.

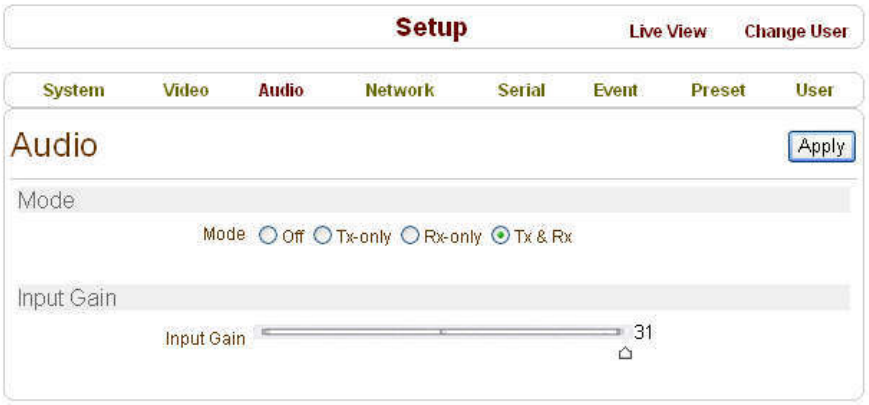
■ Information Display

System ID and/or server time can be displayed in the video window in Web View. Each item can be turned on or off and position can be configured as well. This information is
displayed after the video is decompressed.

■ Burn-in OSD

Insert system ID and date/time in the compressed video. System ID and time respectively can be turned on or off in the video. And position and Font size can be selectable.

2.5.2.3. Audio Configuration



■ Mode

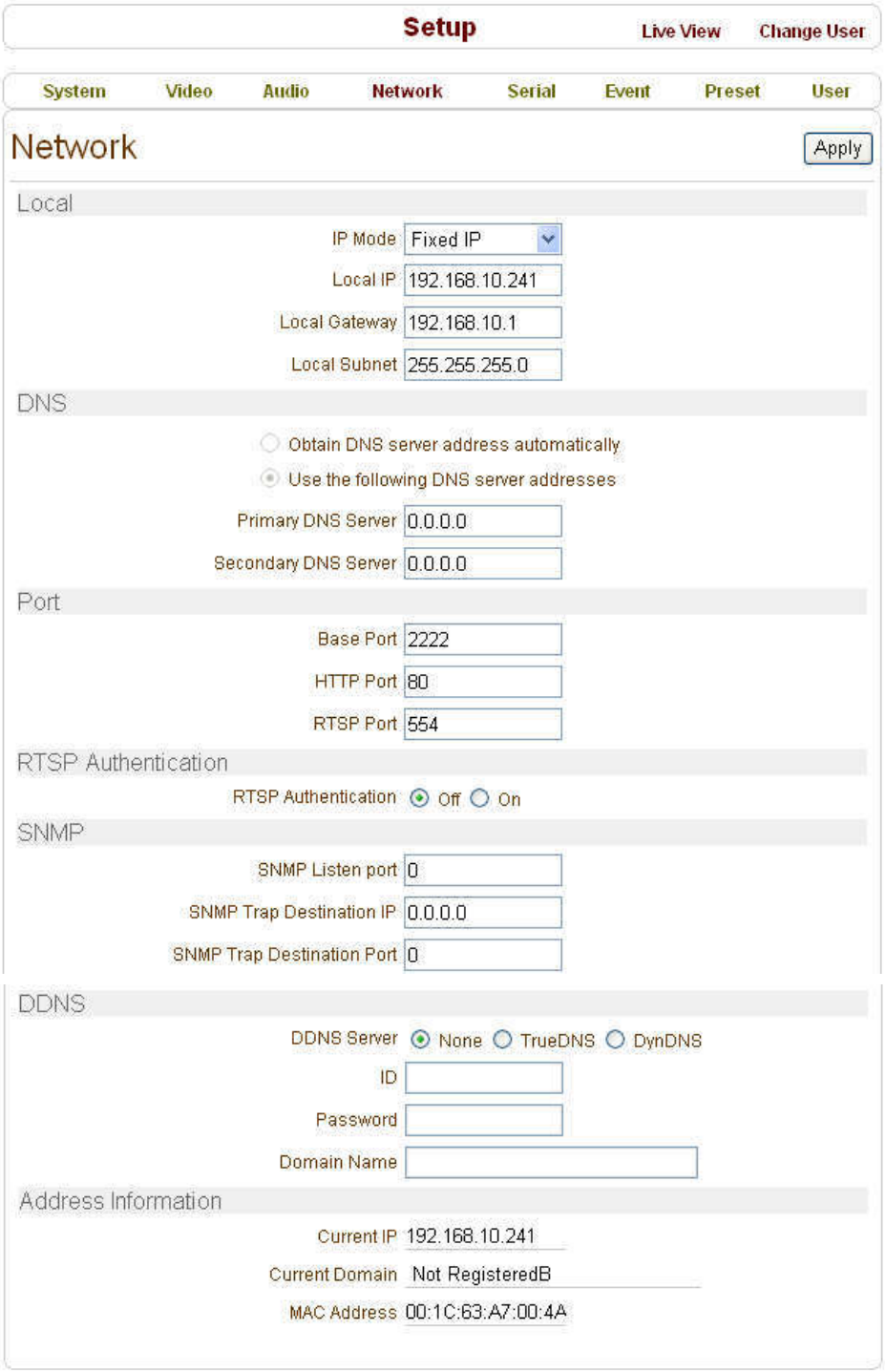
Select audio operation mode.

Mode	Status
Off	No operation
TX-Only	Transmit only
RX-Only	Receive only
TX & RX	Transmit and Receive

■ Input Gain

Set audio input gain.

2.5.2.4. Network Configuration



■ IP Mode

Two 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 IP	N/A	

☞ Please, get IP address information from your ISP provider or network manager.

■ DNS

Set DNS server IP address.

■ Base Port

Network base port is used for communication between systems. In order for the encoder/decoder and remote systems to be connected together, each port number must be identically set.

■ HTTP Port

HTTP port used for web-based connection

■ RTSP Port

RTSP port used for RTSP-based connection

■ SNMP

The encoder/decoder can be used as an SNMP agent. It is compatible to both SNMPv1 and SNMPv2c. Vender specific MIBs for IP camera/server are defined. SNMP listen port can be set and disabled when it is 0. SNMP trap is also supported. Destination IP and port can be set. If one of these values is 0, SNMP trap will be disabled.

■ 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. One of the two servers can be selected.

- True DNS : use True DNS service. Systems can be registered on the website for TrueDNS service: http://ns1.truecam.net. System will get a domain name of **xxx.truecam.net** style. Refer to the user guide document for True DNS service.
- DynDNS : use DynDNS service. Refer www.dyndns.org for details.

■ Address Information

Tree addresses are checked in 3 ways below. (Read-only).

IP Address

The servers own IP address. This information is useful when the server's IP mode is set to DHCP.

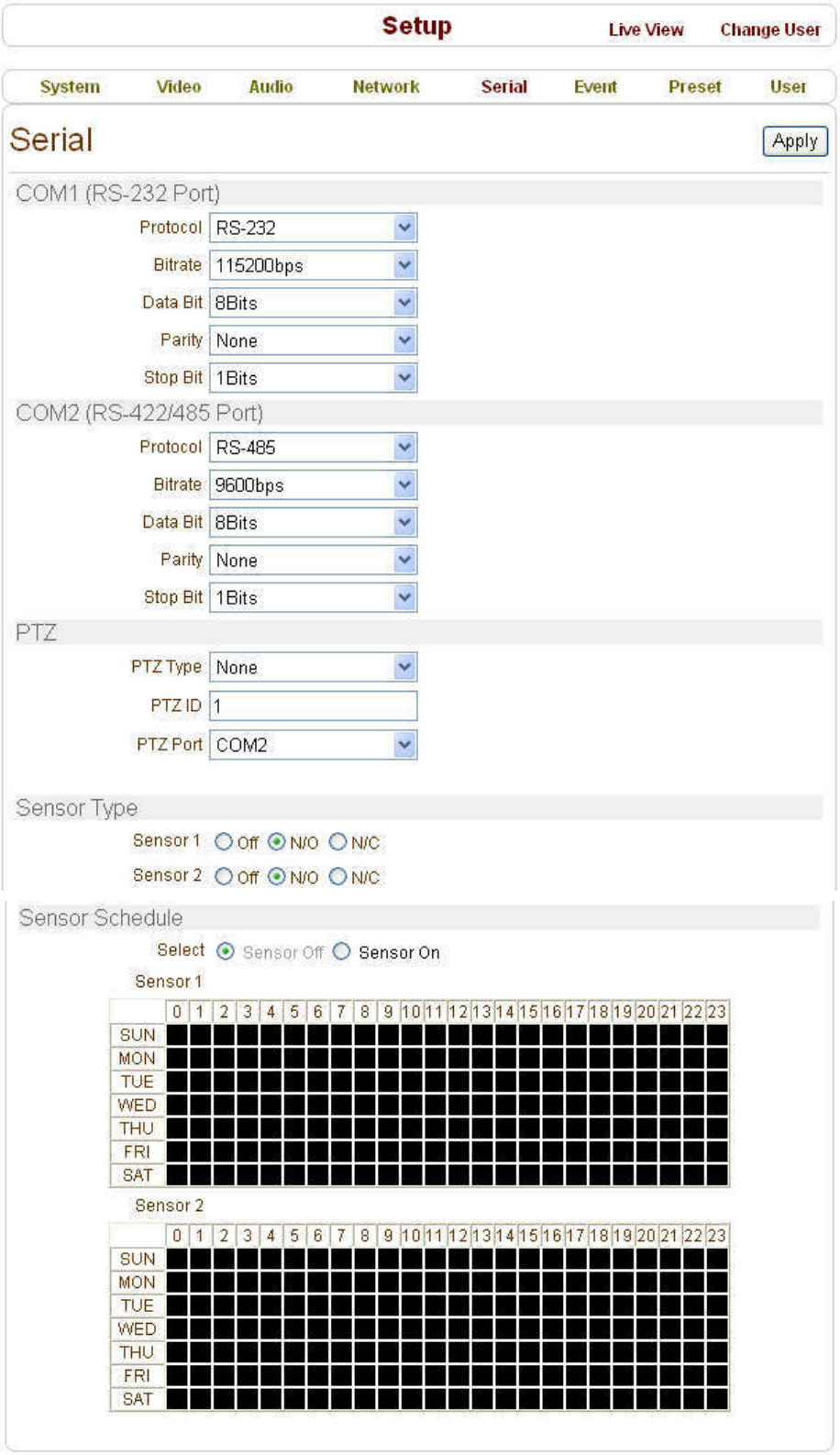
Domain Name

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.

2.5.2.5. Serial Port Configuration



■ Serial Port Configuration

There are two serial ports, (COM1 and COM2) on the encoder/decoder boards. While COM1 port is fixed to RS-232C, COM2 port can be set to RS-422 or RS-485 protocol.

The serial ports can be configured as follows.

Mode	Selection
Bitrate	2400, 4800, 9600, 19200, 38400, 57600, 115200 bps
Data Bits	5, 6, 7, 8 bits
Parity	NONE, EVEN, ODD bit
Stop Bit	1, 2 bit

Each of the serial ports configurations must be same as connecting device.

■ PTZ Configuration

PTZ Type

Select the type of PTZ camera or receiver.

PTZ ID

Since it is possible to control multiple PTZ cameras or receivers over single control line, each camera or receiver will be assigned with a unique ID. Enter PTZ ID of a camera or receiver for control. The ID value range can be between 0 and 255.

PTZ Port

Select the serial port used for PTZ camera control.

■ Sensor Type

There are two sensor input ports on the encoder/decoder board. Each of the sensor ports can be configured to the following.

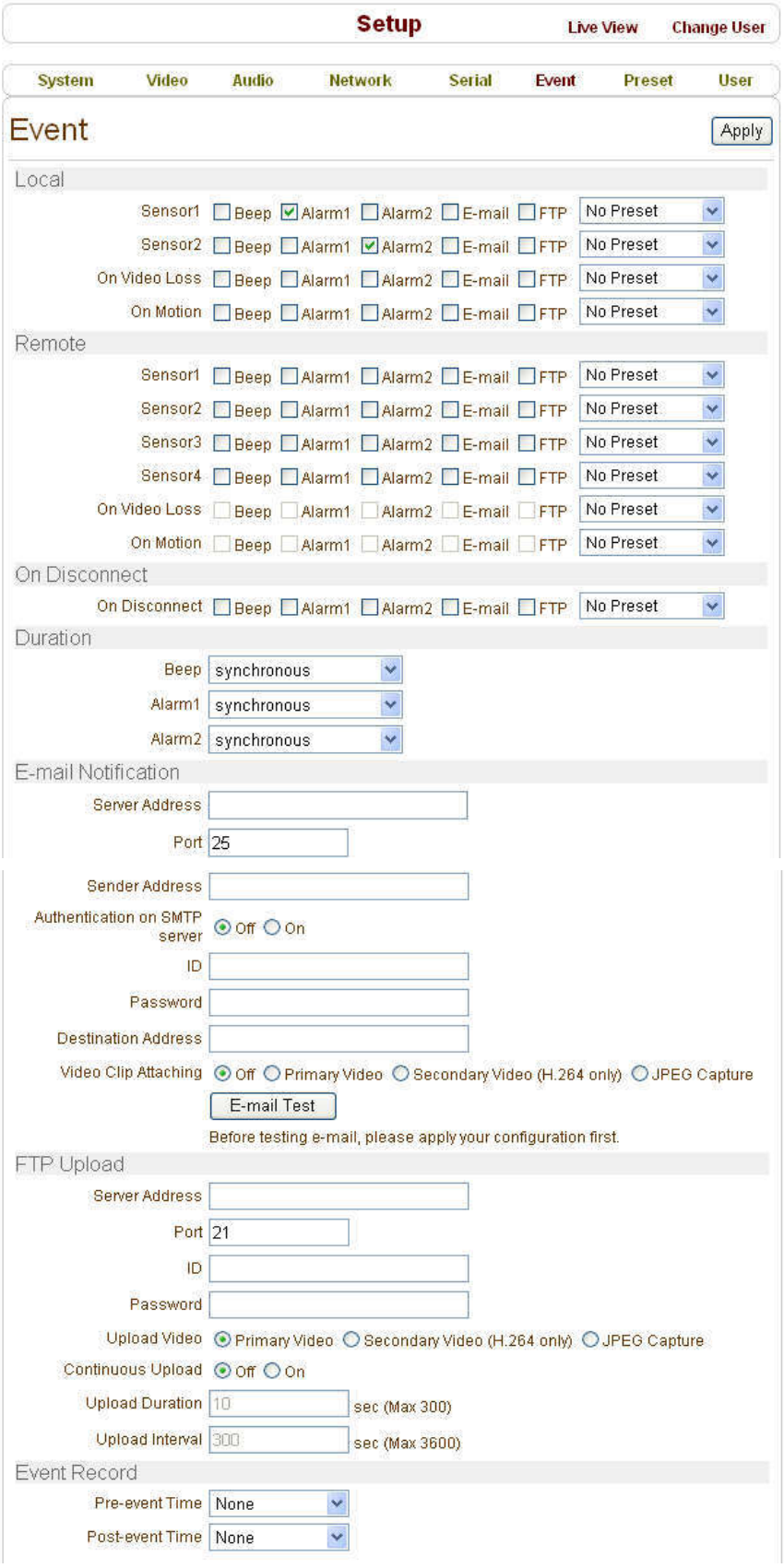
Function	Operation
OFF	Not used
NO (Normally Open)	The port is normally open and activated when closed.
NC (Normally Closed)	The port is normally closed and activated when opened.

The function of the sensor port is set based on the type of the sensor connected.

■ Sensor Schedule

Each sensor port can be enabled or disabled in day (of a week) and hour unit. Sensor is disabled for grey-coloured duration.

2.5.2.6. Event Configuration



The event configuration configures the actions for each event type. **Local** section configures the actions for events from local (self) system and configuration activates local devices and **Remote** section configures the actions for events from remote (peer) systems.
The following table lists the possible actions for events.

Action	Description
Beep	Outputs beep sound using the buzzer in the system
Alarm1/Alarm2	Triggers alarm (relay) port.
E-mail	Sends E-mail to the specified address. AVI file can be attached
FTP	Upload AVI file to a specified FTP server
Preset	Moves the PTZ to associated preset position

■ Sensor1 / Sensor2
Configure the actions when the sensor 1 or 2 is activated. Multiple actions can be set for a single event.

■ On Video Loss
Configure the actions when video input signal is lost. Multiple actions can be set for a single event.

■ On Motion
Configure the actions when motion is detected. Multiple actions can be set for a single event.

■ On Disconnect
Configure the actions when the link (connection) with peer system is disconnected. Multiple actions can be set for a single event.

■ Alarm and Beep activation duration
Set the duration of alarm or beep activation in case of an event. If it is set to continuous, it will be in an active state until an operator resets it manually.

■ E-mail Notification

Specify the information to send an E-mail as the action of an event. The address of mail (SMTP) server needs to be specified on **Server Address** field, and **Port** specifies the port for SMTP operation (Port 25 is the default port in SMTP operation. If a different port is configured in the SMTP server, this port needs to be changed accordingly). When the server requires authentication, ID and password of an E-mail account need to be entered. Destination address needs to be entered in the **Destination Address** field. More than one address can be entered by delimiting comma (,) or semi-colon (;). Destination addresses can take up to 63 characters. Video clip in an AVI file format at the moment of the event can be attached by setting **Video Clip Attaching.**

■ FTP Upload

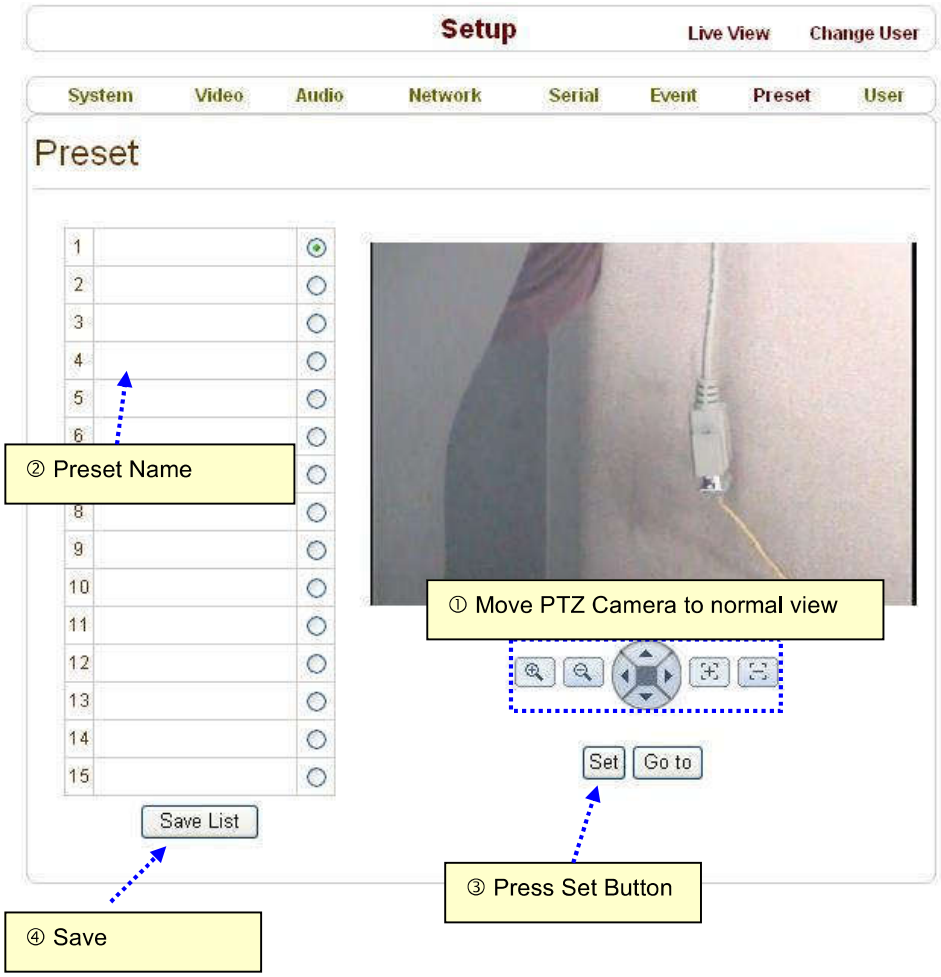
Specify the information for uploading video file as the action of an event. The address of an FTP server to receive video files is specified on **Server Address** field, and **Port** specifies the port for FTP operation (Port 21 is the default port in FTP operation. If different port is configured in the FTP server, this port needs to be changed accordingly.). ID and password for accessing the FTP server also need to be specified. Video clip of AVI file format or JPEG file at the moment of the event can be attached by setting **Video Clip Attaching.**

By setting **Continuous Upload** to On, it is possible to upload video clips periodically regardless of events. **Upload Duration** specifies the duration of one upload file, and **Upload Interval** specifies how often it should happen. Upload Interval doesn't include the duration. If Upload Interval is 60 and Upload Duration is 20, it uploads a file for 20 seconds duration every 80 seconds.

■ Event Recording

Specify how a video clip is to be generated for E-mail sending or FTP uploading. **Pre-event Time** specifies the duration of recording before an event happens. **Post-event Time** specifies the duration after the event is cleared.

2.5.2.7. *Preset Configuration*



Configure up to 15 preset positions. Preset function is not available on some PTZ receivers. Make sure to check if a PTZ receiver supports 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.

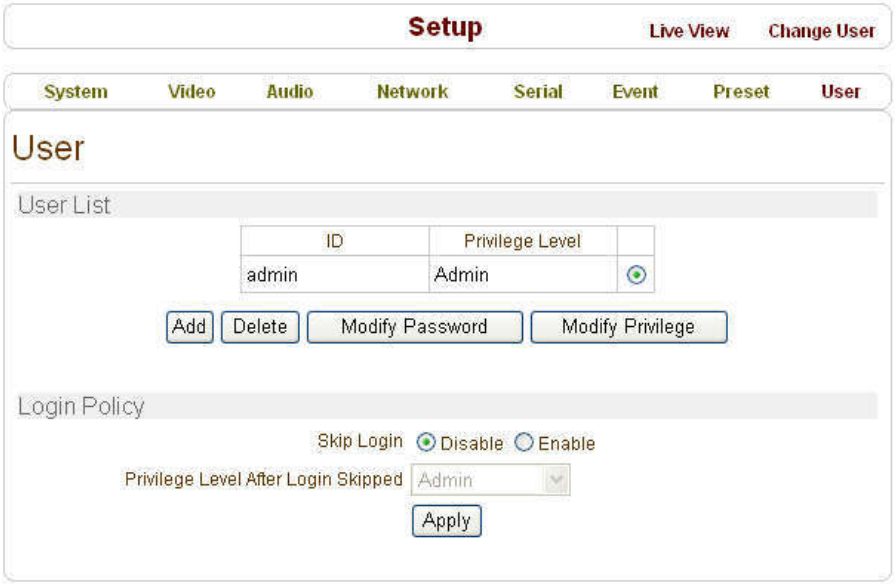
③ Press **Set** button.

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.

2.5.2.8. User Configuration



User can be registered and privilege levels 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 off our privilege.

Privilege	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 appears after pressing **Add** button.

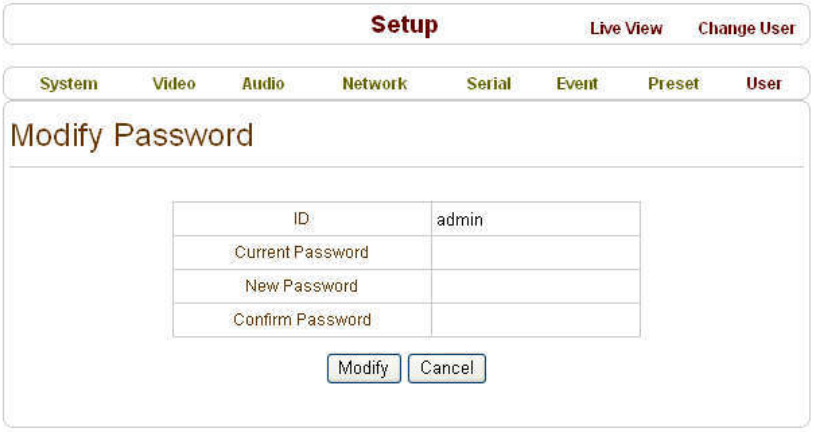
User ID and password need to be entered and privilege level needs to be selected.
User ID and password consist of alphanumeric strings of max 15 characters.

■ 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 changing admin password, old password is checked.

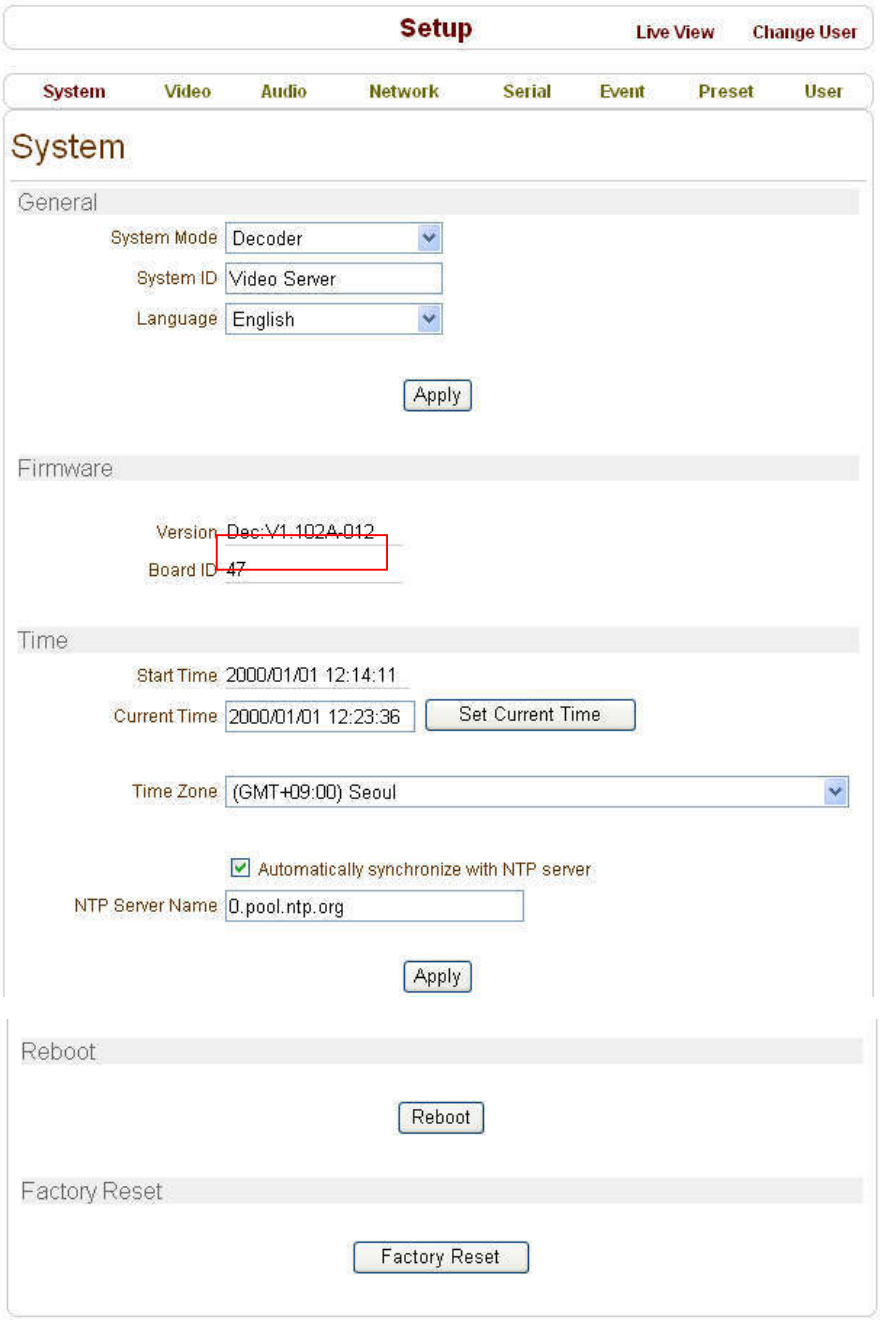
■ Modify Privilege Level

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

■ Login Policy

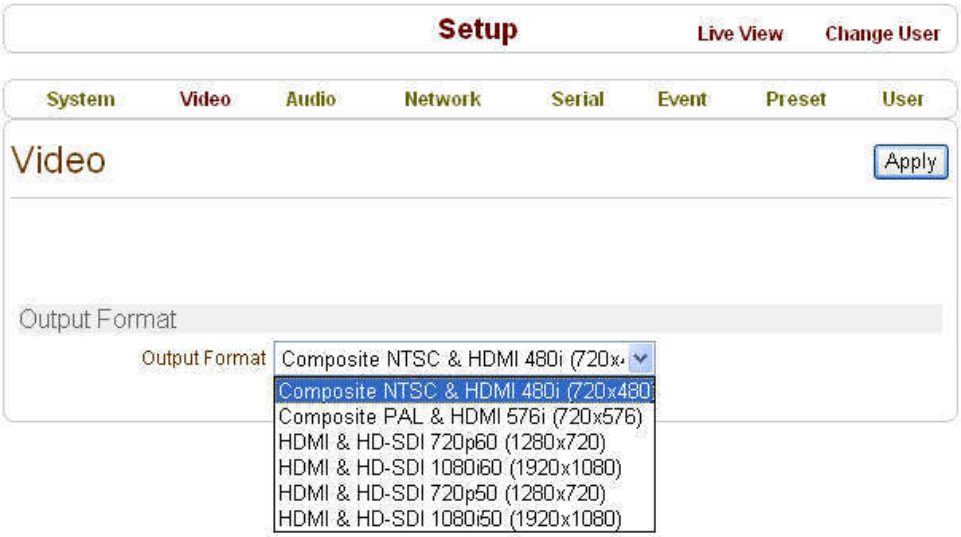
Skip Login is provided for convenient access to the server when authentication is not required. When **Skip Login** is set to Enable, login step is skipped. The privilege level after login in this way is determined by the setting of **Privilege Level After Login Skipped.**

2.5.3. Decoder System



Once system mode is changed to decoder, Firmware version shows Dec xxxxxxx which means decoder mode.

2.5.3.1. Video Configuration



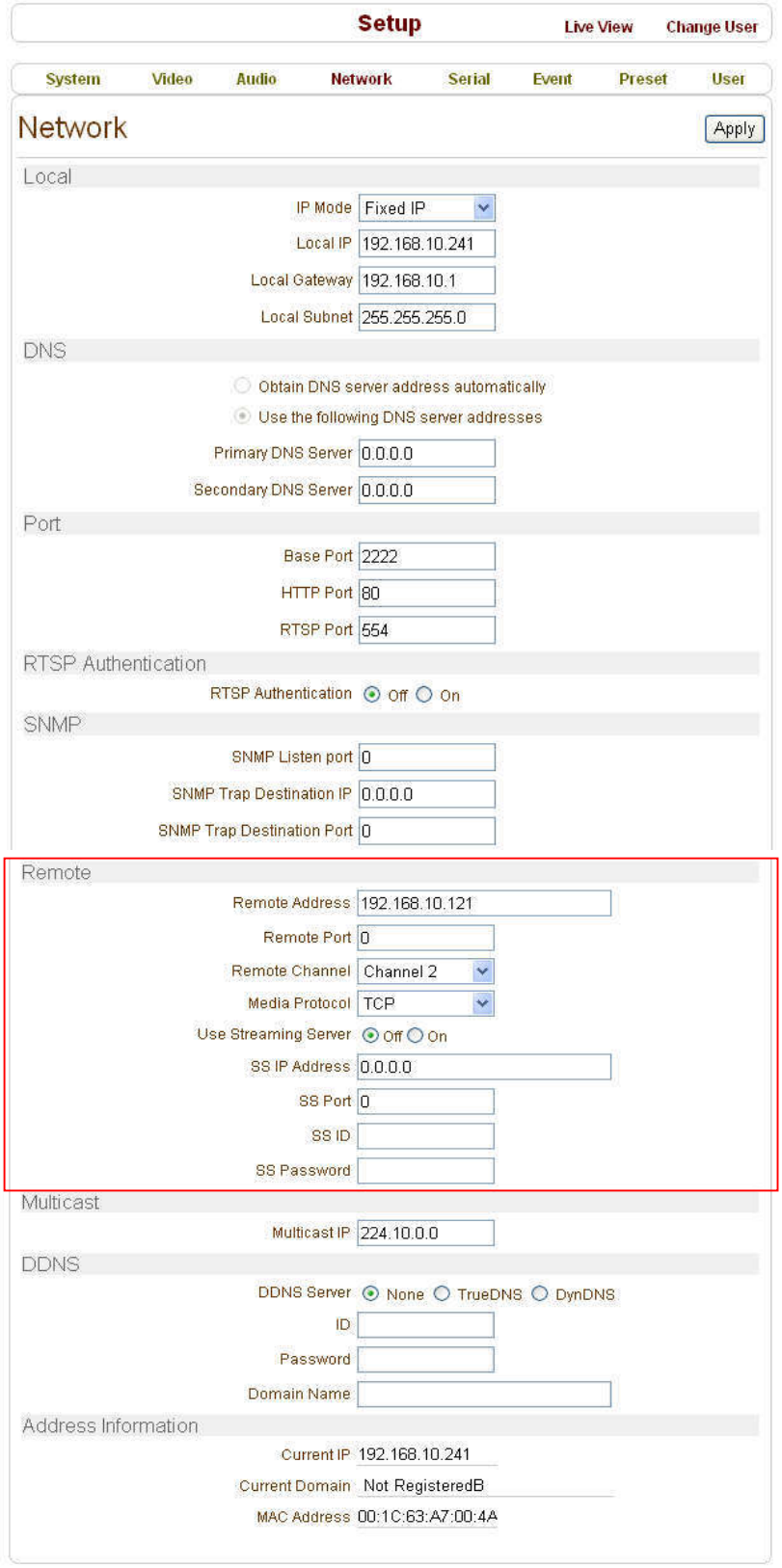
Regardless of input resolution of Encoder or IP camera, the Decoder system of ANT-3300 can display video format as follows;

- Composite NTSC & HDMI 480i (720 x 480)
- Composite PAL & HDMI 576i (720 x 576)
- HDMI & HD-SDI 720p60 (1280x720)
- HDMI & HD-SDI 1080p60 (1920 x 1080)
- HDMI & HD-SDI 720p50 (1280 x 720)
- HDMI & HD-SDI 1080i50 (1920 x 1080)

Resolutions higher than the decoders maximum decode resolution capability are upscaled if the display resolution is higher.

2.5.3.2. Network Configuration

Network page of Decoder has a section for specifying the remote system to connect.

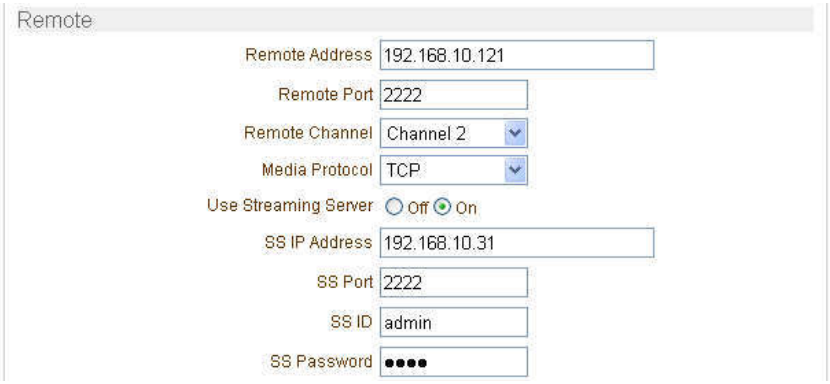


■ Remote Address
Address of the remote system to connect.

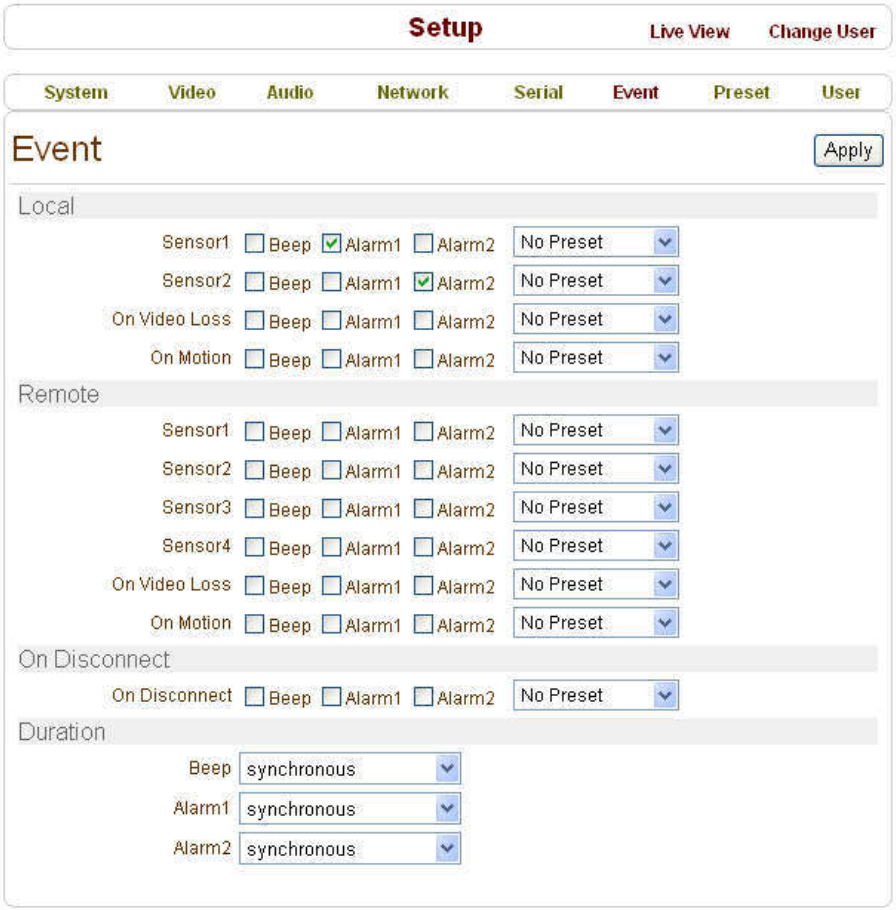
■ Remote Channel
The channel can be selectable when the remote system has multiple video channels.

■ Media Protocol
Protocol used for delivery of audio and video data between remote system and Decoder.

■ Use Streaming Server
Decoder system has settings to connect to Encoder or IP Camera via the Streaming Server. To connect to Encoder or IP Camera via Streaming Server, **Use Streaming Server** of **Remote** group in **Network** page should be set to **On** and information of the **Streaming Server (SS)** needs to be configured appropriately.



2.5.3.3. Event Configuration



The event configuration configures the actions for each event type. **Local** section configures the actions for events from local (self=Decoder) system, and configuration activates local devices and **Remote** sections configures the actions for events from remote (Encoder or IP Camera) system.
The following table lists the possible actions for events.

Action	Description
Beep	Outputs beep sound using the buzzer in the system
Alarm1/Alarm2	Triggers alarm (relay) port.
E-mail	Sends E-mail to the specified address. AVI file can be attached
FTP	Upload AVI file to a specified FTP server
Preset	Moves the PTZ to associated preset position

■ Sensor1 / Sensor2
Configure the actions when the sensor 1 or 2 is activated. Multiple actions can be set for a single event.

■ On Video Loss
Configure the actions when video input signal is lost. Multiple actions can be set for a single event.

■ On Motion
Configure the actions when motion is detected. Multiple actions can be set for a single event.

■ On Disconnect
Configure the actions when the link (connection) with peer system is disconnected. Multiple actions can be set for a single event.

■ Alarm and Beep activation duration
Set the duration of alarm or beep activation in case of an event. If it is set to continuous, it will be in active state until an operator reset it manually.

Appendix A: Sensor and Alarm Port

1. Sensor Port

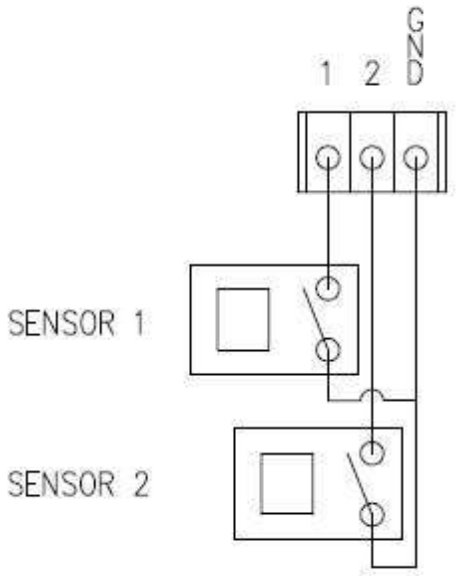
■ **Terminal Type**

* Voltage Rating: 150VAC
* Current Rating: 2A
* Colour: Red

■ **Sensor Signal Input Type**

* NO Contact Signals

■ **Connection to External Device**



2. Alarm Port

■ **Terminal Type**

* Voltage Rating: 150VAC
* Current Rating: 2A

■ **Relay Type**

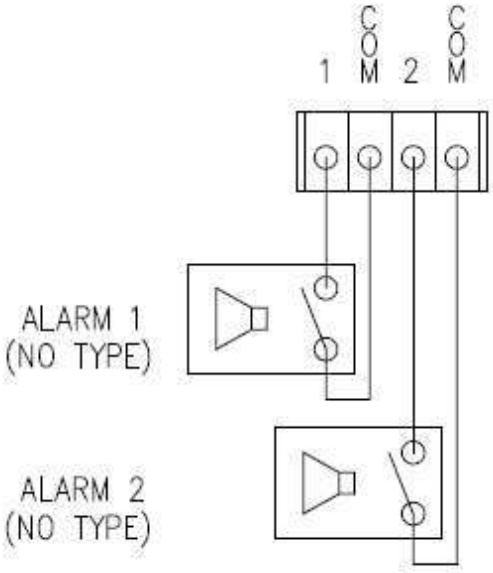
* Contact Rating: 1A 30VDC
* Switching Power: Max 30W 62.5VA
* Switching Voltage: Max 60VDC

■ **Alarm Signal Output Type**

* NO/NC Contact Signals

■ **Connection to External Device**

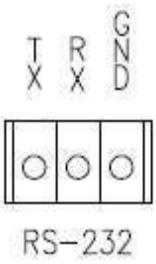
Appendix B: Serial Port



1. RS-232 Port

■ **Port Type**

* 3 PIN
* Pin Arrangement



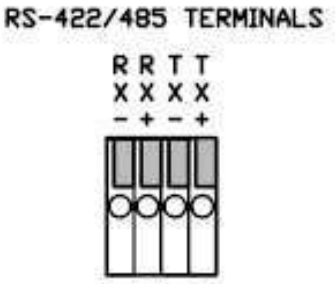
* Pin Description

Pin NO	Pin Name	Description
1	TX	RS232 TX(Transmit)
2	RX	RS232 RX(Receive)
3	GND	Ground

2. RS-422/485 Port

■ **Port Type**

* 4 PIN
* Pin Diagram



* Pin Description

Pin No.	Pin Name	Description
1	RX-	RS422 RX-
2	RX+	RS422 RX+
3	TX-	RS422 TX- or RS485 TRX- It is selectable by S/W Setup
4	TX+	RS422 TX+ or RS485 TRX+ It is selectable by S/W Setup

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