TCS-200 User Manual

Safety Precaution

We appreciate your purchasing TCS-200 series. Before installing the product, please read the following with care.

◈ Make sure to turn off the power before installing TCS-200.

◈ Do not install under the direct sunlight or in dusty areas.

◈ Make sure to use the product within the temperature and humidity specified in the specification.

◈ Do not operate the product in presence of vibrations or strong magnetic fields.

◈ Do not put electrically conducting materials in the ventilation hole.

◈ Do not open the top cover of the product. It may cause a failure or electric shock on the components.

◈ To prevent from overheating, make sure to keep the distance at least 10cm from the ventilation hole.

◈ Check for proper voltage before connecting the power.

Table of Content

1. Introduction

1. About User Manual

The User Manual is to provide information on operation of the high quality video surveillance system, TCS-200. In this guide, information on installation, operation, configuration of TCS-200 is written as well as how to trouble shoot in case problems arise.

2. Feature

TCS-200 is a video and audio surveillance transmission system based on IP network through LAN, ADSL/VDSL, and Wireless LAN. The TCS-200 series operates as one of the three modes: Encoder, Decoder and Duplex. Encoder system compresses and transmits video data. Decoder receives and decompresses the video data. Duplex system provides bi-directional transmission of video data.

■ Video

- High-quality compression algorithm, H.264
- Compression in various resolution: CIF, Half-D1, D1
- Wide range of video transmission rate: 32kbps ~ 4Mbps
- Various transmission mode: CBR, VBR
- Motion detection

■ Audio

- Multi-transmission mode: Uni-direction (Encoder -> Decoder, Decoder -> Encoder), Bi-direction

■ Network

- Static IP and Dynamic IP(DHCP, PPPoE)
- One to one and one to many connection
- Multicasting
- Automatic transmit rate control according to network condition

■ Serial Data

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

■ Sensor and Alarm

- Connections to external sensor and alarm devices
- Event Alarm

■ USB

- Connection to internal or external USB storage for remote access

■ User Interface

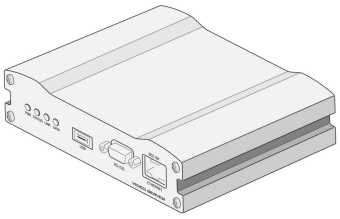
- System status display utilizing OSD(On Screen Display)
- System configuration using Internet Explorer

■ Reliability

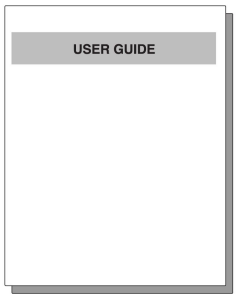
- Reliable embedded system
- System recovery utilizing dual watch-dog functions

3. Product and Accessories

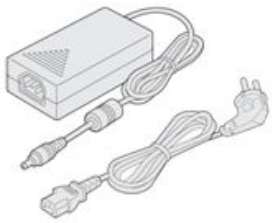
TCS-200 System



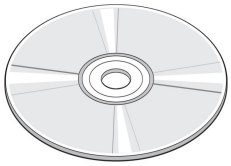
User Manual



Power adaptor and cable

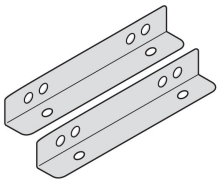


CMS S/W CD



Screws

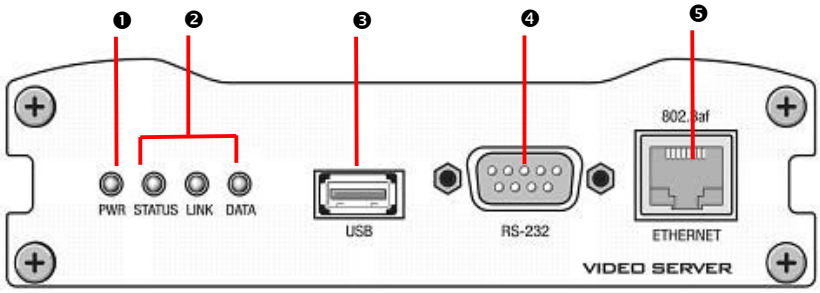
Brackets



<Picture 1> Product and Accessories

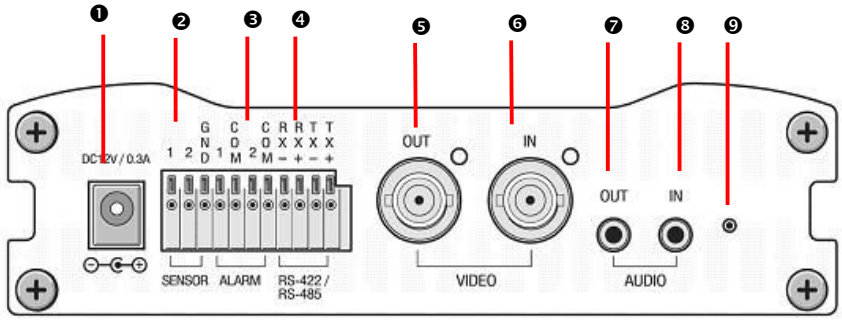
4. Part Names and Functions

■ Front View



Parts	Function
❶ Power LED(PWR)	Display power On/Off condition
❷ Other LEDs	Display system status
❸ USB	USB port for any USB device
❹ RS-232C	Serial communication port 1 (COM1) for PTZ control or bi-directional command pass-through
❺ LAN(Ethernet)	100/10-base-T Ethernet interface

■ **Rear**



Connector	Function
❶ POWER IN	DC 12V power input
❷ SENSOR	Sensor input
❸ ALARM	Relay output
❹ RS-422/485 (COM2)	Serial port 2 (COM2) for PTZ control and etc. Support RS-422 and RS-485 protocol
❺VIDEO OUT	Video output
❻VIDEO IN	Video input
❼AUDIO OUT	Audio output
❽AUDIO IN	Audio input
❾ RESET	Reset button for network reset

5. System Modes and Connections

The TCS-200 system operates in one of three modes: Encoder, Decoder, Duplex. TCS-200 systems can be connected in either 1-to-1 fashion where one encoder is connected one decoder or 1-to-many fashion where one encoder connected to many decoders.

Also, it is possible to connect in duplex mode on both sides to have bi-directional transmission of video images.

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

System Mode	Video	Audio	Serial Data
Encoder	Transmit	Transmit/Receive	Transmit/Receive
Decoder	Receive	Transmit/Receive	Transmit/Receive
Duplex	Transmit/Receive	Transmit/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.

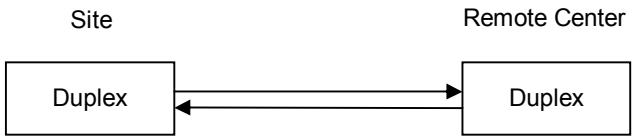
■ Topology

Generally, the encoder and the decoder are connected in 1-to-1 mode. To support specific situations, 1-to-many connection is also supported.

◈ 1:1 Connection (Unidirection)

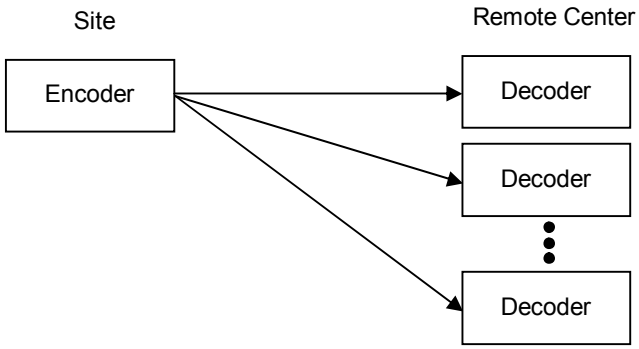
Mostly used configuration is 1 to 1 connection. An encoder is installed at a site where video images can be transmitted and a decoder is installed at a center location to receive and view the video images on analog monitor. Audio and serial data are transferred in either direction.

◈ 1:1 Connection (Bi-direction)



It is another way to use 1 to 1 connection. In this type of connection, not only audio but also video is transferred bi-directionally. The video capability (resolution/framerate/bitrate) in duplex mode connection is restricted than that in unidirectional connection.

◈ 1:N Connection (Unidirection)



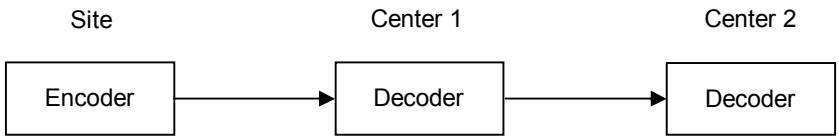
In this configuration, a site can be monitored from many remote center locations. Although up to 64 decoders can be connected to on encoder, in the real network environment, network bandwidth can limit the maximum connections.

Functionally, the central monitoring system software can replace the decoder.

Multicast Mode

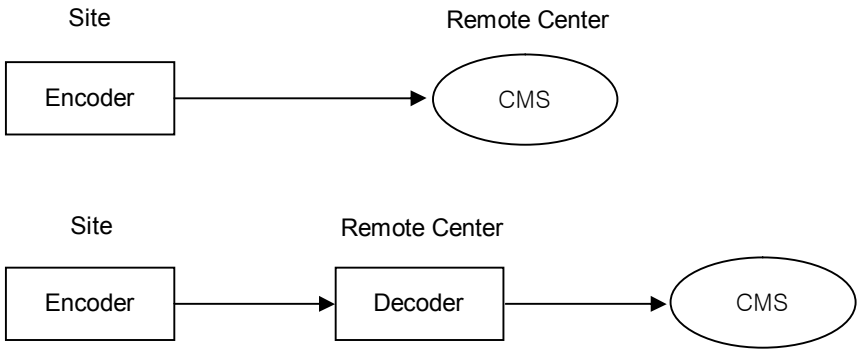
Within the network that supports multicasting, a large number of decoders can be used to receive video effectively from an encoder using a single streaming of video and audio.

◈ **Relaying**



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 are more than one center wanting to monitor the site.

◈ **Central Monitoring System**



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

2. Installation

1. Connecting Video

◈ Encoder System

- Connect camera video output line to the encoder (TCS-200) video input port.

◈ Decoder System

- Connect monitor video input line to the decoder (TCS-200) video output port.

◈ Duplex System

- Connect camera video output line to the encoder (TCS-200) video input port and connect monitor video input line to the decoder (TCS-200) 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 in line level, therefore, microphone or speaker with amplification function should be used.

3. Connecting Serial Ports

For camera control, PTZ controller(keypboard) and receiver can be connected to serial ports. Two corresponding serial ports in encoder and decoder which are connected in connected in 1-to-1 fashion works 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 Sensor and Alarm

Connect sensor and alarm devices to corresponding terminals accordingly.

5. Connecting Power

After confirming the power source, connect power adaptor and connect the 12VDC connector to the system. Soon the system will boot up to an operating mode.

6. Check if It Works

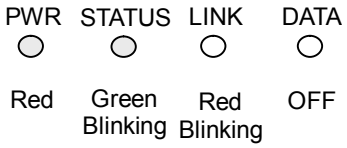
As soon as the power is supplied to the system, it will boot and, after about 30 seconds, the system will be ready for operation. Depending on the model of the system, the LED display may be different as the system is running.

◈ Encoder LED Display

PWR	STATUS	LINK	DATA
○	○	○	○
Red	Green Blinking	OFF	OFF

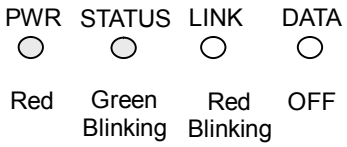
Above LED status display shows that neither camera is connected nor a decoder is connected. Once the encoder is connected to a decoder, color of link LED will light in green color and the LED will blink as video or audio transmissions occur.

◈ Decoder LED Display



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

◈ Duplex LED Display



Above LED status displays shows that duplex system has correct camera input but it is not connected to another duplex system. Once a duplex system is connected, the color of the link LED will change to green and the LED will blink as video or audio data transmissions occur.

3. System Operation

1. LED Display

■ Description of LEDs

System status can be monitored with LEDs.

LED	State	Description
PWR	Off	No power
	Red	Power on
STATUS	Green blinking	Normally operating
	Red	System failure: Needs diagnostics
	Constant change of colors between Red and Green	NTSC/PAL setting does not match with input video signal
	Red Blinking	Failed to obtain IP address in DHCP mode or PPPoE mode
	Constant change of colors between Green blinking 2 times and Red blinking once	Failed to register on DDNS server
	Green blinking, Red blinks once every 5 seconds	Video loss in Encoder system
	Orange blinking	Improper resolution setting in duplex mode
LINK	Off	No connection to remote system
	Green	Connected to a remote system
	Red blinking	Decoder only: trying to connect to an Encoder

	Orange	Illegal connection (unsupported combination of system modes)
DATA	Green	Data transmission in progress
	Red	Data loss
	Off	No data transmission

2. Remote Video Monitoring

There are two ways to view the video once connections are made 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 4** or **Remote Setting in Chapter 5** for a 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 an encoder's IP address in 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

3. 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 side of the system:

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

② The system will reboot automatically

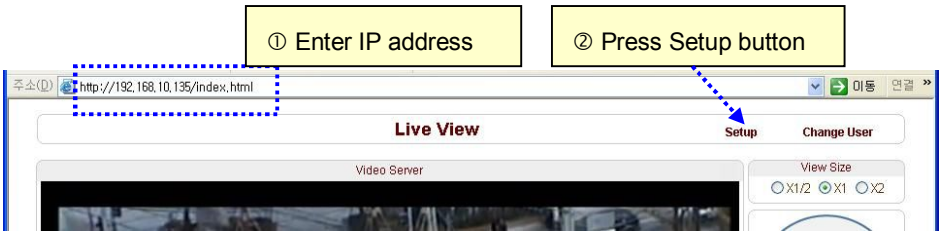
③ Once the system has been rebooted, IP address will be set to the following.

- 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

4. Remote Configuration

1. Remote Configuration

The server can be configured using web browser. Type IP address of TCS-200 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 se page for server setup will be displayed.



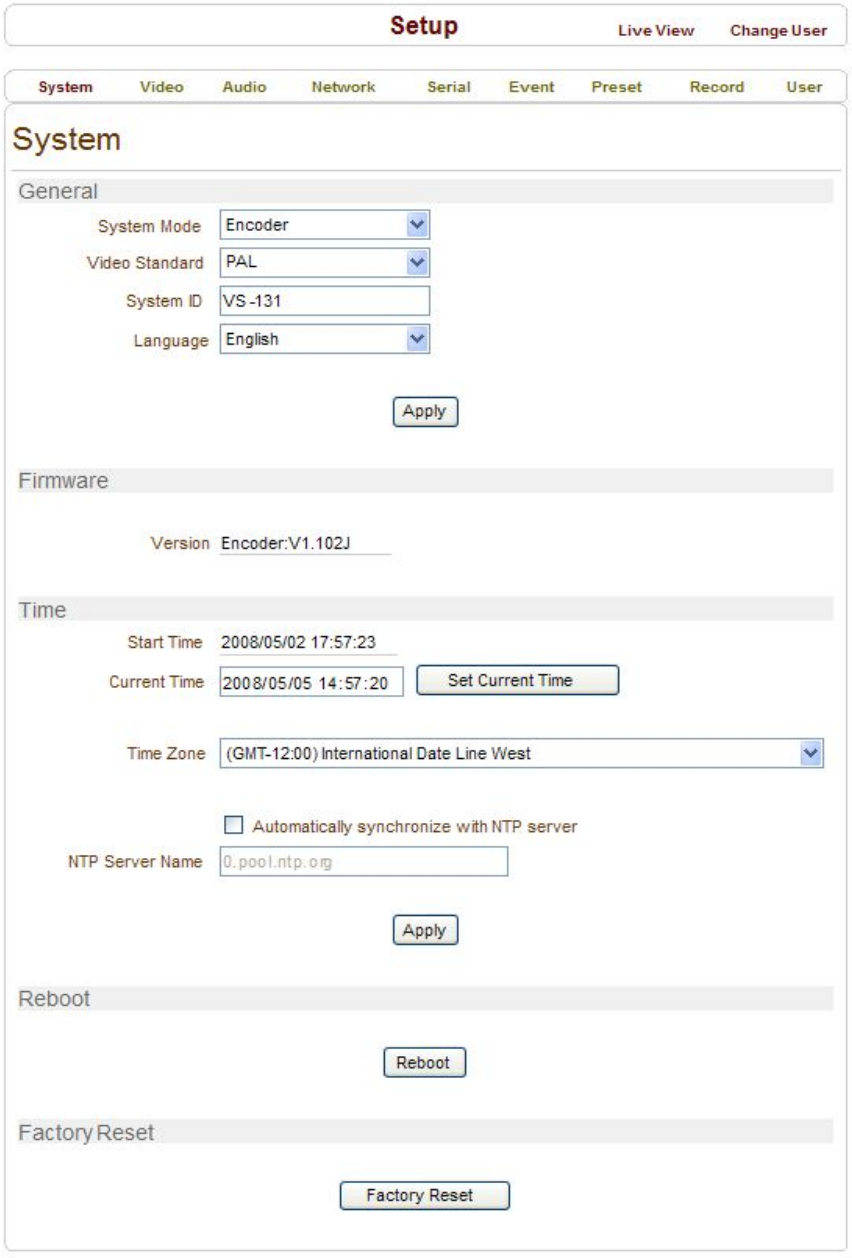
The remote configuration window may be slightly different depends on the system modes (Encoder, Decoder, Duplex). The general explanation of the configuration in this manual is based on Encoder system and differences according to the modes will be clarified when needed.

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. Encoder Configuration

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

2.1 System Configuration



and

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.

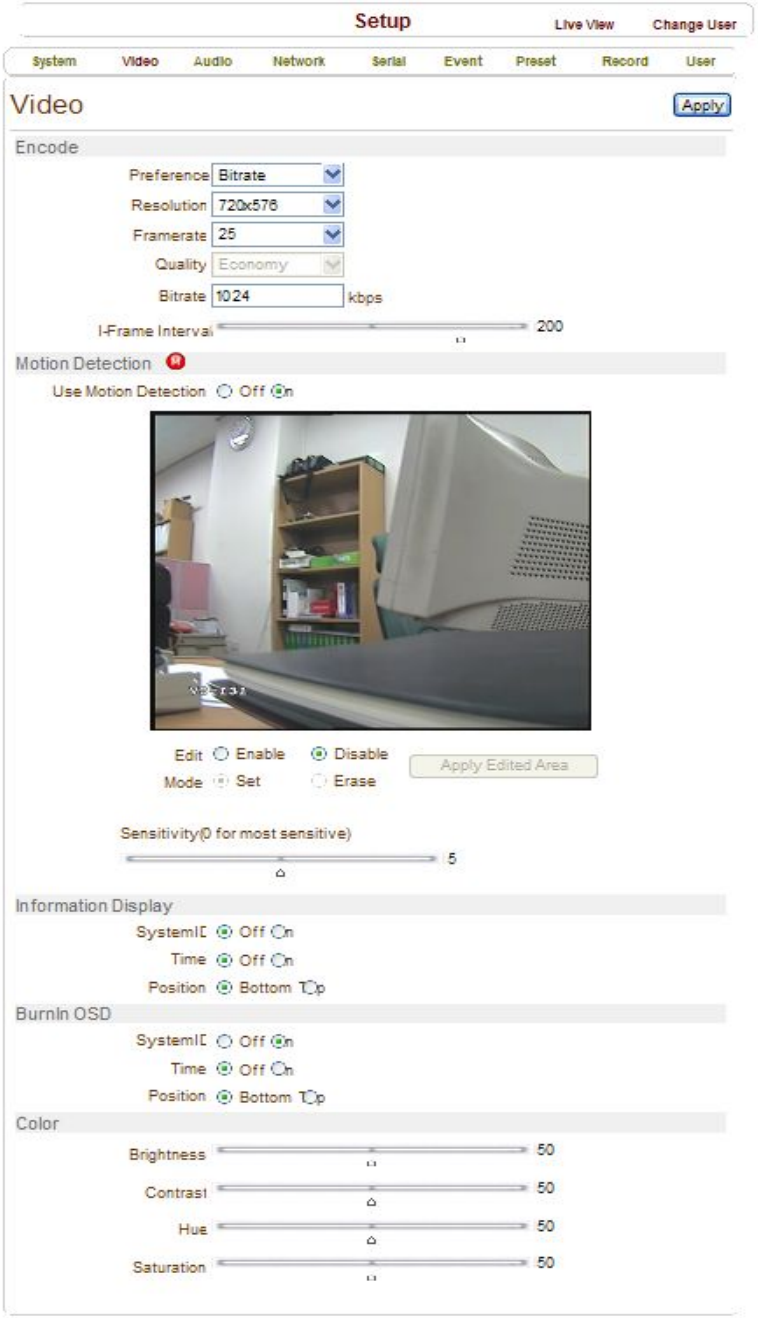
■ Reboot Server

Pressing **Reboot Server** button will cause the system to reboot. Do not press the Reboot button unless the server needs a reboot.

■ Factory Reset

Set all settings to the factory default values. System log and user registrations are also cleared.

2.2 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: 720X480, 720x240, 352X480, 352X240

PAL: 720X576, 720X288, 352X576, 352X288

■ 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

Video image compression quality: The selection is possible with Preference is set to ‘Quality’.

■ Bitrate

Video bitrate: The value is applicable when Preference is set to ‘Bitrate’.

■ I-Frame Interval

I-frame interval: Possible values between 0 and 255. There will be no I-

frames if 0 is selected.

■ Use Motion Detection

Turn on/off motion detection operation.

■ Motion Detection Area Editing

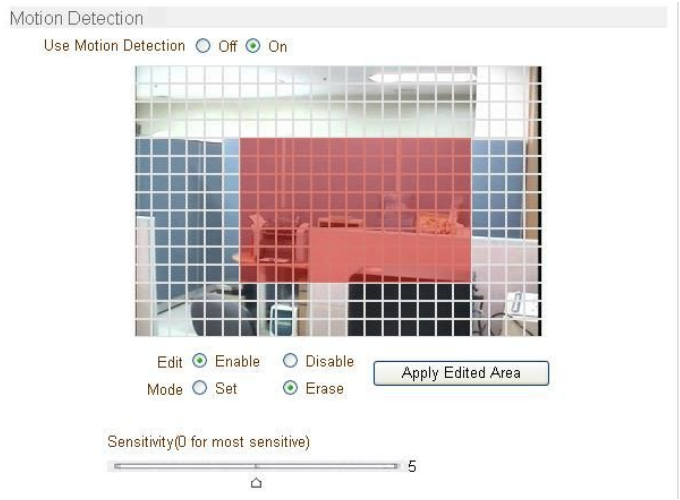
Configure regions for motion detection. Regions of arbitrary shape can be configured by the following steps.

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.

■ Information Display

System ID and/or server time can be display over the video window in Internet Explorer. Each item can be turn on or off separately, and position also can be configure. These information are displayed after the video is decompressed.

■ 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.

■ 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.

2.3 Audio Configuration

■ Mode

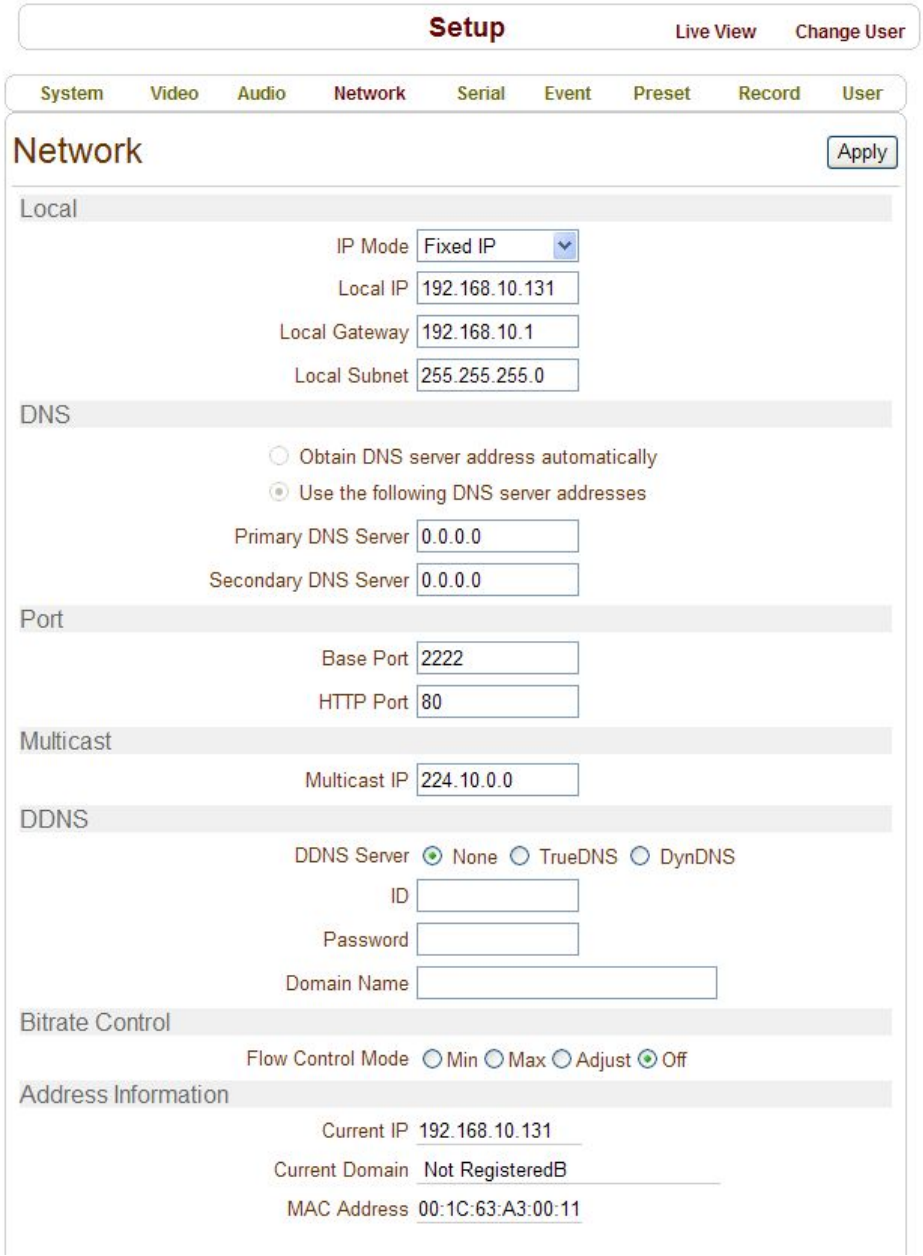
Select audio operation mode.

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

■ Input Gain

Set audio input gain.

2.4 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. One of the two servers can be selected.

- TrueDNS : use TrueDNS 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 user guide document for True DNS service.
- DynDNS : use DynDNS service. Refer www.dyndns.org for details.

■ 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.

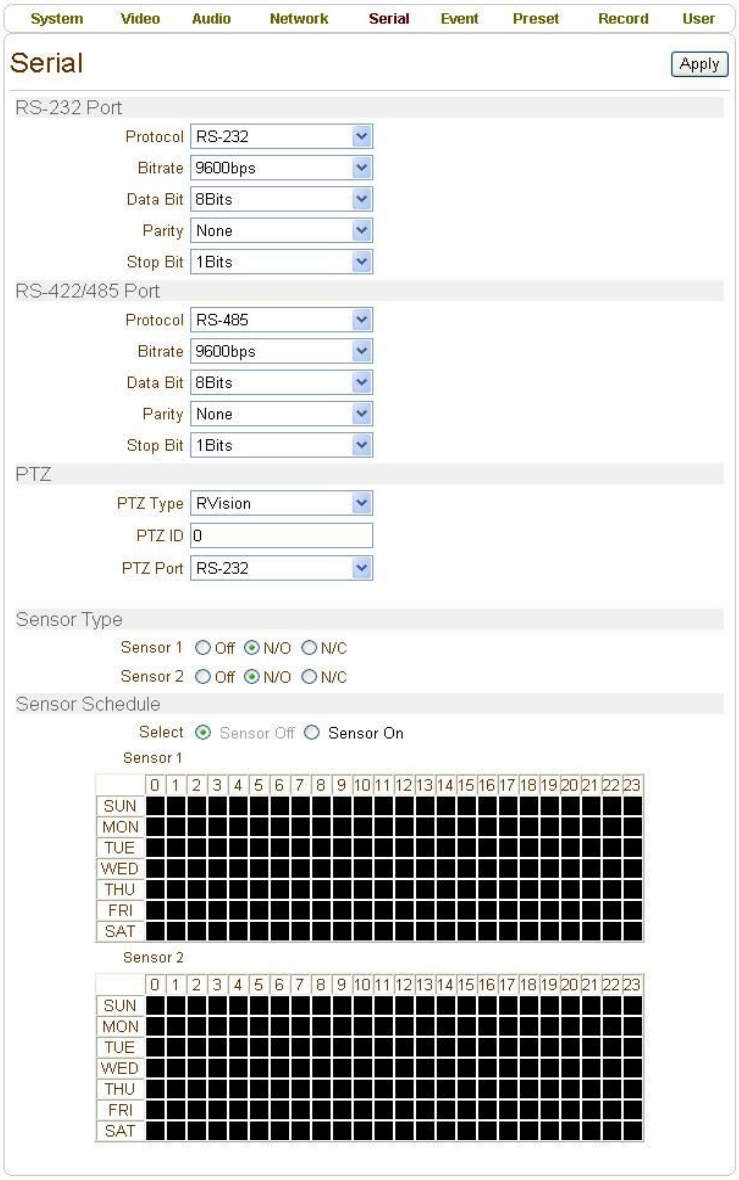
Domain Name

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.

2.5 Serial Port Configuration



■ Serial Port Configuration

There are two serial ports, (COM1 and COM2) in TCS-200. 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 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 TCS-200. Each of the sensor ports can be

configured to the following.

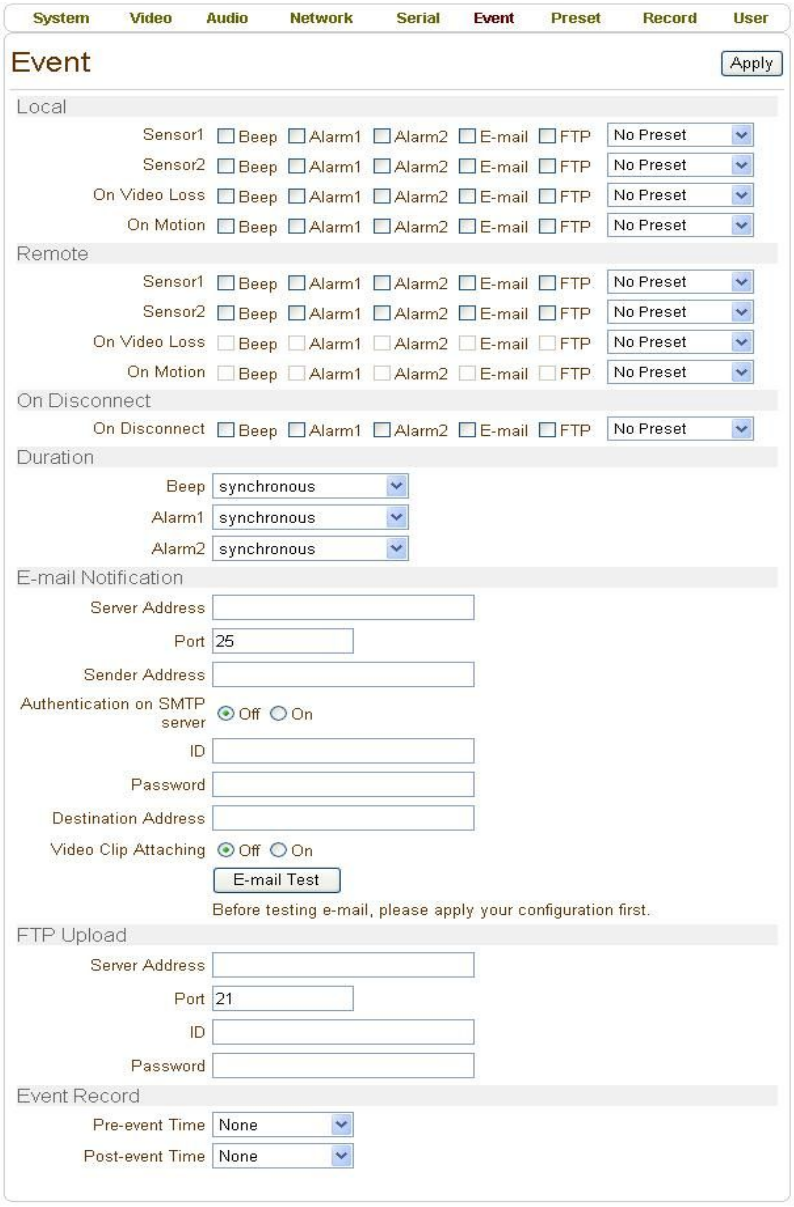
Function	Operation
OFF	Not used
NO (Normally Open)	The port is normally open and activated when closed.
NC (Normally Closed)	The port is normally closed and activated when opened.

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-colored duration.

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** sections configures the actions for events from remote(peer) 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.

■ E-mail Notification

Specify the information to send 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 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 also. Destination address needs to be entered on **Destination Address** field. More than one address can be entered by delimiting comma(,) or semi-colon(;). Destination address can take up to 63 characters. Video clip of 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.

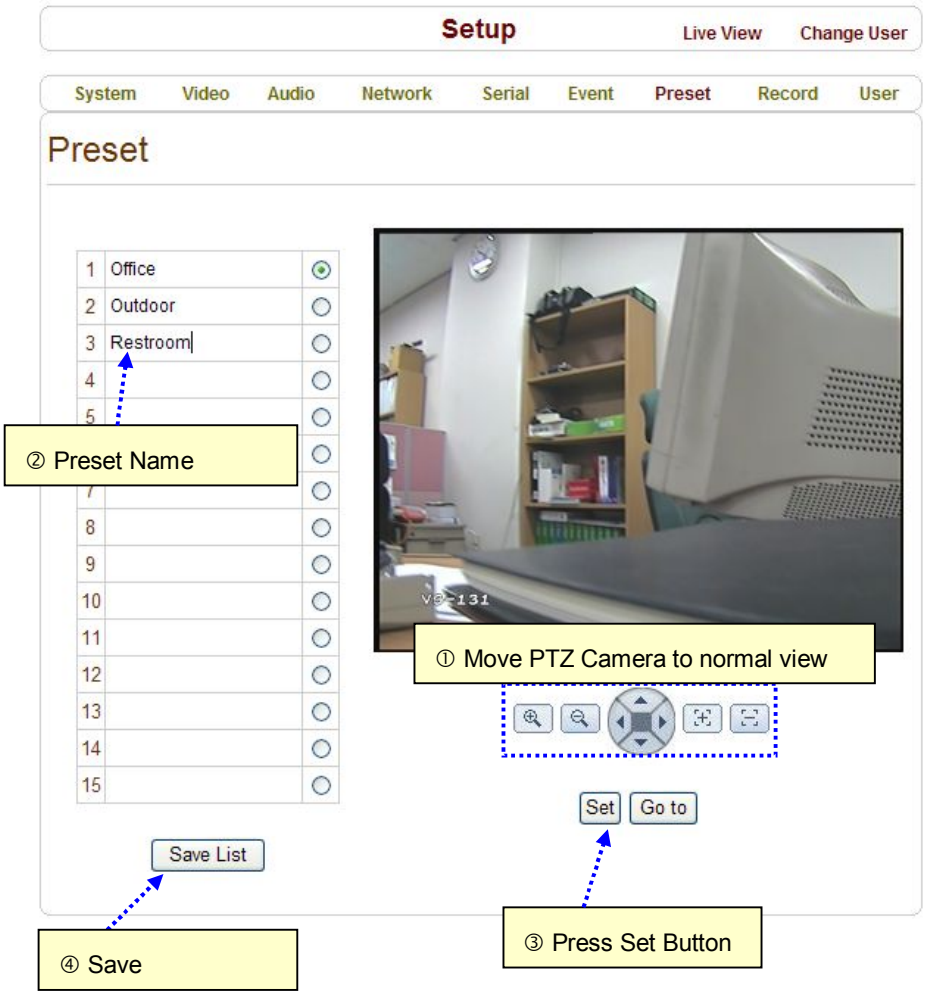
■ Event Recording

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.

2.7 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.

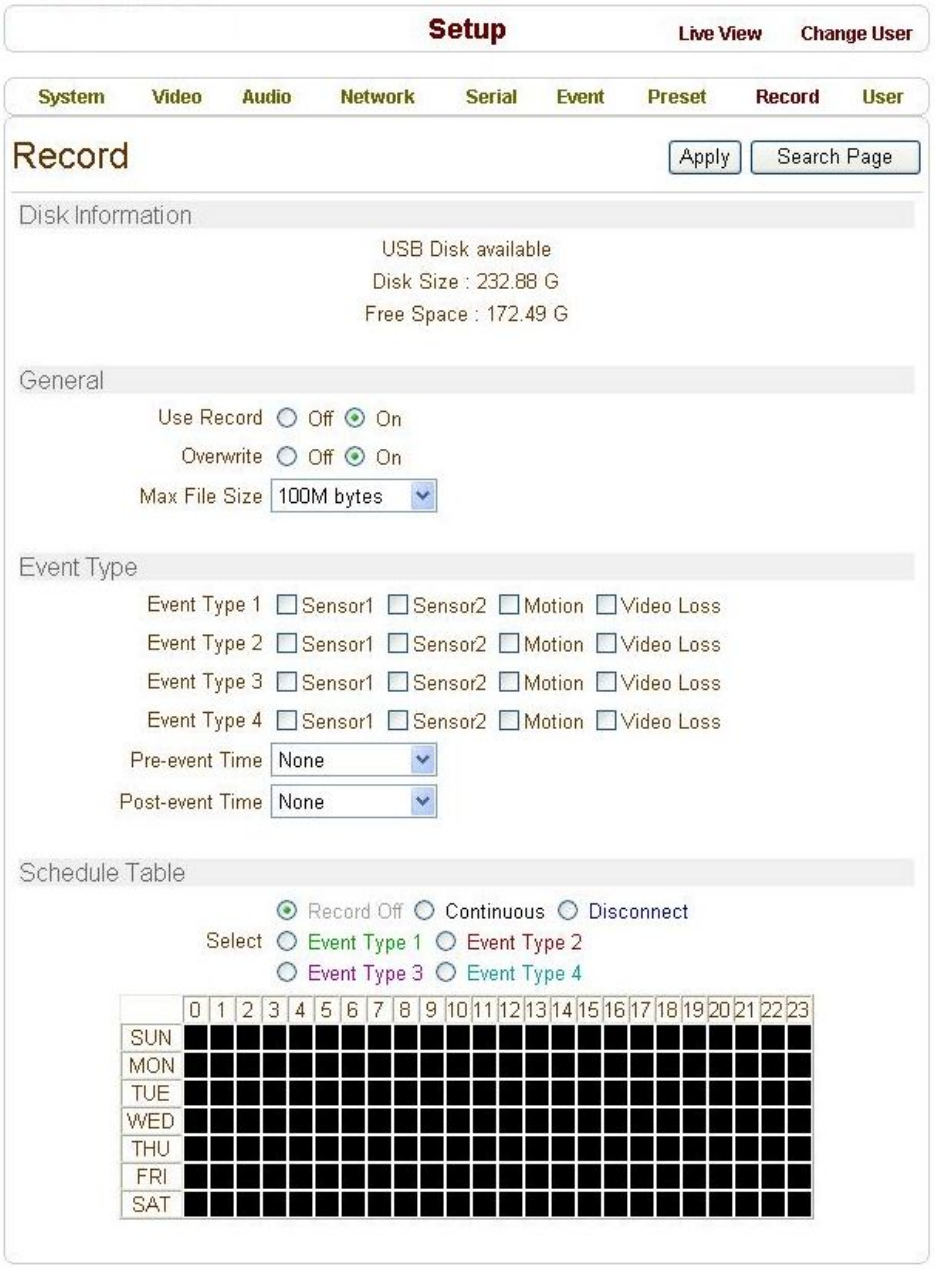
③ Press **Set** button.

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.

2.8 Record Configuration

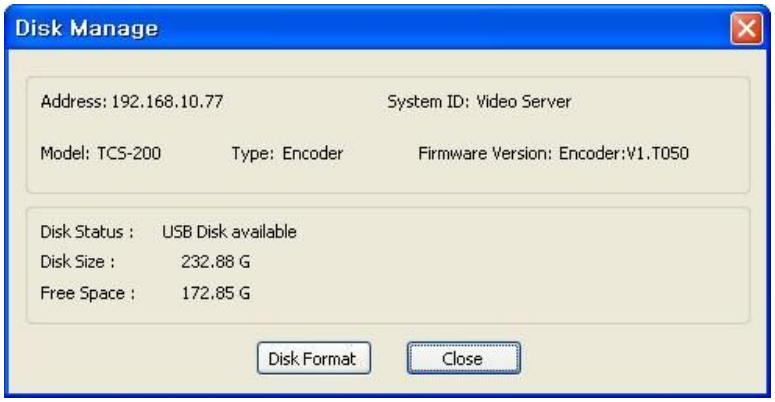


■ Disk Information

Be sure to restart the system after connecting a USB disk. During booting, the system reads status of disk and initializes it. Once the initialization of a disk is finished, the status of disk is shown on **Record** page of web-based setup.

(Figure 1) Check disk status via Record page

The status of a disk can be checked from the **Disk Manage** menu of True Manager as well.



(Figure 2) Check disk status via True Manager

Refer to the chart for checking the status of disk.

Disk status	Description
Disk error detected	Error
No disk	Disk is not connected to the system.
Searching Disk information	Checking the status of disk. Refresh the page and wait until the status is changed.
Mounting and Recovering Disk...	Performing recovery process when disk damage is found. It takes from seconds to minutes for recovering.
Disk format needed	Disk is attached, but the type of the file system is unknown or damaged.
Unknown disk type detected	
USB Disk available - (format is recommanded)	Disk is available, but formatting is recommended.
USB Disk available	Available to be used for recording
Disk formatting – Start	Disk is being formatted. System should not be turned off during formatting.
Disk formatting – Progressing……	
Disk formatting – Writing inode tables 63/619	
Disk formatting – Creating journal……	
Disk formatting – Writing Superblocks……	
Disk format done, please wait for reboot.	
Disk removed or in abnormal state	Disk is detached during operation or there is damage on the file system. If it happens while disk is connected, it is recommended to format the disk.

■ General

- It can be configured whether recording function will be used or not.
- The action on disk full situation can be configured also. Recording stops automatically when **Overwrite** is **Off** and there are less than 100MB free space in the disk. If **Overwrite** is **On**, the oldest data is deleted first on disk full situation. Free space of 300MB is maintained without recording data on it

for normal operation.

- **Max File Size** is the menu for limitting the size of AVI file. If it is set a small size, file is created in small size and but numbers of file will be increased. If the recording time is over 10 minutes, new file will be created even though file size is smaller than size of file set in **Max File Size**.

■ Event Type

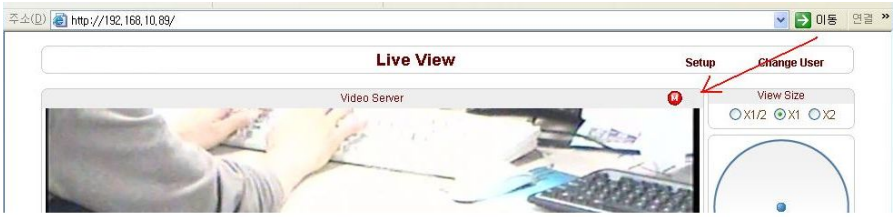
- Three recording modes are supported in TCS-200: **Full-time**, **Event**, **Disconnect**. In case of Event recording, event types can be selected among several events. Selected event type is used for configuring the schedule table. Up to 4 event types can be configured and each event type can be a combination of sensor, video loss and motion event.
- **Pre / Post Event Time** specifies the duration of recording before and after an event happens and they are applied to 4 event types commonly.

■ Schedule Table

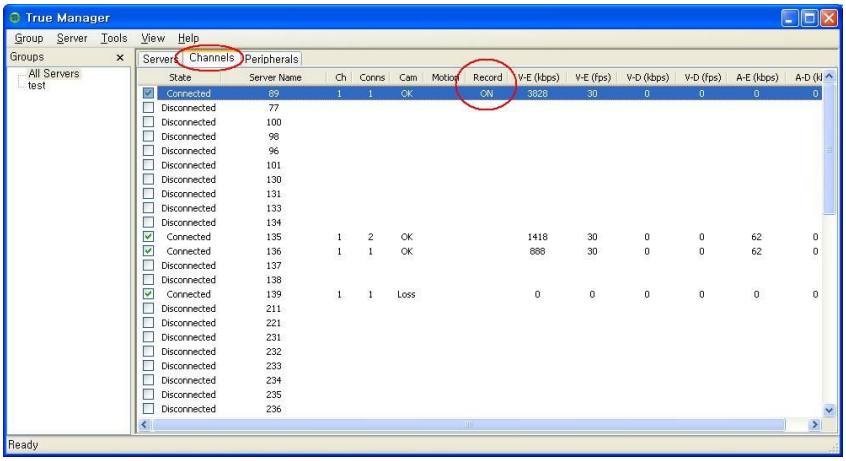
- Actual recording mode is determined by **Schedule Table**, where recording mode configured by day(of a week) and time.
- Each of recording mode configures the recording operation as follows:
  - **Record off** : No recording
  - **Continuous** : Records continuously
  - **Disconnect** : Data is recorded when the system loses the connection to its client(Decoder, CMS/NVR) etc. When one of its multiple clients system is disconnected, this doesn't happen.
  - **Event Type** : Records when an event configured in **Event Type** setting happens.

■ Checking the status of recording

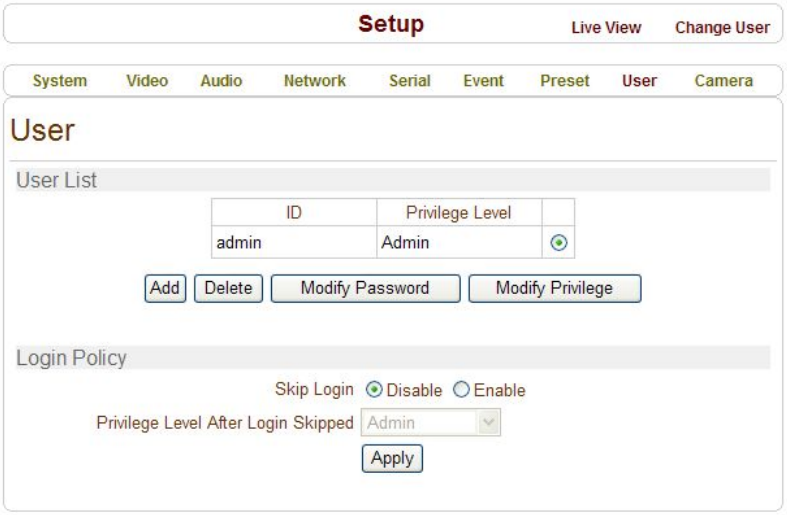
Recording status can be shown on the main view page.



Recording status can be also shown in True Manager. When data is being recorded, **Record** column displays **ON** sign.



2.9 User Configuration

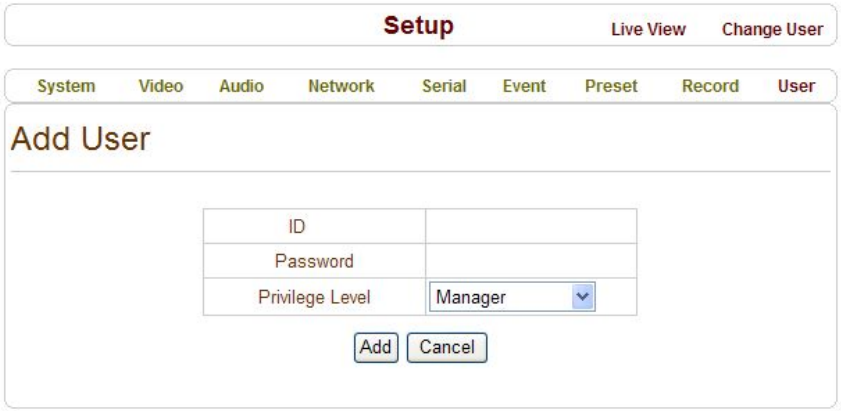


User can be registered and privilege level of a user can be specified. User configuration is allowed only to admin user. Max 16 users can be registered and each user can have one of four privilege.

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 comes on pressing **Add** button.



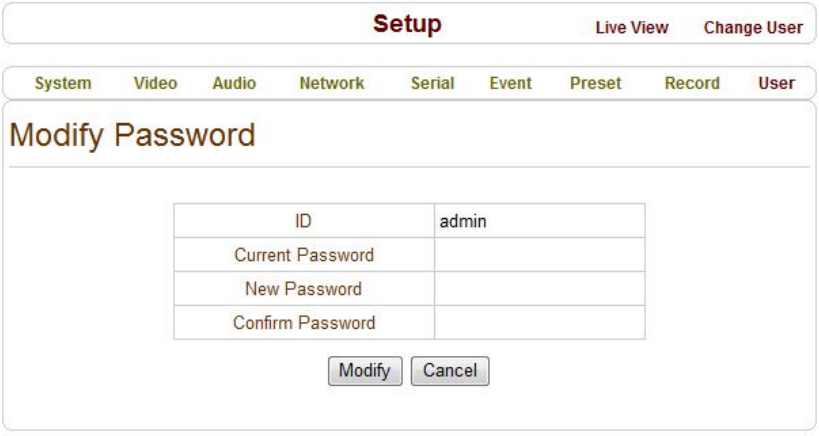
User ID and password need to be entered and privilege level need to be selected. User ID and password consist of alphanumeric string of max 15 characters.

■ 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.

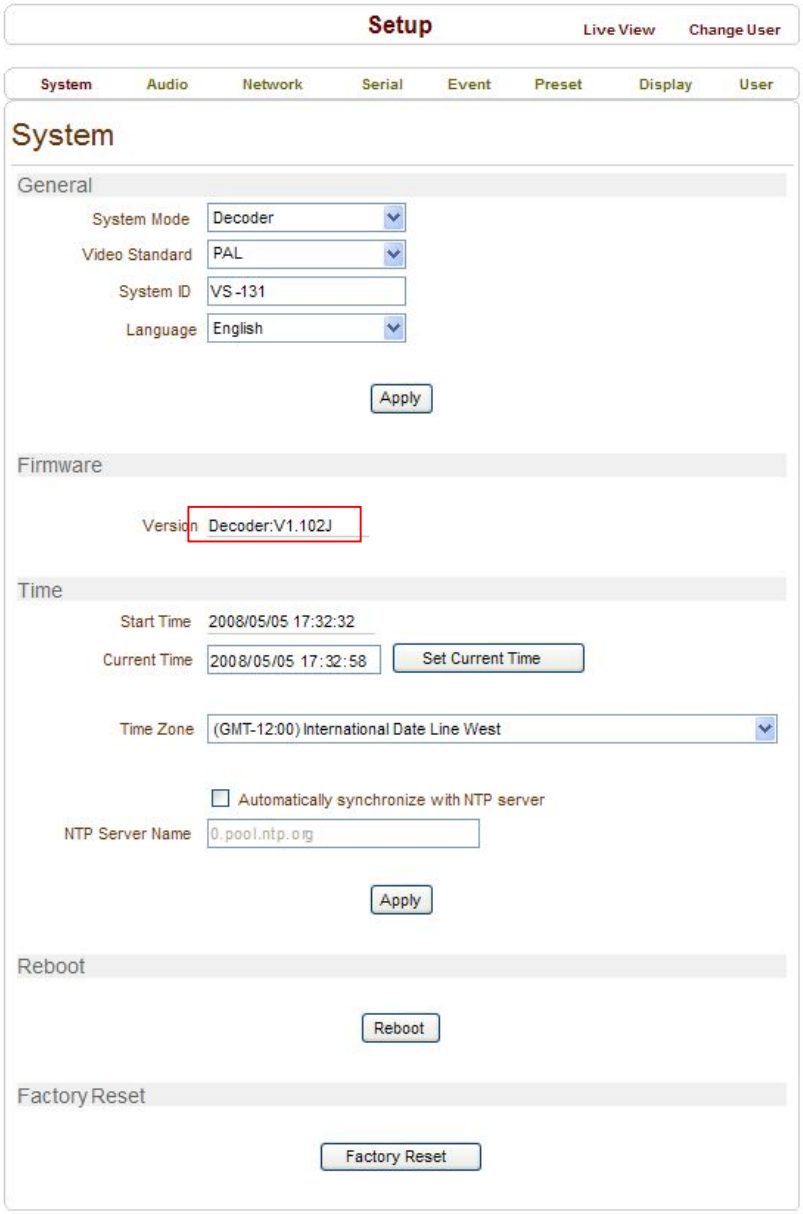
■ Modify Privilege Level

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

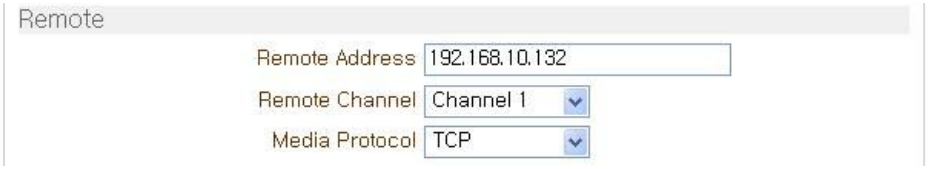
Skip Login is provided for convenient access to the server when authentication is not required. When **Skip Login** is set to Enable, login step is skipped. The privilege level after login in this way is determined by the setting of **Privilege Level After Login Skipped**.

3. Decoder System



There is no Video configuration page in Decoder mode. Instead, there is Display configuration menu. By setting System Mode to Decoder in System configuration, the system will start to work as a Decoder.

3.1 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.

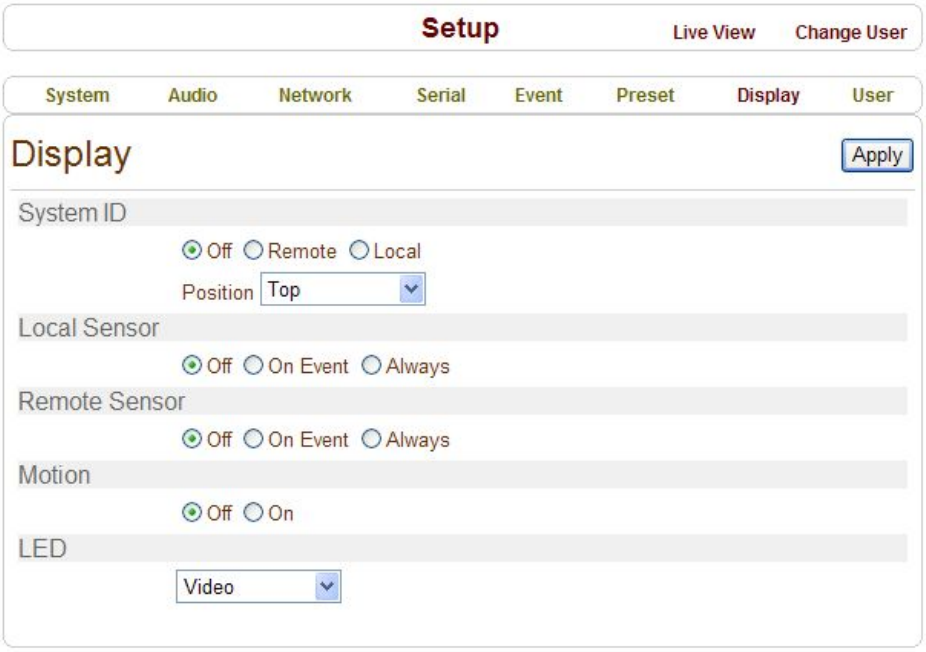
■ Remote Channel

The channel to connect when the remotes system has more than multiple video channels.

■ Media Protocol

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

3.2 Display Configuration



■ System ID

Display System ID on Decoder's output. Selecting **Remote** will display System ID of the remote system, while selecting Local will display its own System ID. Position also can be specified.

■ Local Sensor / Remote Sensor

Select the mode for showing the states of sensor ports in Local system and Remote System respectively.

- Off: don't show the states

- On Event: shown only when the sensor is activated
- Always: show the state always

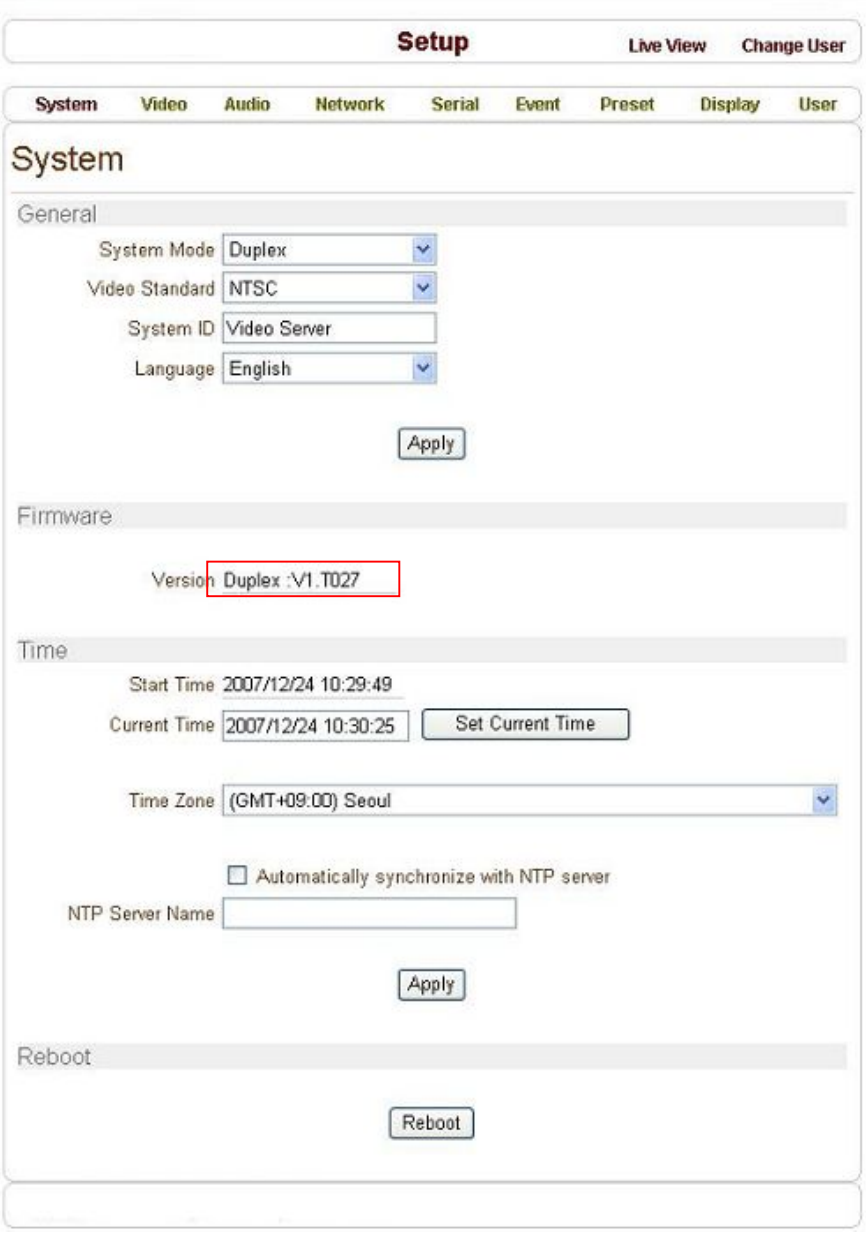
■ Motion

Show motion detection state.

■ LED

Select the usage of DATA LED. DATA LED can be mapped to one of Video, Audio or Serial data communication activity.

4. Duplex System



Since Duplex mode system does both encoding and decoding, configuration for Duplex includes Decoder's configuration as well as Encoder's configuration. Other the other hand, there is a little difference in Network configuration compared with Decoder system.

Since Duplex system delivers media data bi-directionally, Multicast is not allowed. So, there is no menu for media protocol selection. To make one of the two Duplex systems initiate the connection, it is necessary to set Remote Connect item of one system to On and the other to Off.

5. Trouble Shooting

1. Illegal Connect Error

If an unauthorized connection has been established, the system will not function properly. Maintaining the connection, error condition will be displayed for correction.

Illegal connect sing will appear in such conditions as:

1) When Duplex and Encoder are connected
2) When one Duplex connected to more than one Duplex
3) When a Duplex remote connect to set to ON and Other Duplex tries to establish a connection
4) Incompatible Media protocol between two systems
5) Other unauthorized connections

Even if illegal connect condition occurs, normal operation between systems with authorized connections will not be effected. The color of link LED will change to orange and it blinks and, in case of Decoder or Duplex, 'illegal connect' message will be displayed on screen.

Appendix A: Sensor and Alarm Port

1. Sensor Port

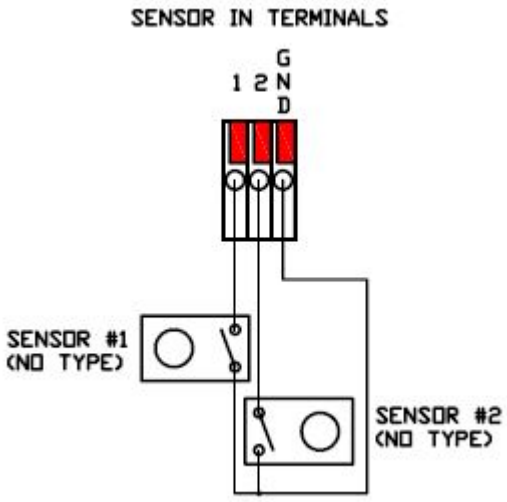
■ **Terminal Type**

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

■ **Sensor Signal Input Type**

* NO Contact Signals

■ **Connection to External Device**



2. Alarm Port

■ **Terminal Type**

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

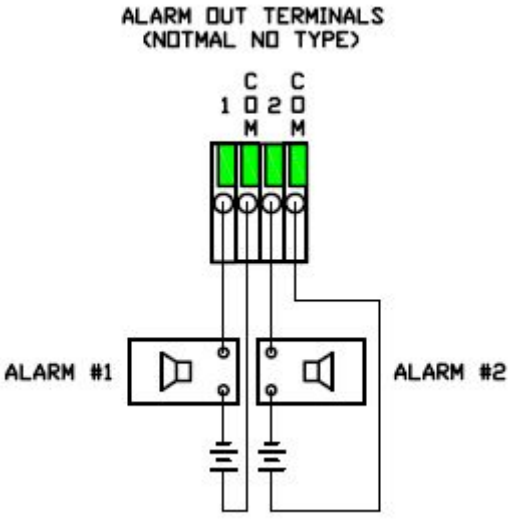
■ **Relay Type**

* Contact Rating : 0.5A 125VAC/1A 30VDC
* Switching Power : Max 30W 62.5VA
* Switching Voltage : Max 125VAC/60VDC

■ **Alarm Signal Output Type**

* NO Contact Signals

■ **Connection to External Device**



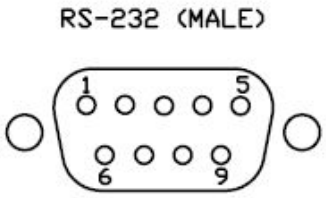
Appendix B: Serial Port

1. RS-232 Port

■ **Port Type**

* DSUB-9 PIN, MALE

* Pin Arrangement



* Pin Description

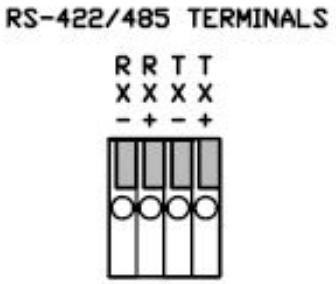
PIN No.	Description	PIN No.	Description
1	NC	**6**	NC
2	RS-232_RX	**7**	NC
3	RS-232_TX	**8**	NC
4	NC	**9**	NC
5	RS-232_GND		

2. RS-422/485 Port

■ Port Type

* 4 PIN

* Pin Diagram



* Pin Description

PIN NAME	Description
TX+	RS-422/485_TX+
TX-	RS-422/485_TX-
RX+	RS-422/485_RX+
RX-	RS-422/485_RX-

■ Connection to External Device

NO	RS-422 (4-Wire)		RS-485 (2-Wire)	
	TCS-200	External Device	TCS-200	External Device
1	TX+	RX+	TX+-	TRX+
2	TX-	RX-	TX-	
3	RX+	TX+	RX+	
4	RX-	TX-	RX-	TRX-