

HD Video Server

H.264 Encoder Decoder



User Manual ver.2.0

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Safety Precaution

**We appreciate your purchasing video server.
Before installing the product, please read the following with care.**

- ✧ Make sure to turn off the power before installing video server.
- ✧ 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 products. 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.
- ✧ Make sure proper voltage before connecting the power.

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1. Introduction

About this manual

This User Manual provides information on installation setup and operation of the video server, as well as troubleshooting tips. .

Features

Video server is a video and audio transmission system that provides broadcast quality audio and video, based on IP network through LAN, ADSL/VDSL, and wireless LAN. video server can operate in an Encoder mode or a Decoder mode. Encoder system compresses media data and transmits them, while Decoder system receives and decompresses them.

Video

- Highly efficient compression algorithm, H.264 & MJPEG support
- Wide range of transmission rates: 32kbps ~ 10mbps
- Various transmission modes: CBR, VBR
- Motion detection

Audio

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

Network

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

Serial Data

- RS-485 support
- Data pass-through mode : Serial data communication between IP camera and Decoder
- Data pass-through mode : Serial data communication between Encoder - Decoder

Sensor and Alarm

- Support direct connections of external sensor and alarm devices
- Event Alarm

USB

- Connection to internal or external USB storage for remote access, recording and playback

User Interface

- Diagnose and upgrade through dedicated program called True Manager
- System configuration using Internet Explorer

High Reliability

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

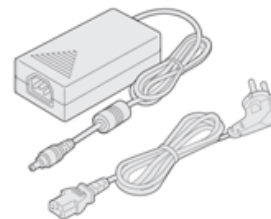
Product and Accessories



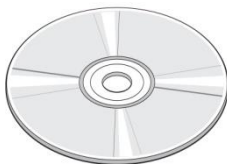
video server



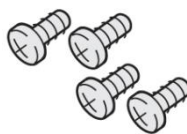
User Manual



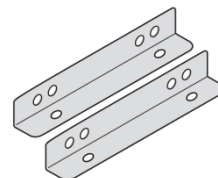
Power adapter and Cable



Software CD



Screws



Brackets

Part Names and Functions



No.	Parts	Function
①	LED	Display system status
②	Audio Input	Audio Input
③	Audio Output	Audio Output
④	HDMI Input	HDMI Video & Audio Input
⑤	HDMI Output	HDMI Video & Audio Output
⑥	USB Port	USB 2.0
⑦	Ethernet/802.3af	1000/100/10MB Base-T Ethernet
⑧	Reset Button	Initialization of network setting
⑨	Sensor	Sensor Input
⑩	Alarm	Alarm or Relay Output

Front View

No.	Part	Function
①	Power	DC +12V power input
②	RS-422/485	Serial port for PTZ control and etc
③	RS-232	Serial port for PTZ control and etc
④	Composite In/ Output	Composite Video Input / Output
⑤	3G/HD/SD-SDI In/Output	3G/HD/SD-SDI Video & Audio Input / Output

System Connections

Video server operates as one of two modes; Encoder, Decoder. video server 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.

Following chart shows data status of video, audio and serial data on each mode.

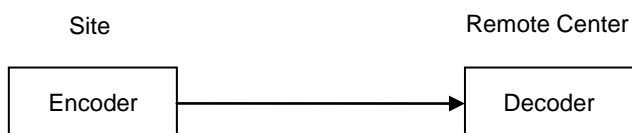
System Mode	Video	Audio	Serial Data
Encoder	Transmit	Transmit/Receive	Transmit/Receive
Decoder	Receive	Transmit/Receive	Transmit/Receive

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 a decoder are connected in 1-to-1 mode. To support specific situation, 1-to-multiple connection is also supported.

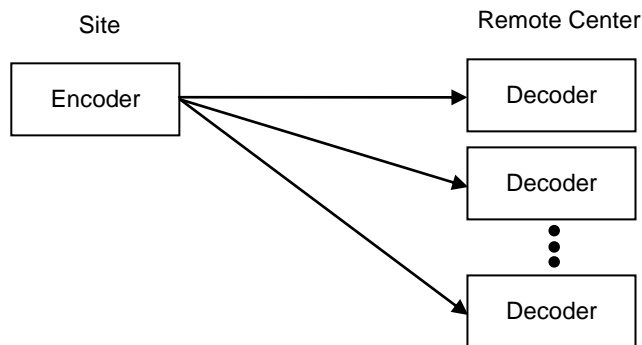
- **1:1 Connection (Unidirectional Transmission).**



The most commonly 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 monitors. Audio and serial data are transferred in either direction.

A decoder and encoder can be connected by setting the encoder's address at the decoder's remote IP.

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



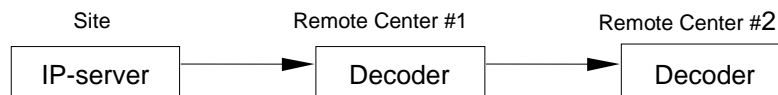
In this configuration, a site can be monitored from many remote center locations. Maximum connections would be limited by the network bandwidth.

Functionally, the VMS (Video Management System) software can replace the decoder.

Multicast Mode

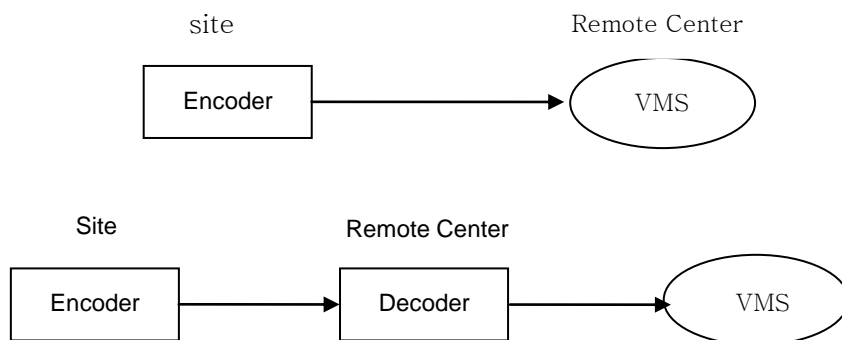
In the network supporting multicast mode, if **Multicast** is setup as a system protocol, you can use bandwidth efficiently regardless of the number of decoders. In 1:N connection, a large number of decoders can receive audio and video data from an encoder by using a single streaming transmission.

- **Relaying**



In this arrangement, video and audio can be retransmitted from a center to another center. The arrangement is useful when the network bandwidth at the site is limited while there is more than one center wanting to monitor the site.

- **VMS(Video Management System)**



VMS (Video Management 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 VMS User Manual for more information on VMS.

2. Installation

Connecting Video

- **Encoder System**

Connect camera video output line to the encoder (video server) video input port.

- **Connecting with Megapixel Camera**

Connect a camera which supports HDMI or HD-SDI output to the HDMI or HD-SDI Input port of video server accordingly.

- **Connecting with D1 resolution Camera**

Connect a camera to the Video Input port of video server accordingly.

- **Decoder System**

Connect a monitor to HDMI or COMPOSITE (HD-SDI) Output of video server accordingly.

Connecting Audio

Audio is full-duplex. It is possible to set the mode as Tx-only, Rx-only or Tx-Rx.

- Connect audio input and output ports to audio devices accordingly.
- The Audio signal required is line level, so audio equipment with an amp, mixer or other amplifier should be used.

Connecting Serial Ports

For camera control, PTZ controller (keyboard) 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.

Connecting Sensor and Alarm

Connect sensor and alarm devices to corresponding terminals accordingly.

Connecting Power

After confirming the power source, connect power adaptor and connect the 12VDC connector to the system.

Check if it Works

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. 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

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

These LEDs

show that the camera is connected but a decoder is not connected.

Once the encoder is connected to a decoder, color of “LINK” LED will turn into green color and “ DATA” LED will blink as video or audio transmissions occur

● Decoder LED Display

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

These LEDs show that the Decoder has started without connecting to an encoder. Once an encoder is connected, the color of “LINK” LED will be turned to green and the “DATA” LED will blink as video or audio data transmissions occur.

● Description of LED

System status can be monitored with LED display

LED	State	Description
PWR	Off	Power off
	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
	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
	Constant change of colors : Green, Orange, Red color in turn	Formatting USB storage device
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

3. System Operation

Remote Video Monitoring

There are two ways to monitor video when the center system and video server are connected. In order for a proper operation, an IP address must be set accordingly. Please refer to **True Manager Manual enclosed with product** for further details.

Default ID : admin	Default Password : 1234
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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 video server'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.

Default IP Address : <http://192.168.10.100>



- **Video Select**

Select the Video stream to be viewed: Primary or Secondary

This camera is capable of dual streaming; primary streaming and secondary streaming.

Video will be displayed according to the resolution set on video configuration. If dual streaming ("**Use Dual Encode**" **Menu in Video page**) is not activated, secondary video is not available

- **View Size**

Adjust the Screen size

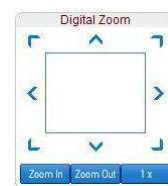
Screen size is initially adjusted according to the compression resolution. If you click 50% icon, the whole screen size will be reduced to half size.

- **Digital Zoom**

Control the Digital zoom on the screen

The more the camera zooms in, the smaller the square of control panel is. Position of the image can be changed by moving position of the square.

If you press **x1**, the screen will return to the normal size.



- **PTZ Control (Optical Zoom & Digital zoom built-in the camera)**

Control PTZ and PTZ Control Panel is used for controlling external PTZ devices when the external PTZ devices are connected through serial port.

It is possible to make zooming control by **Zoom in/out** buttons of PTZ control Panel (In order to use digital zoom, select **Digital zoom ON** in the **Camera** tab)



- **Stop**

Stop on-going PTZ action.

- **Focus Near, Focus Far, Auto Focus**

Adjust the focus of the lens

- **Select Preset**

Set preset position and move to the specific preset position.

- **Goto:** Move to the selected preset entry if the preset entry is set.
- **Set:** Set the current position to the selected preset entry.
- **Clear:** Delete the selected preset entry.

- **Sensor Input**

Display the status of the sensor in real time.

This camera supports one sensor input. When the sensor of the camera is working, the sensor light turns red.

- **Alarm Output**

Operate the alarm device by pressing the number icon

This camera supports one alarm output. A number icon indicates status of the alarm device.

- **Snapshot**

Capture video images and store them as BMP or JPEG files.

- **Talk**

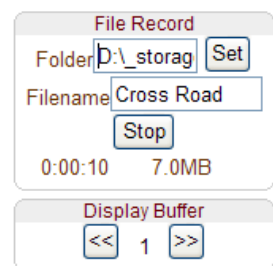
Transfer audio from PC's mic to the camera.

- **File Record**

Recording to an AVI file on Live View page is available. AVI files are generated in the specified folder or in specified file name on the PC where web browser is running.

1. Press **"Set"** button to select folder or create a new folder. Enter the file name on Filename field.
2. Press **"Start"** button to start to record.
3. Press **"Stop"** button to stop to record.
4. AVI file named **"IP address_hh_mm_ss"** or **"File name_IP**

address_hh_mm_ss" will be generated in the specified folder depending on whether the path specified a folder or a prefix of the file name.



- **Display Buffer**

Set the number of video frames to be buffered before being displayed on web browser. Larger value results in smoother video by sacrificing the latency. A setting of 10 ~ 15 frames can be used generally for most situations.

Initialization of IP address

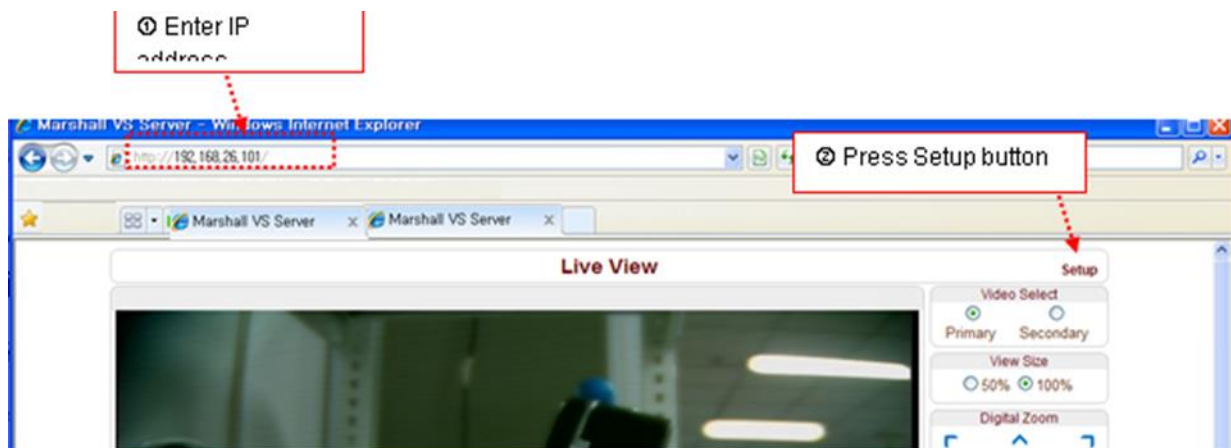
If a system IP address is lost, the system can be reset to the system default IP address using the reset button in the back side of the system.

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

4. Remote Configuration

Remote setting is available by using web browser. Enter IP address of camera and then a live view screen appears as below. Press **Setup** button located in the upper right area of the monitoring screen to go to the server setup. For Remote Setting, user should be authorized higher than manager level.



The remote configuration window may be slightly different depends on the system modes (Encoder, Decoder). 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 10 categories: **System, Video, Audio, Network, Serial, Event, PTZ, Record, User and Camera**. Any configuration changes are not applied until **Apply** button is pressed. Leaving the page without pressing **Apply** button, any changes in the page will be discarded.

System Configuration

Setup
Live View

System
Video
Audio
Network
Serial
Event
Preset
Record
User

System

General

System Mode Encoder

System ID AAA

BurnIn OSD System ID video server (alphanumeric characters only)

Language English

Apply

Firmware

Version Enc:V1.103C-X08

Board ID 222

Upgrade

찾아보기...

Firmware Upgrade

Config Backup&Restore

Backup Config Backup

Restore

찾아보기...

Config Restore

Time

Start Time 2011/09/19 16:14:14

Current Time 2011/09/19 16:20:30

Set Current Time

Time Format YYYY/MM/DD hh:mm:ss

Time Zone (GMT-12:00) International Date Line West

☐ Automatically synchronize with NTP server

NTP Server Name pool

Apply

Reboot

Reboot

Factory Reset

Factory Reset

Factory Reset except network settings

General

- **System ID**

Enter System ID that is used as a camera title

The set System ID is displayed with video image on Web browser. The System ID is also transferred to remote software, such as VMS, and displayed on it.

- **Burnin OSD System ID**

Burnin OSD System ID specifies the string to be inserted into video image before encoding. Only alphanumeric and blank characters are allowed. Position and size can be configured on **Burnin OSD section** of Video page.

- **Language**

Select the language to be used for web-based configuration

Firmware

- **Firmware version**

Display the current firmware version

- **Board ID**

Display the Network board ID of the camera recognized by system

- **Upgrade**

Upgrade firmware

1. Press **Browse** button to select a firmware file from PC.
2. Press **Firmware Upgrade** button to start to upgrade.
3. Messages for showing status (downloading / upgrading) will be displayed.
4. The camera will reboot automatically after completing upgrade. **Do not turn the camera off during upgrading**



Now, Upgrading... Please wait a minute.



Config Backup & Restore

- **Backup**

All the setting of configuration can be stored.

- **Restore**

Stored configuration can be browsed and restored. The server is rebooted once **Config Restore** button is pressed.

Time

- **Start Time**

The latest the camera's booting 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 Format**

Change the time format. Selectable time formats are as below

- YYYY/MM/DD hh:mm:ss (Ex. 2010- 4-11 18:18:42)
- DD/MM/YYYY hh:mm:ss (Ex.11- 4-2010 18:18:42)
- MM/DD/YYYY hh:mm:ss (Ex. 4-11-2010 18:18:42)

- **Time Zone**

Select time zone of where the camera is installed.

Depending on the time zone, Daylight Saving Time will work automatically

A **time zone** is a region of the earth that has uniform standard time, usually referred to as the **local time**. By convention, time zones compute their local time as an offset from UTC (Coordinated Universal Time). In casual use, GMT (Greenwich Mean Time) can be considered equivalent to UTC. Local time is UTC plus the current time zone offset for the considered location

- **Automatically synchronize with NTP server**

Synchronize the camera time with an NTP server using NTP (network time protocol).

Name of the NTP server should be registered on NTP server Name.

The **Network Time Protocol (NTP)** is a protocol for synchronizing the clocks of computer systems over packet-switched, variable-latency data networks. It is designed particularly to resist the effects of variable latency by using a jitter buffer.

Reboot

- Reboot the camera.

Do not press the Reboot button unless the server needs a reboot.

Factory Reset

- All settings including user accounts and logs are cleared.

Factory Reset except network settings

- All the settings except for current network settings are changed to default values.

Video Configuration

Live View

Setup

System Video Audio Network Serial Event Preset Record User

Video Apply

Encode

Enable Preview ☒ Off ☐ On

Input Format Composite PAL

Input deinterlace ☒ Off ☐ On

Resolution 720x576 ☐ Scaling

Framerate 25

Preference CBR

Quality Economy

Bitrate 2000 kbps (32 ~ 10240)

I-Frame Interval 30

H.264 Profile High Profile

Dual Encode

Use Dual Encode ☐ Off ☒ On

Dual Encode Algorithm ☒ H.264 ☐ MJPEG

Resolution 720x480 ☒ Scaling

Framerate 25

Preference CBR


Bitrate 1024 kbps (32 ~ 1024)

I-Frame Interval 30

H.264 Profile High Profile

Motion Detection

Use Motion Detection ☐ Off ☒ On



☐ Edit ☒ Enable ☒ Disable

☐ Mode ☒ Set ☐ Erase
 Apply Edited Area

Sensitivity(0 for most sensitive)

5

Information Display

SystemID ☒ Off ☐ On

Time ☒ Off ☐ On

Position ☒ Bottom ☐ Top

BurnIn OSD

SystemID ☒ Off ☐ On

Time ☒ Off ☐ On

Position ☒ Bottom ☐ Top

Font Size ☒ Small (8x8) ☐ Middle (16x16) ☐ Large (32x32)

Color

Brightness 50

Contrast 50

Hue 50

Saturation 50

Encode

● **Enable Preview**

1. Select **ON** to enable to display video on the monitor that is connected to the composite or HD-SDI video port.
2. Select the **Output format** accordingly in the end of the Video page.

Note that when **Enable Preview is ON**, dual streaming is not available.

When the video is transmitted directly to the monitor through BNC cable, the video does not go thorough network and encoding. Therefore, there is less delay and no an effect from network limitation.

● **Input Format**

Choose video type to be used between composite NTSC or composite

● **Input Deinterlace**

Deinterlace function is activated If selected **ON**.

● **Resolution**

Select video encoding resolution.

Scaling option is used when encoding resolution is different from input resolution. Without **Scaling** option, input video will be cut according to encoding resolution. On the other hand, if **Scaling** is selected, input video will be adjusted according to encoding resolution.

● **Framerate**

Determine the maximum number of frames per second for the video stream.

1,2,3,4,5,6,8,10,15,20,25 and 30 frame rate can be selected. The actual frame rate of video can be less than the maximum frame rate set due to the network bandwidth limitation

● **Preference**

Select encoding mode to control video quality or bitrate: Quality(VBR) or Bit rate(CBR).

If 'Bitrate' selected, the video encoding will be effected by the 'Bitrate' value entered. Therefore, "Bitrate" mode corresponds to CBR (Constant Bit rate) encoding.

If 'Quality' selected, the video encoding will be effected by the quality of image selected. Therefore, "Quality" mode corresponds to VBR (Variable Bit Rate) encoding.

● **Quality**

Select Video quality. 7 levels of quality are available.

Quality mode (VBR encoding) tries to encode every frame in a constant quality. Therefore, resulting bitrate may vary a lot depending on the complexity or activity changes in the input video. It is preferred when constant video quality is required and network bandwidth is enough for delivering the stream of highly varying bitrate.

- **Bit rate**

Determine bitrate value between 32 ~ 8000kbps.

Bitrate mode (CBR encoding) allows you to set a fixed target bitrate that consumes a predictable amount of bandwidth. In order to keep the bitrate limit, video quality is controlled dynamically according to the complexity or activity changes in the input video.

- **I-Frame Interval**

Determine I-frame Interval between 1 and 255.

- **H.264 Profile**

Select H.264 Profile: **High Profile** or **Baseline Profile**

The standard defines various sets of capabilities, which are referred to as profiles, targeting specific classes of applications.

- **High Profile (HiP)**

The primary profile for broadcast and disc storage applications, particularly for high-definition television applications (for example, this is the profile adopted by the Blu-ray Disc storage format and the DVB HDTV broadcast service).

- **Baseline Profile (BP)**

Primarily for low-cost applications that require additional data loss robustness, this profile is used in some videoconferencing and mobile applications. This profile includes all features that are supported in the Constrained Baseline Profile, plus three additional features that can be used for loss robustness (or for other purposes such as low-delay multi-point video stream compositing).

Dual Encode

- **Use Dual Encode**

1. Select **Off** button on the **Enable Preview** to enable to use Dual Encode
2. Select **ON** to enable to use Dual Encoding

The secondary video can be viewed on **Live View** window by selecting **Secondary** on **Video selection**

- **Dual Encode Algorithm**

Select H.264 or MJPEG for the secondary streaming.

In case of H.264, either Bitrate mode or Quality mode can be selected for Preference mode in. On the other hand, MJPEG supports **Quality** mode only.

Motion Detection

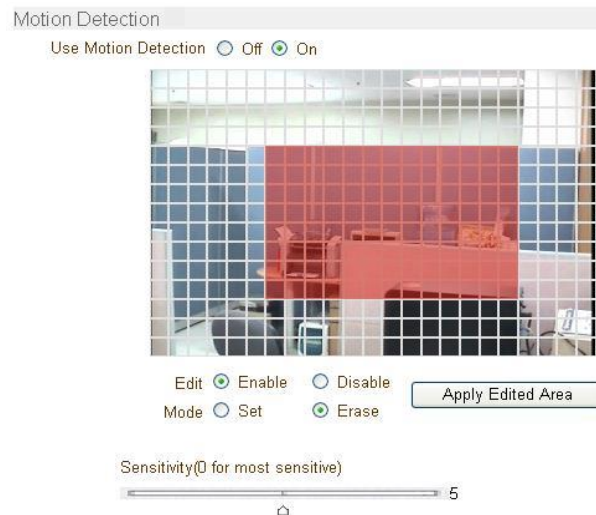
- **Use Motion Detection**

Determine to use **Motion Detection** function

- **Motion Detection Area Editing**

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

- ① Select **Enable** on **Edit** tab
- 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**

Sensitivity is the 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 display over the video window in Internet Explorer. Each item can be turn on or off separately, and position also can be configured. This information is displayed **after the video is decompressed**.

BurnIn 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. Position and Font size can be configured also. System ID for BurnIn OSD exists independently from normal System ID.

Note that size of Burnin OSD display varies according to the encoding resolution setting. This is inevitable because Burnin OSD is inserted to the frames before encoding is performed. The following table describes the rule for BurnIn OSD display.

Resolution	Small (8x8)	Middle (16x16)	Large (32x32)
352x480 / 352x240 / 352x576 / 352x288	2	1	0
720x480 / 720x240 / 720x576 / 720x288 / 640x480 / 800x600	2	2	1
1024 x 768 / 1280x720 / 1280 x 960 / 1280x1024 / 1440x900 / 1600x900 / 1680x1050 / 1920x1056 / 1920x1080 / 2048x1536 / 2560x1600 / 2592x1936	2	2	2

2 : Both System ID and Time are displayed

1 : Either System ID or Time can be displayed. When both are enabled, System ID is displayed.

0 : No items are displayed. This is because video area is too small to display OSD text in large text.

Output Format

Output Format menu appears only when **Enable Preview** is on.

Select the output format for the monitor preview according to the video output and monitor specification.

Audio Configuration

The screenshot shows the 'Setup' window with the 'Audio' tab selected. The 'Audio' section contains the following settings:

- Algorithm:** Radio buttons for G.711 (selected) and AAC.
- Mode:** A dropdown menu showing 'Tx & Rx'.
- Input Gain:** A slider bar ranging from 0 to 31, currently set at 25.
- Audio Output:** Radio buttons for Decoded Audio (selected) and Loopback.

An 'Apply' button is located in the top right corner of the Audio configuration area.

Algorithm

- **Algorithm**

Select the audio algorithm: G.711 or AAC

G.711 and AAC from client to server direction are supported. Thus, bidirectional audio communication is supported.

- **Bit rate**

Select the bitrate between 64Kbps and 128kbps when AAC is selected

The sampling rate is fixed to 8KHz and 32KHz for G.711 and AAC respectively.

Note that when camera is connected to a decoder, the decoder's audio algorithm should be set identically to transmit audio properly.

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 from 0 to 31.

Audio Output

Configure the audio source to be played on audio output port.

- Decoded Audio: Audio stream from client is played.
- Loopback: Audio data from audio input port is loop-backed to the audio output port.

Network Configuration

Live View

Setup

System Video Audio **Network** Serial Event Preset Record User

Network Apply

Local

IP Mode Fixed IP

Local IP 192.168.26.30

Local Gateway 192.168.10.1

Local Subnet 255.255.0.0

DNS

☐ Obtain DNS server address automatically
☒ Use the following DNS server addresses

Primary DNS Server 0.0.0.0

Secondary DNS Server 0.0.0.0

IPv6

IPv6 Address

IPv6 Subnet Prefix Length 0

IPv6 Default Gateway

IPv6 LinkLocal fe80::21c:63ff:fea6:1111/64

Port

Base Port 2222 (1025~65535)

HTTP Port 80 (80, 1025~65535)

HTTPS Port 443 (443, 1025~65535)

RTSP Port 554 (554, 1025~65535)

Discovery

UPNP Off On

Zeroconf Off On

WS Discovery Off On

Authentication

RTSP Authentication Off On

HTTPAPI Authentication Off On

One-way Streaming

Mode Off

SNMP

SNMP Listen port 161 (0, 161, 1025~65535)

SNMP Trap Destination IP 0.0.0.0

SNMP Trap Destination Port 162 (0, 162, 1025~65535)

Multicast

Multicast IP 224.10.0.0 (224.0.0.0 ~ 239.255.255.255)

DDNS

DDNS Server None TrueDNS DynDNS Vdyn

☐ Check IP Disable

Bitrate Control

Flow Control Mode Frame Drop Mode

IP Filtering Setup

IP Filtering Setup IP Filtering Setup

Address Information

Current IP 192.168.26.30

Current Domain Not RegisteredB

MAC Address 00:1C:63:A6:11:11

Connecting


Local

- **IP mode**

Select the IP mode: Fixed IP or DHCP (Dynamic Host Configuration Protocol)

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 IP address information from ISP provider or network manager.

DNS

- **Obtain DNS server address automatically**

Get DNS server address automatically when IP mode is DHCP.

- **Use the following DNS server addresses**

Enter the DNS server IP address.

- Primary DNS server
- Secondary DNS server

Domain Name System (DNS) is a database system that translates a computer's fully qualified domain name into an IP address. Networked computers use IP addresses to locate and connect to each other, but IP addresses can be difficult for people to remember. For example, on the web, it's much easier to remember the domain name www.amazon.com than it is to remember its corresponding IP address (207.171.166.48). Each organization that maintains a computer network

Ipv6

- **Ipv6 Address**

Enter the designated Ipv6 address.

- **Ipv6 Subnet Prefix Length**

Enter the bit number of Ipv6 Subnet.

- **Ipv6 Default Gateway**

Enter the designated Ipv6 gateway.

- **Ipv6 Link Local**

Display Ipv6 Link Local.

Port

- **Base Port (1025 ~ 65535)**

Enter the Base Port number.

Network base port is use for communication with remote clients. In order for camera and remote systems (decoder or VMS, NVR software) to be connected, the port number must be identically configured in camera side and client side.

- **HTTP Port (80, 1025 ~ 65535)**

Enter HTTP port used for web-based connection

- **HTTPS Port (443, 1025 ~ 65535)**

Enter HTTPS port used for secured HTTP connection.

- **RTSP Port (554, 1025 ~ 65535)**

Enter RTSP port used for RTSP-based connection. The default RTSP port is 554

RTSP (Real Time Streaming Protocol) is a standard for media streaming between server and client.

Discovery

- **UPNP**

By setting **UPNP** to ON, it allows the discovery by the client according to UPNP (Universal Plug and Play) protocol.

- **Zeroconf**

By setting **Zeroconf** to ON, it allows the discovery by the client according to Zeroconf protocol.

- **WS Discovery**

Discovery function based on web service is enabled. It allows the discovery by Client SW which is supporting Onvif.

Authentication

- **RTSP Authentication**

If **RTSP Authentication** set to **ON**, user in the client side is asked to enter User ID and Password.

- **HTTP API Authentication**

When **HTTP API authentication** set to **ON**, HTTP Authentication is asked for all clients which use HTTP API .

One-way Streaming

- This IP camera provides two kinds of one-way(unidirectional) streaming based on UDP to clients: **RTP** and **MPEG-TS**. Both are a kind of broadcasting where traffic from client to server is not generated at all.
- **RTP (Real-Time Transport Protocol)** is an Internet protocol used for transmitting single real-time multimedia data such as audio and video to a select group of connected clients. Normally RTSP uses RTP to format packets of multimedia content. **RTP** menu is used when the RTP only streaming without RTSP connection. RTP stream will be transmitted to the destination set. The SDP (Session Description Protocol) file can be found in the server, and a client can retrieve it using http connection.

Related settings are as follows:

- **Destination IP** : Set the IP Address of the destination system which will receive RTP stream
If the system is decoder, RTSP authentication information can be entered in the middle of RTSP URL as follows:
`rtsp://admin:1234@192.168.10.100:554/video1`
- **Destination Port** : Set the Port of the destination system which will receive RTP stream
- **User Name**: Enter the User name that will be used as session name in the SDP file.
- **File Name**: Enter the file name that will be used as the name of the SDP file. Then, it can be accessed through <http://ServerAddress/filename>

Mode	<input type="text" value="RTP"/>
Destination IP	<input type="text" value="192.168.10.14"/>
Destination Port	<input type="text" value="1026"/> (0, 1026~65534, Even number only)
User Name	<input type="text" value="Office"/>
File Name	<input type="text" value="ch0.sdp"/>

- **MPEG-TS** is a standard format for transmission and storage of audio, video, and data,[7] and is used in broadcast systems such as DVB and ATSC. Transport Stream is specified in MPEG-2 Part 1, Systems (formally known as ISO/IEC standard 13818-1 or ITU-T Rec. H.222.0). Transport stream specifies a container format encapsulating packetized elementary streams, with error correction and stream synchronization features for maintaining transmission integrity when the signal is degraded.
As MPEG-TS itself supports only AAC as the audio algorithm, only video is streamed when audio algorithm is set to G.711.
Related settings are as follows:

- **Destination IP** : Set the IP Address of the destination system which will receive MPEG-TS stream
- **Destination Port** : Set the Port of the destination system which will receive MPEG-TS stream

Mode	MPEG-TS	▼
Destination IP	192.168.10.14	
Destination Port	1026	(0, 1026~65534, Even number only)

SNMP

Setup for using SNMP (Simple Network Management Protocol). It is compatible to both SNMPv1 and SNMPv2c. Settings for using SNMP (Simple Network Management Protocol) are as following

- **SNMP Listen Port(0, 161, 1025 ~ 65535)**: The port is for connecting external devices when system operates as a SNMP client. SNMP is not used by setting 0 value.
- **SNMP Trap Destination IP**: Set the SNMP Trap Destination IP.
- **SNMP Trap Destination Port (0, 162, 1025 ~ 65535)**: Set the SNMP Trap Destination Port. SNMP is not used by setting 0 value.

Simple Network Management Protocol (SNMP) is used by network management systems to communicate with network elements. SNMP lets TCP/IP-based network management clients use a TCP/IP-based internetwork to exchange information about the configuration and status of nodes. SNMP can also generate trap messages used to report significant TCP/IP events asynchronously to interested clients. For example, a router could send a message if one of its redundant power supplies

Multicast

- **Multicast IP**

The Multicast menu is used for configuring the multicast IP address to which media stream is delivered when a client such as a Decoder, VMS or NVR software is connected in multicast mode. The multicast IP address selection range is between 224.0.0.0 and 239.255.255.255. The selection can be used only when media protocol is set to Multicast.

DDNS

Select the DDNS (Dynamic DNS) server to use. One of the two servers can be selected.

- **True DNS:** TrueDNS service is used in this mode. 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. Please refer to user guide document for True DNS service.
- **DynDNS:** DynDNS service is used in this mode. Refer www.dyndns.org for details. ID, Password and Domain name are needed when DynDNS is set.

Dynamic DNS is a method, protocol, or network service that provides the capability for a networked device, such as a router or computer system using the Internet Protocol Suite, to notify a domain name server to change, in real time (ad-hoc) the active DNS configuration of its configured hostnames, addresses or other information stored in DNS.

- **Vdyn:** Vdyn is a DDNS service provided by Visionica (<http://visionica.com>). No further configuration is required for using this service. It internally uses MAC address for the registration. When it succeeds, the domain name of the form 001C63A607EC.visionica.info is displayed on CurrentDomain entry of Network page. E-mail setting is not mandatory.
- **Check IP Disable:** If “Check IP Disable” is selected, it will skip to check its own IP. In Fixed IP mode, the set IP will be registered on DDNS server. In DHCP mode, dynamically assigned IP will be registered on DDNS server. Normally **Check IP Disable** should be unchecked in order to obtain public IP in the network.

Bitrate control

When there are more than one client connected to the camera, due to bandwidth difference among the clients some of them do not have enough bandwidth to receive encoded stream completely. In this case, it is possible to select the way to stream video to clients as following.

- **Frame Drop Mode:** Encoding is performed strictly according to video settings. When a client is connected through a network with less bandwidth, it may not receive all the frames. That is, frames are dropped on sending module if the network is bottlenecked.
- **Suppression Mode:** Encoding bitrate and frame rate are adjusted not to drop any frames when the network bandwidths to some clients are limited. In this case, all clients can be affected by the averaged bitrate and frame rate.

Address Information

Followed network information is displayed (Read only)

- **IP Address:** The Camera own IP address. This information is useful when the camera's IP mode is set to DHCP.
- **Domain Name:** In case the camera is registered at DDNS server, the registered domain name is displayed.
- **MAC Address:** Display the MAC address of the camera. In case the camera is registered at DDNS server, the MAC address is used in DDNS registration.
- **Connecting:** Client IP Addresses that are currently connected to system are listed. (1) Indicates

Serial Configuration

Setup
Live View

System
Video
Audio
Network
Serial
Event
Preset
Record
User

Serial

Apply

COM1 (RS-232 Port)

Protocol RS-232
Bitrate 9600bps
Data Bit 8Bits
Parity None
Stop Bit 1Bits

COM2 (RS-422/485 Port)

Protocol RS-485
Bitrate 2400bps
Data Bit 8Bits
Parity None
Stop Bit 1Bits

PTZ

PTZ Type Pelco-D
PTZ ID 1
PTZ Port COM2

Sensor Type

Sensor 1 ☐ Off ☒ N/O ☐ N/C
Sensor 2 ☐ Off ☒ N/O ☐ N/C

Sensor Schedule

Select ☒ Sensor Off ☐ Sensor On

Sensor 1

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
SUN																								
MON																								
TUE																								
WED																								
THU																								
FRI																								
SAT																								

Sensor 2

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
SUN																								
MON																								
TUE																								
WED																								
THU																								
FRI																								
SAT																								

Serial Port Configuration

- **Serial Protocol :** There are two serial ports, RS-232, RS-422/485 in video server. Select RS-422 or RS-485 in RS-422/485 port
- **Serial Port Configuration:** The serial ports can be configured as follows.

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

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

PTZ

- **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 video server. 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

- Choose **Sensor OFF** or **Sensor ON** and click the below schedule cells to make Sensor Schedule according to day of week and hour.

- Click desired "Cell" to set schedule.

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
SUN																								
MON																								
TUE																								
WED																								
THU																								
FRI																								
SAT																								

- Click desired "Time Line or Date Line" to set schedule.

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
SUN																								
MON																								
TUE																								
WED																								
THU																								
FRI																								
SAT																								

- To set cells in the schedule, click below "Empty Cell".

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
SUN																								
MON																								
TUE																								
WED																								
THU																								
FRI																								
SAT																								

Event Configuration

[Live View](#)

System
Video
Audio
Network
Serial
Event
Preset
Record
User

Event Apply

Local

Sensor1 ☐ Beep ☐ Alarm1 ☐ Alarm2 ☐ E-mail ☐ FTP ☐ No Preset v

Sensor2 ☐ Beep ☐ Alarm1 ☐ Alarm2 ☐ E-mail ☐ FTP ☐ No Preset v

On Video Loss ☐ Beep ☐ Alarm1 ☐ Alarm2 ☐ E-mail ☐ FTP ☐ No Preset v

On Motion ☐ Beep ☐ Alarm1 ☐ Alarm2 ☐ E-mail ☐ FTP ☐ No Preset v

Remote

Sensor1 ☐ Beep ☐ Alarm1 ☐ Alarm2 ☐ E-mail ☐ FTP ☐ No Preset v

Sensor2 ☐ Beep ☐ Alarm1 ☐ Alarm2 ☐ E-mail ☐ FTP ☐ No Preset v

Sensor3 ☐ Beep ☐ Alarm1 ☐ Alarm2 ☐ E-mail ☐ FTP ☐ No Preset v

Sensor4 ☐ Beep ☐ Alarm1 ☐ Alarm2 ☐ E-mail ☐ FTP ☐ No Preset v

On Disconnect

On Disconnect ☐ Beep ☐ Alarm1 ☐ Alarm2 ☐ E-mail ☐ FTP ☐ No Preset v

Duration

Beep synchronous v

Alarm1 1sec v

Alarm2 1sec v

E-mail Notification

Server Address

Port 25 (25, 465, 1025~65535)

Sender Address

Authentication on SMTP server ☒ Off ☐ On

ID

Password

SSL ☒ Disable ☐ Enable

Destination Address

Video Clip Attaching ☒ Off ☐ Primary Video ☐ Secondary Video ☐ JPEG Capture

Number of Frame 1 (1 ~ 10)

E-mail Test

FTP Upload

Server Address

Port 21 (21, 1025~65535)

ID

Password

FTP Filename

FTP Base Directory

Upload Video ☒ Primary Video ☐ Secondary Video ☐ JPEG Capture

Number of Frame 1 (1 ~ 10)

Continuous Upload ☒ Off ☐ On

Upload Duration 10 sec (Max 300)

Upload Interval 300 sec (Max 3600)

FTP Test

This camera has two sensor ports and two alarm ports.

When a decoder instead of a PC client is connected to camera, one system becomes a Local system and the other a Remote system (Generally a system which is being used by the user is called as Local system). Then, actions for events can be configured for events from the remote system as well as for local system. For example, it is possible to turn on an alarm device in local (center) decoder system when a sensor device in remote (site) IP camera is triggered. **Local** section configures the actions for events from local (self) system, and configuration activates local devices and **Remote** sections configure the actions for events from remote (peer) system.

The following table lists the possible actions for events.

Action	Description
Beep	Triggers beep port.
Alarm out	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	Move to the Preset position

Local & Remote Event Configuration

- **Sensor1 / Sensor2**

Configure the actions when the sensor 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. This event happens when the last client which has been receiving video from the camera loses the connection.

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 the operator resets it manually.

E-mail Notification

- Specify the information to send event information, when E-mail is selected as an event action.
- **Server Address:** Enter an address of mail(SMTP) server
- **Port:** Specify a 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).
- **Sender Address:** Enter an account registered in the SMTP server.
- **Authentication on SMTP server:** Specify if the E-mail server requires authentication for E-mail sending.
- **ID & password:** When the server requires authentication, ID and Password of an E-mail account need to be entered.
- **Destination address:** Enter Destination address. More than one address can be entered by delimiting comma (,) or semi-colon (;). Destination address can take up to 63 characters.
- **Video Clip Attaching:** Video clip stored at the moment of event can be attached as an AVI or JPEG file format. When dual encoding is enabled, **Primary video**, **Secondary video**(H.264 only) or **JPEG Capture** can be selected. The duration of video clip can be configured with **Pre-Event Time** and **Post-Event Time** in **Event Record** section.
- **Number of Frame:** The number of JPEG frames is configured. This setting is applicable only when **JPEG Capture** is selected.
- **E-mail Test :** E-mail sending can be tested with this button. Please note that configured settings should be saved first by pressing **Apply** button before using E-mail Test function. One of the following messages will come as a result of the test.

Message	Description
E-mail sent successfully	Test E-mail has been sent successfully. Reception in the client can be checked.
Failed to connect SMTP server	Connection to the SMTP server failed. It is necessary to check if the server is reachable and server address and port are correct.
Authentication failed	The server is reachable but authentication failed. ID and/or password need to be checked.
SMTP server rejected the mail	The server is reachable, but mail sending failed due to a reason other than authentication. This error happens often when the server authenticates according to its own rule. For example, IP addresses of a specific range or addressed of a specific suffix are allowed.

FTP Upload

Specify the information to upload event information, when FTP is selected as an event action

- **Server Address:** Enter an address of an FTP server to receive video files
- **Port:** Specify a port for FTP operation (Port 21 is the default port in FTP operation. If a different port is configured in the FTP server, this port needs to be changed accordingly).
- **ID & password:** Enter ID and Password for accessing the FTP server.'
- **FTP File name:** The names of files upload by FTP can be specified by user. If a fixed name is specified, the file is overwritten repeatedly.

Max length of a file name is 60 characters. If the name is left blank, file name is determined according to the internal rule implemented in the firmware.

The following macros are supported to form variable parts of file names. The strings are case-sensitive.

%YYYY : year

%MM : month

%DD : day

%hh : hour

%mm : minute

%ss : second

%EVENT : event type (Sensor1, Motion, ...)

%ADDR : address of the server (Domain name when DDNS is used.

Otherwise IPaddress)

“.avi” or “.jpg” will be added automatically at the end of the filename depending on the type of video file.

- **FTP Base Directory :** Specify the name of the directory to be created in the FTP server. It is valid only when **Use Record** is set to **Use FTP on Record session**
- **Upload video: Primary Video** and **Secondary Video** (H.264 only), **JPEG Capture** can be selected for uploading. The duration of video clip can be configured with **Pre-Event Time** and **Post-Event Time** in **Event Record** section.
- **Number of Frame:** Enter frame number of JPEG Capture (from 1 to 10).
- **Continuous Upload:** Continuous upload '**On**' allows video clips to be transmitted regularly regardless of occurrence of events. When this mode is turned on, FTP upload by events is suppressed.

- **Upload Duration:** Specify recording duration of a video clip to be transmitted. (Max 300 sec).
- **Upload Interval:** Specify transmission interval. (Max 3600 sec).
Upload Duration is not included in Upload interval. For example, if Upload Interval is 60 seconds and Upload Duration is 20 seconds, a video clip for 20 seconds is transmitted every 80 seconds.
- **FTP Test:** FTP upload function can be tested with this button. Please note that configured settings should be saved first by pressing **Apply** button before using FTP Test function. One of the following messages will come as a result of the test.

Message	Description
FTP connection tested successfully	The connection to the FTP server is successful.
Failed to connect FTP server	The connection to the FTP server failed. It is necessary to check if the server is reachable and server address and port are correct.
Authentication failed	The server is reachable but authentication failed. ID and/or password need to be checked..
Failed to upload file	File upload failed. The user of the ID is not allowed for writing into the directory or FTP server can be full.
Failed to erase file	Failed to delete the test file. The user of the ID doesn't have the privilege for file deletion.

Preset Configuration



Preset

- Select preset # and insert the name of preset.
- Set camera position for the preset and press **Save List** button.

Record Configuration

Live View
Setup

System
Video
Audio
Network
Serial
Event
Preset
Record
User

Record

Disk Information

No disk
 Disk size : ---
 Free space : ---

General

Use Record ☐ Off ☒ Use Disk ☐ Use FTP
 Select Video ☒ Primary Video ☐ Secondary Video
 Manual Record ☒ Off ☐ On
 Overwrite ☒ Off ☐ On
 Max File Size
 Max File Length
 Automatically Backup to FTP ☐ Off ☒ On
 Erase after Backup ☒ Off ☐ On
 Start Time of Backup Data

Event Type

Event Type 1 ☐ Sensor1 ☐ Sensor2 ☐ Motion ☐ Video Loss
 Event Type 2 ☐ Sensor1 ☐ Sensor2 ☐ Motion ☐ Video Loss
 Event Type 3 ☐ Sensor1 ☐ Sensor2 ☐ Motion ☐ Video Loss
 Event Type 4 ☐ Sensor1 ☐ Sensor2 ☐ Motion ☐ Video Loss
 Pre-event Time
 Post-event Time

Schedule Table

☒ Record Off ☐ Continuous ☐ Disconnect

Select ☐ Event Type 1 ☐ Event Type 2

☐ Event Type 3 ☐ Event Type 4

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
SUN																								
MON																								
TUE																								
WED																								
THU																								
FRI																								
SAT																								

DISK

SD memory can be used, and at least 1GB size is recommended. Either EXT3 or FAT32 file system can be used. A disk with either EXT3 or FAT32 file system can be read in Linux PC. However, only disk with FAT32 file system can be read in Windows PC.

Less than 4Mbps of video bit rate is recommended when you record and monitor video simultaneously since frame dropping may happen due to performance limitation.

Disk information

Be sure to restart the system after connecting an SD card. 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.



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	Available to be used for recording
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

- **Use record**

- **Off:** Recording function will not be used when “**Off**” is selected
- **Use Disk:** Recording will be enabled and data will be written to a disk
- **Use FTP:** Recording will be enabled and data will be uploaded to an FTP server. In this mode FTP upload by event is automatically disabled.

- **Select Video**

Select video stream to record.

- **Manual Record**

When ON is selected, record is operated regardless of schedule.

- **Overwrite**

When the disk becomes full, the oldest data are deleted automatically. It is valid only when **Use Record** is set to **Use Disk**.

- **Max File Size/Max File Length**

Max File Size option is for limiting the size of AVI file. If small file size is set, files of small size will be generated but numbers of the files will be increased. **Max File Length** option is for limiting the time length of AVI file. If the size of a file becomes **Max File Size** or the duration of the recording reaches **Max File Length**, a new file is created.

- **Automatically Backup to FTP**

Data recorded in the disk can be uploaded to an FTP server automatically for backup. FTP server is configured on Event page. It is valid only when **Use Record** is set to **Use Disk**.

- **Erase After Backup**

Data are deleted in the disk automatically after being uploaded to the FTP server. It is valid only when **Automatically Backup to FTP** is used.

- **Start Time of Backup Data**

Specify the time of the data in the disk from which Backup to FTP Disk is performed. This time is changed automatically as the backup to FTP server goes. So it is useful to check current backup status. It is valid only when **Automatically Backup to FTP** is used.

- **FTP Base Directory**

Specify the name of the directory to be created in the FTP server. It is valid only when **Use Record** is set to **Use FTP**.

Event Type

Three recording modes are supported: **Continuous**, **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-event Time**

Specify the duration of recording before an event happens.

- **Post-event Time**

Specify the duration after the event is cleared.

Schedule Table

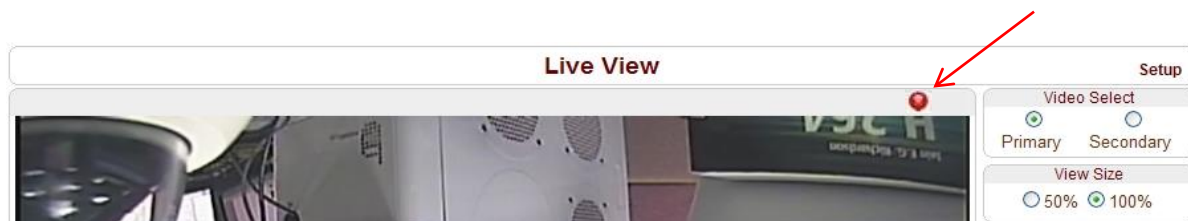
Actual recording mode is determined by **Schedule Table**, where recording mode configured by day (of a week) and hour.

Each of recording mode configures the recording operation as follows:

- **Record off** : No recording
- **Continuous** : Records continuously
- **Disconnect**: Recording is started when the system loses the connection to its last client(Decoder, VMS/NVR) etc. When there are multiple clients and one of the client is disconnected, this doesn't happen.
- **Event Type**: Records when an event configured in **Event Type** setting happens.

Checking status of recording

Recording status can be checked on the main view page.



Search and Playback

Recorded video and audio data can be saved as AVI format in the disk. In general, one AVI file is created for an event in case of event-based recording. However, it is possible that recorded data by serious of events happening continuously can be merged to a single AVI file depending on pre/post event time setting. The size of file is limited to 10 ~ 200MB or 10 minutes. In case of continuous recording, AVI files are created in series and the size of each is limited to 10 ~ 200MB or 10 minutes.

● **Search**

Actual recording A file currently being recorded doesn't appear until it is completed. In case of Continuous recording, a file will be shown after 10 minutes from the start of recording, for a file is generated every 10 minutes.

1. Press **Search Page** button on the **Record** setup page. Dates with recording data will be shown as follows.



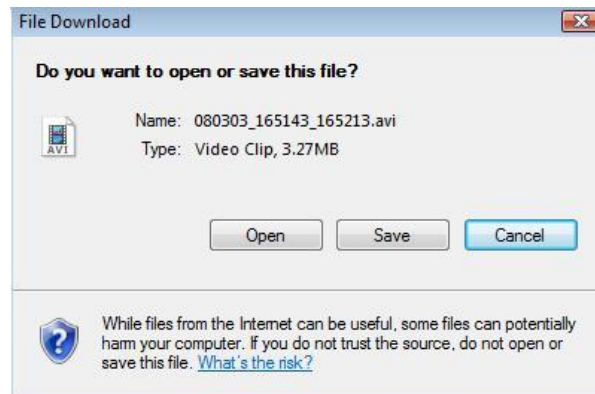
2. First, choose the date for search and the list of AVI files will be shown.
3. The file name shows the date and time: **"Date Begin Time End Time.avi"**.



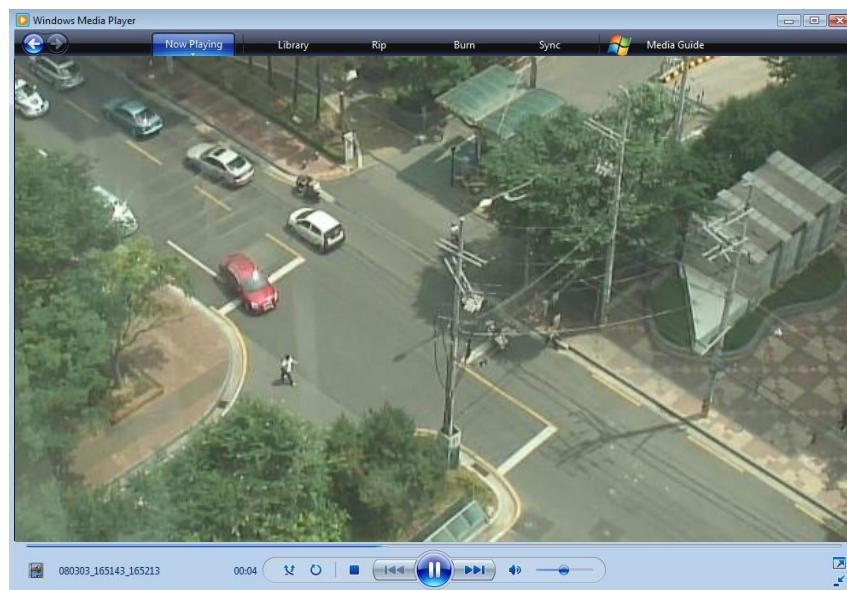
4. Press **Root** to move back to the page with date list.

- **Playback**

1. Selecting an AVI file will show a dialog for opening or saving the file.



2. Pressing **Save** button, the file will be stored in the PC. The AVI file can be played with Windows Media Player.



3. If you press **Open** in the dialog, the file will be downloaded and played automatically with Media Player.
4. Another connection through web is disabled during downloading and it is also not allowed to download two AVI files at the same time.

- **Deletion of data**

1. If you want to delete recorded files, select the files by checking the item in front of each file and press **Delete** button.



2. It is possible to delete multiple files at once.

User Configuration

Setup
Live View

System
Video
Audio
Network
Serial
Event
Preset
Record
User
Camera

User

User List

ID	Privilege Level	
admin	Admin	<input checked="" type="radio"/>

Add
Delete
Modify Password
Modify Privilege

Login Policy

Skip Login ☒ Disable ☐ Enable

Privilege Level After Login Skipped Admin

Apply

User List

- 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 privileges.

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**

Press **Add** button. The following window will appear.

Setup
Live View

System
Video
Audio
Network
Serial
Event
Preset
Record
User
Camera

Add User

ID	Door
Password	••••
Privilege Level	Manager ▼

Add
Cancel

Enter User ID and password (Up to 15 characters) and select **Privilege Level**

- **Delete User**

Select the User to be deleted and press **Delete** button.

- **Change Password**

Press **Modify Password** button. The following window will appear.

Setup		Live View							
System	Video	Audio	Network	Serial	Event	Preset	Record	User	Camera
Modify Password									
ID	admin								
Current Password									
New Password									
Confirm Password									
<div>Modify</div> <div>Cancel</div>									

Enter the current password and then set a new password.

- **Modify Privilege Level**

Press **Modify Privilege** button to change User level. It is not allowed to change the privilege level of admin user.

Setup		Live View							
System	Video	Audio	Network	Serial	Event	Preset	Record	User	Camera
Modify Privilege Level									
ID	chris								
Privilege Level	Manager ▼								
<div>Modify</div> <div>Cancel</div>									

Login Policy

- **Authentication Type**

HTTP authentication based on RFC 2617(HTTP Authentication: Basic and Digest Access Authentication) is supported.

- **Skip Login** provides 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**.

5. Decoder Configuration

Decoder Configuration is slightly different from Encoder Configuration. Different configurations for the encoder will be explained in Decoder Configuration

System Configuration

Live View
Setup

System
Video
Audio
Network
Serial
Event
Preset
Display
User

System

General

System Mode Decoder ▼

System ID

Language English ▼

Firmware

Version

Board ID

Upgrade

Config Backup&Restore

Backup

Restore

Time

Start Time

Current Time

Time Format YYYY/MM/DD hh:mm:ss ▼

Time Zone (GMT-12:00) International Date Line West ▼

☐ Automatically synchronize with NTP server

NTP Server Name

Reboot

Video Configuration

Setup Live View

System **Video** Audio Network Serial Event Preset Display User

Video Apply

Output Format

Output Format **PAL (720x576)**

Buffering 1

Output Format

Regardless input resolution of Encoder or IP camera, Decoder system of video server can display video format

Output Format

Output Format **PAL (720x576)**

Buffering 1

- PAL (720x576)**
- NTSC (720x480)
- 720p60 (1280x720)
- 1080i60 (1920x1080)
- 720p50 (1280x720)
- 1080i50 (1920x1080)
- 1080i59.94 (1920x1080)

- **Buffering**

You can store maximum 30 decoded frames temporarily by using buffering before displaying the frames. Displaying stored frames is smoother than displaying in real time. However, displaying stored frames causes delay because of process of buffering.

Network Configuration

Network page of Decoder has a section for specifying the remote system to connect and the other functions are same as Network Configuration of Encoder

[Live View](#)

Setup
System Video Audio **Network** Serial Event Preset Display User

Network Apply

Local

IP Mode Fixed IP

Local IP 192.168.26.33

Local Gateway 192.168.10.1

Local Subnet 255.255.0.0

DNS

☐ Obtain DNS server address automatically
 ☒ Use the following DNS server addresses

Primary DNS Server 0.0.0.0

Secondary DNS Server 0.0.0.0

Port

Base Port 2222 (1025~65535)

HTTP Port 80 (80, 1025~65535)

HTTPS Port 443 (443, 1025~65535)

RTSP Port 554 (554, 1025~65535)

Discovery

UPNP ☒ Off ☐ On

Zeroconf ☒ Off ☐ On

WS Discovery ☒ Off ☐ On

Authentication

RTSP Authentication ☒ Off ☐ On

HTTPAPI Authentication ☒ Off ☐ On

RTP Session

Use RTP Session ☒ Off ☐ On

Destination IP 0.0.0.0

Destination Port 0 (0, 1026~65534, Even number only)

User Name

File Name ch0.sdp

SNMP

SNMP Listen port 161 (0, 161, 1025~65535)

SNMP Trap Destination IP 0.0.0.0

SNMP Trap Destination Port 162 (0, 162, 1025~65535)

Remote

Remote Type Normal

Media Protocol TCP

Remote Address 192.168.26.102

Port 2222

Remote Channel Channel 1

Use Streaming Server ☒ Off ☐ On

SS IP Address 0.0.0.0

SS Port 2222

SS ID

SS Password

DDNS

DDNS Server ☒ None ☐ TrueDNS ☐ DynDNS ☐ Vdyn

☐ Check IP Disable

Address Information

Current IP 192.168.26.33

Current Domain Not RegisteredB

MAC Address 00:1C:63:A6:04:2E

Connecting 1 :: 192.168.10.71 - (0,0)

Connecting 2 :: 192.168.26.102 - (1,0)

- **Remote Type**

- Normal : Connection for rioxo Encoder and decoder
- RTSP/RTP: Decoder system can make connection though RTSP protocol and get the stream via RTP. It is also possible to make connection with other vendor's H.264 IP camera supporting standard RTSP/RTP and standard H.264 algorithm.
- To make RTSP connection, set *Remote Type* to "RTSP", enter the RTSP URL of remote system to *Remote Address*, and RTSP access port number to *Remote Port*. Currently it supports only video.

- **Media Protocol**

Select protocol used for transmission of audio and video data between remote system and decoder. The decoder system or VMS can choose media protocol among TCP, UDP and Multicast.

- **Remote Address**

Address of the remote system to connect

- **Port**

Port of the remote system to connect

- **Remote Channel**

The channel can be selectable when the remote system has more than multiple video channels

- **Use Streaming Server**

- Decoder system has the 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.
- **SS IP address:** IP address of Streaming server
- **SS port:** Enter Port number that is set when registering Streaming server.
- **SS ID:** Enter Streaming Server ID.
- **SS password:** Enter Streaming Server Password.

Remote

Remote Type: Normal

Media Protocol: TCP

Remote Address: 192.168.10.243

Port: 2222

Remote Channel: Channel 1

Use Streaming Server: ☒ Off ☐ On

SS IP Address: 0.0.0.0

SS Port: 2222

SS ID: admin

SS Password:

Event Configuration

Setup Live View

System Video Audio Network Serial **Event** Preset Display User

Event Apply

Local

Sensor1 ☐ Beep ☐ Alarm1 ☐ Alarm2

Sensor2 ☐ Beep ☐ Alarm1 ☐ Alarm2

Remote

Sensor1 ☐ Beep ☐ Alarm1 ☐ Alarm2

Sensor2 ☐ Beep ☐ Alarm1 ☐ Alarm2

Sensor3 ☐ Beep ☐ Alarm1 ☐ Alarm2

Sensor4 ☐ Beep ☐ Alarm1 ☐ Alarm2

On Video Loss ☐ Beep ☐ Alarm1 ☐ Alarm2

On Motion ☐ Beep ☐ Alarm1 ☐ Alarm2

On Disconnect

On Disconnect ☐ Beep ☐ Alarm1 ☐ Alarm2

Duration

Beep

Alarm1

Alarm2

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.

Display Configuration

The screenshot shows a web-based configuration interface for a device. At the top, there is a 'Setup' header with a 'Live View' link. Below this is a navigation bar with tabs for System, Video, Audio, Network, Serial, Event, Preset, Display (which is currently selected), and User. The main content area is titled 'Display' and contains two sections: 'Disconnect' and 'LED'. The 'Disconnect' section has two radio button options: 'Freeze' (which is selected) and 'Black Screen'. The 'LED' section has a dropdown menu currently set to 'Video'. An 'Apply' button is located in the top right corner of the configuration area.

- **Disconnection**

Decoder system's output mode on disconnected state can be configured

- Freeze : Video image of the last frame is shown when there is disconnection.
- Black Screen: Black Screen is shown when there is disconnection.

- **LED**

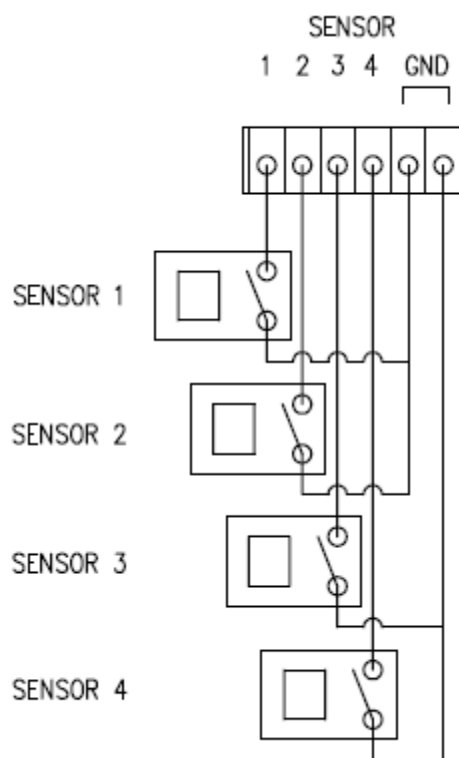
Select from Video, Audio and Serial to be indicated by Data LED. When there is the selected data (Video or Audio or Serial) communication between the encoder and the decoder, Data LED will indicate the status.

6. Appendix

Appendix A : Sensor and Alarm Port

Sensor Port

- **Terminal Type**
 - Voltage Rating: 150VAC
 - Current Rating : 2A
 - Color : Red
- **Sensor Signal Input Type**
 - NO Contact Signals
- **Connection to External Device**



Alarm Port

- **Terminal Type**

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

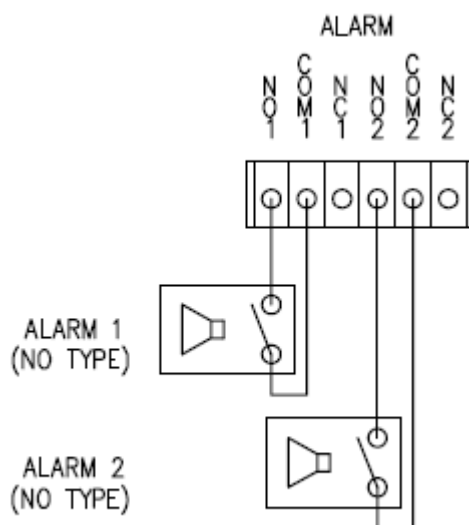
- **Relay Type**

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

- **Alarm Signal Output Type**

- NO/NC Contact Signals

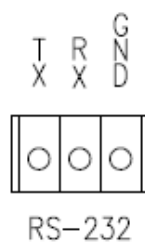
- **Connection to External Device**



Appendix B : Serial Port

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

RS-422/485 Port

- Port Type
- 4 PIN
- Pin Diagram

RS-422/485 TERMINALS



- 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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