

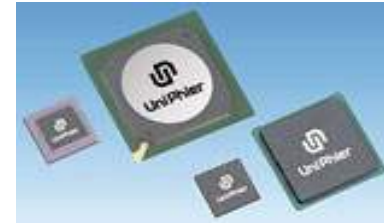


Network video encoder
WJ-GXE500 (NTSC)
WJ-GXE500E (PAL)

Security & AV Systems Business Unit
Panasonic System Networks Company



 UniPhier

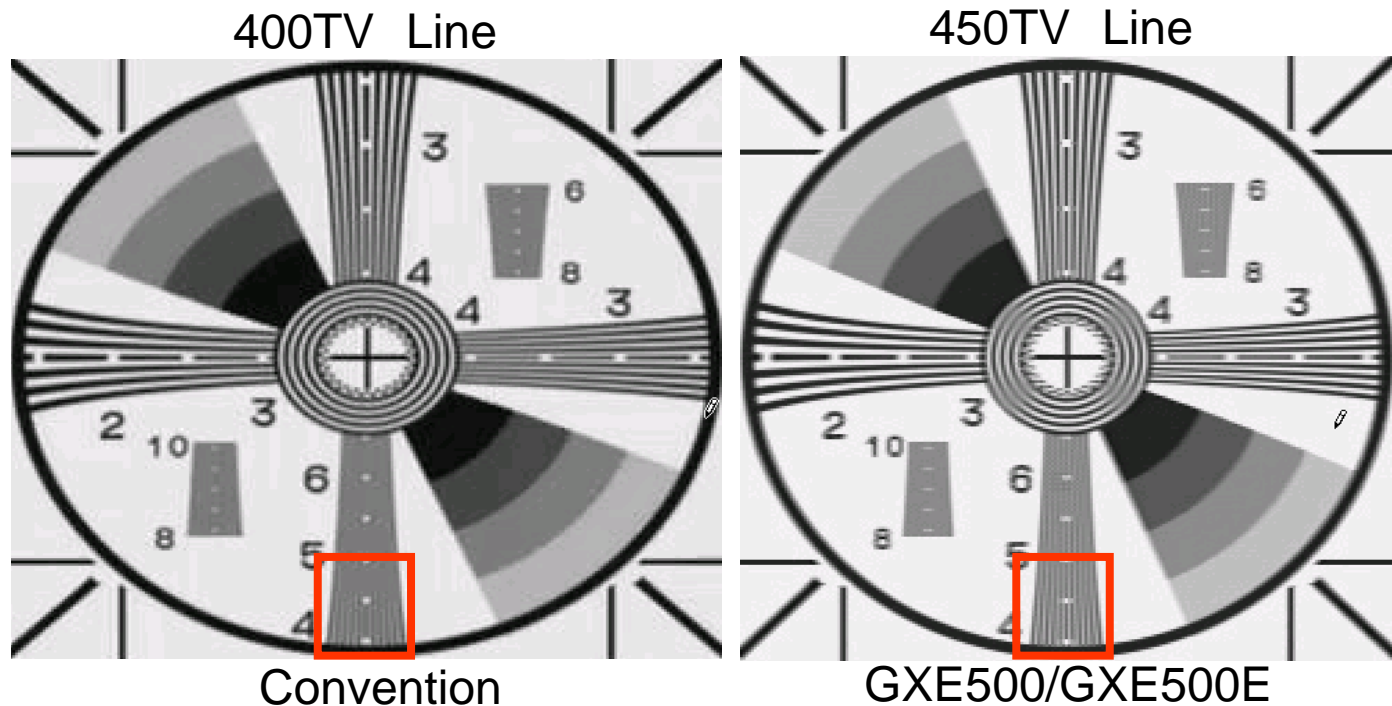


Same UniPhier-DSP as WV-NP502

- Full frame rate video for all four channels with H.264 High-profile format
- H.264 dual streams per channel
- D1, VGA and QVGA resolution are selectable
- High quality video processing, Motion adaptive I-P Conversion, Cable Compensation
- Panasonic coaxial PTZ control and RS485 control for other manufactures by supporting Protocol conversion table.
- Low Power consumption (PoE feature built-in)
- Small size (three units fit into 1U rack)
- Intelligence (Face Detection capability)
- SDHC/SD memory card back up

High quality and Full frame rate Video

- 30 fps (NTSC), 25 fps (PAL) for every channel
- 450 TV Line (Horizontal resolution)
- H.264 High-profile compression by UniPhier System LSI
- 3D I-P Conversion
- Cable Compensation



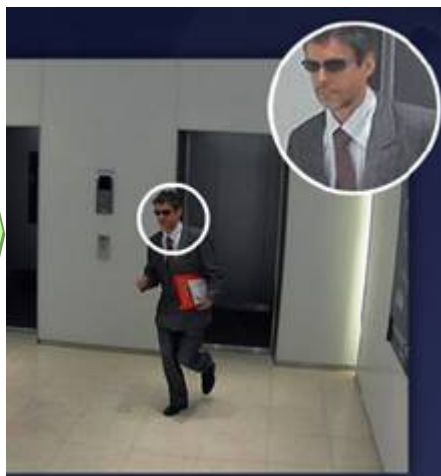
3D I-P Conversion

Reduce notched noise

3D I-P Conversion
Turn OFF



3D I-P Conversion
Turn ON



Cable compensation

Compensate analogue video signal

1000m cabling, Cable compensation turn OFF



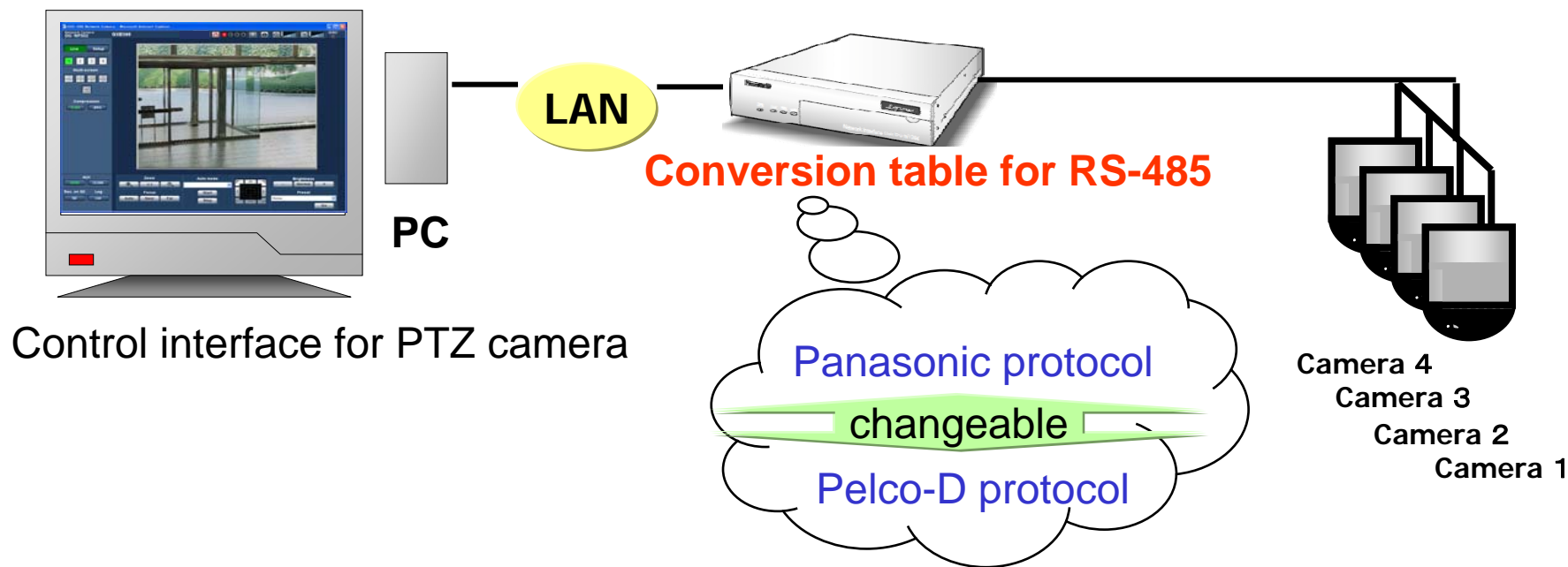
1000m cabling, Cable compensation turn ON



PTZ control

1. Over the coax control for Panasonic PTZ camera
2. RS-485 control for other manufacture's PTZ camera


Open command conversion table for RS-485 ensures the control of various manufacture's PTZ camera



Low Power consumption

- Low power consumption : 6 W
- When WJ-GXE500 / GXE500E is installed on the rack, it dose not need to use power supply adaptor.
- WJ-GXE500's (GXE500E) power can be supplies by POE.
- The following are the merits:
 1. Reduce TCO
 2. Eco product
 3. Reduce the generation of heat

Compared with conventional encoders

4ch encoder	Video streams	Resolution	Power Consumption
 GXE 500 / GXE500E	H.264/MPEG4 JPEG	D1 size	6W (PoE*)
Conventional encoder	H.264 JPEG	D1 size	16.1W (Not PoE*)

* The maximum output of PoE is 12.95 W.

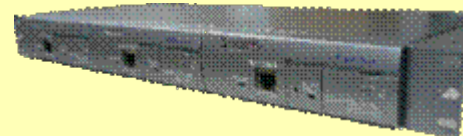
High density

- 3 units of GEX500 fit into 1U rack

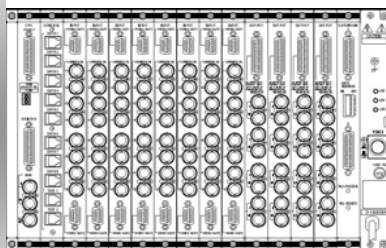
1 unit



3 units = > 1U size

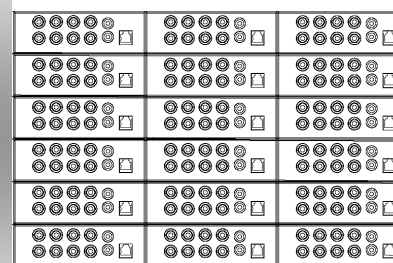


Matrix switcher WJ-SX550



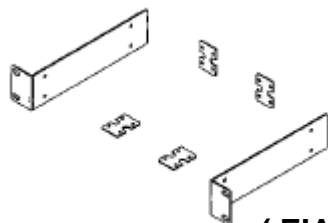
64ch. Camera on the 6U size space

H.264 encoder WJ-GXE500 / WJ-GXE500E



72ch. Camera on the 6U size space

*Optional Accessory for rack mounting



(EIA 19 inch Rack Mount Bracket)

Video Motion Detection

- VMD is defined for each channel.
- Up to four VMD areas can be defined for each channel.

Area	1(White)	2(Blue)	3(Green)	4(Red)
Status	<input checked="" type="radio"/> On <input type="radio"/> Off	<input checked="" type="radio"/> On <input type="radio"/> Off	<input checked="" type="radio"/> On <input type="radio"/> Off	<input checked="" type="radio"/> On <input type="radio"/> Off
Detection area	6	10	1	1
Detection sensitivity	Low High	Low High	Low High	Low High

Detection sensitivity

Visualize detection sensitivity for easy setup

Face detection

- Detect the face automatically
- Face Detection is supported only by channel 1.

Face detection



Up to 8 faces can be detected and transferred as XML data, making possible to develop custom application.

*Masking function is not available on GXE500 Web GUI.

Alarm Display

Camera Selection
CH1,2,3,4

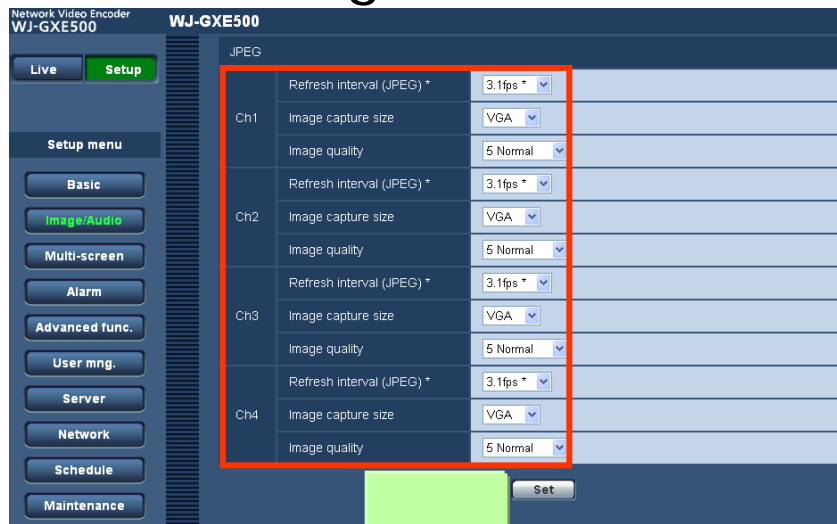
Multi screen display
4 screen patterns,
16 screen



Camera Control

Setting up Encoding Parameters

JPEG: setting

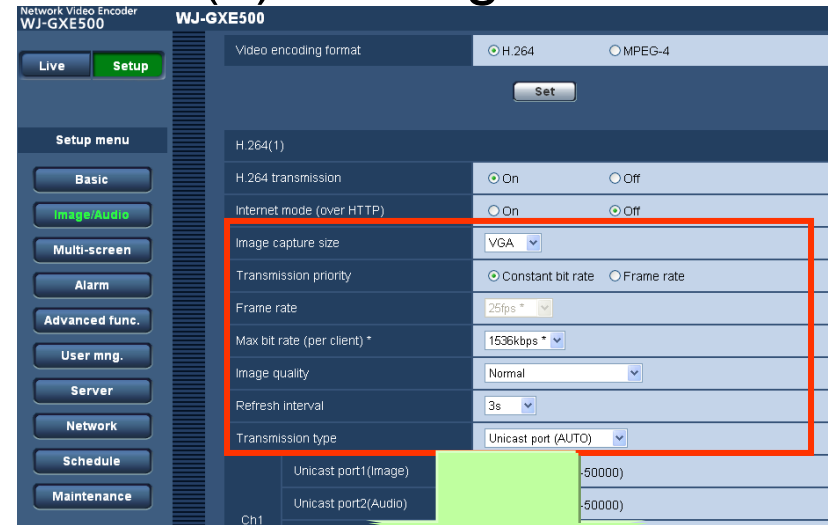


Default values

	Refresh interval (JPEG) *	3.1fps *
Ch1	Image capture size	VGA
	Image quality	5 Normal

Each parameter (Refresh interval, image capture size and Image quality) can be set individually for each channel

H.264(1): setting



Default values

Image capture size	VGA	Image capture size (Resolution)
Transmission priority	<input checked="" type="radio"/> Constant bit rate <input type="radio"/> Frame rate	Transmission priority
Frame rate	25fps *	Frame rate
Max bit rate (per client) *	1536kbps *	Max bit rate (per client)
Image quality	Normal	Image quality
Refresh interval	3s	Refresh interval
Transmission type	Unicast port (AUTO)	Transmission type (Unicast or Multicast)

Each parameter can not be set individually for each channel.

Setting up Encoding Parameters

H.264(2): setting

The same values as H.264 (1) are automatically set and can't be changed for H.264 (2) stream.

Transmission type selection (Unicast or Multicast)

Port number, multicast addresses are input if it is necessary to change the default values.

H.264 (1) also has the same menu. (This is same for MPEG-4)

Multicast TTL/HOP Limit is specified for H.264 (1) stream and H.264 (2) stream respectively if multicast is selected.

The screenshot displays the H.264(2) configuration page. On the left, a 'Setup menu' sidebar contains buttons for 'Basic', 'Image/Audio', 'Multi-screen', 'Alarm', 'Advanced func.', 'User mng.', 'Server', 'Network', 'Schedule', and 'Maintenance'. The main content area is titled 'H.264(2)' and includes the following settings:

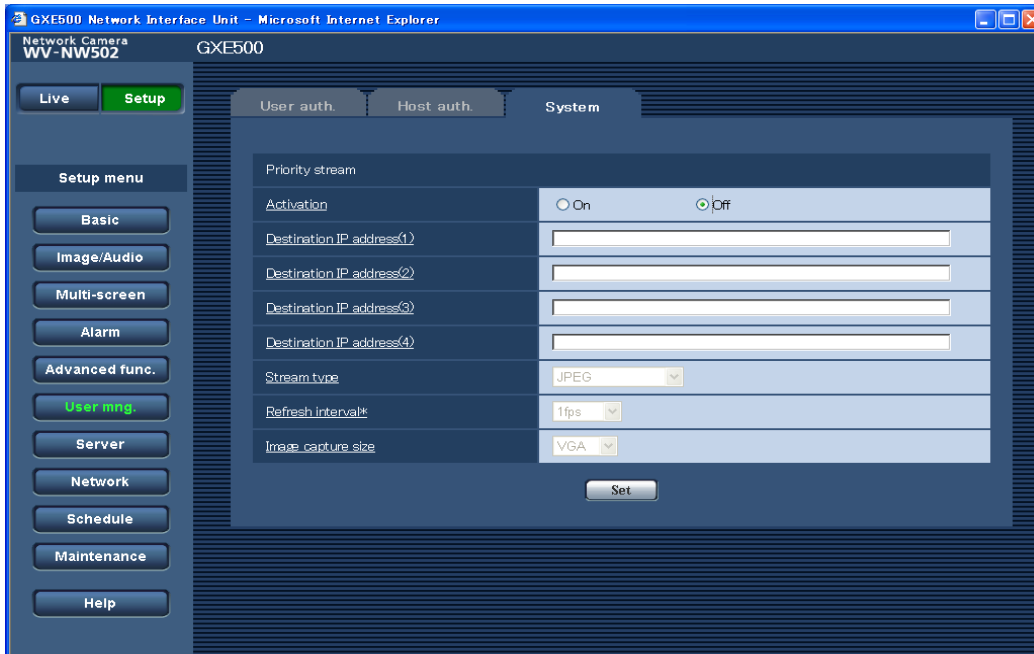
- H.264 transmission: On, Off
- Internet mode (over HTTP): On, Off
- Image capture size: VGA
- Transmission priority: Constant bit rate, Frame rate
- Frame rate: 30fps*
- Max bit rate (per client)*: 1536kbps*
- Image quality: Normal
- Refresh interval: 3s
- Transmission type: Unicast port (AUTO)

Below the transmission type, there are four channel configurations (Ch1 to Ch4):

Channel	Unicast port 1 (Image)	Multicast address	Multicast port
Ch1	32014 (1024-50000)	239.192.0.21	37004 (1024-50000)
Ch2	32016 (1024-50000)	239.192.0.23	37006 (1024-50000)
Ch3	32018 (1024-50000)	239.192.0.25	37008 (1024-50000)
Ch4	32020 (1024-50000)	239.192.0.27	37010 (1024-50000)

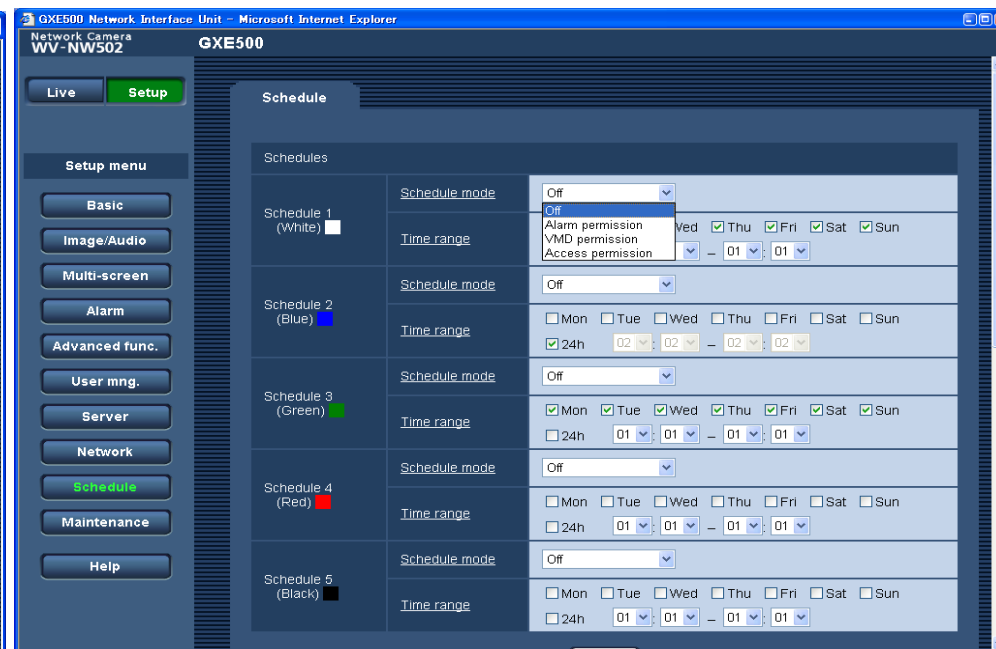
At the bottom of the settings, there is a 'Multicast TTL/HOP Limit' set to 16 (1-254).

Priority Stream



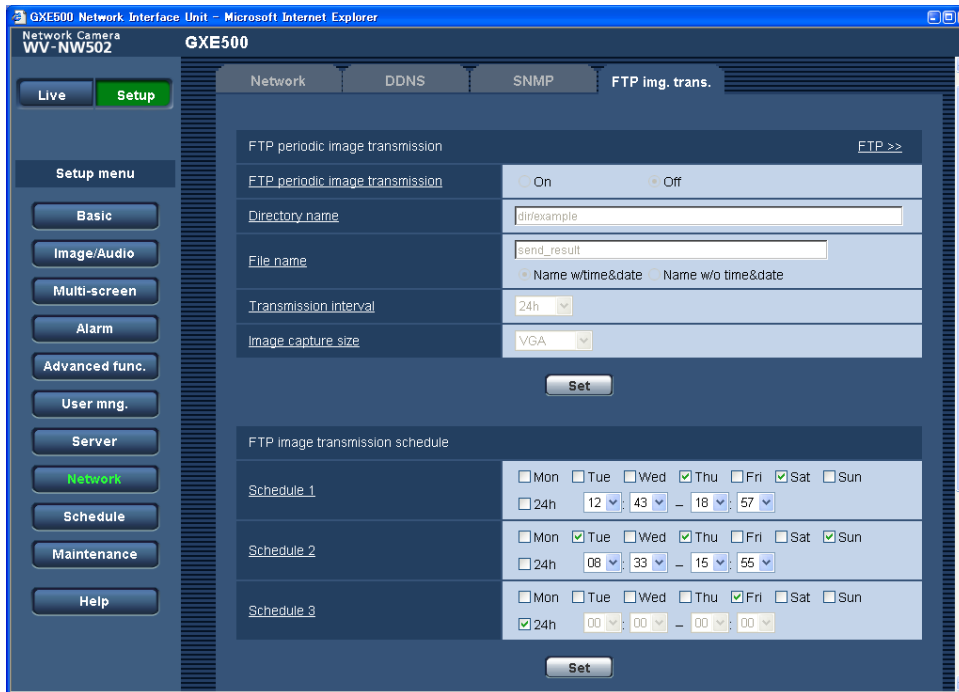
Setting Priority streams to specific destinations such as a network recorder. Up to four addressees are registered.

Schedule



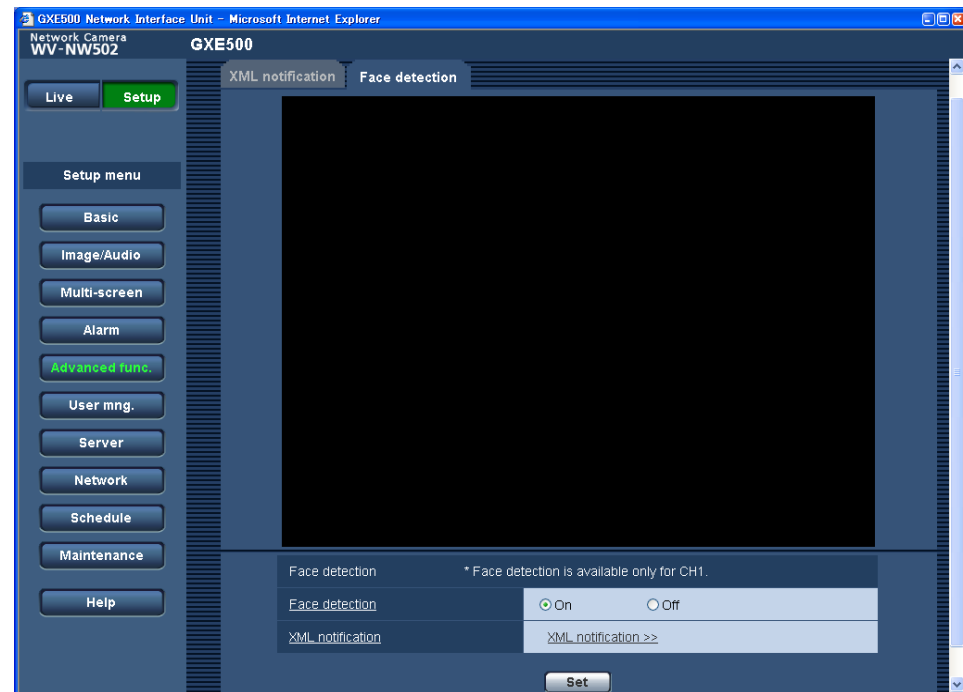
Setting Schedule Schedule is to specify the schedule to detect or not to detect several types of alarms. This is common to 4 channels.

FTP Transmission



JPEG images can be transmitted to FTP server by specified period. Periodical transmission schedule can be set up.

Face Detection



Setting Face Detection
This can be defined for only Channel 1

Coaxial control and VD2 setting

There is a choice of video synchronization

- Camera (CH1)
- Internal WJ-GXE500/WJ-GXE500E

RS-485

Communication method 4 pair / 2 pair cables

Communication Speed 2400 / 4800 / 9600 / 19200 bps

Data bit 8 / 7 bit

Parity Check Odd / Even / None

Data On / Off

Unit Address

The screenshot shows the web interface for the WJ-GXE500 Network Video Encoder. The interface is divided into several sections:

- Live/Setup:** A 'Live' button and a 'Setup' button. A red arrow points from the 'Coaxial control and VD2 setting' text to the 'Setup' button.
- Setup menu:** A vertical list of buttons: Basic, Image/Audio, Multi-screen, Alarm, Advanced func., User mng., Server, Network, Schedule, and Maintenance.
- Coaxial control (VD2 setting):** A table with columns for Channel (Ch2, Ch3, Ch4), Data, Cable compensation, and VD2. The VD2 column has radio buttons for On and Off. A red arrow points from the 'Coaxial control and VD2 setting' text to this section.
- RS-485:** A section for RS-485 settings, including Communication protocol (4-line / 2-line), Baud rate (19200bps), Data bit (8bit), and Parity check (None). Below this is a table for Channel (Ch1, Ch2, Ch3, Ch4) with columns for Data, Unit address, and a Data/Off radio button. A red arrow points from the 'RS-485' text to this section.

Network Video Encoder
WJ-GXE500

Live Setup

Setup menu

- Basic
- Image/Audio
- Multi-screen
- Alarm
- Advanced func.
- User mng.
- Server
- Network
- Schedule
- Maintenance

JPEG/H.264 Image/Position **Audio** Coaxial/RS-485

Help >>

Audio transmission/reception	Off	
Audio bit rate	32kbps	
Mic input volume (Camera to PC)		
Mic input interval (Camera to PC)	40ms	
Audio output volume (PC to Camera)	Middle	
Audio output interval (PC to Camera)	640ms	
Audio output port (PC to Camera)	34004 (1024-50000)	
Permission level of audio trans./recep.	1. Level 1 only 2. Level 2 or higher 3. All users	

Set

4 types of audio transmission can be selected.
Full duplex is supported.

Audio input is attached to Channel 1 camera.

Images and audio will not be synchronized. Therefore, images and audio may not always match.

Required Bit Rate per CH for Frame rate priority mode

The values in the tables below show bit rate per channel.

It is possible to output streams with 30 fps (NTSC) /25 fps (PAL) of D1/VGA resolution for all the channels at a time (H.264).

fps per channel \ Resolution	D1/VGA(640x480)	QVGA(320x240)
H.264 30 fps (NTSC) / 25 fps (PAL)	1,024kbps	512kbps
H.264 5 fps (NTSC) / 4.2 fps (PAL)	512kbps	256kbps
H.264 3 fps (NTSC) / 3.1 fps (PAL)	512kbps	256kbps
H.264 1 fps (NTSC) / 1 fps (PAL)	384kbps	128kbps

fps per channel \ Resolution	D1/VGA(640x480)	QVGA(320x240)
JPEG 1 fps (NTSC / PAL)	48KB(=384kbps)*	24KB(=192kbps)
M-JPEG 30 fps (NTSC) / 25 fps (PAL)**	11,868kbps	6,624kbps
MPEG-4 30 fps (NTSC) / 25 fps (PAL)	2,048kbps	1,024kbps

*The value of JPEG is the case of VGA.

**30fps/25fps can be with only 1 CH use.

When Both H.264 and JPEG streams are output, the maximum frame rate of JPEG is 1 fps.

Maximum of the total bandwidth is **13Mbps**

M-JPEG image quality : Normal([5] of [9])

MPEG-4 image quality : Normal (Constant bit rate mode) Refresh interval : 1 second

The values in the tables depend on the conditions of objects and required image quality, etc.

Comparison with WV-SP/SF3 series and WJ-GXE500



	Total Bit rate	The number of video channel	Maximum Resolution	Streams		
				H.264(1)	H.264(2)	JPEG
WV-SP/SF3 series	16 Mbps	1 ch.	1.3 Mega. [4:3]	1280 × 960(SXVGA) 640 × 480(VGA) 320 × 240(QVGA): Up to 30fps	640 × 480(VGA) 320 × 240(QVGA): Up to 30fps	1280 × 960(SXVGA): Up to 5 fps (JPEG only use : Up to 30fps 640 × 480(VGA) : Up to 30fps)
			* In case of SP302 & SF332, it supports 800x600 instead of 1280x960 resolution.			
			1.3 Mega. [16:9]	1280 × 720(720p) 640 × 360 320 × 180: Up to 30fps	640 × 360(VGA) 320 × 180(QVGA): Up to 30fps	1280 × 720(720p) : Up to 5 fps (JPEG only use : Up to 30fps 640 × 360 : Up to 30fps)
			* In case of SP302 & SF332, it does not support 1280x720 resolution.			
WJ-GXE500 WJ-GXE500E	13 Mbps	4 ch.	D1	720 × 480(D1) NTSC 720 × 574(D1) PAL 640 × 480(VGA) 320 × 240(QVGA): Up to 30 fps (NTSC) 25 fps (PAL)	720 × 480(D1) NTSC 720 × 574(D1) PAL 640 × 480(VGA) 320 × 240(QVGA): Up to 30 fps (NTSC)	720 × 480(D1) NTSC 720 × 574(D1) PAL 640 × 480(VGA) 320 × 240(QVGA): 1 fps/ch. *JPEG Only use (VGA) : 4 ch: 5 fps/ ch. :Quality :Normal [5] of [9] Only 1ch : Up to 30 fps (NTSC). Up to 25 fps(PAL)
				The setting of H.264(2) stream is synchronized with H.264(1) stream. Each parameter cannot be set individually for each channel.		

* Total bit rate must be less than camera's max performance.

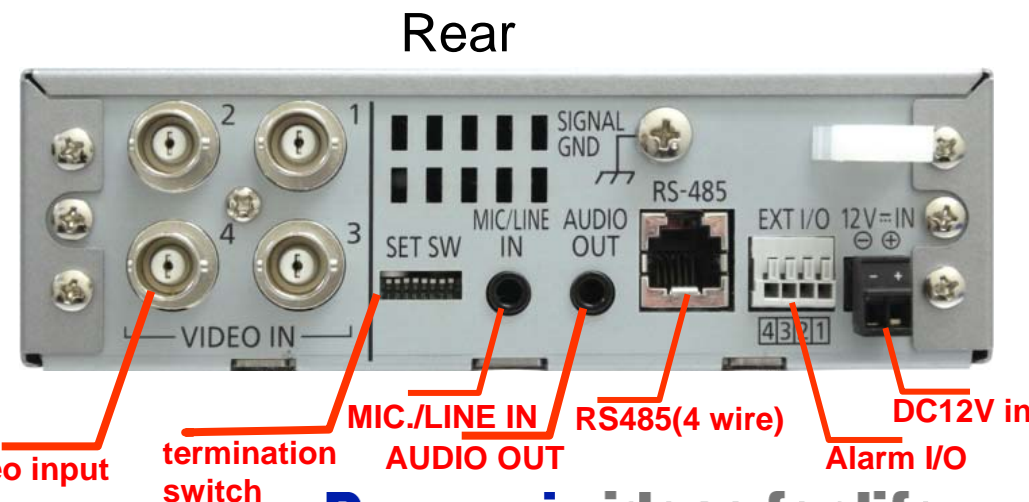
Specifications

Power Source	DC12V (AC adaptor is not included) , PoE
Power consumption	6W
Ambient temperature	-10 ° C to +50 ° C {14 ° F to 122 ° F}
Ambient humidity	Less than 90 %
Dimensions	140(W) x 44(H) x 185(D)
Weight	Approx. 1 kg
Video input connectors	1 V [P-P]/75 ohm BNC x 4, NTSC(J,P)/PAL(E,CH)
Audio input connector:	3.5 mm mini jack x 1
Audio output connector:	3.5 mm mini jack x 1
Parallel port	Term1 Alarm IN Term2 Alarm IN / Alarm OUT Term3 Alarm IN / Alarm OUT / AUX OUT
Camera control	coaxial cable, RS485 x 1 (RJ-11)
SD card	SDHC card slot x 1 SDHC 4GB, 8GB, 16GB, 32GB or SD 256MB, 512MB, 1GB, 2GB supported. Only JPEG images are recorded. (One of channels has to be selected only when save trigger is "alarm".)
Ethernet	10BASE-T / 100BASE-TX (RJ45) x 1

Resolution	VGA (640x480) / QVGA (320x240) / D1(720x480)(J,P), D1(720x574) (E, /CH)
Image compression method	H.264 MPEG-4 Transmission priority:: constant bit rate / Frame rate Transmission type:: unicast/multicast Frame rate type: Fixed bit rate 64~8192kbps/Fixed frame rate 1~30 fps (NTSC), 1~25 (PAL)
	JPEG Image quality: 0~9 :0.1 ~30 fps (under limitation)
Protocol	IPv6: TCP/IP, UDP/IP, HTTP, RTP, FTP, SMTP, DNS, NTP, SNMP IPv4: TCP/IP, UDP/IP, HTTP, RTSP, RTP, RTP /RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP
MAX. number of client	14 (Depends on conditions)
FTP client	Alarm , FTP
Multi-screen	16 cameras on one screen (including its own cameras)
OSD	T&D, Camera title (16 letters maximum)
Intelligent	VMD, Face detect information (for channel 1)
SD card recording	Manual / search / play



Ethernet(10/100,PoE) INITIAL SET Front SD card



Rear

VIDEO IN termination switch MIC./LINE IN AUDIO OUT RS485(4 wire) DC12V IN Alarm I/O

Panasonic
ideas for life