



\*i-VMD Type2 : Intruder Detection / Loitering Detection / Direction Detection / Scene Change Detection / Object Detection / Cross Line Detection

## HD / 1,280 x 720 60 fps H.264 Network Camera featuring Super Dynamic

### Key Features

- 720p HD images up to 60 fps\*\*
- Approximate 1/3 inches, high sensitivity MOS image sensor
- Maximum Screen Size is 1,980 x 1,080\* @30 fps, H.264
- \* Used by super resolution technology
- **Multiple H.264 (High profile) streams (max. 4 streams)** and JPEG streams ensure simultaneous real time monitoring and high resolution recording.
- **Enhanced Super Dynamic\*\*** and ABS (Adaptive Black Stretch) technologies deliver **133 dB** wider dynamic range compared to conventional cameras.
- **Smart coding Technology** : Group of Pictures (GOP) control function removes unnecessary information from the frame for realizing efficient encoding. With the latest bit rate reducing technology, GOP control, 3D-MNR (Multi process Noise Reduction) and FDF (Frequency Divided Filter), the network bandwidth and the disk space of recorder can be saved.
- High sensitivity with Day/Night (ICR\*) function (WV-SPN311A only) : 0.01 lx (Color), 0.003 lx (B/W) at F1.4  
\*ICR: IR Cut filter Removal
- **ABF (Auto Back Focus)** ensures easy installation. (WV-SPN311A only)
- **VIQS (Variable Image Quality on Specified area)** technology allows the designated **eight areas** to retain higher image quality while the excluded area will have a decreased image quality, which enables to use lower image file size and bit rate.
- Cropping function enables to provide whole image and the part image simultaneously.  
Up to 4 image capture areas can be specified, and it is also possible to control the sequence.
- **Face Super Dynamic** technology ensures clear face image.
- Selectable light control modes :  
**Outdoor scene, Indoor scene (50 Hz) / Indoor scene (60 Hz), Fix shutter**  
Indoor scene (50 Hz/60 Hz) : Flicker caused by fluorescent lightning will be automatically compensated.
- 2x, 4x digital zoom controlled by browser
- VMD (Video Motion Detection) with 4 programmable detection areas, 15 steps sensitivity level and 10 steps detection size
- Privacy Zone can mask up to 8 private areas, such as house windows and entrances/exits.
- Camera title display : Up to 20 alphanumeric characters on the browser
- Alarm sources including 3 terminal input, VMD and Panasonic alarm command can trigger actions such as SDXC/SDHC/SD memory recording, FTP image transfer, E-mail notification, Indication on browser, Alarm terminal output, and Panasonic alarm protocol output.
- Full duplex bi-directional audio allows interactive communication between camera site and monitoring site. (WV-SPN311A only)
- JPEG Image compression ratio can be changed by alarm so that higher quality image can be provided.
- Prioritized stream control : One of the video streams can be prioritized when multiple recorders or client PCs are accessing the camera so that the recorder or the client PC can maintain the frame rate.
- Face detection function detects the position of human face and the information is sent by XML or video stream. (Extension Software)
- Can be added new intelligent extension software in addition to built-in VMD (Video Motion Detection), alarm function.
- **Fog compensation function** equipped as standard.
- **HLC (High Light Compensation)** :  
If a bright light source such as car headlights points in the direction of a camera, the camera corrects for strong lights and their surroundings to provide clear images of the areas.
- **Super Chroma Compensation** function realizes a better color reproducibility even in low illumination. (WV-SPN311A only)
- H.264 max. bit rate/client and Total bit rate control allows flexible network traffic management.  
Frame rate priority mode controls bit rate and compression ratio to provide the specified frame rate.
- Internet mode : H.264 images can be transmitted over HTTP protocol.
- Multi-language : English / Italian / French / German / Spanish / Portuguese / Russian / Chinese / Japanese
- IPv4/IPv6 protocol supported
- Supports SSL, DDNS (viewnetcam, RFC2136)
- Still images (JPEG) can be viewed on mobile phones via Internet.
- ONVIF compliant model

\*\*1 Super Dynamic function is automatically set off on 60 fps mode

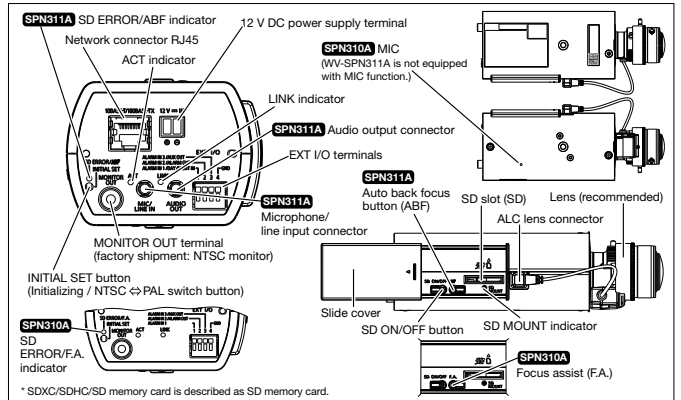
# Specifications

<b>Camera</b>	Image Sensor	Approx. 1/3" type MOS image sensor
	Scanning Mode	Progressive scan
	Scanning Area	5.38 mm (H) x 3.02 mm (V) (7/32 inches(H) x 1/8 inches(V) )
	Minimum Illumination	WV-SPN311A Color : 0.01 lx, BW : 0.003 lx (F1.4, Maximum shutter : Max. Off(1/30s), AGC : High) Color : 0.0007 lx, BW : 0.0002 lx (F1.4, Maximum shutter : Max. 16/30s, AGC: High) <sup>1</sup> WV-SPN310A Color : 0.01lx, BW : 0.008 lx (F1.4, Maximum shutter : Max. Off(1/30s), AGC: High) Color : 0.0007 lx, BW : 0.0005 lx (F1.4, Maximum shutter : Max. 16/30s, AGC: High) <sup>1</sup>
	White Balance	AWC (2,000 - 10,000 K), ATW1 (2,700 - 6,000 K), ATW2 (2,000 - 6,000 K)
	Light Control Mode	Outdoor scene, Indoor scene (50 Hz) / Indoor scene (60 Hz) / ELC / Fix shutter
	Shutter Speed	[1.3 mega pixel [16 : 9] (60 fps mode)] Off(1/60), 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 Other than [1.3 mega pixel [16 : 9] (60 fps mode)] Off(1/30), 3/100, 3/120, 2/100, 2/120, 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000
	Super Dynamic <sup>2</sup>	On(High) / On(Normal) / Off
	Face Super Dynamic	On / Off (only when Super Dynamic : On)
	Adaptive Black Stretch	On / Off (only when Super Dynamic : Off)
	Fog compensation	On / Off (only when Super Dynamic / Adaptive black stretch : Off)
	High light compensation (HLC)	On / Off (only when Super Dynamic / Back light compensation : Off)
	AGC	On (Low) / On (Mid) / On (High) / Off
	Maximum shutter	max. 1/1000 s, max. 1/500 s, max. 1/250 s, max. 1/120 s, max. 2/120 s, max. 1/100 s, max. 2/100 s, max. 1/30 s, max. 2/30 s, max. 4/30 s, max. 6/30 s, max. 10/30 s, max. 16/30 s
	Day/Night	WV-SPN311A (ICR) : Off / On / Auto1 (Normal) / Auto2 (IR Light) / Auto3 (SCC) WV-SPN310A (Electrical) : Off / Auto
	Dynamic Range	133 dB typ. (Super Dynamic : On)
	Digital Noise Reduction	High / Low
	Video Motion Detection	On / Off, 4 areas, Sensitivity : 15 steps, Detection size : 10 steps
	Privacy Zone	On / Off (up to 8 zones available)
	VIQS	On / Off (up to 8 zones available)
Camera Title (OSD)	On / Off, Up to 20 characters (alphanumeric characters, marks)	
Focus Adjustment (WV-SPN311A only)	Auto back focus / Focus / Adjusting method (Auto/ Preset/ Fix)	
<b>Browser GUI</b>	Cropping	Off / JPEG(1) / JPEG(2) / JPEG(3) / H.264(1) / H.264(2) / H.264(3) / H.264(4) / H.264(all) Alarm action : On / Off Up to 4 image capture areas can be specified
	Camera Control	Brightness, AUX On / Off
	Display Mode	Spot, Quad : Image from 16 cameras can be displayed in 4 different Quad screens or 16 split screen (JPEG only), 20 characters camera title available.
	Digital Zoom	1x, 2x, 4x controlled by browser GUI
	Clock Display	Time : 12H/24H, Date : 5 formats on the browser, Summer time (Manual)
	Alarm Control	Reset
	One Shot Capture	A still picture will be displayed on a newly opened window.
	Audio	Mic (Line) Input : On / Off Volume adjustment : Low / Middle / High Audio Output : On / Off Volume adjustment : Low / Middle / High
	SD Memory Data Download	Still or motion images recorded in the SDXC/SDHC/SD memory card can be downloaded.
	GUI / Setup Menu Language	English, Italian, French, German, Spanish, Portuguese, Russian, Chinese, Japanese
<b>Network</b>	System Log	Up to 100 (Internal)
	Supported OS <sup>3</sup>	Up to 4,000 (SDXC/SDHC/SD memory when the recording format is set to JPEG) error logs Microsoft® Windows® 8.1, Microsoft® Windows® 8, Microsoft® Windows® 7, Microsoft® Windows Vista®
	Supported Browser	Windows® Internet Explorer® 11 (32-bit) Windows® Internet Explorer® 10 (32-bit) Windows® Internet Explorer® 9 (32-bit) Windows® Internet Explorer® 8 (32-bit) Windows® Internet Explorer® 7 (32-bit)
	Network IF	10Base-T / 100Base-TX, RJ45 connector
	Image Resolution	•1.3 mega pixel [16 : 9] (30/60 fps) 1,280 x 720 / 640 x 360 / 320 x 180 / 160 x 90 •1.3 mega pixel [4 : 3] (30 fps) 1,280 x 960 / 800 x 600 / 640 x 480 / 400 x 300 / 320 x 240 / 160 x 120 •2 mega pixel [16 : 9] (30 fps) <sup>*</sup> * Used by super resolution technology 1,920 x 1,080 / 1,280 x 720 / 640 x 360 / 320 x 180 / 160 x 90
	H.264 <sup>4</sup>	Transmission Mode Constant bitrate / Variable bit rate / Frame rate / Best effort / Advanced VBR Frame Rate 1 / 3 / 5 / 7.5 / 10 / 12 / 15 / 20 / 30 / 60 fps Bit Rate/Client 64 / 128 / 256 / 384 / 512 / 768 / 1,024 / 1,536 / 2,048 / 4,096 / 6,144 / 8,192 / 10,240 / 12,288 / 14,336 / 16,384 / 20,480 / 24,576 / 30,720 / 40,960 kbps Image Quality Constant bit rate, Best effort : Low(Motion priority) / Normal / Fine(Image quality priority) VBR : 0 Super fine / 1 Fine / 2 / 3 / 4 / 5 Normal / 6 / 7 / 8 / 9 Low Smart Coding mode On / Off (Only when "Variable bit rate" is selected) Refresh interval 0.2 / 0.25 / 0.33 / 0.5 / 1 / 2 / 3 / 4 / 5s Transmission Type Unicast / Multicast
	JPEG	Image Quality 10 steps Refresh interval 0.1 fps - 30 fps (JPEG frame rate will be restricted when displaying both JPEG and H.264 images.) Transmission Type Pull / Push
	Audio Compression	G.726 (ADPCM) 32 kbps / 16 kbps, G.711 64 kbps / AAC-LC <sup>5</sup>
	Audio Mode (WV-SPN311A only)	Off / Mic input / Audio output / Interactive (Half duplex) / Interactive (Full duplex)
	Authentication for Audio	Level 1 only / Level 2 or higher / All users
Bandwidth control	64 / 128 / 256 / 384 / 512 / 768 / 1,024 / 1,536 / 2,048 / 4,096 / 8,192 kbps / Unlimited	
Supported Protocol	IPv6 : TCP/IP, UDP/IP, HTTP, HTTPS, RTP, FTP, SMTP, DNS, NTP, SNMP, DHCPv6, MLD, ICMP, ARP IPv4 : TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTSP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP	
FTP Client	Alarm image transmission, FTP periodic transmission (When the FTP transmission is failed, backup on an optional SDXC/SDHC/SD memory card is available.) Up to 14 users (Depends on network conditions)	
No. of Simultaneous Users	Up to 14 users (Depends on network conditions)	
SDXC/SDHC/SD Memory Card (Option)	H.264 recording : Manual REC / Alarm REC (Pre/Post) / Schedule REC / Backup upon network failure JPEG recording : Manual REC / Alarm REC (Pre/Post) / Backup upon network failure Compatible SD (SDHC/SDXC) card: Panasonic 2 GB, 4 GB*, 8 GB*, 16 GB*, 32 GB*, 64 GB** model *SDHC card, ** SDXC card (except miniSD card and microSD card)	

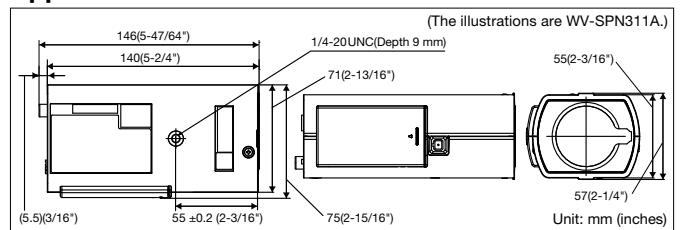
<b>Network</b>	Cellular Phone Compatibility	JPEG image, AUX control (by access level)	
	Mobile Terminal Compatibility <sup>6</sup>	iPad, iPhone, iPod touch (iOS 4.2.1 or later), Android™ mobile terminals	
<b>Alarm</b>	Alarm Source	3 terminals input, VMD, Command alarm, Audio detection alarm	
	Alarm Actions	SDXC/SDHC/SD memory recording, E-mail notification, HTTP alarm notification Indication on browser, FTP image transfer, Panasonic protocol output	
<b>Schedule</b>	Alarm Log	With SDXC/SDHC/SD memory card : Up to 50,000 logs for each SD memory card	
	Schedule mode	Alarm permission / VMD permission / Access permission / H.264 recording / Audio detection permission / Scene file / FTP periodic image transmission	
<b>Input/ Output</b>	Monitor Output (for adjustment)	VBS: 1.0 V [p-p] / 75 Ω, composite, RCA jack An NTSC or PAL signal can be outputted from camera. (either press the INITIAL SET switch quickly (within 1 second) or use software to select NTSC or PAL signal).	
	Microphone Input (WV-SPN311A only)	ø3.5 mm monaural mini jack Input impedance : Approx. 2 kΩ (unbalanced) Recommended applicable microphone : Plug-in power type Supply voltage : 2.5 V ±0.5 V Recommended sensitivity of microphone : -48 dB±3 dB (0 dB=1 V/Pa, 1 kHz)	
	Built-in microphone (WV-SPN310A only)	Nondirectional electret condenser microphone	
	Line Input (WV-SPN311A only)	Input level : Approx. -10 dBV	
	Audio Output (WV-SPN311A only)	ø3.5 mm stereo mini jack (monaural output) Output impedance : Approx. 600 Ω (unbalanced) Output level : -20 dBV	
	External I/O Terminals	ALARM IN 1 (DAY/NIGHT IN), Auto time adjustment), ALARM IN 2 (ALARM OUT), ALARM IN 3 (AUX OUT) * WV-SPN311A only	
<b>General</b>	Safety	UL (UL60950-1), C-UL (CAN/CSA C22.2 No.60950-1), CE, IEC60950-1	
	EMS	FCC (Part15 ClassA), ICES-003 ClassA, EN 55032 ClassB, EN55024	
	Power Source and Power Consumption	WV-SPN311A : DC12 V : 450 mA / Approx. 5.4 W PoE(IEEE802.3af compliant) DC48 V : 110 mA / Approx. 5.3 W (Class 2 device) WV-SPN310A : DC12 V : 380 mA / Approx. 4.6 W PoE(IEEE802.3af compliant) DC48 V : 90 mA / Approx. 4.3 W (Class 2 device)	
	Ambient Operating Temperature	-10 °C to +50 °C (14 °F to 122 °F)	
	Ambient Operating Humidity	10 to 90 % (no condensation)	
	Dimensions	75 mm (W) x 57 mm (H) x 146 mm (D) [2-15/16 inches (W) x 2-1/4 inches (H) x 5-47/64 inches (D)] (excluding lens / power cord plug)	
	Mass (approx.) excluding lens	WV-SPN311A : Approx. 350 g (0.77 lbs) WV-SPN310A : Approx. 325 g (0.72 lbs)	
	Finish	Main body : PC / ABS resin (Sail white)	

<sup>1</sup> Converted value  
<sup>2</sup> Super Dynamic function is automatically set off on 60 fps mode.  
<sup>3</sup> For further information about PC system requirements and precautions for when using Microsoft® Windows® 8.1, Microsoft® Windows® 8, Microsoft® Windows® 7, Microsoft® Windows Vista®, or Windows® Internet Explorer®, click "Manual" - "Open" from the supplied CD-ROM and refer to "Notes on Windows® / Internet Explorer® versions".  
<sup>4</sup> Transmission for 4 streams can be individually set.  
<sup>5</sup> When recording audio on an SD memory card, only AAC-LC (Advanced Audio Coding - Low Complexity) can be used.  
<sup>6</sup> For further information about compatible devices, refer to our website (<http://security.panasonic.com/pss/security/support/info.html>)

## Part Names and Functions



## Appearance



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**Important**  
- Safety Precaution: Carefully read the Important Information, Installation Guide and operating instructions before using this product.  
- Panasonic cannot be responsible for the performance of the network and/or other manufacturers' products used on the network.

• Masses and dimensions are approximate. • Specifications are subject to change without notice.

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