



### HD/1,280 x 960 H.264 PTZ Dome Network Camera.

#### Key Features

- 720p HD images up to 30 fps
- Newly developed 1.3 Megapixel MOS Sensor
- Multiple H.264 (High profile) streams and JPEG streams ensure simultaneous real time monitoring and high resolution recording by “UniPhier®”, Panasonic’s proprietary System LSI platform.
- Full frame (Up to 30 fps) transmission at 1,280 x 960 image size
- 18x optical zoom. 36x extra optical zoom at VGA resolution with 8x digital zoom enabling 288x zoom.
- Wide Dynamic Range and ABS (Adaptive Black Stretch) technologies deliver wider dynamic range compared with conventional cameras.
- Face Wide Dynamic Range technology ensures clear face image.
- H.264 and MPEG-4 are selectable for system migration.
- High sensitivity with Day/Night function : 0.6 lx (Color), 0.5 lx (B/W) at F1.6 (Wide)
- Adaptive Digital Noise Reduction: 2D-DNR and 3D-DNR integration ensures reduced noise and motion blur in various conditions.
- Superior color reproduction by primary (RGB) color filter
- Electronic sensitivity enhancement: Auto (Up to 16x) / OFF
- Selectable light control modes: Outdoor / Indoor / Fixed electronic shutter  
Outdoor / Indoor: Electronic shutter and ALC lens iris control are automatically controlled depending on the mode and luminance level.  
Fixed electronic shutter: Up to 1/10,000 fixed electronic shutter can be selectable.
- Panning with auto flip function can be performed 0 to 360 degrees.
- PTZ control can be taken on the user friendly GUI with 16 speeds pan/tilt and new “Drag and Zoom” operation enabling finer control. 256 speeds available for system with WV-CU950 system controller.
- Up to 64 preset positions
- 360 map shot: 8 thumbnail images at 45 deg. intervals make it simple to direct the camera easily by clicking on a thumbnail.
- Industrial grade Pan/Tilt/Zoom mechanism for high reliability
- VMD (Video Motion Detector) with 4 programmable detection areas, 15 steps sensitivity level and 10 steps detection size
- Face detection function detects the position of human face and the information is sent by XML or video stream.
- Meta data for VMD is supplied to work with the WJ-ND400 playback VMD function.
- Privacy Zone can mask up to 2 private areas, such as house windows and entrances/exits.
- Alarm sources including 3 terminal input, VMD and Panasonic alarm command can trigger actions such as SDHC/SD memory recording, FTP image transfer, E-mail notification, Indication on browser, Alarm terminal output, and Panasonic protocol output.

- Full duplex bi-directional audio allows interactive communication between camera site and monitoring site.
- 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.
- SDHC/SD Memory card slot for manual recording (H.264 / JPEG), alarm recording (H.264 / JPEG) and backup upon network failure (JPEG)
- H.264/MPEG-4 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.
- Multi-language GUI and setup menu: English, French, Italian, Spanish, German, Russian (PAL) / English, French (NTSC) \* Installation required except for English
- IPv4/IPv6 protocol supported
- Analog Monitor output for easier installation
- Supports SSL, DDNS (viewnetcam, RFC2136)
- Still images (JPEG) can be viewed on mobile phones via Internet.
- ONVIF compliant model

#### Standard Accessories

• CD-ROM*1 .....	1 pc.	• Decorative Cover.....	1 pc.
• Installation Guide.....	1 pc.	• Power Cable Plug.....	1 pc.
		• Code Label*2 .....	1 pc.
The followings are for installation.			
• Camera Mount Bracket (w/safety wire)	.....1 pc.	*1 The CD-ROM contains the operating instructions (PDFs) and different kinds of tool software programs.	
• Camera Fixing Screw	..... 2 pcs. (incl. 1 spare)	*2 This label may be required for network management. The network administrator shall retain the code label.	

#### Optional Accessories

<b>Inner Dome Cover</b> <b>WV-Q157</b> 	<b>Indoor Dome Covers</b> <b>WV-Q156C</b> (Clear) <b>WV-Q156S</b> (Smoke) 	<b>Embedded Ceiling Mount Brackets</b> <b>WV-Q155C</b> (Clear) <b>WV-Q155S</b> (Smoke) 
<b>Wall Mount Brackets</b> <b>WV-Q154C</b> (Clear) <b>WV-Q154S</b> (Smoke) 	<b>Ceiling Mount Bracket</b> <b>WV-Q105</b> 	

\* Not compatible with optional accessories of conventional cameras





### HD/1,280 x 960 H.264 Dome Network Camera with 2x Extra Zoom (WV-SF135) VGA/640 x 480 H.264 Dome Network Camera (WV-SF132)

#### Key Features

- 720p HD images up to 30 fps (WV-SF135)
- 1.3 Megapixel high sensitivity MOS Sensor (WV-SF135)
- 0.32 Megapixel high sensitivity MOS Sensor (WV-SF132)
- Multiple H.264 (High profile) streams and JPEG streams ensure simultaneous real time monitoring and high resolution recording by "UniPhier<sup>®</sup>", Panasonic's proprietary System LSI platform.
- Full frame (Up to 30 fps) transmission at 1,280 x 960 image size (WV-SF135)
- Full frame (Up to 30 fps) transmission at VGA (640 x 480) image size (WV-SF132)
- ABS (Adaptive Black Stretch) technologies deliver wider dynamic range compared with conventional cameras.
- High sensitivity with Day & Night (Electrical) function:  
0.8 lx (Color), 0.6 lx (B/W) at F2.2 (WV-SF135)  
2.0 lx (Color), 1.3 lx (B/W) at F2.9 (WV-SF132)
- VIQS (Variable Image Quality on Specified area) technology allows the designated area 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.
- Digital Noise Reduction: 3D-DNR ensures noise reduction in various conditions.
- Progressive scan ensures clear images with less motion blur and no tearing even when the subject is moving.
- Superior color reproduction by primary (RGB) color filter
- Electronic sensitivity enhancement:  
Auto (Up to 16x) / OFF (WV-SF135)  
Auto (Up to 8x) / OFF (WV-SF132)
- 2x extra zoom at VGA resolution (WV-SF135)
- 2x, 4x digital zoom controlled by browser
- Selectable light control modes: Indoor scene (50 Hz) / Indoor scene (60 Hz) / ELC (maximum exposure time)  
Indoor scene (50 Hz/60Hz): Flicker caused by fluorescent lightning will be automatically compensated.  
ELC (maximum exposure time): The lightning control will be automatically performed by adjusting shutter speed in the range of ELC.
- VMD (Video Motion Detection) with 4 programmable detection areas, 15 steps sensitivity level and 10 steps detection size
- Face detection function detects the position of human face and the information is sent by XML or video stream.
- Meta data for VMD works with the WJ-ND400 playback VMD function.
- Privacy Zone can mask up to 2 private areas, such as house windows and entrances/exits.
- Camera title display: Up to 20 alphanumeric characters on the browser
- Alarm sources including VMD and Panasonic alarm command can trigger actions such as FTP image transfer, E-mail notification, Indication on browser, and Panasonic alarm protocol output.
- 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.
- 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 / 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
- Low profile design for discrete installation
- Wide coverage  
WV-SF135 Horizontal: 104°, Vertical: 85°  
WV-SF132 Horizontal: 68°, Vertical: 53°

#### Standard Accessories

• Installation Guide .....	1 pc.	The followings are for installation.
• Important Safety Instructions.....	1 pc.	• Installation Template Label .....
• CD-ROM*1 .....	1 pc.	1 pc.
• Code Label*2 .....	1 pc.	*1 The CD-ROM contains the operating instructions
• Lens adjuster.....	1 pc.	and different kinds of tool software programs.
		*2 This label may be required for network management.
		The network administrator shall retain the code label.

#### Optional Accessories

Smoke Dome Cover  
WV-CW6S



## Specifications

TV System		NTSC	PAL	
Camera	Image Sensor	WV-SF135: 1/3 type MOS image Sensor WV-SF132: 1/5 type MOS image Sensor		
	Effective Pixels	WV-SF135: Approx. 1.3 megapixels WV-SF132: Approx. 0.32 megapixels		
	Scanning Mode	Progressive scan		
	Scanning Area	WV-SF135: 4.8 mm (H) x 3.6 mm (V) (3/16" (H) x 5/32" (V)) WV-SF132: 2.69 mm (H) x 2.01 mm (V) (1/8" (H) x 1/16" (V))		
	Minimum Illumination	WV-SF135: Color: 0.8 lx (F2.2, Auto slow shutter: Off (1/30 s), Gain: On (High)) 0.05 lx (F2.2, Auto slow shutter: Max. 16/30 s, Gain: On (High)) BW: 0.6 lx (F2.2, Auto slow shutter: Off (1/30 s), Gain: On (High)) 0.04 lx (F2.2, Auto slow shutter: Max. 16/30 s, Gain: On (High)) WV-SF132: Color: 2.0 lx (F2.9, Auto slow shutter: Off (1/30 s), Gain: On (High)) 0.3 lx (F2.9, Auto slow shutter: Max. 8/30 s, Gain: On (High)) BW: 1.3 lx (F2.9, Auto slow shutter: Off (1/30 s), Gain: On (High)) 0.16 lx (F2.9, Auto slow shutter: Max. 8/30 s, Gain: On (High))		
	White Balance	AWC (2,000 - 10,000 K), ATW1 (2,700 - 6,000 K), ATW2 (2,000 - 6,000 K)		
	Light Control Mode	Indoor scene (50 Hz / 60 Hz) / ELC		
	Shutter Speed	1/30, 3/100, 3/120, 2/100, 2/120, 1/100, 1/120, 1/250, 1/500, 1/1,000, 1/2,000, 1/4,000, 1/8,000 (WV-SF132), 1/10,000 (WV-SF135)		
	Adaptive Black Stretch	ON / OFF		
	AGC	ON (LOW, MID, HIGH) / OFF		
	Electronic Sensitivity	WV-SF135: OFF (1/30) / AUTO (Max. 2x (2/30 s), 4x (4/30 s), 6x (6/30 s), 10x (10/30 s), 16x (16/30 s)) WV-SF132: OFF (1/30) / AUTO (Max. 2x (2/30 s), 3x (3/30 s), 4x (4/30 s), 8x (8/30 s))		
	Day & Night (electrical)	Auto / OFF		
	Digital Noise Reduction	High / Low		
	Video Motion Detection	ON / OFF, 4 areas available		
	Privacy Zone	ON / OFF (up to 2 zones available)		
	VIQS	ON / OFF		
	Camera Title (OSD)	Up to 20 characters (alphanumeric characters, marks), ON / OFF		
Lens	Vari Focal Length	1.95 mm		
	Zoom Ratio	WV-SF135: 1x Extra Zoom: 2x (at VGA resolution) WV-SF132: 1x		
	Angular Field of View	WV-SF135: Horizontal: 104°, Vertical: 85° WV-SF132: Horizontal: 68°, Vertical: 53°		
	Maximum Aperture Ratio	1 : 2.2 (WV-SF135) 1:2.9 (WV-SF132)		
	Focusing Range	0.5 m - ∞		
Adjusting Angle	Ceiling Installation Horizontal: -20° to +20° Vertical: -20° to +90° Wall Installation Horizontal: -80° to +80° Vertical: -90° to +20°			
Browser GUI	Camera Control	Brightness		
	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		
	Camera Title	Up to 20 alphanumeric characters		
	Clock Display	Time: 12H/24H, Date: 5 formats on the browser, Summer time (Manual)		
	One Shot Capture	A still picture will be displayed on a newly opened window.		
	GUI/Setup Menu Language	English, Italian, French, German, Spanish, Russian, Chinese, Japanese		
	System Log	Up to 100		
	Supported OS *2 *3	Microsoft® Windows® 7, Microsoft® Windows Vista® Microsoft® Windows® XP SP3		
	Supported Browser	Windows® Internet Explorer® 9.0 (32 bit), Windows® Internet Explorer® 8.0 (32 bit), Windows® Internet Explorer® 7.0 (32 bit), Microsoft® Internet Explorer® 6.0 SP3		
Network	Network IF	10Base-T / 100Base-TX, RJ-45 connector		
	Image Resolution	Aspect ratio: [4 : 3]	WV-SF135: H.264: 1,280 x 960 / VGA (640 x 480) / QVGA (320 x 240), up to 30 fps JPEG: 1,280 x 960 / VGA (640 x 480) / QVGA (320 x 240), up to 30 fps WV-SF132: H.264: VGA (640 x 480) / QVGA (320 x 240), up to 30 fps JPEG: VGA (640 x 480) / QVGA (320 x 240), up to 30 fps	
		Aspect ratio: [16 : 9]	WV-SF135: H.264: 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps JPEG: 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps WV-SF132: H.264: 640 x 360 / 320 x 180, up to 30 fps JPEG: 640 x 360 / 320 x 180, up to 30 fps	
	H.264 *1	Transmission Mode	Constant bitrate / Framerate priority / Best effort	
		Frame Rate	1 / 3 / 5 / 7.5 / 10 / 15 / 20 / 30 fps   1 / 3 / 5 / 7.5 / 10 / 12 / 15 / 20 / 30 fps	
		Bit Rate/ Client	64 / 128 / 256 / 384 / 512 / 768 / 1,024 / 1,536 / 2,048 / 3,072 / 4,096 / 8,192* kbps *H.264 mode only (WV-SF135)	
		Image Quality	LOW / NORMAL / FINE	
		Transmission Type	UNICAST / MULTICAST	
	JPEG *1	Image Quality	0 SUPER FINE / 1 FINE / 2 / 3 / 4 / 5 NORMAL / 6 / 7 / 8 / 9	
		Refresh Interval	LOW (10 steps: 0-9)	
Transmission Type		0.1 fps ~ 30 fps PULL / PUSH		

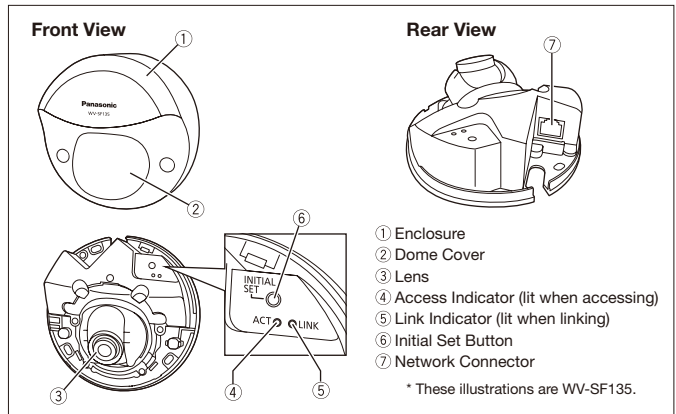
TV System		NTSC	PAL	
Network	Total Bit Rate	64 / 128 / 256 / 384 / 512 / 768 / 1,024 / 2,048 / 4,096 / 8,192 kbps / Unlimited		
	Supported Protocol	IPv6: TCP/IP, UDP/IP, HTTP, HTTPS, RTP, FTP, SMTP, DNS, NTP, SNMP, DHCPv6 IPv4: TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP		
	FTP Client	Alarm image transmission, FTP periodic transmission		
	No. of Simultaneous Users	Up to 14 users (Depends on network conditions)		
	Face Detection	ON / OFF (with XML notification)		
	Cellular Phone Compatibility	JPEG image, AUX control (by access level)		
	Mobile Terminal Compatibility	iPad, iPhone, iPod touch		
	Alarm	Alarm Source	VMD, Command alarm	
		Alarm Actions	E-mail notification, Indication on browser, FTP image transfer, Panasonic protocol output	
		Alarm Log	1,000 logs	
Schedule		VMD		
General	Safety/EMC Standard	UL (UL60950-1), FCC (Part15 ClassA), C-UL (CAN/CSA C22.2 No.60950-1), DOC (ICES003 ClassA)	CE, IEC60950-1 (EN55022 ClassB, EN55024)	
	Power Source and Power Consumption	PoE (IEEE802.3af compliant) WV-SF135: PoE 48 V: 54 mA (Class1 device) WV-SF132: PoE 48 V: 46 mA (Class1 device)		
	Ambient Operating Temperature	0 °C ~ +40 °C (32 °F ~ 104 °F)		
	Ambient Operating Humidity	Less than 90 % (no condensation)		
	Dimensions	ø100 mm x 47 mm (H) (ø3-15/16" x 1-27/32" (H))		
	Mass (approx.)	200 g (0.44 lbs.)		
	Finish	Main Body: ABS resin, Sail White Dome Section: Clear Polycarbonate Resin		

\*1 Transmission for 2 streams can be individually set in the same compression method.

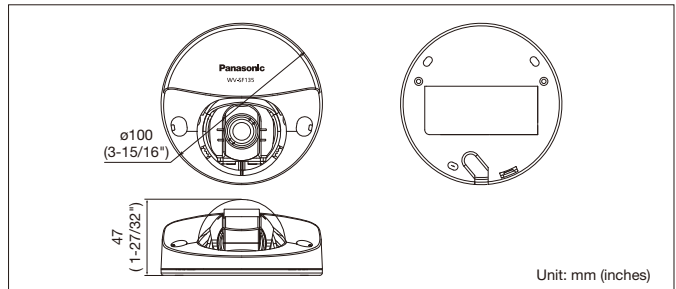
\*2 Refer to "Notes on Windows Vista® / Windows® 7" on the provided CD-ROM for further information about system requirements for a PC and precautions when using Microsoft® Windows® 7 or Microsoft® Windows Vista®.

\*3 When using IPv6 for communication, use Microsoft Windows 7 or Microsoft Windows Vista.

## Part Names and Functions



## Appearance



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- UniPhier is a registered trademark of Panasonic Corporation.
- "Super Dynamic", "SDII", "SDIII", "SD5", "SD5Link", "i-PRO" and "i-PRO SmartHD" logos are trademarks or registered trademarks of Panasonic Corporation.

### Important

- Safety Precaution: carefully read the operating instructions and installation manual before using this product.
- Panasonic can not be responsible for network performance and/or other manufacturer products that reside on the network.

- All TV pictures are simulated.
- Masses and dimensions are approximate.
- Specifications are subject to change without notice.
- These products may be subject to export control regulations.
- All product pictures are NTSC models.

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### HD / 1,280 x 960 H.264 Pan-tilt Network Camera (WV-ST165) SVGA / 800 x 600 H.264 Pan-tilt Network Camera (WV-ST162)

#### Key Features

- 720p HD images up to 30 fps (WV-ST165)
- 1.3 Megapixel high sensitivity MOS Sensor
- Super high resolution at SVGA/800 x 600 created by 1.3 Megapixel high sensitivity MOS Sensor (WV-ST162)
- Multiple H.264 (High profile) streams and JPEG streams ensure simultaneous real time monitoring and high resolution recording by "UniPhier<sup>®</sup>", Panasonic's proprietary System LSI platform.
- Full frame (Up to 30 fps) transmission at 1,280 x 960 image size (WV-ST165)
- Full frame (Up to 30 fps) transmission at SVGA (800 x 600) image size (WV-ST162)
- Wide Dynamic Range and ABS (Adaptive Black Stretch) technologies deliver wider dynamic range compared with conventional cameras.
- Face Wide Dynamic Range technology ensures clear face image.
- High sensitivity with Day & Night (Electrical) function: 0.6 lx (Color), 0.5 lx (B/W) at F2.2
- Digital Noise Reduction: 3D-DNR ensures noise reduction in various conditions.
- Progressive scan ensures clear images with less motion blur and no tearing even when the subject is moving.
- Electronic sensitivity enhancement: Auto (Up to 16x) / OFF
- Selectable light control modes: Indoor scene (50 Hz) / Indoor scene(60Hz) / ELC (maximum exposure time)  
Indoor scene (50 Hz/60Hz): Flicker caused by fluorescent lightning will be automatically compensated.  
ELC (maximum exposure time): The lightning control will be automatically performed by adjusting shutter speed in the range of ELC.
- 2x extra zoom at VGA resolution
- 8x digital zoom controlled by browser
- VMD (Video Motion Detection) with 4 programmable detection areas, 15 steps sensitivity level and 10 steps detection size
- Face detection function detects the position of human face and the information is sent by XML or video stream.
- Meta data for VMD works with the WJ-ND400 playback VMD function.
- Privacy Zone can mask up to 2 private areas, such as house windows and entrances/exits.
- Camera title display: Up to 20 alphanumeric characters on the browser
- Alarm sources including VMD and Panasonic alarm command can trigger actions such as FTP image transfer, E-mail notification, Indication on browser, and Panasonic alarm protocol output.

- 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.
- SDHC/SD Memory card slot for manual recording (H.264 / JPEG), alarm recording (H.264 / JPEG) and backup upon network failure (JPEG)
- 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 / 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
- Panning/tilting and Preset Map Shot function realizes wide range monitoring..(Horizontal angle:180° Vertical angle 123°)
- Easy installation: Easy to adjust directions.
- Interactive communication with audio: By using the audio output connector receiving audio from the cameras on a PC and transmitting audio from the PC to the cameras is available.
- Best effort on Transmission priority: In accordance with the network bandwidth, H.264 images will be transmitted with the bit rate varying between the maximum and minimum bit rates that are set for "Max bit rate (per client)".

#### Standard Accessories

- |                                       |                               |
|---------------------------------------|-------------------------------|
| • Installation Guide ..... 1 pc.      | • Flexible Stand .....1 pc.   |
| • CD-ROM <sup>*1</sup> .....1 pc.     | • SD Card Cover .....1 pc.    |
| • Code label <sup>*2</sup> .....1 pc. | • Power cable plug .....1 pc. |

<sup>\*1</sup> The CD-ROM contains the operating instructions and different kinds of tool software programs.  
<sup>\*2</sup> This label may be required for network management.  
The network administrator shall retain the code label.

# Specifications

TV System	NTSC	PAL
<b>Camera</b>		
Image Sensor	1/4 type MOS Sensor	
Effective Pixels	Approx. 1.3 megapixels	
Scanning Mode	Progressive	
Scanning Area	3.52 mm (H) x 2.64 mm (V) (7/50" (H) x 1/10" (V))	
Minimum Illumination	Color: 0.6 lx (F2.2, Auto slow shutter: Off (1/30s), Gain:On(High)) Color: 0.038 lx (F2.2, Auto slow shutter: Max. 16/30s, Gain:On(High)) <sup>1</sup> BW: 0.5 lx (F2.2, Auto slow shutter: Off (1/30s), Gain:On(High)) BW: 0.031 lx (F2.2, Auto slow shutter: Off (16/30s), Gain:On(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	Indoor scene (50 Hz / 60 Hz) / ELC	
Shutter Speed	ELC (1/30 s), ELC (3/100 s), ELC (3/120 s), ELC (2/100 s), ELC (2/120 s), ELC (1/100 s), ELC (1/120 s), ELC (1/250 s), ELC (1/500 s), ELC (1/1,000 s), ELC (1/2,000 s), ELC (1/4,000 s), ELC (1/10,000 s)	
Wide Dynamic Range	ON / OFF	
Face Wide Dynamic range	ON / OFF	
Adaptive Black Stretch	ON / OFF	
AGC	ON (HIGH) / ON (MID) / ON (LOW) / OFF	
Electronic Sensitivity UP	OFF (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(electrical)	OFF / AUTO	
Dynamic Range	24 dB typ. (WDR: ON, Light Control: ELC)	
Digital Noise Reduction	HIGH / LOW	
Video Motion Detection	ON / OFF, 4 areas available	
Privacy Zone	ON / OFF (up to 2 zones available)	
Camera Title (OSD)	Up to 20 characters (alphanumeric characters, marks) , On/Off	
<b>Lens</b>		
Focal Length	1.95 mm	
Zoom Ratio	Extra zoom: 2x (at VGA resolution)	
Angular Field of View	Horizontal: 85°, Vertical: 68°	
Maximum Aperture Ratio	1 : 2.2	
Focusing Range	0.5 m - ∞	
<b>Pan and Tilt</b>		
Panning Range	-47.5° - +47.5°	
Panning Speed	Manual: Approx. 5°/s - 80°/s, Preset: Up to approx. 80°/s	
Tilting Range	-45° to +10°	
Tilting Speed	Manual: Approx. 5°/s - 80°/s, Preset: Up to approx. 80°/s	
Number of Preset Positions	64	
PTZ Position Display	ON / OFF	
Self Return	10 s / 20 s / 30 s / 1 min / 2 min / 3 min / 5 min / 10 min / 20 min / 30 min / 60 min	
Map Shot	Preset map-shot	
<b>Browser GUI</b>		
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, extra zoom(1x - 2x) and the electronic zoom (higher zoom factors, up to 16x).	
Zoom	Up to 20 alphanumeric characters	
Camera Title	Time: 12H/24H, Date: 5 formats on the browser, Summer time (Manual)	
Clock Display	Reset	
Alarm Control	A still picture will be displayed on a newly opened window.	
One Shot Capture	Mic (Line) input: ON / OFF Volume adjustment: Low / Middle / High, Audio Output: ON / OFF Volume adjustment: Low / Middle / High	
Audio	Still or motion images recorded in the SDHC/SD memory card can be downloaded.	
SD Memory Data Download	English, Japanese, Italian, French, German, Spanish, Chinese, Russian	
GUI/Setup Menu Language	Up to 100 (Internal), Up to 4,000 (SDHC/SD memory when the recording format is set to JPEG.) error logs	
System Log	Microsoft® Windows® 7, Microsoft® Windows Vista®, Microsoft® Windows® XP SP3	
Supported OS <sup>2,3</sup>	Windows® Internet Explorer® 9.0 (32 bit), Windows® Internet Explorer® 8.0 (32 bit), Windows® Internet Explorer® 7.0 (32 bit), Microsoft® Internet Explorer® 6.0 SP3	
Supported Browser	10Base-T / 100Base-TX, RJ-45 connector (female)	
<b>Network</b>		
Network IF	WV-ST165: H.264: 1,280 x 960 / VGA (640 x 480) / QVGA (320 x 240), up to 30 fps JPEG: 1,280 x 960 / VGA (640 x 480) / QVGA (320 x 240), up to 30 fps WV-ST162: H.264: 800 x 600 / VGA (640 x 480) / QVGA (320 x 240), up to 30 fps JPEG: 800 x 600 / VGA (640 x 480) / QVGA (320 x 240), up to 30 fps	
Image Resolution <sup>4</sup>	Aspect ratio: [4 : 3] WV-ST165: H.264: 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps JPEG: 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps WV-ST162: H.264: 640 x 360 / 320 x 180, up to 30 fps JPEG: 640 x 360 / 320 x 180, up to 30 fps	
Aspect ratio: [16 : 9]	WV-ST165: H.264: 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps JPEG: 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps WV-ST162: H.264: 640 x 360 / 320 x 180, up to 30 fps JPEG: 640 x 360 / 320 x 180, up to 30 fps	
H.264	Transmission Mode Constant bitrate / Best effort	
Frame Rate	1 / 3 / 5 / 7.5 / 10 / 12 / 15 / 20 / 30 fps	
Bit Rate/Client	64 / 128 / 256 / 384 / 512 / 768 / 1,024 / 1,536 / 2,048 / 3,072 / 4,096 / 8,192 kbps	
Image Quality	LOW / NORMAL / FINE	
Refresh Interval	1 fps ~ 30 fps	
Transmission Type	UNICAST / MULTICAST	
JPEG	Image Quality 10 steps	
Refresh Interval	0.1 fps ~ 30 fps	
Transmission Type	PULL / PUSH	
Audio Compression	G.726 (ADPCM) 32 kbps / 16 kbps, G.711 64 kbps	
Audio Mode	OFF / Mic (Line) input / Audio output / Interactive (Half duplex) / Interactive (Full duplex)	
Authentication for Audio	Level 1 only / Level 2 higher / All users	
Total Bit Rate	64 / 128 / 256 / 384 / 512 / 768 / 1,024 / 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, RTCP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP	
FTP Client	Alarm image transmission, FTP periodic transmission	
No. of Simultaneous Users	Up to 14 users (Depends on network conditions)	
SDHC/SD Memory Card (Option)	Manufactured by Panasonic SDHC memory card: 4 GB, 8 GB, 16 GB, 32 GB SD memory card: 256 MB, 512 MB, 1 GB, 2 GB except miniSD card and microSD card)	
Face Detection	ON / OFF (with XML notification)	
Cellular Phone Compatibility	JPEG image, panning/tilting/zoom control, AUX control (by access level)	
Mobile Terminal Compatibility	iPad, iPhone, iPod touch (iOS 4.2.1 or later)	

TV System	NTSC	PAL
<b>Alarm</b>		
Alarm Source	VMD, Command alarm	
Alarm Actions	SDHC/SD memory recording, E-mail notification, Indication on browser, FTP image transfer, Panasonic protocol output	
Alarm Log	With SDHC/SD memory card: 5,000 logs, without SDHC/SD memory card: 1,000 logs	
Schedule	VMD	
<b>Input/Output</b>		
Monitor Output (for adjustment)	VBS: 1.0 V (p-p)/75 Ω, NTSC composite, ø3.5 mm mini jack	VBS: 1.0 V (p-p)/75 Ω, PAL composite, ø3.5 mm mini jack
Microphone/Line Input	ø3.5 mm monaural mini jack, Input impedance: Approx. 2.2 kΩ	
For microphone input	Applicable microphone: Plug-in power type, Supply voltage: 3.3 V ±0.5 V	
For line input	Input level: Approx. -10 dBV	
Audio Compression	ø3.5 mm stereo mini jack (monaural output), Output impedance: Approx. 560 Ω, Line level	
External I/O Terminals	ALARM IN 1, ALARM IN 2/ ALARM OUT, ALARM IN 3/ AUX OUT, GND, 12 V DC	
<b>General</b>		
Safety/EMC Standard	UL (UL60950-1), FCC (Part15 ClassA), C-UL (CAN/CSA C22.2 No.60950-1), DOC (ICES003 ClassA)	CE, IEC60950-1 (EN55022 ClassB, EN55024)
Power Source and Power Consumption	PoE (IEEE802.3af compliant), 12V DC PoE: 130 mA (Class 2 device), 12 V DC: 430 mA	
Ambient Operating Temperature	0 °C ~ +40 °C (32 °F ~ 104 °F)	
Ambient Operating Humidity	Less than 90 % (no condensation)	
Dimensions	100 mm (W) x 100 mm (H) x 74 mm (D) (3-47/50" x 3-47/50" (H) x 2-23/25") (excluding projection)	
Mass (approx.)	Main body 345 g (0.76 lbs.)	
Finish	Main body: PC/ABS resin, sail white Dome section: Clear polycarbonate resin	

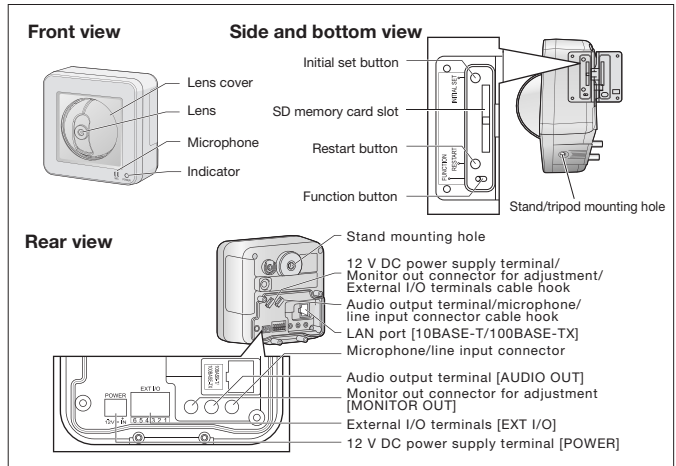
<sup>1</sup> Converted value

<sup>2</sup> Refer to "Notes on Windows Vista® / Windows® 7" on the provided CD-ROM for further information about system requirements for a PC and precautions when using Microsoft® Windows® 7 or Microsoft® Windows Vista®.

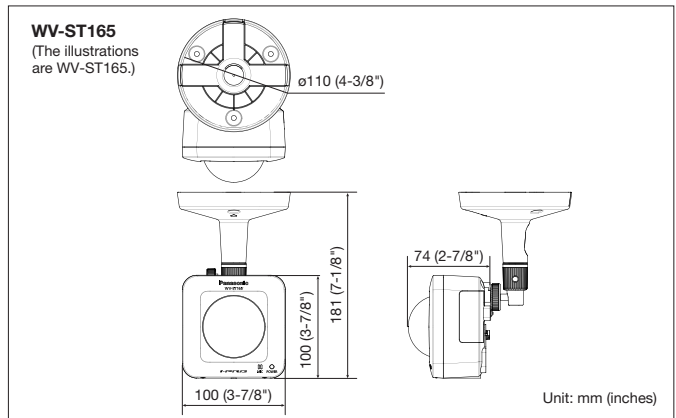
<sup>3</sup> When using IPv6 for communication, use Microsoft® Windows® 7 or Microsoft® Windows Vista®.

<sup>4</sup> Transmission for 2 streams can be individually set in the same compression method.

## Part Names and Functions



## Appearance



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- Microsoft, and Windows are registered trademarks of Microsoft Corporation in the U.S. and other countries.
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### Important

- Safety Precaution: carefully read the operating instructions and installation manual before using this product.
- Panasonic can not be responsible for network performance and/or other manufacturer products that reside on the network.

- Masses and dimensions are approximate.
- Specifications are subject to change without notice.
- These products may be subject to export control regulations.

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Printed in Japan (2A-088AA)



## HD / 1,280 x 960 H.264 Pan-tilt Network Camera (WV-SW175)

## SVGA / 800 x 600 H.264 Pan-tilt Network Camera (WV-SW172)

### Key Features

- 720p HD images up to 30 fps (WV-SW175)
- 1.3 Megapixel high sensitivity MOS Sensor
- Super high resolution at SVGA/800 x 600 created by 1.3 Megapixel high sensitivity MOS Sensor (WV-SW172)
- Multiple H.264 (High profile) streams and JPEG streams ensure simultaneous real time monitoring and high resolution recording by "UniPhier<sup>®</sup>", Panasonic's proprietary System LSI platform.
- Full frame (Up to 30 fps) transmission at 1,280 x 960 image size (WV-SW175)
- Full frame (Up to 30 fps) transmission at SVGA (800 x 600) image size (WV-SW172)
- Wide Dynamic Range and ABS (Adaptive Black Stretch) technologies deliver wider dynamic range compared with conventional cameras.
- Face Wide Dynamic Range technology ensures clear face image.
- High sensitivity with Day & Night (Electrical) function: 0.6 lx (Color), 0.5 lx (B/W) at F2.2
- Digital Noise Reduction: 3D-DNR ensures noise reduction in various conditions.
- Progressive scan ensures clear images with less motion blur and no tearing even when the subject is moving.
- Electronic sensitivity enhancement: Auto (Up to 16x) / OFF
- Selectable light control modes: Indoor scene (50 Hz) / Indoor scene(60Hz) / ELC (maximum exposure time)  
Indoor scene (50 Hz/60Hz): Flicker caused by fluorescent lightning will be automatically compensated.  
ELC (maximum exposure time): The lightning control will be automatically performed by adjusting shutter speed in the range of ELC.
- 2x extra zoom at VGA resolution
- 8x digital zoom controlled by browser
- VMD (Video Motion Detection) with 4 programmable detection areas, 15 steps sensitivity level and 10 steps detection size
- Face detection function detects the position of human face and the information is sent by XML or video stream.
- Meta data for VMD works with the WJ-ND400 playback VMD function.
- Privacy Zone can mask up to 2 private areas, such as house windows and entrances/exits.
- Camera title display: Up to 20 alphanumeric characters on the browser
- Alarm sources including VMD and Panasonic alarm command can trigger actions such as FTP image transfer, E-mail notification, Indication on browser, and Panasonic alarm protocol output.
- 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.
- SDHC/SD Memory card slot for manual recording (H.264 / JPEG), alarm recording (H.264 / JPEG) and backup upon network failure (JPEG)
- 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 / 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
- Panning/tilting and Preset Map Shot function realizes wide range monitoring..(Horizontal angle:180° Vertical angle 123°)
- Easy installation: Easy to adjust directions.
- Interactive communication with audio: By using the audio output connector and the microphone in connector, receiving audio from the cameras on a PC and transmitting audio from the PC to the cameras is available.
- IP55 rated water and dust resistant. Compatible with IEC60529
- Best effort on Transmission priority: In accordance with the network bandwidth, H.264 images will be transmitted with the bit rate varying between the maximum and minimum bit rates that are set for "Max bit rate (per client)".

### Standard Accessories

• Installation Guide .....	1 pc.	• Connector Cover .....	1 pc.
• CD-ROM*1 .....	1 pc.	• Sunshade .....	1 pc.
• Code label*2 .....	1 pc.	• Foam Strip .....	1 pc.
• Flexible Stand .....	1 pc.	• Power cable plug .....	1 pc.

\*1 The CD-ROM contains the operating instructions and different kinds of tool software programs.

\*2 This label may be required for network management.  
The network administrator shall retain the code label.

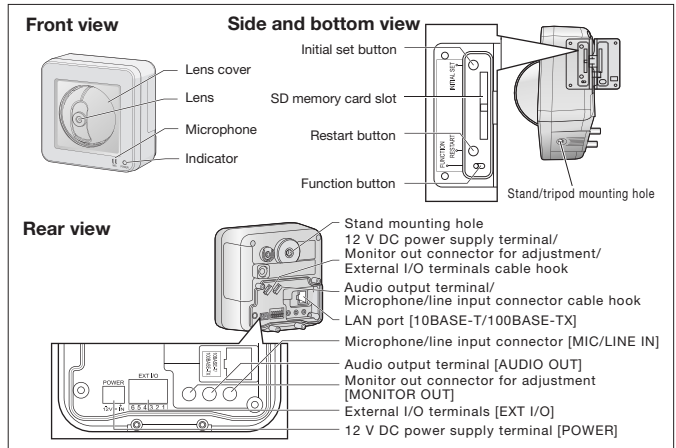
# Specifications

TV System	NTSC	PAL
<b>Camera</b>		
Image Sensor	1/4 type MOS Sensor	
Effective Pixels	Approx. 1.3 megapixels	
Scanning Mode	Progressive	
Scanning Area	3.52 mm (H) x 2.64 mm (V) (7/50" (H) x 1/10" (V))	
Minimum Illumination	Color: 0.6 lx (F2.2, Auto slow shutter: Off (1/30s), Gain:On(High)) <sup>1</sup> Color: 0.038 lx (F2.2, Auto slow shutter: Max. 16/30s, Gain:On(High)) <sup>1</sup> BW: 0.5 lx (F2.2, Auto slow shutter: Off (1/30s), Gain:On(High)) <sup>1</sup> BW: 0.031 lx (F2.2, Auto slow shutter: Off (16/30s), Gain:On(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	Indoor scene (50 Hz / 60 Hz) / ELC	
Shutter Speed	ELC (1/30 s), ELC (3/100 s), ELC (3/120 s), ELC (2/100 s), ELC (2/120 s), ELC (1/100 s), ELC (1/120 s), ELC (1/250 s), ELC (1/500 s), ELC (1/1,000 s), ELC (1/2,000 s), ELC (1/4,000 s), ELC (1/10,000 s)	
Wide Dynamic Range	ON / OFF	
Face Wide Dynamic Range	ON / OFF	
Adaptive Black Stretch	ON / OFF	
AGC	ON (HIGH) / ON (MID) / ON (LOW) / OFF	
Electronic Sensitivity UP	OFF (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 (electrical)	OFF / AUTO	
Dynamic Range	24 dB typ. (WDR: ON, Light Control: ELC)	
Digital Noise Reduction	HIGH / LOW	
Video Motion Detection	ON / OFF, 4 areas available	
Privacy Zone	ON / OFF (up to 2 zones available)	
Camera Title (OSD)	Up to 20 characters (alphanumeric characters, marks) , On/Off	
<b>Lens</b>		
Focal Length	1.95 mm	
Zoom Ratio	Extra zoom: 2x (at VGA resolution)	
Angular Field of View	Horizontal: 85°, Vertical: 68°	
Maximum Aperture Ratio	1 : 2.2	
Focusing Range	0.5 m - ∞	
<b>Pan and Tilt</b>		
Panning Range	-47.5° ~ +47.5°	
Panning Speed	Manual: Approx. 5°/s - 80°/s, Preset: Up to approx. 80°/s	
Tilting Range	-45° to +10°	
Tilting Speed	Manual: Approx. 5°/s - 80°/s, Preset: Up to approx. 80°/s	
Number of Preset Positions	64	
PTZ Position Display	ON / OFF	
Self Return	10 s / 20 s / 30 s / 1 min / 2 min / 3 min / 5 min / 10 min / 20 min / 30 min / 60 min	
Map Shot	Preset map-shot	
<b>Browser GUI</b>		
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, extra zoom(1x - 2x) and the electronic zoom (higher zoom factors, up to 16x).	
Zoom	Up to 20 alphanumeric characters	
Camera Title	Time: 12H/24H, Date: 5 formats on the browser, Summer time (Manual)	
Clock Display	Alarm Control	
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 SDHC/SD memory card can be downloaded.	
GUI/Setup Menu Language	English, Japanese, Italian, French, German, Spanish, Chinese, Russian	
System Log	Up to 100 (Internal), Up to 4,000 (SDHC/SD memory when the recording format is set to JPEG.) error logs	
Supported OS <sup>2,3</sup>	Microsoft® Windows® 7, Microsoft® Windows Vista®, Microsoft® Windows® XP SP3	
Supported Browser	Windows® Internet Explorer® 9.0 (32 bit), Windows® Internet Explorer® 8.0 (32 bit), Windows® Internet Explorer® 7.0 (32 bit), Microsoft® Internet Explorer® 6.0 SP3	
<b>Network</b>		
Network IF	10Base-T / 100Base-TX, RJ-45 connector (female)	
Image Resolution <sup>4</sup>	Aspect ratio: [4 : 3]	WV-SW175: H.264: 1,280 x 960 / VGA (640 x 480) / QVGA (320 x 240), up to 30 fps JPEG: 1,280 x 960 / VGA (640 x 480) / QVGA (320 x 240), up to 30 fps WV-SW172: H.264: 800 x 600 / VGA (640 x 480) / QVGA (320 x 240), up to 30 fps JPEG: 800 x 600 / VGA (640 x 480) / QVGA (320 x 240), up to 30 fps
	Aspect ratio: [16 : 9]	WV-SW175: H.264: 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps JPEG: 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps WV-SW172: H.264: 640 x 360 / 320 x 180, up to 30 fps JPEG: 640 x 360 / 320 x 180, up to 30 fps
H.264	Transmission Mode	Constant bitrate / Best effort
	Frame Rate	1 / 3 / 5 / 7.5 / 10 / 12 / 15 / 20 / 30 fps
	Bit Rate/Client	64 / 128 / 256 / 384 / 512 / 768 / 1,024 / 1,536 / 2,048 / 3,072 / 4,096 / 8,192 kbps
	Image Quality	LOW / NORMAL / FINE
	Refresh Interval	1 fps ~ 30 fps
	Transmission Type	UNICAST / MULTICAST
JPEG	Image Quality	10 steps
	Refresh Interval	0.1 fps ~ 30 fps
	Transmission Type	PULL / PUSH
Audio Compression	G.726 (ADPCM) 32 kbps / 16 kbps, G.711 64 kbps	
Audio Mode	OFF / Mic (Line) input / Audio output / Interactive (Half duplex) / Interactive (Full duplex)	
Authentication for Audio	Level 1 only / Level 2 higher / All users	
Total Bit Rate	64 / 128 / 256 / 384 / 512 / 768 / 1,024 / 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, RTP, FTP, RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP	
FTP Client	Alarm image transmission, FTP periodic transmission	
No. of Simultaneous Users	Up to 14 users (Depends on network conditions)	
SDHC/SD Memory Card (Option)	Manufactured by Panasonic SDHC memory card: 4 GB, 8 GB, 16 GB, 32 GB SD memory card: 256 MB, 512 MB, 1 GB, 2 GB except miniSD card and microSD card)	
Face Detection	ON / OFF (with XML notification)	
Cellular Phone Compatibility	JPEG image, panning/tilting/zoom control, AUX control (by access level)	
Mobile Terminal Compatibility	iPad, iPhone, iPod touch (iOS 4.2.1 or later)	

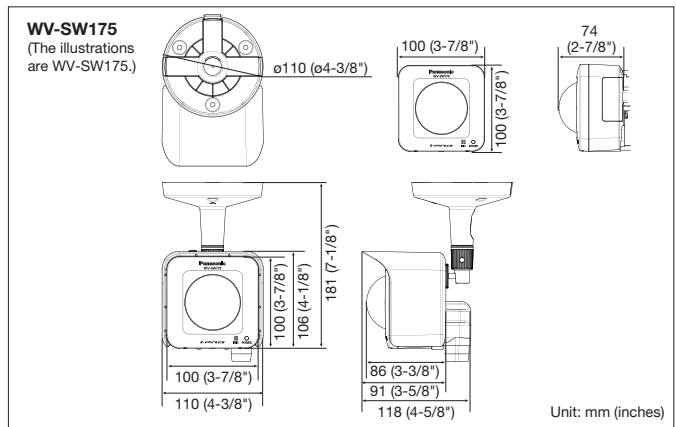
TV System	NTSC	PAL
<b>Alarm</b>		
Alarm Source	VMD, Command alarm	
Alarm Actions	SDHC/SD memory recording, E-mail notification, Indication on browser, FTP image transfer, Panasonic protocol output	
Alarm Log	With SDHC/SD memory card: 5,000 logs, without SDHC/SD memory card: 1,000 logs	
Schedule	VMD	
<b>Input/Output</b>		
Monitor Output (for adjustment)	VBS: 1.0 V [p-p]/75 Ω, NTSC composite, ø3.5 mm mini jack	VBS: 1.0 V [p-p]/75 Ω, PAL composite, ø3.5 mm mini jack
Microphone/Line Input	ø3.5 mm monaural mini jack, Input impedance: Approx. 2.2 kΩ	
For microphone input	Applicable microphone: Plug-in power type, Supply voltage: 3.3 V ±0.5 V	
For line input	Input level: Approx. -10 dBV	
Audio Output	ø3.5 mm stereo mini jack (monaural output), Output impedance: Approx. 560 Ω, Line level	
External I/O Terminals	ALARM IN 1, ALARM IN 2/ ALARM OUT, ALARM IN 3/ AUX OUT, GND, 12 V DC	
Safety/EMC Standard	DOC (ICES003 ClassA)	CE, IEC60950-1 (EN55022 ClassB, EN55024)
Power Source and Power Consumption	PoE (IEEE802.3af compliant), 12V DC PoE: 130 mA (Class 2 device), 12 V DC: 430 mA	
Ambient Operating Temperature	-20 °C ~ +50 °C (-4 °F ~ 122 °F)	
Ambient Operating Humidity	Less than 90 % (no condensation)	
Water and Dust Resistance	Camera: IP55 (IEC60529) <sup>5</sup>	
Dimensions	100 mm (W) x 100 mm (H) x 74 mm (D) (3-47/50" (H) x 2-23/25") (excluding projection)	
Mass (approx.)	Main body 350 g (0.77 lbs.)	
Finish	Main body: PC/ABS resin, silver Dome section: Clear polycarbonate resin	

- <sup>1</sup> Converted value  
<sup>2</sup> Refer to "Notes on Windows Vista® / Windows® 7" on the provided CD-ROM for further information about system requirements for a PC and precautions when using Microsoft® Windows® 7 or Microsoft® Windows Vista®.  
<sup>3</sup> When using IPv6 for communication, use Microsoft® Windows® 7 or Microsoft® Windows Vista®.  
<sup>4</sup> Transmission for 2 streams can be individually set in the same compression method.  
<sup>5</sup> Only when installation work specified in this book is properly performed and appropriate waterproof treatment is performed.

## Part Names and Functions



## Appearance



### Trademarks and registered trademarks

- Microsoft, and Windows are registered trademarks of Microsoft Corporation in the U.S. and other countries.
- iPad, iPhone and iPod touch are registered trademarks of Apple Inc.
- UniPhier is a registered trademark of Panasonic Corporation.
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- ONVIF and the ONVIF logo are trademarks of ONVIF Inc.

### Important

- Safety Precaution: carefully read the operating instructions and installation manual before using this product.
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Printed in Japan (2A-089AA)



## HD / 1,280 x 960 H.264 Pan-tilt Wireless Network Camera

### Key Features

- 720p HD images up to 30 fps
- 1.3 Megapixel high sensitivity MOS Sensor
- Multiple H.264 (High profile) streams and JPEG streams ensure simultaneous real time monitoring and high resolution recording by "UniPhier®", Panasonic's proprietary System LSI platform.
- Full frame (Up to 30 fps) transmission at 1,280 x 960 image size
- Wide Dynamic Range and ABS (Adaptive Black Stretch) technologies deliver wider dynamic range compared with conventional cameras.
- Face Wide Dynamic Range technology ensures clear face image.
- High sensitivity with Day & Night (Electrical) function: 0.6 lx (Color), 0.5 lx (B/W) at F2.2
- Digital Noise Reduction: 3D-DNR ensures noise reduction in various conditions.
- Progressive scan ensures clear images with less motion blur and no tearing even when the subject is moving.
- Electronic sensitivity enhancement: Auto (Up to 16x) / OFF
- Selectable light control modes: Indoor scene (50 Hz) / Indoor scene(60Hz) / ELC (maximum exposure time)  
Indoor scene (50 Hz/60Hz): Flicker caused by fluorescent lightning will be automatically compensated.  
ELC (maximum exposure time): The lightning control will be automatically performed by adjusting shutter speed in the range of ELC.
- 2x extra zoom at VGA resolution
- 8x digital zoom controlled by browser
- VMD (Video Motion Detection) with 4 programmable detection areas, 15 steps sensitivity level and 10 steps detection size
- Face detection function detects the position of human face and the information is sent by XML or video stream.
- Meta data for VMD works with the WJ-ND400 playback VMD function.
- Privacy Zone can mask up to 2 private areas, such as house windows and entrances/exits.
- Camera title display: Up to 20 alphanumeric characters on the browser
- Alarm sources including VMD and Panasonic alarm command can trigger actions such as FTP image transfer, E-mail notification, Indication on browser, and Panasonic alarm protocol output.
- 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.
- 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 / 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
- Panning/tilting and Preset Map Shot function realizes wide range monitoring..(Horizontal angle:180° Vertical angle 123°)
- Easy installation: Easy to adjust directions.
- Interactive communication with audio: By using the audio output connector and the microphone in connector, receiving audio from the cameras on a PC and transmitting audio from the PC to the cameras is available.
- IP55 rated water and dust resistant. Compatible with IEC60529
- Best effort on Transmission priority: In accordance with the network bandwidth, H.264 images will be transmitted with the bit rate varying between the maximum and minimum bit rates that are set for "Max bit rate (per client)".
- Smartphone monitoring : Direct camera control from smartphone
- Wireless LAN function (IEEE802.11 n/g/b) : Camera images can be monitored over a wireless router.
- WPS (Wi-Fi Protected Setup) function : WPS enables the camera to automatically obtain the connection configuration information and the security configuration information of the wireless router. WPS can be configured by pressing the WIRELESS button (WPS indicator) (PBC method) or entering an 8 digit pin code (Pin code method).

### Standard Accessories

• Installation Guide .....	1 pc.	• Foam Strip .....	1 pc.
• CD-ROM*1.....	1 pc.	• Power cable plug .....	1 pc.
• Flexible Stand .....	1 pc.	• AC Adaptor (NTSC model only) .....	1 pc.
• Connector Cover .....	1 pc.	• AC Cord (NTSC model only).....	1 pc.
• Sunshade .....	1 pc.	• Extension Cord (NTSC model only).....	1 pc.

\*1 The CD-ROM contains the operating instructions and different kinds of tool software programs.

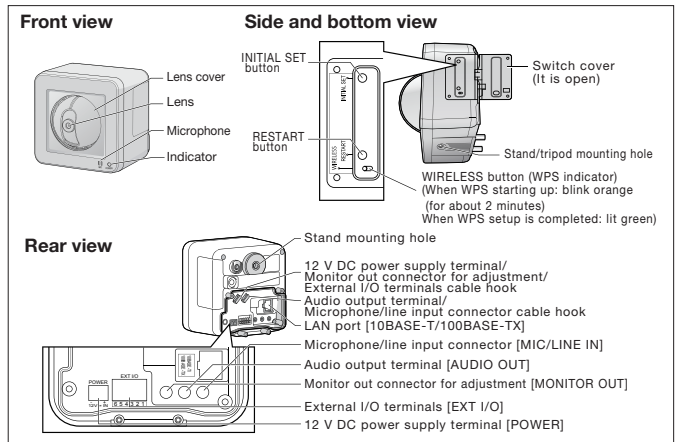
# Specifications

TV System	NTSC	PAL		
<b>Camera</b>	Image Sensor	1/4 type MOS Sensor		
	Effective Pixels	Approx. 1.3 megapixels		
	Scanning Mode	Progressive		
	Scanning Area	3.52 mm (H) x 2.64 mm (V) (7/50" (H) x 1/10" (V))		
	Minimum Illumination	Color: 0.6 lx (F2.2, Auto slow shutter: Off (1/30s), Gain:On(High)) Color: 0.038 lx (F2.2, Auto slow shutter: Max. 16/30s, Gain:On(High)) <sup>1)</sup> BW: 0.5 lx (F2.2, Auto slow shutter: Off (1/30s), Gain:On(High)) Color: 0.031 lx (F2.2, Auto slow shutter: Off (16/30s), Gain:On(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	Indoor scene (50 Hz / 60 Hz) / ELC		
	Shutter Speed	ELC (1/30 s), ELC (3/100 s), ELC (3/120 s), ELC (2/100 s), ELC (2/120 s), ELC (1/100 s), ELC (1/120 s), ELC (1/250 s), ELC (1/500 s), ELC (1/1,000 s), ELC (1/2,000 s), ELC (1/4,000 s), ELC (1/10,000 s)		
	Wide Dynamic Range	ON / OFF		
	Face Wide Dynamic Range	ON / OFF		
	Adaptive Black Stretch	ON / OFF		
	AGC	ON (HIGH) / ON (MID) / ON (LOW) / OFF		
	Electronic Sensitivity UP	OFF (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 (electrical)	OFF / AUTO		
	Dynamic Range	24 dB typ. (WDR: ON, Light Control: ELC)		
	Digital Noise Reduction	HIGH / LOW		
	Video Motion Detection	ON / OFF, 4 areas available		
	Privacy Zone	ON / OFF (up to 2 zones available)		
	Camera Title (OSD)	Up to 20 characters (alphanumeric characters, marks) , On/Off		
	<b>Lens</b>	Focal Length	1.95 mm	
Zoom Ratio		Extra zoom: 2x (at VGA resolution)		
Angular Field of View		Horizontal: 85°, Vertical: 68°		
Maximum Aperture Ratio		1 : 2.2		
Focusing Range		0.5 m - ∞		
<b>Pan and Tilt</b>		Panning Range	-47.5° - +47.5°	
	Panning Speed	Manual: Approx. 5°/s - 80°/s, Preset: Up to approx. 80°/s		
	Tilting Range	-45° to +10°		
	Tilting Speed	Manual: Approx. 5°/s - 80°/s, Preset: Up to approx. 80°/s		
	Number of Preset Positions	64		
	PTZ Position Display	ON / OFF		
	Self Return	10 s/20 s/30 s/ 1 min/ 2 min/ 3 min/ 5 min/ 10 min/ 20 min/ 30 min/ 60 min		
	Map Shot	Preset map-shot		
	Camera Control	Brightness, AUX ON / OFF		
	<b>Browser GUI</b>	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, extra zoom(1x - 2x) and the electronic zoom (higher zoom factors, up to 16x).	
Zoom		Up to 20 alphanumeric characters		
Camera Title		Up to 20 alphanumeric characters		
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		
GUI/Setup Menu Language		English, Japanese, Italian, French, German, Spanish, Chinese, Russian		
System Log		Up to 100 (Internal) error logs		
Supported OS <sup>2) 3)</sup>		Microsoft® Windows® 7, Microsoft® Windows Vista®, Microsoft® Windows® XP SP3		
Supported Browser		Windows® Internet Explorer® 9.0 (32 bit), Windows® Internet Explorer® 8.0 (32 bit), Windows® Internet Explorer® 7.0 (32 bit), Microsoft® Internet Explorer® 6.0 SP3		
<b>Wireless</b>		Antenna 802.11n	1 x 1 (Diversity)	
		Transmission system	SISO (Single Input/Single Output)-OFDM system, OFDM system, DSSS system	
		Communication standard	International standard IEEE802.11 n / IEEE802.11 g / IEEE802.11 b compliant	
		Frequency range/ Channel (center frequency)	WV-SW174W: IEEE802.11 n/g/b 2.412 GHz - 2.462 GHz (1 - 11ch)	WW-SW174WE: IEEE802.11 n/g/b 2.412 GHz - 2.472 GHz (1 - 13ch)
	Data transfer rate <sup>4)</sup>	IEEE802.11 n: 6.5 - 72.2 Mbps IEEE802.11 g: 6 - 54 Mbps IEEE802.11 b: 1 - 11 Mbps		
	Access method	Infrastructure mode		
	Authentication method	Open System		
	Security <sup>5)</sup>	WPA/WPA2-PSK (TKIP/AES) WEP (64 bit/128 bit)		
	WPS	PBC method (push button method), PIN method (PIN code method)		
	LED	Wireless (wireless status display)		
<b>Wireless hardware Network</b>	Interface	WIRELESS button (for setting up WPS with the PBC method)		
	Network IF	10Base-T / 100Base-TX, RJ-45 connector (female)		
	Image Resolution <sup>6)</sup>	Aspect ratio: [4 : 3]	H.264: 1,280 x 960 / VGA (640 x 480) / QVGA (320 x 240), up to 30 fps JPEG: 1,280 x 960 / VGA (640 x 480) / QVGA (320 x 240), up to 30 fps	
		Aspect ratio: [16 : 9]	H.264: 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps JPEG: 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps	
	H.264	Transmission Mode	Constant bitrate / Best effort	
		Frame Rate	1 / 3 / 5 / 7.5 / 10 / 12 / 15 / 20 / 30 fps	
		Bit Rate/Cliient	64 / 128 / 256 / 384 / 512 / 768 / 1,024 / 1,536 / 2,048 / 3,072 / 4,096 / 8,192 kbps	
	JPEG	Image Quality	LOW / NORMAL / FINE	
		Refresh Interval	1 fps - 30 fps	
		Transmission Type	UNICAST / MULTICAST	
	Audio Compression	Image Quality	10 steps	
		Refresh Interval	0.1 fps - 30 fps	
		Transmission Type	PULL / PUSH	
	Audio Compression	G.726 (ADPCM) 32 kbps / 16 kbps, G.711 64 kbps		
	Audio Mode	OFF / Mic (Line) input / Audio output / Interactive (Half duplex) / Interactive (Full duplex)		
Authentication for Audio	Level 1 only / Level 2 higher / All users			
Total Bit Rate	64 / 128 / 256 / 384 / 512 / 768 / 1,024 / 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			
No. of Simultaneous Users	Up to 14 users (Depends on network conditions)			
Face Detection	ON / OFF (with XML notification)			
Cellular Phone Compatibility	JPEG image, panning/tilting/zoom control, AUX control (by access level)			
Mobile Terminal Compatibility <sup>7)</sup>	iPad, iPhone, iPod touch (iOS 4.2.1 or later), Android™ mobile terminals			

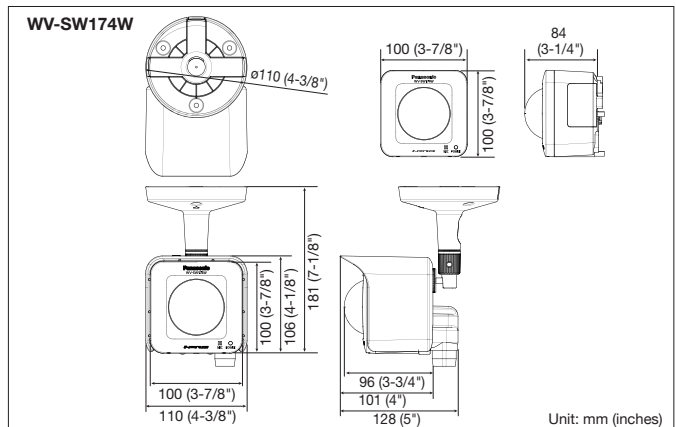
TV System	NTSC	PAL	
<b>Alarm</b>	Alarm Source	VMD, Command alarm	
	Alarm Actions	E-mail notification, Indication on browser, FTP image transfer, Panasonic protocol output	
	Alarm Log	1,000 logs	
	Schedule	VMD	
<b>Input/ Output</b>	Monitor Output (for adjustment)	VBS: 1.0 V [p-p]/75 Ω NTSC composite, ø3.5 mm mini jack	VBS: 1.0 V [p-p]/75 Ω PAL composite, ø3.5 mm mini jack
	Microphone/Line Input	ø3.5 mm monaural mini jack, Input impedance: Approx. 2.2 kΩ	
	For microphone input	Applicable microphone: Plug-in power type, Supply voltage: 3.3 V ±0.5 V	
<b>General</b>	For line input	Input level: Approx. -10 dBV	
	Audio Output	ø3.5 mm stereo mini jack (monaural output), Output impedance: Approx. 560 Ω, Line level	
	External I/O Terminals	ALARM IN 1, ALARM IN 2/ ALARM OUT, ALARM IN 3/ AUX OUT, GND, 12 V DC	
	Safety/EMC Standard	DOC (ICES003 ClassA) Wireless : FCC Part15C	CE, IEC60950-1 (EN55022 ClassB, EN55024) Wireless : EN300 328
	Power Source and Power Consumption	12V DC , 510 mA	
	Ambient Operating Temperature	-20 °C ~ +50 °C (-4 °F ~ 122 °F)	
	Ambient Operating Humidity	Less than 90 % (no condensation)	
	Water and Dust Resistance	Camera: IP55 (IEC60529) <sup>8)</sup>	
	Dimensions	100 mm (W) x 100 mm (H) x 84 mm(D) (3-7/8" x 3-7/8" (H) x 3-1/4" (D)) (excluding projection)	
	Mass (approx.)	Main body 370 g (0.82 lbs)	
Finish	Main body: PC/ABS resin, silver Dome section: Clear polycarbonate resin		

- <sup>1)</sup> Converted value <sup>2)</sup> Refer to "Notes on Windows Vista® / Windows® 7" on the provided CD-ROM for further information about system requirements for a PC and precautions when using Microsoft® Windows® 7 or Microsoft® Windows Vista®.  
<sup>3)</sup> When using IPv6 for communication, use Microsoft® Windows® 7 or Microsoft® Windows Vista®.  
<sup>4)</sup> The actual line speed may be different depending on the network environment and the wireless devices connected. <sup>5)</sup> Depending on the wireless access point (wireless router) used, connections may not be possible between the camera and the wireless.  
When connecting with 802.11n, select WPA-PSK(AES) or WPA2-PSK(AES) for security.  
<sup>6)</sup> Transmission for 2 streams can be individually set in the same compression method.  
<sup>7)</sup> For further information about compatible devices, refer to our website (<http://panasonic.net/pss/security/support/info.html>).  
<sup>8)</sup> Only when installation work specified in this book is properly performed and appropriate waterproof treatment is performed.

## Part Names and Functions



## Appearance



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### Important

- Safety Precaution: carefully read the operating instructions and installation manual before using this product.
- Panasonic can not be responsible for network performance and/or other manufacturer products that reside on the network.
  - Masses and dimensions are approximate.
  - Specifications are subject to change without notice.
  - These products may be subject to export control regulations.

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