



### 4K (3,840 x 2,160) H.264 Vandal Resistant Weatherproof Network Camera

#### Key Features

- **4K (3,840 x 2,160)** images up to 30 fps, **12M pixel (4,000 x 3,000)** images up to 15 fps
- Newly developed 1/1.7 type high sensitivity MOS image sensor
- **Ultrawide x6 zoom lens** with the newly developed **3-drive lens** system (Horizontal Angle: 101°(wide) to 18°(tele)) [4 : 3 mode]
- Multiple H.264 (High profile) streams and JPEG streams ensure simultaneous real time monitoring and high resolution recording.
- Digital Noise Reduction: 3D-DNR ensures noise reduction in various conditions.
- **Smart coding Technology : Group of Pictures (GOP) control** function removes unnecessary information from the frame for realizing efficient encoding.  
**Auto VIQS** (Variable Image Quality on Specified area) function recognizes the no movement area in a video automatically and lowering the resolution of it to reduce the data size.  
**GOP control** and **Auto VIQS** can save the network bandwidth and the disk space of recorder effectively.
- High sensitivity with Day/Night (ICR\*) function:  
0.3 lx (Color), 0.04 lx (B/W) at F1.6  
\* ICR: IR Cut filter Removal
- Smart **IR LED** equipped: The equipped infrared LED makes it possible to take pictures at zero lx. **The IR LED** is controlled to match the environment, thereby the camera provides clear images of human faces without white blur.
- **ABF (Auto Back Focus)** ensures easy installation.
- **VIQS** (Variable Image Quality on Specified area) technology allows the designated **eight locations** 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.
- Electronic sensitivity enhancement: Auto (Up to 16/30s) / OFF
- Selectable light control modes:  
Outdoor scene, Indoor scene (50 Hz) / Indoor scene (60 Hz), Fix shutter
- 1x, 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.
- SDXC/SDHC/SD Memory card slot for manual recording (H.264 / JPEG), alarm recording (H.264 / JPEG) and backup upon network failure (H.264 / JPEG). Realize long-term recording and auto backup function.
- **Fog compensation function** equipped as standard.
- **HLC (High Light Compensation) technology** reduces strong light sources such as vehicle headlights to prevent camera being blinded.
- **SCC (Super Chroma Compensation) function** realizes a better color reproducibility even in low illumination.
- 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
- IP66 rated water and dust resistant. Compatible with IEC60529 measurement standard, Type 4X(UL50), NEMA 4X compliant.
- Dehumidification device for use with various weather conditions
- Vandal resistant mechanism for high reliability (IK10)
- **Rain wash coating lens cover**

# Specifications

<b>Camera</b>	Image Sensor	1/1.7 type MOS image sensor	
	Scanning Mode	Progressive scan	
	Scanning Area	7.40 mm (H) x 5.55 mm (V) [9/32 inches (H) x 7/32 inches (V)]	
	Minimum Illumination	Color : 0.3 lx, BW : 0.04 lx, BW(with IR LED) : 0 lx (F1.6, Maximum shutter : Off (1/30s), Gain : High), Color : 0.02 lx, BW 0.003 lx (F1.6, Maximum shutter : Max. 16/30s, AGC : High) <sup>*1</sup>	
	IR LED Light	Off / Auto (High / Mid / Low)	
	IR LED irradiation distance	Approx. 30 m (98.43 feet) at IR LED: Auto (High)	
	White Balance	ATW1 (2,700 - 6,000 K) / ATW2 (2,000 - 6,000 K) / AWC (2,000 - 10,000 K)	
	Light Control Mode	Outdoor scene/ Indoor scene (50 Hz) / Indoor scene (60 Hz) / Fix shutter	
	Maximum shutter	max. 1/1000 s, max. 1/500 s, max. 1/250 s, max. 1/120 s, max. 1/100 s, max. 2/120 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	
	Shutter Speed	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	
	Wide Dynamic Range	On / Off	
	Adaptive Black Stretch	On / Off (only when Wide dynamic range)	
	Fog compensation	On / Off (only when Wide dynamic range/ Adaptive black stretch: Off)	
	High light compensation(HLC)	On / Off (only when Wide dynamic range / Back light compensation (BLC): Off)	
	Gain (AGC)	On (High) / On (Mid) / On (Low) / Off	
	Day/Night (ICR)	Off / On / Auto1 (Normal) / Auto2 (IR Light) / Auto3 (SCC)	
	Digital Noise Reduction	High / Low	
	Video Motion Detection (VMD)	On / Off, 4 areas available	
	Privacy Zone	On / Off (up to 8 zones available)	
	VIQS	On / Off (Max. 8 locations)	
	Camera Title (OSD)	On/ Off Up to 20 characters (alphanumeric characters, marks)	
	Focus Adjustment	ABF / MANUAL (Htmi only)	
	Vari Focal Length	4.2 mm - 25.2 mm (5/32 inches - 1 inch)	
	Angular Field of View	[16 : 9 mode] Horizontal : 17 ° (TELE) - 97 ° (WIDE) Vertical : 9.4 ° (TELE) - 55 ° (WIDE) [4 : 3 mode] Horizontal : 18 ° (TELE) - 101 ° (WIDE) Vertical : 13 ° (TELE) - 76 ° (WIDE)	
	Maximum Aperture Ratio	1 : 1.6 (WIDE) - 1 : 3.3 (TELE)	
	Focusing Range	1.0 m - ∞	
	<b>Browser GUI</b>	Cropping	H.264(1) Ch1 - Ch4 Up to 4 image capture areas can be specified. *only when Image capture mode : Cropping [16:9] (30fps mode)
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	
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	
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	
System Log		Up to 100 (Internal), Up to 4,000 (SDXC/SDHC/SD memory) error logs	
Supported OS <sup>*2</sup>		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)	
<b>Network</b>		Network IF	10Base-T / 100Base-TX, RJ45 connector
	Image Resolution <sup>*3</sup>	<b>•8 mega pixel [16 : 9] (30 fps mode)*</b> H.264(1): 3,840 x 2,160, up to 30 fps JPEG(2): 640 x 360, up to 30 fps * "H.264(2)" and "JPEG(1)" can not be selected. <b>•8 mega pixel [16 : 9] (15 fps mode)</b> H.264(1): 3,840 x 2,160, up to 15 fps H.264(2): 1,920 x 1,080 / 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps JPEG(1): Enables the setting of the resolution in the same way as for H.264 (1), H.264 (2), or JPEG (2). JPEG(2): 640 x 360 <b>•12 mega pixel [4 : 3] (15 fps mode)</b> H.264(1): 4,000 x 3,000, up to 15 fps H.264(2): 640 x 480 / 320 x 240, up to 5 fps JPEG(1): Enables the setting of the resolution in the same way as for H.264 (1), H.264 (2), or JPEG (2). JPEG(2): 640 x 480 <b>•5 mega pixel [4 : 3] (30 fps mode)</b> H.264(1): 2,560 x 1,920 / 2,048 x 1,536 / 1,600 x 1,200 / 1,280 x 960 / 800 x 600, up to 30 fps H.264(2): 1,280 x 960 / 800 x 600 / 640 x 480 / 320 x 240, up to 30 fps JPEG(1): Enables the setting of the resolution in the same way as for H.264 (1), H.264 (2), or JPEG (2). JPEG(2): 640 x 480 <b>•4 mega pixel [16 : 9] (30 fps mode)*</b> H.264(1): 2,560 x 1,440 / 1,920 x 1,080 / 1,280 x 720, up to 30 fps H.264(2): 1,920 x 1,080 / 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps H.264(3): 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps H.264(4): 640 x 360, up to 30 fps JPEG(2): 640 x 360 * "JPEG(1)" can not be selected. <b>•Cropping [16 : 9] (30 fps mode)</b> H.264(1): Ch1 1,280 x 720 / 640 x 360, up to 30 fps Cropping H.264(1): Ch2 1,280 x 720 / 640 x 360, up to 30 fps Cropping H.264(1): Ch3 1,280 x 720 / 640 x 360, up to 30 fps Cropping H.264(1): Ch4 1,280 x 720 / 640 x 360, up to 30 fps Cropping H.264(2): 1,920 x 1,080 / 1,280 x 720 / 640 x 360 / 320 x 180, up to 30 fps JPEG(1): Enables the setting of the resolution in the same way as for H.264 (2) or JPEG (2). JPEG(2): 640 x 360	
	H.264	Transmission priority	Constant bit rate / Variable bit rate / Frame rate / Best effort / Advanced VBR
		Frame Rate	1 / 3 / 5 / 7.5 / 10 / 12 / 15 / 20 / 30* fps * The frame rate is limited to "bit rate". When a value with an asterisk (*) is selected, the actual frame rate may be lower than the value selected.

<b>Network</b>	H.264	Bit Rate/Client	64 / 128 / 256 / 384 / 512 / 768 / 1,024 / 1,536 / 2,048 / 3,072 / 4,096 / 6,144 / 8,192 / 10,240 / 12,288 / 14,336 / 16,384 / 20,480 / 24,576 / 30,720 / 40,960 kbps * The available range of the H.264 bit rate varies depending on the setting selected for "image capture size".	
		Image Quality	<When Constant bit rate or Best effort is selected> Low / Normal / Fine <When Variable bit rate is selected> 0 Super Fine / 1 Fine / 2 / 3 / 4 / 5 Normal / 6 / 7 / 8 / 9 Low	
		Smart Coding mode	On (Low / Mid / High) / Off (Only when "Variable bit rate" is selected)	
		Refresh Interval	0.2 / 0.25 / 0.33 / 0.5 / 1 / 2 / 3 / 4 / 5 s	
		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>*4</sup> 64 kbps / 96 kbps / 128 kbps	
		Audio transmission/reception	Off / Mic (Line) input / Audio output / Interactive (Half duplex) / Interactive (Full duplex)	
		Authentication for Audio Supported Protocol	Level 1 only / Level 2 higher / All users	
		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.)	
		Maximum concurrent access number	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 * Use the SD memory card manufactured by Panasonic (SD speed class 4 or higher), and in the case of SD Speed Class 10, that complies with UHS-1(Ultra High Speed-1). 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)	
		Cellular Phone Compatibility	JPEG image, AUX control (by access level)	
	Mobile Terminal Compatibility <sup>*5</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		
	Alarm Actions	SDXC/SDHC/SD memory recording, E-mail notification, Indication on browser, FTP image transfer, Panasonic protocol output		
	Alarm Log	With SDXC/SDHC/SD memory card: 50,000 logs		
	Schedule	Alarm / VMD / Access permission / H.264 recording / Scene file / FTP periodic image transmission		
<b>Input/ Output</b>	Monitor Output (for adjustment)	VBS: 1.0 V [p-p] / 75 Ω, NTSC / PAL composite, RCA jack		
	Microphone/Line Input	Ø3.5 mm stereo mini jack Input impedance: Approx. 2 kΩ (unbalanced)		
		For microphone input 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)		
		For line input Input level: Approx. -10 dBV		
	Audio Output <sup>*6</sup>	Ø3.5 mm stereo mini jack Output impedance: Approx. 600 Ω (unbalanced) / Output level: -20 dBV Can be used as the monitor output by switching the audio/monitor output plug.		
	External I/O Terminals	ALARM IN1 (DAY/NIGHT IN), ALARM IN2 (ALARM OUT), ALARM IN3 (AUX OUT, DAY/NIGHT OUT)		
<b>General</b>	Safety	UL (UL60950-1, UL60950-2), C-UL (CAN/CSA C22.2 No.60950-1), CE, IEC60950-1		
	EMC	FCC (Part15 ClassA), ICES003 ClassA, EN55023 ClassB, EN55022 ClassB, EN55024		
	Power Source and Power Consumption <sup>*7</sup>	DC12 V : 1050 mA / Approx. 12.6 W PoE (IEEE802.3af compliant) / PoE DC48 V : 265 mA / Approx. 12.95 W (Class 0 device)		
	Ambient Operating Temperature	-45 °C to +50 °C (-49 °F to 122 °F)		
	Ambient Operating Humidity	10 to 90 % (no condensation)		
	Impact Protection	Compliant with IK10 (IEC 62262)		
	Water and Dust Resistance <sup>*8</sup>	Main body: IP66 (IEC60529), Type 4X (UL50), NEMA 4X compliant		
	Dimensions	When directly mounting the camera to a ceiling or wall 131 mm {5-5/32 inches} (W), 130 mm {5-1/8 inches} (H), 380 mm {1ft 2-31/32 inches} (D) When using the adapter box 133 mm {5-1/4 inches} (W), 133 mm {5-1/4 inches} (H), 420 mm {1ft 4-17/32 inches} (D)		
	Mass (approx.)	When directly mounting the camera to a ceiling or wall : Approx. 2.6 kg (5.73 lbs) When using the adapter box : Approx. 3.1 kg (6.82 lbs)		
	Finish	Main body : Aluminum die cast or resin, metallic silver Transparent section of front cover : Polycarbonate resin, Clear (with rain wash coating)		

<sup>\*1</sup> Converted value

<sup>\*2</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>\*3</sup> To display the 4K resolution images in 4K monitor, graphics board equipped with a display port and display port cable are required. For further information about the recommended graphic card, refer to our web site ( <http://security.panasonic.com/support/info/> ).

<sup>\*4</sup> AAC-LC (Advanced Audio Coding - Low Complexity) is only used when recording audio on a SD memory card.

<sup>\*5</sup> For further information about compatible devices, refer to our website above.

<sup>\*6</sup> In order to be able to switch the monitor output, "8 mega pixel [16 : 9] (15 fps mode)",

"5 mega pixel [4:3] (30 fps mode)", or "12 mega pixel [4 : 3] (15 fps mode)" must be selected for "Image capture mode".

For information about usage limitations, refer to "2.3.1 Configure the basic settings [Basic]" in the "Operating Instructions".

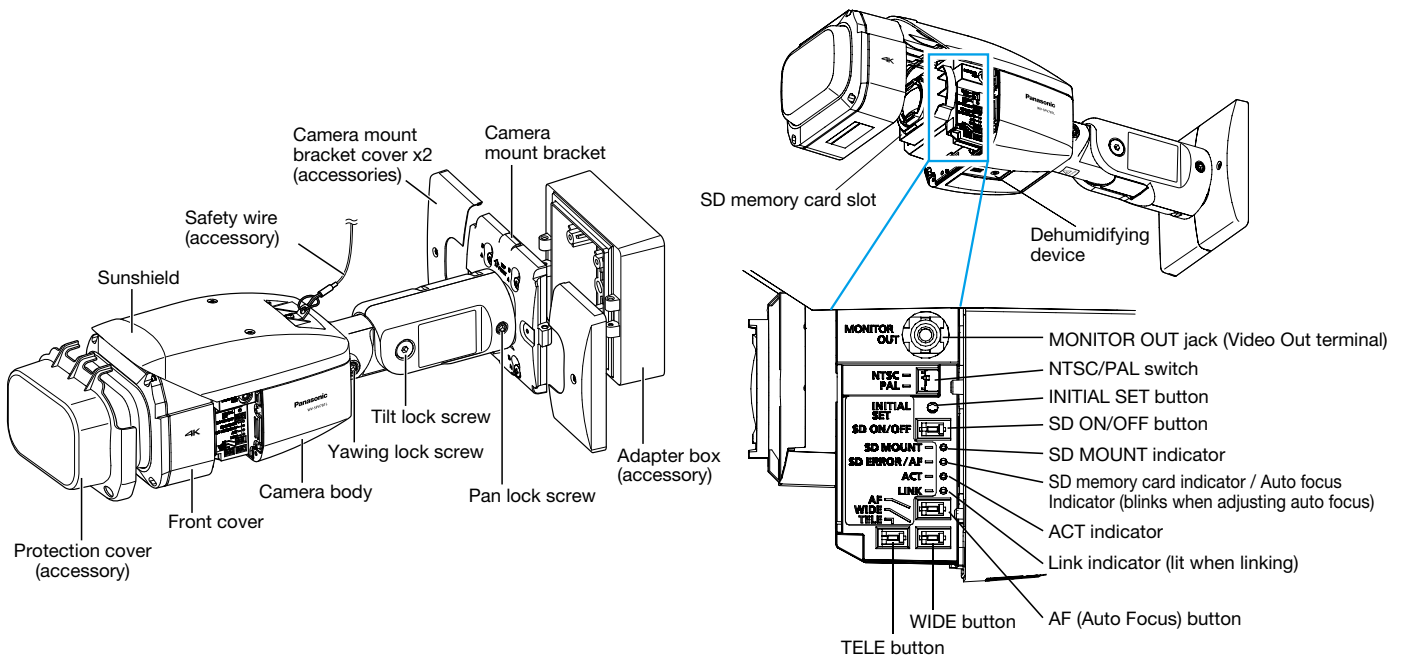
<sup>\*7</sup> Refer to our website ( <http://security.panasonic.com/support/info/> ) for further information about Power source and Power consumption information.

<sup>\*8</sup> Only when installation work is properly performed according to the instructions in this book and appropriate waterproof treatment is performed.

<b>Camera mount bracket</b>	Adjustment angle	Horizontal	Wall mounting	±115° (TILT rotation part) <sup>*</sup>	Ceiling mounting	±180° (PAN rotation part)
		Vertical	±115° (TILT rotation part) <sup>*</sup>	0° to 115° (TILT rotation part)		
		Yaw	from -115° to +200 (YAW rotation part) <sup>*</sup>	from -115° to +200 (YAW rotation part)		
	Dimensions	125 mm (W), 125 mm (H) [4-15/16 inches (W), 4-15/16 inches (H)] (Camera mount bracket installation section)				
Finish			Aluminum die cast, metallic silver			

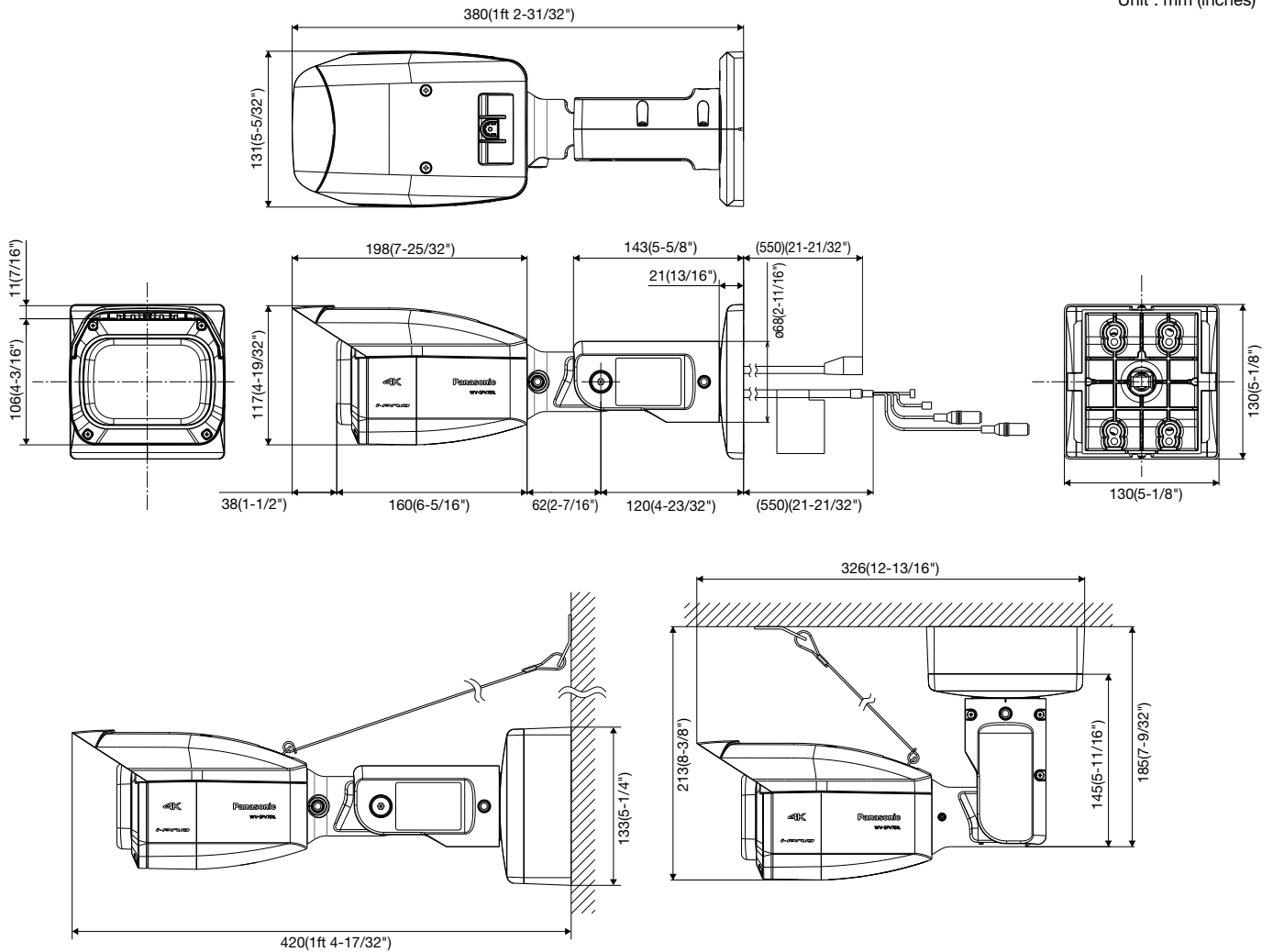
<sup>\*</sup>You can change between horizontal and vertical angles by adjusting the PAN rotation part.

## Part Names and Functions



## Appearance

Unit : mm (inches)



## Standard Accessories

- Important Information ..... 1 pc.
- Installation Guide ..... 1 set.

The following parts are used during installation procedures.

- Camera mount bracket cover ..... 2 pcs.
- Camera mount bracket cover fixing screw(M3 x 6 mm {1/4 inches}) .....  
.....3 pcs. (of them, 1 for spare)
- Safety wire ..... 1 pc.
- Safety wire lug ..... 1 pc.
- Wire lug fixing screw (M3 x 10 mm {3/8 inches}) ..... 2 pcs. (of them, 1 for spare)
- Waterproof tape ..... 1 pc.
- 4P alarm cable ..... 1 pc.
- 2P power cable ..... 1 pc.
- LAN cable cover ..... 1 pc.
- MONITOR OUT conversion plug \*3 ..... 1 pc.

- CD-ROM \*1 ..... 1 pc.
- Code label \*2 ..... 1 pc.

- Protection cover ..... 1 pc.
- Adapter box ..... 1 pc.
- Mounting screws for adapter box (M5 x 20 mm {13/16 inches}) .....  
..... 5 pcs.(of them, 1 for spare)
- Adapter box mounting screw (M4 x 35 mm {1- 3/8 inches}) .....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.

\*3 This can be used as MONITOR OUT by switching the audio/monitor output cable of the unit using software switching.

Connect the MONITOR OUT conversion plug to the audio/monitor output cable and use it when converting the ø3.5 mm stereo mini jack to the RCA pin jack output.

### Trademarks and registered trademarks

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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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