



Full HD / 1,920 x1,080 H.264 Camera featuring Optical 30x zoom and Super Dynamic

Key Features

- 1080p Full HD images up to 30 fps
- Super high resolution at Full HD / 1,920 x 1,080
- Multiple H.264 (High profile) streams and JPEG streams ensure simultaneous real time monitoring and high resolution recording.
- Full frame (Up to 30 fps) transmission at 1,920 x 1080 image size
- **30x optical zoom**
90x extra optical zoom at 640x360 resolution with 12x digital zoom enabling 1080x zoom.
- **Super Dynamic** and ABS (Adaptive Black Stretch) technologies deliver 128x wider dynamic range compared to conventional cameras.
- **Face Super Dynamic** technology ensures clear face image.
- High sensitivity with Day/Night (ICR*) function:
0.15 lx (Color), 0.018 lx (B/W) at F1.6
* ICR: IR Cut filter Removal
- **VIQS** (Variable Image Quality on Specified area) technology allows the designated **2 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.
VIQS can be set on preset position (1 to 8) and except preset.
- **Smart coding Technology** : Group of Pictures (GOP) control function removes unnecessary information from the frame for realizing efficient encoding.
- Electronic sensitivity enhancement: Auto (Up to 16x) / OFF
- 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.
- **360 degrees endless Panning**
- Advanced auto tracking: The camera automatically pans and tilts to follow a moving subject and keep it in the center of the image.
- PTZ control can be taken very smoothly 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 256 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 Detection) with 4 programmable detection areas, 15 steps sensitivity level and 10 steps detection size
- Privacy Zone can mask up to 32 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 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.
- 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.
- SDXC/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 / Portuguese / Russian / Chinese / Japanese
- Supports SSL, DDNS (viewnetcam, RFC2136)
- Still images (JPEG) can be viewed on mobile phones via Internet.
- **Fog compensation function** equipped as standard.
- Dust-resistant design: Minimize degradation of pan/tilt mechanism

Standard Accessories

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| <ul style="list-style-type: none"> • Installation Guide.....1 pc. • CD-ROM*11 pc. • Code Label*21 pc. <p>*1 The CD-ROM contains the operating instructions (PDFs) and different kinds of tool software programs.
*2 This label may be required for network management. The network administrator shall retain the code label.</p> | <p>The followings are for installation.</p> <ul style="list-style-type: none"> • Camera Mount Bracket1 pc. • Camera Fixing Screw (M3)2 pcs. (incl. 1 spare) • Decorative Cover.....1 pc. • Power cable Plug1 pc. |
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Optional Accessories



* This catalog is provided for all over the world. Some accessories may not be available in some countries.

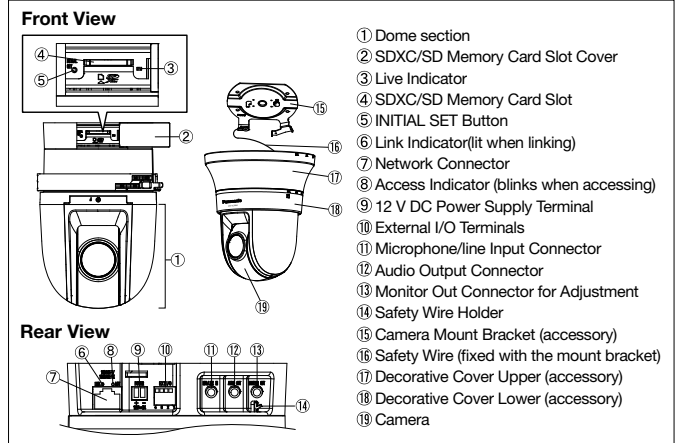
Specifications

Camera	Image Sensor	Approx. 1/3 type MOS image sensor	
	Scanning Mode	Progressive scan	
	Scanning Area	5.35 mm(H) x 3.34 mm(V) [7/32 inches(H) x 1/8 inches(V)]	
	Minimum Illumination	Color: 0.15 lx, BW: 0.018 lx (F1.6, Auto slow shutter: Off (1/30s), Gain: On(High)) Color: 0.009 lx, BW: 0.001 lx (F1.6, Auto slow shutter: Max. 16/30s, Gain: On(High)) ¹	
	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: Automatic integration of ALC and ELC Indoor scene [50 Hz]: Automatic integration of ALC and ELC (up to 1/100 s) Indoor scene [60 Hz]: Automatic integration of ALC and ELC (up to 1/120 s) Fix shutter	
	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	
	Super Dynamic	On / Off	
	Face Super Dynamic	On / Off	
	Dynamic Range	105 dB typical (Super Dynamic: On, Light Control mode: Indoor) *Theoretical value. Conventional measuring method: 52 dB	
	Adaptive Black Stretch	On / Off	
	Fog compensation	On / Off (Super Dynamic and Adaptive black stretch: Off)	
	Gain (AGC)	On (High) / On (Mid) / On (Low) / Off	
	Auto slow shutter	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 (ICR)	Mode: AUTO1 / AUTO2 / AUTO3 / On / Off, Level: High / Low, with external control	
	Digital Noise Reduction	High / Low	
	Video Motion Detection	4 areas, Sensitivity: 15 steps, Detection size: 10 steps	
	Privacy Zone	Gray / Mosaic / Off (up to 32 zones available)	
	VIQS	On / Off Up to 2 zones at preset position 1-8 and except preset	
	Auto Image Stabilizer	On / Off	
	Camera Title (OSD)	On / Off Up to 20 characters (alphanumeric characters, marks)	
	Focus distance	Limited (around 1.5m(4.9 ft)) / Unlimited	
	Focal Length	4.3 mm to 129.0 mm (3/16 inches - 5-3/32 inches)	
	Zoom Ratio	30x / 90x with extra optical zoom (at 640 x 360)	
	Digital (Electrical) Zoom	12x (Max. 1080x combined with extra optical zoom at 640 x 360)	
Angular Field of View	H: 2.3° (TELE) - 64° (WIDE), V: 1.3° (TELE) - 38° (WIDE) ([16:9] mode) [*] H: 1.7° (TELE) - 46° (WIDE), V: 1.3° (TELE) - 38° (WIDE) ([4:3] mode)		
Maximum Aperture Ratio	1 : 1.6 (WIDE) - 4.7 (TELE)		
Focusing Range	2.0 m - ∞		
Aperture Range	F1.6 - Close		
Pan and Tilt	Panning Range	360° endless	
	Panning Speed	Manual: approx. 0.065°/s - 120°/s, Up to 256 steps (depending on the controller) Preset: up to approx. 300°/s	
	Tilting Range	-25° to 205° (upward-level-downward) Selectable tilting angle: 10° / 5° / 3° / 0° / -3° / -5° / -10° / -15° / -20° / -25°	
	Tilting Speed	Manual: approx. 0.065°/s to 120°/s, Up to 256 steps (depending on the controller) Preset: up to approx. 300°/s	
	Proportional Pan/Tilt Control	Yes	
	Number of Preset Positions	256	
	Auto Mode	Auto track / Auto pan / Preset sequence / 360 map-shot / Patrol	
	Image Hold	On / Off	
	Camera position display	Off / Pan-Tilt degree - Zoom ratio display / Direction display	
	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	360° map shot / preset map shot		
Browser GUI	Camera Control	Pan/Tilt (256 steps), Zoom, Focus, Click centering, Drag zoom, Iris, Preset position call and program, Auto mode	
	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.	
	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 when the recording format is set to JPEG) error logs	
Supported OS ²	Microsoft® Windows® 10, 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	Network IF	10Base-T / 100Base-TX, RJ45 connector	
	Image Resolution	• 2 mega pixel [16 : 9][30 fps] 1,920 x 1,080 / 640 x 360 / 320 x 180	
	JPEG (MJPEG)	• 1.3 mega pixel [16 : 9][30 fps] 1,280 x 720 / 640 x 360 / 320 x 180 • 1.3 mega pixel [4 : 3][30 fps] 1,280 x 960 / VGA(640 x 480) / QVGA(320 x 240)	
	H.264 ³	Transmission Mode	Constant bit rate / Variable bit rate / Frame rate priority / Best effort / Advanced VBR
		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 / 6,144 / 8,192 / 10,240 / 12,288 / 14,336 kbps
	JPEG	Image Quality	Low / Normal / Fine
		Refresh Interval	0.2 / 0.25 / 0.33 / 0.5 / 1 / 2 / 3 / 4 / 5 s
		Transmission Type	Unicast / Multicast
	Audio Compression	Image Quality	0 SUPER FINE / 1 FINE / 2 / 3 / 4 / 5 NORMAL / 6 / 7 / 8 / 9 LOW (10 steps: 0-9)
		Refresh Interval	0.1 fps to 30 fps
		Transmission Type	Pull / Push
	Audio Mode	G.726 (ADPCM) 32 kbps / 16 kbps, G.711 64 kbps AAC ⁴	
	Authentication for Audio	Off / Mic (Line) input / Audio output / Interactive (Half duplex) / Interactive (Full duplex)	
	Total Bit Rate	Level 1 only / Level 2 higher / All users	
Supported Protocol	64 / 128 / 256 / 384 / 512 / 768 / 1,024 / 2,048 / 4,096 / 8,192 kbps / Unlimited		
FTP Client	IPv6: TCP/IP, UDP/IP, HTTP, HTTPS, RTP, FTP, SMTP, DNS, NTP, SNMP, DHCPv6, ICMP, ARP IPv4: TCP/IP, UDP/IP, HTTP, HTTPS, RTP, RTSP, RTP, RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP		
No. of Simultaneous Users	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)		

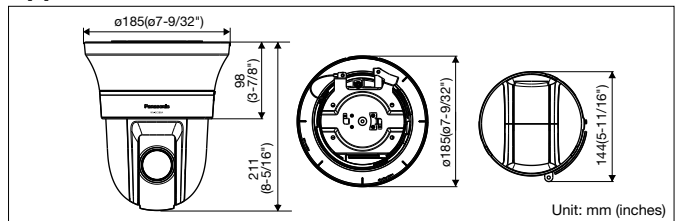
Network	SDXC/SDHC/SD Memory Card (Option)	H.264 recording (Audio recording is enable): Manual REC / Alarm REC (Pre/Post) / Schedule REC/ Backup upon network failure JPEG recording: Manual REC / Alarm REC (Pre/Post) / Backup upon network failure Compatible SD (SDHC/SDXC) card: Panasonic 2 GB, 4 GB*, 8 GB*, 16 GB*, 32 GB*, 64 GB**, 128 GB** model "SDHC card, ** SDXC card (except miniSD card and microSD card)
	Cellular Phone Compatibility	JPEG image, panning / tilting / zoom / focus control, Auto control (by access level)
Alarm	Mobile Terminal Compatibility	iPad, iPhone, iPod touch (OS 4.2.1 or later) Android™ mobile terminals
	Alarm Source	3 terminals input, VMD, Command alarm, Audio detection
Input/ Output	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: 5,000 logs, without SDXC / SDHC / SD memory card: 1,000 logs
	Schedule	Alarm / VMD / Access permission / H.264 recording / Audio detection
General	Monitor Output (for adjustment)	VBS: 1.0V(p-p) / 75Ω, NTSC / PAL composite, ø3.5 mm monaural mini jack
	Microphone/Line Input	MIC IN and Line IN are selectable. ø3.5 mm stereo mini jack (monaural input) (Applicable microphone: Plug-in power type) Supply voltage: 2.5 V ±0.5 V Input impedance: approx. 2 kΩ
Power Source and Power Consumption	Audio Output	ø3.5 mm stereo mini jack (monaural output) Line level
	External I/O Terminals	ALARM IN 1 (DAY/NIGHT IN), ALARM IN 2 (ALARM OUT), ALARM IN 3 (AUX OUT)
Safety/EMC Standard	ALARM IN 1 (DAY/NIGHT IN), ALARM IN 2 (ALARM OUT), ALARM IN 3 (AUX OUT)	
	Power Source and Power Consumption	DC power supply: 12 V DC / 1.0 A / 12 W PoE device: 48 V DC / 250 mA / Approx. 12 W (Class 0 device) * FOR UL LISTED MODEL(S), ONLY CONNECT 12 V DC CLASS 2 POWER SUPPLY (UL 1310/CSA 223) or LIMITED POWER SOURCE (IEC/EN/UL/CSA 60950-1).
Ambient Operating Temperature	Ambient Operating Humidity	PoE: -10°C to +55°C (14 °F to 131 °F) 10 % to 90 % (no condensation)
	Dimensions	ø185 mm x 211 mm (H) (ø7-9/32 inches x 8-5/16 inches (H)) (including the decorative covers)
Mass (approx.)	Mass (approx.)	Approx. 1.5 kg (3.31 lbs)
	Finish	Camera : ABS resin (Coating color: Black) Decorative cover: ABS resin (Resin color: Sail white)

¹ Converted value
² For further information about PC system requirements and precautions for when using Microsoft® Windows® 10, 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".
³ Transmission for 2 streams can be individually set.
⁴ When recording audio on an SD memory card, only AAC-LC (Advanced Audio Coding - Low Complexity) is used.

Part Names and Functions



Appearance



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Important
- Safety Precaution: Carefully read the Installation Guide and operating instructions before using this product.
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