



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

Full HD / 1,920 x 1,080 60 fps H.264 Network Camera featuring Super Dynamic

Key Features

- **1080p** Full HD images up to **60 fps**^{*1}
- Approximate 1/3 inches, high sensitivity MOS image sensor
- Super high resolution at Full HD/1,920 x 1,080 created by high sensitivity MOS image sensor.
- **Multiple H.264 (High profile) streams (max. 4 streams)** and JPEG streams ensure simultaneous real time monitoring and high resolution recording.
- Maximum Screen Size is 2,048 x 1,536* @30 fps, H.264
* Used by super resolution technology
- **Enhanced Super Dynamic**^{*1} 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.
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.
With the latest bit rate reducing technology, **GOP control**, **Auto VIQS**, **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 :
0.04 lx (Color), 0.01 lx (B/W) at F1.4
*ICR: IR Cut filter Removal
- **High Speed ABF (Auto Back Focus)** ensures easy installation.
- **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.
- 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.
- **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 (H.264 / JPEG). Realize long-term recording and auto backup function.
- **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.
- **Super Chroma Compensation** function realizes a better color reproducibility even in low illumination.
- 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)
- **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.

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

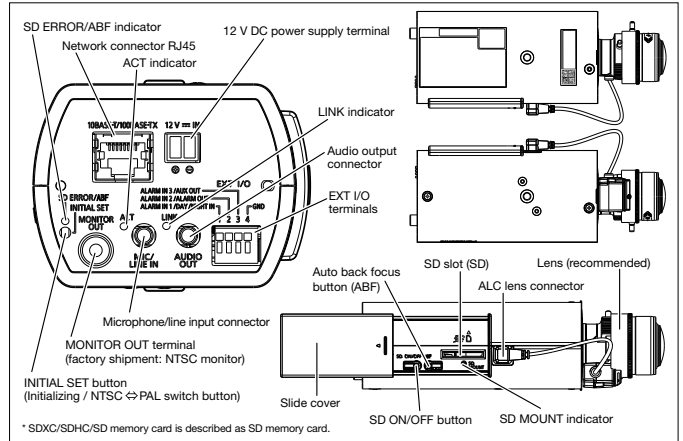
Specifications

Camera	Image Sensor	Approx. 1/3 type MOS image sensor	
	Scanning Mode	Progressive scan	
	Scanning Area	5.28 mm (H) x 3.30 mm (V) (7/32 inches(H) x 1/8 inches(V))	
	Minimum Illumination	Color : 0.04 lx, BW : 0.01 lx (F1.4, Maximum shutter : Max. 1/30s, AGC : High) Color : 0.003 lx, BW : 0.0007 lx (F1.4, Maximum shutter : Max. 16/30s, AGC : 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 / Indoor scene (50 Hz) / Indoor scene (60 Hz) / ELC / Fix shutter	
	Shutter Speed	[2 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 [2 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*2	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 (ICR)	Off / On / Auto1 (Normal) / Auto2 (IR Light) / Auto3 (SCC)	
	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	Auto back focus / Focus / Adjusting method (Auto/ Preset/ Fix)	
	Browser GUI	Cropping	Off / JPEG(1) / JPEG(2) / JPEG(3) / H.264(1) / H.264(2) / H.264(3) / H.264(4) / H.264(all) 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	
System Log		Up to 100 (Internal)	
Supported OS *3		Up to 4,000 (SDXC/SDHC/SD memory when the recording format is set to JPEG.) error logs	
Supported Browser		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] (30/60 fps) 1,920 x 1,080 / 1,280 x 720 / 640 x 360 / 320 x 180 / 160 x 90 *2 mega pixel [4 : 3] (30 fps) 1,600 x 1,200 / 1,280 x 960 / 800 x 600 / 640 x 480 / 400 x 300 / 320 x 240 / 160 x 120 *3 mega pixel [4 : 3] (30 fps) *Used by super resolution technology 2,048 x 1,536* / 1,280 x 960 / 800 x 600 / 640 x 480 / 400 x 300 / 320 x 240 / 160 x 120	
	H.264 *4	Transmission Mode	Constant bit rate / Variable bit rate / Framerate priority / 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 / 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
		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 (Low / Mid / High) / Off (Only when "Variable bit rate" is selected)
	JPEG	Refresh interval	0.2 / 0.25 / 0.33 / 0.5 / 1 / 2 / 3 / 4 / 5s
		Transmission Type	Unicast / Multicast
		Image Quality	10 steps
	FTP Client	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*5
		Audio Mode	Off / Mic input / Audio output / Interactive (Half duplex) / Interactive (Full duplex)
		Bandwidth control	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, DiffServ IPv4 : TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP, DiffServ	
Alarm image transmission, FTP periodic transmission (When the FTP transmission is failed, backup on an optional SDXC/SDHC/SD memory card is available.)			
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*, 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*6	iPad, iPhone, iPod touch (iOS 4.2.1 or later), Android™ mobile Terminal		

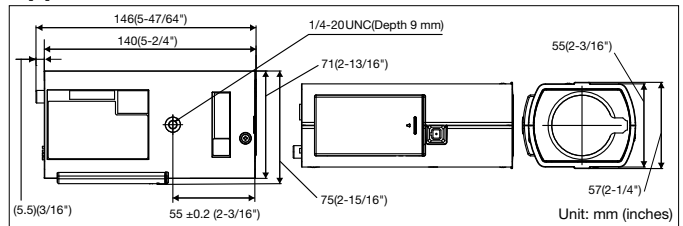
Alarm	Alarm Source	3 terminals input, VMD, Command alarm, Audio detection alarm
	Alarm Actions	SDXC/SDHC/SD memory recording, E-mail notification, HTTP alarm notification Indication on browser, FTP image transfer, Panasonic protocol output
Schedule	Alarm Log	With SDXC/SDHC/SD memory card : Up to 50,000 logs
	Schedule mode	Alarm permission / VMD permission / Access permission / H.264 recording / Audio detection permission / Scene file / FTP periodic image transmission
Input/Output	Monitor Output (for adjustment)	VBS : 1.0 V [p-p] / 75 Ω, composite, RCA jack (either press the INITIAL SET switch quickly (within 1 second) or use software to select NTSC or PAL signal).
	Microphone Input	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)
	Line Input	Input level : Approx. -10 dBV
	Audio Output	ø3.5 mm stereo mini jack (monaural unbalanced) Output impedance : Approx. 600 Ω (unbalanced)
	External I/O Terminals	ALARM IN 1 (DAY/NIGHT IN, Auto time adjustment), ALARM IN 2 (ALARM OUT), ALARM IN 3 (AUX OUT)
General	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	DC 12 V : 500 mA / Approx. 6.0 W PoE (IEEE802.3at compliant) DC 48 V : 120 mA / Approx. 5.8 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	Approx. 350 g (0.77 lbs)
Finish	Main body : PC / ABS resin (Sail white)	

- *1 Converted value
- *2 Super Dynamic function is automatically set off on 60 fps mode.
- *3 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".
- *4 Transmission for 4 streams can be individually set.
- *5 When recording audio on an SD memory card, only AAC-LC (Advanced Audio Coding - Low Complexity) can be used.
- *6 For further information about compatible devices, refer to our website (<http://security.panasonic.com/support/info/>).

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.
 - Android is a trademark of Google Inc.
 - "i-PRO SmartHD" logo is trademark or registered trademark of Panasonic Corporation.
 - ONVIF and the ONVIF logo are trademarks of ONVIF Inc.
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.

DISTRIBUTED BY :

Panasonic

<http://security.panasonic.com>

<http://www.facebook.com/PanasonicNetworkCamera>

(2A-155EL)