AUDIO ENHANCEMENT

Ceiling View

Part Names and Functions

Inside view of the SD memory card slot cover (with SD memory card slot cover opened)

① Lens
② Sub Cover
③ SD Memory Card Slot Cover
④ INITIAL SET Button
⑤ SD Memory Card Slot
⑥ Access Indicator (Blinks When Accessing)
⑦ Link Indicator (Lit When Linking)
⑧ SD Memory Card Error Indicator
⑨ Network Connector
⑩ 12 V DC Power Supply Terminal
⑪ Camera Fixing Screw
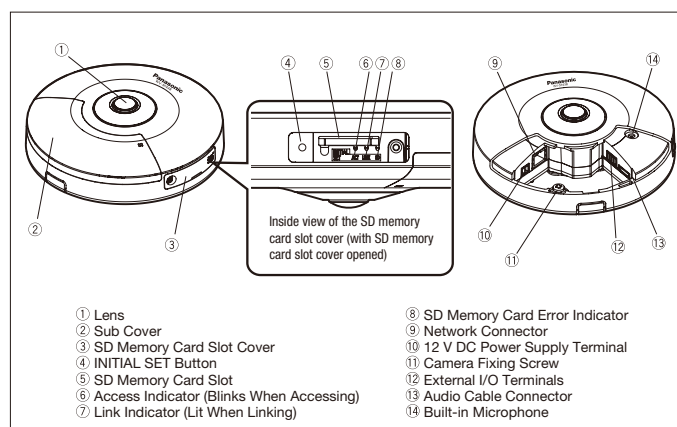⑫ External I/O Terminals
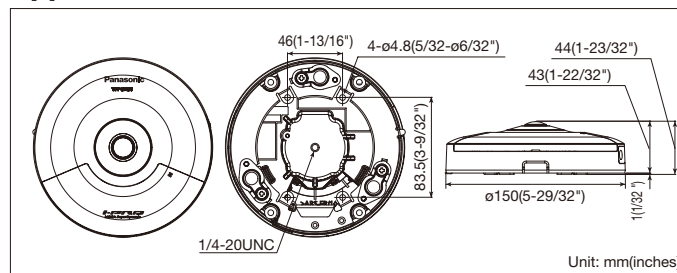⑬ Audio Cable Connector
⑭ Built-in Microphone

The **EduCam360** (MV-SF448) is a classroom camera developed specifically for the education market. Manufactured by Panasonic—in partnership with Audio Enhancement, the pioneers of classroom audio—the EduCam360™ allows educators, administrators and security personnel to see the entire classroom—all at once! Choose one or all angles. View multiple, simultaneous angles of the classroom in high definition quality with the EduCam360. Choose full circle 360° panoramic, two 180° double panoramas, four quarter 90° or a simple single stream view. Super Dynamic SmartHD provides clarity like never before with the EduCam360. The sharp 1080p image even provides a clear image of the front of the classroom.

Appearance

46(1-13/16") 4-ø4.8(5/32-ø6/32") 44(1-23/32")
43(1-22/32")
83.5(3-9/32")
ø150(5-29/32")
1(1/32")
1/4-20UNC

Unit: mm(inches)

EduCam360™ Specifications

TV System		NTSC	PAL
Camera	Image Sensor	1/3 type MOS Sensor	
	Effective Pixels	Approx. 3.1 megapixels	
	Scanning Mode	Progressive	
	Scanning Area	4.51 mm (H) x 3.38 mm (V) {3/16 inches (H) x 1/8 inches (V)}	
	Minimum Illumination	Color: 1.5 lx (F2.4, Auto slow shutter: Off (1/30s), Gain:On(High)) Color: 0.1 lx (F2.4, Auto slow shutter: Max. 16/30s, Gain:On(High)) *1 BW: 1.2 lx (F2.4, Auto slow shutter: Off (1/30s), Gain:On(High)) BW: 0.08 lx (F2.4, Auto slow shutter: Off (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	Indoor scene (50 Hz / 60 Hz) / ELC	
	Shutter Speed	With Super Dynamic On ELC (1/30 s) With Super Dynamic Off 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)	
	Super-Dynamic	ON / OFF	
	Dynamic Range	52 dB typ. (only at Super-Dynamic On)	
	Adaptive Black Stretch	On/Off (only at Super-Dynamic 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	
	Digital Noise Reduction	HIGH / LOW	
	Video Motion Detection	ON / OFF, 4 areas available	
	Video analytics Face Detection	Off/On/On with face frame display However, face detection is not supported when "Fisheye" or "Quad streams" is selected for the image type.	
	Auto mode:	Auto pan/ Preset sequence Auto mode can only be used when the image type is Quad PTZ or Single PTZ.	
	Self return:	10 s/ 20 s/ 30 s/ 1 min/ 2 min/ 3 min/ 5 min/ 10 min/ 20 min/ 30 min/ 60 min Self return can only be used when the image type is Quad PTZ or Single PTZ.	
	Privacy Zone	ON / OFF (up to 4 zones available)	
	VIQS	On/Off (up to 2 areas available) However, the VIQS function is not supported when "Quad PTZ", "Single PTZ" or "Quad streams" are selected.	
	Camera Title (OSD)	Up to 20 characters (alphanumeric characters, marks) , On/Off However, you can specify characters to be displayed on each of the four screens when "Quad streams" is selected.	
Lens	Focal Length	0.837 mm	
	Angular Field of View	Horizontal: 182 °, Vertical: 176 °	
	Maximum Aperture Ratio	1:2.4 (Fixed)	
	Focusing Range	0.3 m ~ ∞	
Browser GUI	Camera Control	Pan/Tilt/Digital Zoom, Preset, Auto Mode, Self Return, Fisheye 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 (Quad PTZ or Single PTZ mode) 1x ~4x (Panorama, Double Panorama, 3M Fisheye mode)	
	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, 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 *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 (female)	
	Image Resolution *4 — 2M Panorama[16:9]/ 2M Double Panorama [16:9]	H.264(1): 1920x1080 / 640x360 / 320x180, up to 30 fps H.264(2): 640x360 / 320x180, up to 30 fps JPEG: 1920x1080 / 640x360 / 320x180, up to 30 fps	
	1.3M Panorama [16:9]/ 1.3M Double Panorama [16:9]	H.264(1): 1280x720 / 640x360 / 320x180, up to 30 fps H.264(2): 640x360 / 320x180, up to 30 fps JPEG: 1280x720 / 640x360 / 320x180, up to 30 fps	
	Panorama + Quad PTZ/ Panorama + Single PTZ/ Double Panorama + Quad PTZ/ Double Panorama + Single PTZ	• When using distribution of "Wall Panorama" or "Double panorama" H.264(1): 1920x1080 / 640x360 / 320x180, up to 15 fps JPEG: 1920x1080 / 640x360 / 320x180, up to 15 fps • When using distribution of "Quad PTZ" or "Single PTZ" H.264(2): 1280x960 /640x480 / 320x240, up to 15 fps JPEG: 1280x960 / 640x480 / 320x240, up to 15 fps	
	VGA Quad streams	Ch1-Ch4 640x480 max.30 fps * Only for H.264 images. * There are specification limitations such as the SD memory card function being unavailable.	
	3M Fisheye [4:3]:	H.264(1): 1280x960, up to 15 fps JPEG: 2048x1536, up to 15 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 / 10,240 / 12,288 / 14,336 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, RTP/RTCP,FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP	
	FTP Client	Alarm image transmission, FTP periodic transmission (When the FTP transmission is failed, backup on an optional SD memory card is available.)	
	No. of Simultaneous Users	Up to 14 users (Depends on network conditions)	

TV System		NTSC	PAL
Network	Face Detection	ON / OFF (with XML notification) *"3M Fisheye [4:3]", "1.3M Fisheye [4:3]", and "VGA Quad streams" modes cannot use the Face Detection function.	
	Cellular Phone Compatibility	JPEG image, AUX control (by access level)	
	Mobile Terminal Compatibility	iPad, iPhone, iPod touch (iOS 4.2.1 or later) Android™ mobile terminals	
Alarm	Alarm Source	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: 5,000 logs, without SDXC/SDHC/SD memory card: 1,000 logs	
	Schedule	VMD	
Input/ Output	Microphone/Line Input	Internal microphone, ø3.5 mm monaural mini jack, Input impedance: Approx. 2 kΩ	
	For microphone input	Applicable microphone: Plug-in power type, Supply voltage: 2.5 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. 600 Ω, Line level	
	External I/O Terminals	ALARM IN 1, ALARM IN 2/ ALARM OUT, ALARM IN 3/ AUX OUT (x1 for each)	
General	Mounting method	Ceiling/ Wall/ Desktop/ Tripod	
	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	12V DC, PoE (IEEE802.3af compliant) 12 V DC*: 540 mA/ 6.5 W PoE 48 V: 125 mA/ 6.0 W (Class 2 devices) * FOR UL LISTED MODEL(S), ONLY CONNECT 12 V DC CLASS 2 POWER SUPPLY.	
	Ambient Operating Temperature	–10 ℃ to +50 ℃ {14 ℉ to 122 ℉}	
	Ambient Operating Humidity	Less than 90 % (no condensation)	
	Dimensions	ø150 mm x 44 mm (H) {ø5-29/32 inches x 1-23/32 inches (H)}	
	Mass (approx.)	Main body: Approx. 370 g {0.82 lbs} Camera attachment: Approx. 90 g {0.20 lbs}	
	Finish	Main body: ABS resin, sail white	

*1 Converted value
*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®.
*4 Transmission for 2 streams can be individually set in the same compression method.

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.
– "Super Dynamic", "SDII", "SDIII", "SD5", "SD5Link", "i-PRO" and "i-PRO SmartHD" logos are trademarks or registered trademarks of Panasonic Corporation.
– All other trademarks identified herein are the property of their respective owners.
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.
• All product pictures are NTSC models.

SAFE System™ Compatible

The SAFE System (patent pending) is an alert notification system not intended to be a life-saving device or prevent emergencies. Audio Enhancement, our agents, employees, subsidiaries, affiliates and parent companies are exempt from liability for any loss, damage, injury or other consequence arising directly or indirectly from the application of our equipment. In the event of misuse or malfunction of the SAFE System or any of its components, Audio Enhancement, our agents, employees, subsidiaries, affiliates and parent companies are exempt from liability for any loss, damage, injury or other consequence arising directly or indirectly therefrom.