Panasonic CONNECT

Surgical Image Recording System AG-MDR25

Memory Card Portable Recorder AG-MDC20GJ

> Compact Camera Head (Special Option for the AG-MDR25)



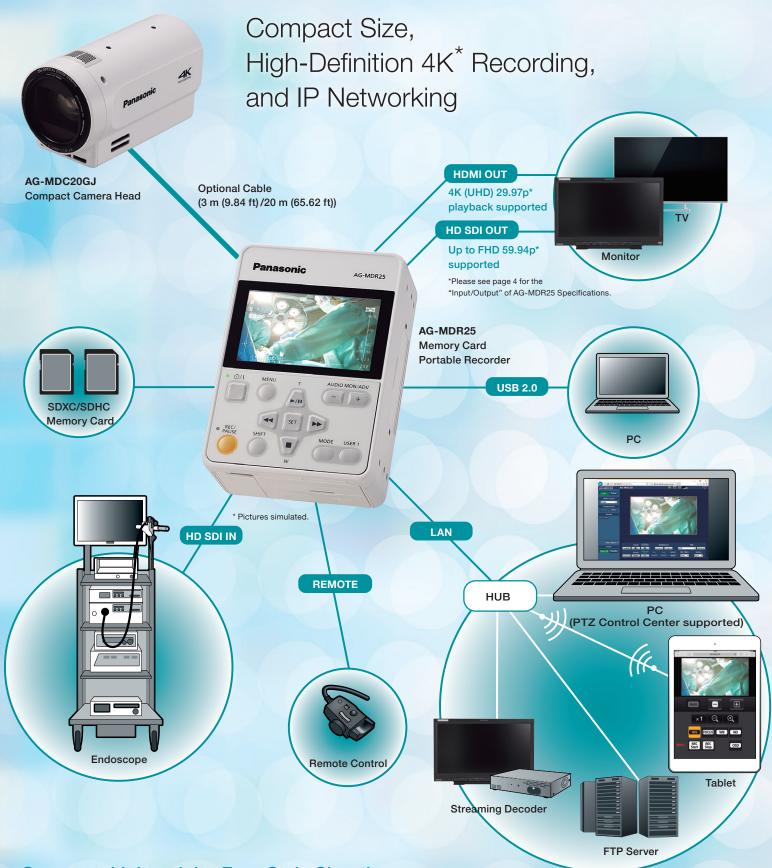






POVERM

DOLBY AUDIO*



Compact, Lightweight, Free-Style Shooting

Inheriting the features of the first-generation POVCAM plus the operating ease of a touch panel.

High Image Quality and High Resolution

Suitable for in-hospital conferences and academic presentations, Featuring an optical 20x zoom lens and surgical-light mode. Captures 4K (UHD)*/FHD progressive, high-resolution images.

Network Operation for IP Control and IP Streaming

LAN connection enables zooming and real-time video monitoring from a PC or tablet.

Reliability for Medical Applications

Lens protector, membrane sheet control section, etc., conform to medical specifications.

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^{* 4}K acquisition is possible only when connected to the AG-MDC20GJ Compact Camera Head. 4K refers to UHD (3840 x 2160) resolution. The maximum resolution in 4K shooting mode via HDMI/SDI output is FHD (1920 x 1080) 59.94i/50i.



Touch Panel LCD (User Button Setting Example)

Lens Protector (Standard Equipment)

Angle of View Example for 20x Optical Zoom

Compact, Lightweight, Free-Style Shooting Inherited from First-Generation POVCAM

Compact Camera Head for Flexible Installation

- Free style: Compact, lightweight design and remote operation allow the camera to be installed in places and angles where it previously couldn't, for free-style operation.
- Optional cables (3 m (9.84 ft) /20 m (65.62 ft)): Identical to the first-generation POVCAM cables for easy system replacement.
- Built-in stereo microphone: For recording both video and sounds.
- Scan Reverse mode: Image inversion for shooting with a ceiling-mounted Camera Head.
- Scene files: Auto and three manual setting files allow scene settings to be switched and saved.

Compact, Lightweight, Battery-Drive Recorder

- Light weight, handy size. Improved recorder operation with a touchpanel display and large buttons.
- KEY LOCK function: Operation buttons can be temporarily disabled to prevent operating mistakes.
- Battery operation: Equipped with a battery socket on the rear panel. Large-capacity battery supported (11,800 mAh/8,850 mAh/5,900 mAh).
- DC drive: Equipped with input terminal for DC12 V power supply. AC adaptor also included.
- Power Supply Activation mode on the camera head linked to centralized power supply ON/OFF.
- Threaded sockets provided in two locations, left and right, for arm or rack mounting.

Touch-Panel LCD Monitor

- High resolution: 16:9 screen, 3.5-inch, approx. 1.15-megadot panel
- LCD reverse display: The image displayed on the LCD monitor can be reversed vertically and horizontally. The camera head can be reversed vertically to match installation conditions.
- * When the image is reversed, the recorded image will remain in its original orientation.
- Touch panel: Compact size and multifunctional
- 13 User buttons: In addition to one hard key, 12 User buttons are displayed. Functions can be allocated to each. Four Scene File buttons also allow easy switching of the scene setting.
- Focus Assist: Focusing is aided by a Peaking Display (emphasizing in-focus areas by the use of coloring).

Reliably Designed Especially for Medical Applications

Designed for Use in Hospitals

EMC design products that takes into consideration the impact on other medical devices.

*These are not Medical Electrical Equipments.

Lens Protector

A lens protector (MC Protector/Accessory) for the front panel of the Compact Camera Head is included as standard equipment. Protects the lens from splashes.

Control Section Membrane Sheet

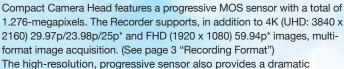
The control section of the Recorder uses switches covered by a membrane sheet. The surface has few bumps and indentations, so cleaning is easy with an ethanol disinfectant.

High Image Quality and High Resolution Suitable for In-Hospital Conferences and Academic Presentations

29.5 mm*1 Wide-Angle Optical 20x Zoom Lens

- 29.5 mm*1 Wide-Angle Optical 20x Zoom Lens: Achieves 29.5 mm*1 wide-angle in spite of its compact size.
- Optical 20x zoom: Covers a range from 29.5 mm*1 wide angle to 612 mm*1 close ups for various applications.
- Intelligent i.Zoom: Allows shooting up to 30x in HD format (22x in 4K) with high resolution. Zooms in seamlessly from the optical tele-end.
- Digital zoom: This digital zoom (x1.4/x2/x4/x6/x8) allows zooming without any change in brightness. Combining optical zoom + intelligent zoom enables zooming up to a maximum of 240x*2.
- *1: 35 mm equivalent
- *2: When using optical 20x zoom + i.Zoom + digital zoom 8x in HD format. The image quality decreases as the digital zoom magnification increases.

High-Resolution 4K (UHD) /FHD Progressive Image Recording



improvement over the HD image quality of the previous POVCAM model. FHD image acquisition uses the AVCHD format for high image quality and a low data rate.

* 4K acquisition is possible only when connected to the AG-MDC20GJ Compact Camera Head. 4K refers to UHD (3840 x 2160) resolution. The maximum resolution in 4K shooting mode via HDMI/SDI output is FHD (1920 x 1080) 59.94i/50i.

Stable Images with a Five-Axis Hybrid Image Stabilizer

- Optical image stabilizer (HD/4K): Equipped with a powerful optical image stabilizer (OIS) system. Images are strongly corrected even in situations where the camera is unstable, such as when mounted onto an arm.
- Five-Axis Hybrid Image Stabilizer (HD): In HD mode, electronic image stabilization is added to the optical image stabilizer (OIS) system to detect and correct motions on five axes, including rolling motion. This is effective when shooting while walking.
- Custom O.I.S: Set to optimize vibration control (switchable) when the camera is fixed to the ceiling or a universal head.

Adjustable Image Quality Under a Surgical Light

- Surgical Light mode: Equipped with a Color Reproduction Matrix mode for use under a surgical light.
- 16-Axis independent color correction: Special surgical colors can be adjusted.
- Optical ND filter: The optical ND filter can be manually switched (CLEAR, 1/4, 1/16, 1/64). Resolution degradation from closing down the iris is prevented even in the bright lighting of a surgical light.
- Dynamic Range Stretch (DRS): This function suppresses blocked shadows and blown highlights to produce excellent gradation for each shade when dark, bright and intermediate shades are all contained in the same scene.
- Gain/iris: A maximum gain increase of 36 dB is possible. Iris adjustment can also be adjusted independently from the gain.
- Shutter: The Slow Shutter function with Synchro Scan functions are supported.







Five-Axis Hybrid Image Stabilizer Diagram

IP Control (Tablet Screen Example)

IP Control (Web Browser Screen Example)

- Other image adjustments: Detail, V-detail, Detail coring, Skin tone detail, White balance, Color temperature, Chroma level, Chroma phase, Master pedestal, Gamma, Black gamma, Knee, and NR control
- Auto Focus + Custom AF: Auto focus stability can be adjusted to match surgical conditions.

Double SD Memory Card Slots (SDXC Memory Card) and Relay Recording

Double SD Memory Card Slots (SDXC/SDHC Memory Card)

Large-capacity SDXC/SDHC Memory Cards supported. Double SD Memory Card Slots and a Relay Recording function enable two memory cards to be consecutively used. Hot Swapping also makes it possible to exchange cards while recording. Combined with the high data compression efficiency of the AVCHD format, this enables a maximum of 22 hours* of recording in the high-quality PS mode and a maximum of 112 hours* of recording in the extended (HE) mode.

* Maximum recording time when using two 128-GB SDXC Memory Cards. Note: Regardless of the memory card and recording mode, continuous recording that exceeds 10 hours is stopped and automatically restarted, causing the recording to stop for several seconds.

Versatile Recording/Playback Functions

- Producing photos from video: Single-frame image files can be converted from recorded video images. These can be used for highquality photos
- Pre Rec: Constantly records images and sounds from approximately 3 seconds before ordinary recording starts, to prevent missing decisive moments.
- Time stamp: Date and time information can be superimposed onto images. Usable for extended research activities and nature observations.
- Resume playback: When the Stop key is pressed during playback, the stop position is stored in memory. Simply press the Play key to start playing again from the stop position.
- * Turning off the power resets the memory. This function is disabled in the factory default setting.
- Clip operation: This function allows fast forward, rewind, clip forward, clip reverse, and frame by frame playback operation.

Recording Format

Rec. Mode		Image Size	Bit Rate	Frame Rate		Audio	Recording Time*2
		iiilage Oize	Ditriate	59.94 Hz	50.00 Hz	Addio	(approx.)
MP4*1	4K (UHD)	3840×2160	50 Mbps (VBR)	29.97p 23.98p	25p	LPCM 1.5Mbps	5 hours 20 minutes
AVCHD	PS	1920×1080	25 Mbps (VBR)	59.94p	50p	Dolby Audio 384kbps	11 hours
	PH		21 Mbps (VBR)	59.94i 23.98p	50i		12 hours 30 minutes
	НА		17 Mbps (VBR)	59.94i	50i	Dolby Audio	17 hours
	HE	1440×1080	5 Mbps (VBR)	59.94i	50i	256kbps	56 hours
	PH	1000700	21 Mbps (VBR)	59.94p	50p	Dolby Audio 384kbps	12 hours 30 minutes
	PM	1280×720	8 Mbps (VBR)	59.94p	50p	Dolby Audio 256kbps	35 hours

^{*1:} When using the AG-MDC20GJ. *2: When continuous recording exceeds 10 hours, the recording is stopped and automatically restarted approximately each 10 hours, causing the recording to stop for several seconds.

Versatile Interfaces Support IP Streaming and IP Control

LAN Terminal for IP Streaming and IP Control

The LAN terminal supports video and audio streaming distribution to networks, as well as file transfers and external control.

Access from PCs and tablets is achieved by web browser, with no special app required. In addition, the PTZ Control Center (free software) can be used for system operation integrated with Panasonic PTZ camera system. Open IP commands make it easy for users to design original systems.

- IP control: Remote control from a PC or tablet enables Rec Start/ Stop, Clip Delete, and compact Camera Head control (Zoom, Focus, Iris, and Menu Settings).
- IP streaming: Video and Audio IP streaming supported. Signals can be received and monitored by PCs, tablets, and IP decoders.
- File transfer: Recorded clips can be downloaded from a network PC.

SDI Input Records Endoscope and Other Images, and SDI/ HDMI Output Supports Various Applications

- SDI input: An SDI input with 3G-SDI support is equipped. This lets you connect to an endoscope or other video device and record multi-format images, including FHD (1920 x 1080) 59.94p/50p/23.98p/25p progressive images.
- SDI output: 3G-SDI compatible SDI output is equipped. FHD (1920 x 1080) 59.94p/50p/23.98p progressive images can be output to an external monitor.
- HDMI output: HDMI output of 4K (UHD)*1/FHD images is supported. Combined with SDI output and IP streaming, this enables simultaneous output*2 to maximum of three systems.
- *1: HDMI output of 4K (UHD) video is available only for playback of 4K (UHD) recording clips.
- *2: Simultaneous output is not supported for all video formats. Conditions exist for the input/output signals and recording format.

Versatile Interfaces

- REMOTE terminal: External control is enabled for Rec Start/Stop, Zoom, Focus, and Iris settings.
- Audio input: A stereo mini-jack is equipped. LINE/MIC switchable.
- USB 2.0: PC connection is possible in Mass Storage mode (miniB terminal).
- * Audio input can not be used when a compact camera head is connected.

POVCAM-Compatible PC Software (Free of Charge)

• PTZ Control Center: Images from multiple LAN-connected POVCAMs can be controlled (Focus, Iris, Zoom, Gain, White Balance, Shutter, ND Filter, and Rec Start/Stop) while they are monitored on a PC screen.



PTZ Virtual USB Driver:

This driver allows LAN-connected POVCAMs to be used as USB cameras. This is helpful for network distribution and conferences. Up to 5 POVCAMs can be registered.

AG-MDR25 Specifications

29.97p/25p/23.98p/59.94i/50i, 720/59.94p/50p, 480/59.94p, 576/50p		-1			
Power consumption: 1.1 A (with battery), 0.7 A (with AC adaptor) With the optional AG-MDC20GJ Camera Head: 2.2 A (with battery), 1.4 A (with AC adaptor) With the optional AG-MDC20GJ Camera Head: 2.2 A (with battery), 1.4 A (with AC adaptor) Operating temperature: 0 °C to 40 °C (32 °F to 104 °F) Operating humidity: 10 % to 80 % (no condensation) Weight: Approx. 590 g (1.3 lbs) Dimensions: 100 mm x 53.5 mm x 140 mm (excluding protrusion) (W x H x D) Memory Card Recorder Recording media: SDXC memory card (48 GB to 128 GB), SDHC memory card (4 GB to 32 GB) MP4: more than Class 10, AVCHD: more than Class 4 Recording slot: 2 Slots System format: 59.94 Hz / 50.00 Hz Motion recording: Recording system: MP4, AVCHD Recording mode/Recording time: Please see page 3 for the "Recording Format" table Recording video signal: 8 bit 4:2:2 Digital Video/Digital Audio Output video signal: 8 bit 4:2:2 Video compression: MP4: MPEG-4, AVCHD: AVC/H.264 High Profile Recording audio signal: 48 kHz/16 bit 2 CH Audio compression: MP4: LPCM, AVCHD: Dolby Audio Headroom: 12 dB Video Input/Output BNC x 1, 0.8 V [p-p], 75 \Omega, 3 G/1.5 G HD SDI supported Input format: 1080/59.94/p LEVEL-A/LEVEL-B, 1080/59.94/p50p BNC x 1, 0.8 V [p-p], 75 \Omega, 3 G/1.5 G HD SDI supported Output format: 3 same as input format HDMI OUT: Type A connector x 1, VIERA Link not supported Output format: 2 160/29.97/p/25p/23.98p, 1080/59.94p/50p Audio Input/Output MIC/LINE IN: 3.5 mm diameter, stereo mini jack (MIC IN and LINE IN) MIC: -60 dBV (sensitivity -40 dB equivalent, 0 dB=1 V/Pa 1 kHz), plug in power supported LINE: -10 dBV SDI OUT: 2 CH (LPCM), gain: 0 dB/-6 dB/-12 dB (selectable menu) HDMI OUT: 2 CH (LPCM), gain: 0 dB/-6 dB/-12 dB (selectable menu)					
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Recording mode/Recording time: Please see page 3 for the "Recording Format" table Still picture recording: Recording system: JPEG (DCF/Exif2.2) Digital Video/Digital Audio Output video signal: 8 bit 4:2:2 Recording video signal: 8 bit 4:2:0 Video compression: MP4: MPEG-4, AVCHD: AVC/H.264 High Profile Recording audio signal: 48 kHz/16 bit 2 CH Audio compression: MP4: LPCM, AVCHD: Dolby Audio Headroom: 12 dB Video Input/Output SDI IN: BNC x 1, 0.8 V [p-p], 75 Ω, 3 G/1.5 G HD SDI supported Input format: 1080/59.94p LEVEL-A/LEVEL-B, 1080/50p LEVEL-A/LEVEL-B, 1080/29.97Psf/25Psf/23.98Psf, 1080/59.94i/50i, 720/59.94p/50p SDI OUT: BNC x 1, 0.8 V [p-p], 75 Ω, 3 G/1.5 G HD SDI supported Output format: same as input format HDMI OUT: Type A connector x 1, VIERA Link not supported Output format: 2160/29.97p/25p/23.98p, 1080/59.94p/50p 29.97p/25p/23.98p/59.94i/50i, 720/59.94p/50p, 480/59.94p, 576/50p Audio Input/Output MIC/LINE IN: 3.5 mm diameter, stereo mini jack (MIC IN and LINE IN) MIC: -60 dBV (sensitivity -40 dB equivalent, 0 dB=1 V/Pa 1 kHz), plug in power supported LINE: -10 dBV SDI OUT: 2 CH (LPCM) , gain: 0 dB/-6 dB/-12 dB (selectable menu) HDMI OUT: 2 CH (LPCM) Headphone: 3.5 mm diameter, stereo mini jack x 1	System format:	59.94 Hz / 50.00 Hz			
Digital Video/Digital Audio	Motion recording:	Recording mode/Recording time:			
Output video signal: 8 bit 4:2:2 Recording video signal: 8 bit 4:2:0 Video compression: MP4: MPEG-4, AVCHD: AVC/H.264 High Profile Recording audio signal: 48 kHz/16 bit 2 CH Audio compression: MP4: LPCM, AVCHD: Dolby Audio Headroom: 12 dB Video Input/Output SDI IN: BNC x 1, 0.8 V [p-p], 75 Ω, 3 G/1.5 G HD SDI supported Input format: 1080/59.94p LEVEL-A/LEVEL-B, 1080/29.97PFF/25PsF/23.98PsF, 1080/59.94p/50p SDI OUT: BNC x 1, 0.8 V [p-p], 75 Ω, 3 G/1.5 G HD SDI supported Output format: same as input format HDMI OUT: Type A connector x 1, VIERA Link not supported Output format: 2160/29.97p/25p/23.98p, 1080/59.94p/50p, 29.97p/25p/23.98p/59.94i/50i, 720/59.94p/50p, 480/59.94p, 576/50p Audio Input/Output MIC/LINE IN: 3.5 mm diameter, stereo mini jack (MIC IN and LINE IN) MIC: -60 dBV (sensitivity -40 dB equivalent, 0 dB=1 V/Pa 1 kHz), plug in power supported LINE: -10 dBV SDI OUT: 2 CH (LPCM), gain: 0 dB/-6 dB/-12 dB (selectable menu) HDMI OUT: 2 CH (LPCM) Headphone: 3.5 mm diameter, stereo mini jack x 1	Still picture recording:	Recording system: JPEG (DCF/Exif2.2)			
Recording video signal: 8 bit 4:2:0	Digital Video/Digital	Audio			
Video compression: MP4: MPEG-4, AVCHD: AVC/H.264 High Profile Recording audio signal: 48 kHz/16 bit 2 CH Audio compression: MP4: LPCM, AVCHD: Dolby Audio Headroom: 12 dB Video Input/Output BNC x 1, 0.8 V [p-p], 75 Ω, 3 G/1.5 G HD SDI supported Input format: 1080/59.94p LEVEL-A/LEVEL-B, 1080/50p LEVEL-A/LEVEL-B, 1080/29.97Ps/25PsF/23.98PsF, 1080/59.94i/50i, 720/59.94p/50p SDI OUT: BNC x 1, 0.8 V [p-p], 75 Ω, 3 G/1.5 G HD SDI supported Output format: same as input format HDMI OUT: Type A connector x 1, VIERA Link not supported Output format: 2160/29.97p/25p/23.98p, 1080/59.94p/50p, 29.97p/25p/23.98p/59.94i/50i, 720/59.94p/50p, 480/59.94p, 576/50p Audio Input/Output 3.5 mm diameter, stereo mini jack (MIC IN and LINE IN) MIC: -60 dBV (sensitivity -40 dB equivalent, 0 dB=1 V/Pa 1 kHz), plug in power supported LINE: -10 dBV SDI OUT: 2 CH (LPCM) , gain: 0 dB/-6 dB/-12 dB (selectable menu) HDMI OUT: 2 CH (LPCM) Headphone: 3.5 mm diameter, stereo mini jack x 1	Output video signal:	8 bit 4:2:2			
Recording audio signal: 48 kHz/16 bit 2 CH	Recording video signal:	8 bit 4:2:0			
Audio compression: MP4: LPCM, AVCHD: Dolby Audio Headroom: 12 dB Video Input/Output SDI IN: BNC x 1, 0.8 V [p-p], 75 Ω, 3 G/1.5 G HD SDI supported Input format: 1080/59.94p LEVEL-A/LEVEL-B, 1080/50.p LEVEL-A/LEVEL-B, 1080/29.97Ps/25PsF/23.98PsF, 1080/59.94i/50i, 720/59.94p/50p SDI OUT: BNC x 1, 0.8 V [p-p], 75 Ω, 3 G/1.5 G HD SDI supported Output format: same as input format HDMI OUT: Type A connector x 1, VIERA Link not supported Output format: 2160/29.97p/25p/23.98p, 1080/59.94p/50p, 29.97p/25p/23.98p/59.94i/50i, 720/59.94p/50p, 480/59.94p, 576/50p Audio Input/Output 3.5 mm diameter, stereo mini jack (MIC IN and LINE IN) MIC: -60 dBV (sensitivity -40 dB equivalent, 0 dB=1 V/Pa 1 kHz), plug in power supported LINE: -10 dBV SDI OUT: 2 CH (LPCM) , gain: 0 dB/-6 dB/-12 dB (selectable menu) HDMI OUT: 2 CH (LPCM) Headphone: 3.5 mm diameter, stereo mini jack x 1	Video compression:	MP4: MPEG-4, AVCHD: AVC/H.264 High Profile			
Headroom: 12 dB	Recording audio signal:	48 kHz/16 bit 2 CH			
	Audio compression:	MP4: LPCM, AVCHD: Dolby Audio			
SDI IN: $ \begin{array}{c} \text{BNC} \times 1, 0.8 \text{ V [p-p]}, 75 \ \Omega, 3 \text{ G/1.5 G HD SDI supported lnput format:} 1080/59.94p \text{ LEVEL-A/LEVEL-B}, 1080/50p \text{ LEVEL-A/LEVEL-B}, 1080/59.94p/50p \text{ LEVEL-A/LEVEL-B}, 1080/59.94p/50p \text{ SDI OUT:} \\ \text{BNC} \times 1, 0.8 \text{ V [p-p]}, 75 \ \Omega, 3 \text{ G/1.5 G HD SDI supported Output format:} \text{ same as input format} \\ \text{HDMI OUT:} \\ \text{Type A connector} \times 1, \text{ VIERA Link not supported Output format:} 2160/29.97p/25p/23.98p, 1080/59.94p/50p 29.97p/25p/23.98p/59.94j/50p, 480/59.94p, 576/50p} \\ \text{Audio Input/Output} \\ \text{MIC/LINE IN:} \\ \text{3.5 mm diameter, stereo mini jack (MIC IN and LINE IN)} \\ \text{MIC:} -60 \text{ dBV (sensitivity } -40 \text{ dB equivalent,} \\ 0 \text{ dB=1 V/Pa 1 kHz), plug in power supported LINE:} -10 \text{ dBV} \\ \text{SDI OUT:} \\ \text{2 CH (LPCM)}, \text{ gain: 0 dB/-6 dB/-12 dB (selectable menu)} \\ \text{Headphone:} \\ \text{3.5 mm diameter, stereo mini jack} \times 1 \\ \end{array}$	Headroom:	12 dB			
Input format: 1080/59.94p LEVEL-A/LEVEL-B, 1080/50p LEVEL-A/LEVEL-B, 1080/59.94p/50p LEVEL-A/LEVEL-B, 1080/29.97Ps//25PsF/23.98PsF, 1080/59.94i/50i, 720/59.94p/50p	Video Input/Output				
Output format: same as input format HDMI OUT: Type A connector x 1, VIERA Link not supported Output format: 2160/29.97p/25p/23.98p, 1080/59.94p/50p 29.97p/25p/23.98p,59.94p/50p, 480/59.94p, 576/50p Audio Input/Output MIC/LINE IN: 3.5 mm diameter, stereo mini jack (MIC IN and LINE IN) MIC: -60 dBV (sensitivity -40 dB equivalent, 0 dB=1 V/Pa 1 kHz), plug in power supported LINE: -10 dBV SDI OUT: 2 CH (LPCM) , gain: 0 dB/-6 dB/-12 dB (selectable menu) HDMI OUT: 2 CH (LPCM) Headphone: 3.5 mm diameter, stereo mini jack x 1	SDI IN:	Input format:1080/59.94p LEVEL-A/LEVEL-B, 1080/50p LEVEL-A/LEVEL-B, 1080/29.97PsF/25PsF/23.98PsF,			
Output format: 2160/29.97p/25p/23.98p, 1080/59.94p/50p 29.97p/25p/23.98p/59.94i/50i, 720/59.94p/50p, 480/59.94p, 576/50p Audio Input/Output MIC/LINE IN: 3.5 mm diameter, stereo mini jack (MIC IN and LINE IN) MIC: -60 dBV (sensitivity -40 dB equivalent, 0 dB=1 V/Pa 1 kHz), plug in power supported LINE: -10 dBV SDI OUT: 2 CH (LPCM) , gain: 0 dB/-6 dB/-12 dB (selectable menu) HDMI OUT: 2 CH (LPCM) Headphone: 3.5 mm diameter, stereo mini jack x 1	SDI OUT:				
MIC/LINE IN: 3.5 mm diameter, stereo mini jack (MIC IN and LINE IN) MIC: -60 dBV (sensitivity -40 dB equivalent, 0 dB=1 V/Pa 1 kHz), plug in power supported LINE: -10 dBV SDI OUT: 2 CH (LPCM), gain: 0 dB/-6 dB/-12 dB (selectable menu) HDMI OUT: 2 CH (LPCM) Headphone: 3.5 mm diameter, stereo mini jack x 1	HDMI OUT:	Output format: 2160/29.97p/25p/23.98p, 1080/59.94p/50p/29.97p/25p/23.98p/59.94i/50i, 720/59.94p/50p,			
MIC: -60 dBV (sensitivity -40 dB equivalent, 0 dB=1 V/Pa 1 kHz), plug in power supported LINE: -10 dBV SDI OUT: 2 CH (LPCM), gain: 0 dB/-6 dB/-12 dB (selectable menu) HDMI OUT: 2 CH (LPCM) Headphone: 3.5 mm diameter, stereo mini jack x 1	Audio Input/Output				
HDMI OUT: 2 CH (LPCM) Headphone: 3.5 mm diameter, stereo mini jack x 1		MIC: -60 dBV (sensitivity -40 dB equivalent, 0 dB=1 V/Pa 1 kHz), plug in power supported			
Headphone: 3.5 mm diameter, stereo mini jack x 1	SDI OUT:	2 CH (LPCM) , gain: 0 dB/-6 dB/-12 dB (selectable menu)			
	HDMI OUT:	2 CH (LPCM)			
Consider the constant of the c	Headphone:	3.5 mm diameter, stereo mini jack x 1			
Speaker: 20 mm diameter, round x 1	Speaker:	20 mm diameter, round x 1			

AG-MDC20GJ Specifications

AG MD020	au opcomoations			
General				
Power:	DC 9 V (supplied from the AG-UMR20)			
Power consumption:	0.6 A			
Operating temperature:	0 °C to 40 °C (32 °F to 104 °F)			
Operating humidity:	10 % to 80 % (no condensation)			
Weight:	Body: approx. 325 g (0.717 lbs) Shooting: approx. 333 g (0.734 lbs) (including Protector)			
Dimensions: (W x H x D)	Body: 64 mm x 72 mm x 131 mm (excluding protrusion) (2-17/32 inches x 2-27/32 inches x 5-5/32 inches) Shooting:64 mm x 72 mm x 134.5 mm (including protrusion) (2-17/32 inches x 2-27/32 inches x 5-9/32 inches)			
Camera				
Pickup device:	1/2.3-type MOS MOS solid state image sensor Total pixels: 4168 x 3062 (approx. 12.76 megapixels)			
Lens:	Optical image stabilizer lens Zoom: optical 20x motorized zoom Fvalue: F1.8 to F3.6, Focal length: f= 4.08 mm to 81.6 mm 35 mm conversion: 29.5 mm to 612.0 mm (Hybrid O.I.S mode "OFF") Filter diameter: 49 mm, ND filter: CLEAR, 1/4, 1/16, 1/64 (built-in) Shortest shooting distance: 1.5 m (4.9 ft) at zoom range, 3 cm (0.1 ft) at wide angle IR cut filter: incorporates the ON/OFF control function			
Zoom:	i. Zoom: x30 (HD), x22 (4K) Digital zoom: x1.4, x2, x4, x6, x8			
Image stabilizer:	Optical image stabilizer (HD/4K) 5-Axis hybrid image stabilizer (HD)			
Gain setting:	Automatic, manual 0 dB to 30 dB(1 dB step), Super Gain 33 dB, 36 dB *At auto mode, 3 dB to 30 dB (3 dB steps) can be selected with AGC limit setting.			

Fortenna I Tamain al	As of April, 2022			
External Terminal CAMERA:	20 nin dadicated interface			
	20 pin dedicated interface			
LAN:	IP control LAN connector (RJ-45) Straight/cross cable auto-detect function			
REMOTE:	2.5 mm diameter stereo mini jack x 1 (ZOOM, S/S) 3.5 mm diameter mini jack x 1 (FOCUS, IRIS)			
USB 2.0:	Type Mini-B connector, mass storage (read/write)			
DC IN 12 V:	DC 12 V (11.4 V to 12.6 V) EIAJ Type4			
Monitor				
LCD monitor:	3.5-type LCD monitor, approx. 1,150,000 dots			
Network				
Video compression:	Motion JPEG, MP4:MPEG-4, AVCHD:AVC/H.264 High Profile			
Audio compression:	AAC-LC (48 kHz, 16 bit, 2 CH, 128 kbps)			
Transfer mode: (JPEG)	Resolution 640 x 360: Frame rate (59.94 Hz): 30 fps, 15 fps, 5 fps Frame rate (50.00 Hz): 25 fps, 12.5 fps, 5 fps *By the conditions, the frame rate is lower than setting.			
Transfer mode: (H.264)	Resolution 3840 x 2160/640 x 360: Frame rate (59.94 Hz): 30 fps, 15 fps, 5 fps Frame rate (50.00 Hz): 25 fps, 12.5 fps, 5 fps Resolution 1920 x 1080/1280 x 720: Frame rate (59.94 Hz): 60 fps, 30 fps, 15 fps, 5 fps Frame rate (50.00 Hz): 50 fps, 25 fps, 12.5 fps, 5 fps *By the conditions, the frame rate is lower than setting.			
Supported protocol:	TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTP/RTCP, FTP, DHCP, DNS, NTP, IGMP, UPnP, ICMP, ARP, RTSPoverTCP, RTSPoverHTTP, SSL (TLS), MultiCast/UniCa:			
IP connector cable:	LAN cable* (more than category 5) max. 100 m *STP (Shielded Twisted Pair) recommend			
Supported OS				
Windows:	Microsoft® Windows 10 (32 bit/64 bit) Pro, Microsoft® Windows 7 (32 bit/64 bit) Professional SP1*1, Internet Explorer 11*2 *1: Windows XP Compatible Mode cannot be used. *2: Microsoft Edge cannot be used.			
Mac:	MacOS 10.12, OS X v10.11, Safari10			
Supported Browser				
iOS device:	iPhone/iPad/iPod touch, iOS 10, standard browser			
Android:	Android OS 4.4/6.0, standard browser			
Supported Controller	,			
Controller:	AW-RP50, AW-RP120G, AK-HRP200G *Depending on a model, upgrade is required.			
AC Adapter				
Rated input voltage:	AC 100 V – 240 V, 50 Hz/60 Hz, 1.2 A			
Input capacitance:	79 VA (AC 100 V) , 99 VA (AC 240 V)			
Rated output:	DC 12 V, 3.0 A			
Operating temperature:	0 °C to 40 °C (32 °F to 104 °F)			
Operating humidity:	10 % to 90 % (no condensation)			
Weight:	Approx. 225 g (0.496 lbs)			
Dimensions:	115 mm (W) x 37 mm (H) x 57 mm (D) (excluding DC code) (4-1/2 inches \times 1-7/16 inches \times 2-1/4 inches)			

As of April, 2022

White balance:	ATW, ATW LOCK, AWB A, AWB B, P3200K, P5600K, VAR (2000 K to 15000 K)		
Shutter speed:	59.94i/59.94p mode: 1/60 sec., 1/100 sec., 1/120 sec., 1/180 sec., 1/250 sec., 1/350 sec., 1/500 sec., 1/750 sec., 1/100 sec., 1/1500 sec., 1/2000 sec., 1/3000 sec., 1/1000 sec., 1/1500 sec., 1/2000 sec., 1/3000 sec., 1/4000 sec., 1/8000 sec. (same as above) says p mode: 1/24 sec., 1/100 sec., 1/160 sec., 1/160 sec., 1/100 sec., 1/120 sec., 1/120 sec., 1/180 sec. to 1/8000 sec. (same as above) soli/50p mode: 1/24 sec., 1/60 sec., 1/100 sec., 1/125 sec., 1/180 sec. to 1/8000 sec. (same as above) 25.00p mode: 1/25 sec., 1/50 sec., 1/60 sec., 1/100 sec., 1/125 sec., 1/180 sec. to 1/8000 sec. (same as above)		
Slow shutter:	59.94i/59.94p mode: 1/2 sec., 1/4 sec., 1/8 sec., 1/15 sec., 1/30 sec. 29.97p mode: 1/2 sec., 1/4 sec., 1/8 sec., 1/15 sec. 23.98p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec. 50i/50p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec., 1/25 sec., 25.00p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec.		
Synchro scan:	59.94i/59.94p mode: 1/60.0 sec. to 1/285.6 sec. 29.97p mode: 1/30.0 sec. to 1/206.5 sec. 23.98p mode: 1/24.0 sec. to 1/280.1 sec. 50i/50p mode: 1/50.0 sec. to 1/209.2 sec. 25p mode: 1/25.0 sec. to 1/224.3 sec.		
Minimum illumination:	0.2 lx (slow shutter: 1/2 sec., gain: +36 dB)		
Horizontal resolution: (Typ, Center)	1,300 TV (HDMI output 2160/29.97p, when 25.00p playback) 1,000 TV (HDMI output 1080/59.94p, when 50.00p playback)		
Input/Output			
AUDIO IN:	Built-in microphone (2 CH stereo)		
Connecter:	20 pin dedicated interface (to the AG-MDR25)		

Options As of April, 2022



AG-C20003G 3 m (9.84 ft) **AG-C20020G** 20 m (65.62 ft) Camera Head Option Cable



AG-VBR118G (11,800 mAh) Battery Pack



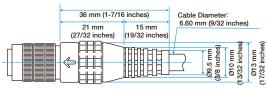
AG-VBR89G (8,850 mAh) Battery Pack



AG-VBR59 Battery Pack



AG-BRD50 Battery Charger



Camera Head Option Cable Dimensions

Battery Pack Charge Capacity and Charge Time

Product Number	Voltage/Capacity			Charge time*
AG-VBR118G	7.28 V	11800 mAh	86 Wh	Approx. 280 min.
AG-VBR89G	7.28 V	8850 mAh	65 Wh	Approx. 240 min.
AG-VBR59	7.28 V	5900 mAh	43 Wh	Approx. 200 min.

(5,900 mAh)

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Panasonic

Panasonic Connect Co., Ltd.

2-15 Matsuba-cho, Kadoma, Osaka 571-8503 Japan



Factories of Panasonic Connect Co., Ltd. have received ISO14001:2015-the Environmental Management System certification. (Except for 3rd party's peripherals.)



For more information, please visit Panasonic web site https://pro-av.panasonic.net/en/qr/



Broadcast and Professional AV Website



Contact Information



Facebook



Mobile App

^{*}When using the AG-BRD50.