Panasonic

Surgical Image Recording System
AG-MDR25
Memory Card Portable Recorder
Scheduled for release in May, 2017

AG-MDC20GJ
Compact Camera Head
(Special Option for the AG-MDR25)
Scheduled for release in May, 2017

Compact Portable Recorder System
Suitable for Recording High-Quality Medical Video

* Pictures simulated.

*The cable is optional.

AG-MDR25
Memory Card Portable Recorder
* Pictures simulated.

AG-MDC20GJ
Compact Camera Head
The New POVCAM Supports Medical Video, Endoscope Images, and IP Networking

A compact, lightweight, free-style shooting
Inheriting the features of the first-generation POVCAM plus the operating ease of a touch panel.

High-quality images suitable for surgical recording
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
Complies with medical standards. Lens protector, membrane sheet control section, etc., conform to medical specifications.

* 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.
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 touch-panel 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/5,800 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.
- 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

Complies with Medical Standards
Medical Electronic Device Safety Standards (IEC 60601-1) and EMC Standards (IEC60601-1-2).
* When the image is reversed, the recorded image will remain in its original orientation.

Compact Camera Head features a progressive MOS sensor with a total of 1,276-megapixels. The Recorder supports, in addition to 4K (UHD: 3840 x 2160) 29.97p/23.98p/25p* and FHD (1920 x 1080) 59.94p*, images, multi-format image acquisition. (See page 3 "Recording Format").

The high-resolution, progressive sensor also provides a dramatic 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.

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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.
• 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 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.

*: When using two 128-GB SDXC Memory Cards. Extended clips are automatically split every 10 hours, 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 high-quality photos. NEW
• 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.

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. Control is also possible by a Panasonic remote camera system IP controller for integrated system operation. Open IP commands make it easy for users to design original systems.

• IP control: Remote control from a PC, tablet or IP controller 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/25p 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.

*: HDMI output of 4K (UHD) video is available only for playback of 4K (UHD) recording clips.
*: 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. NEW
• 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.
AG-MDR25 Specifications

General

Power: DC 7.28 V (with battery), DC 12 V (with AC adaptor)
Power consumption: In stand-alone condition: 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)
Operating temperature: 0 °C to 40 °C (32 °F to 104 °F)
Operating humidity: 10 % to 80 % (no condensation)
Weight: Approx. 560 g (1.2 lbs)
Dimensions: (W x H x D) 100 mm x 53.5 mm x 104 mm (excluding protrusion) (3.15/16 inches x 2-3/32 inches x 4-1/2 inches)

Memory Card Recorder

Recording media: SDHC memory card (4 GB to 32 GB), SDXC memory card (48 GB to 128 GB)
MP4: more than Class10, AVCHD: more than Class4
Recording slot: 2 Slots
System format: 59.94 Hz / 50.00 Hz
Recording memory: Recording system: MP4, AVCHD Recording mode/Recording time

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

Input Video/Output Audio

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, 1080/59.94i, 1080/60p, 1080/50p, 1080/50i, 720/59.94p, 720/50p, 576/50i, 576/50 p/59.94i, 59.94p
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: 2160p/24Hz, 2160p/50Hz, 1080p/24Hz, 1080p/50Hz, 720p/50p, 720p/60p, 576p/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, MIC/LINE IN: 3.5 mm diameter, stereo mini jack (MIC IN and LINE IN))
Input/Output

Internal Terminal

Input/Output Terminal: DC 12 V, 3 A (with battery)
Remote terminal: 20-pin dedicated interface
Audio: Control output terminal: 20-pin dedicated interface

External Terminal

Cameras: 20 pin dedicated interface
LAN: IP control LAN connector (RU-45)
Remote control: 2.5 mm diameter mini jack x 1 (ZOOM, S/B) 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) EIA Type
Monitor: LCD monitor: 3.5-type LCD monitor, approx. 1,150,000 dots

Supported OS

Supported OS: Microsoft® Windows 10 (32 bit/64 bit), Internet Explorer 11
Supported Android: Android OS 4.4, standard browser
Supported Controller: AW-RP50, AW-RP120GK, AK-HRP200G
Supported Adapter: Depending on a model, upgrade is required.

AG-MDC20GJ Specifications

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: approx. 12.76 megapixels
Dimensions: 115 mm (W) x 37 mm (H) x 57 mm (D) (excluding DC code)

Camera

Pickup device: 1/2.3-type MOS MOS solid state image sensor (Total pixels approx. 12.76 megapixels)
Lens: Zoom: optical 20x motorized zoom Focal length: f= 4.08 mm to 81.6 mm 35 mm conversion: 29.5 mm to 62.0 mm (Hybrid OIS mode “OFF”)
Filter diameter: 40 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: x10 (HD), x2 (4K)
Digital zoom: x1, 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
Audio: Built-in microphone (2 CH stereo)
Connector: 20 pin dedicated interface (to the AG-MDR25)
Factories of AVC Networks Company have received ISO14001:2004—the Environmental Management System certification. (Except for 3rd party’s peripherals.)

Please refer to the latest Non-linear Compatibility Information, Download and Service Information, etc. at the following Panasonic website:

http://pro-av.panasonic.net/

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*Specifications are subject to change without notice.

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<table>
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<th>Product Number</th>
<th>Voltage/Capacity</th>
<th>Charge time*</th>
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<td>7.28 V 11800 mAh 86 Wh</td>
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<td>7.28 V 8850 mAh 65 Wh</td>
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<td>AG-VBR59</td>
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<td>7.2 V 5800 mAh 42 Wh</td>
<td>Approx. 320 min.</td>
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*When using the AG-BRD50.