Panasonic AG-UMR20 Memory Card Portable Recorder
Scheduled for release in May, 2017

AG-UCK20GJ Compact Camera Head
(Special Option for the AG-UMR20)
Scheduled for release in May, 2017

A Compact Recorder with Versatile Operation
for Broadcasting, Video Production, Live Streaming and more.

* Pictures simulated.
“New POVCAM” with a Compact, Lightweight,

A Compact, Lightweight, Free-Style Shooting
Inheriting the features of the first-generation POVCAM plus the operating ease of a touch panel.

Network Operation for IP Control and IP Streaming
LAN connection enables zooming and real-time video monitoring with a PC or tablet.

Double SDXC Memory Card Slots
Extended recording capability with large-capacity SDXC Memory Cards and Relay Recording.

High-Quality, Newly Designed 4K* (UHD) Camera Head
Featuring a high-resolution, progressive MOS sensor and 29.5mm (35 mm equivalent) wide-angle optical 20x zoom lens.

* 4K acquisition is possible only when connected to the AG-UCK20GJ 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 sound with video.
- 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 drive: 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 operation: Equipped with input terminal for DC12V power supply. AC adaptor also included.
- Power Supply Activation mode on the main unit 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
- Touch panel: Compact size and multifunctional operating ease. Menu settings and User buttons can be operated by touch.
- 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.
- 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.
- WFM display: Waveform (WFM) and Vector Scope (VECTOR) display supported.
- LCD DTL: The contours of the display image are emphasized to aid in focusing.

NEW

Inheriting the compact, lightweight, free-style shooting features of the First-generation POVCAM plus the operating ease and versatility of a touch panel.
Network Operation for IP Control and IP Streaming
Versatile System Functions, Including 3G-SDI/HDMI/IP Simultaneous Output

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 also 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 by a network PC.

A REMOTE Terminal that also controls Focus and Iris
Two REMOTE terminals provide fingertip control. In addition to the Rec Start/Stop and Zoom operations a terminal for focus and iris is also provided.

Simultaneous Output of 3G-SDI Input/Output and HDMI Output
- SDI input: An SDI input with 3G-SDI support is equipped. This lets you connect to a camera-recorder or other video device and record multi-format images, including FHD (1920×1080) 59.94p/50p/23.98p progressive images. When connected to a standard camera-recorder, Rec Start/Stop control can be used for automatic back-up recording.*
- Linked automatic recording must be supported by the camera-recorder.
- SDI output: 3G-SDI compatible SDI output is equipped. FHD (1920×1080) 59.94p/50p progressive images can be output.
- 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) recorded clips. *2: Simultaneous output is not supported for all video formats. Conditions exist for the input/output signals and recording format.

Versatile Interfaces
- Audio input: A stereo mini-jack is equipped. LINE IN/MIC IN switchable. * When connected the compact camera head, the audio input can not be used.
- USB 2.0: PC connection is possible in Mass Storage mode (miniB terminal).
- Built-in speaker and headphone jack.

* Pictures simulated.
AVCHD Acquisition with High-Quality PS/PH Modes

In addition to the HD (1280x720) 59.94p/50p recording and extended recording mode (1440x1080) 59.94i/50i of the first-generation POVCAM, a PS mode capable of FHD (1920×1080) 59.94p/50p/25p* recording is equipped. PH mode for professional video production is also capable of FHD (1920×1080) 59.94i/50i/23.98p* recording. When connected to the Compact Camera Head (optional AG-UCK20GJ), high-resolution 4K (UHD: 3840 x 2160) 29.97p/23.98p/25p* (MP4 format) recording are supported. (See the Recording Format)

* When using the AG-UCK20GJ, 59.94i/50i video signals are output for HD SDI output and HDMI output.

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. SDXC and SDHC Memory Cards can be readily acquired in an emergency situation while shooting on location.

*1: 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 Functions for Professional Use

- Producing photos from video: Single-frame image files can be converted from recorded video images. These can be used for high-quality photos. NEW
- Last clip delete: The clip that was recorded immediately before can be deleted with a single touch. This function can also be allocated to a User button.
- Time stamp: Date and time information can be superimposed onto images. Usable for extended research activities and nature observations.
- TC/UB recording: An SMPTE time code generator is built-in.
- Color bar signal output (with 1-kHz audio test tone*).

* When [SYSTEM FREQ] is set to [50 Hz], a 997-Hz test tone is output.

Playback Functions Convenient for Presentations

- Repeat playback: Continuous, automatic Repeat playback possible for one clip or multiple clips from the thumbnail display. Helpful for demonstrations and presentations.
- 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.
- Clip operation: Fast forward, rewind, clip forward, clip reverse, and frame by frame playback operation are supported.

Recording Format

| Rec. Mode | Image Size | Bit Rate | Frame Rate | Audio | Recording Time approx.
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>MP4* 4K (UHD)</td>
<td>3840×2160</td>
<td>50 Mbps (VBR)</td>
<td>59.94 Hz</td>
<td>LPCM 1.5Mbps</td>
<td>5 hour 20 minutes</td>
</tr>
<tr>
<td>PS</td>
<td>1920×1080</td>
<td>25 Mbps (VBR)</td>
<td>59.94 Hz</td>
<td>Doiby Audio</td>
<td>11 hours</td>
</tr>
<tr>
<td>PH</td>
<td>1440x1080</td>
<td>5 Mbps (VBR)</td>
<td>59.94 Hz</td>
<td>Doiby Audio</td>
<td>56 hours</td>
</tr>
<tr>
<td>HA</td>
<td>1280×720</td>
<td>8 Mbps (VBR)</td>
<td>59.94 Hz</td>
<td>Doiby Audio</td>
<td>35 hours</td>
</tr>
</tbody>
</table>

* When using the AG-UCK20GJ.
4K (UHD)-Compatible, 29.5 mm Wide-Angle Optical 20x Zoom Lens
Compact Camera Head with Improved Image Quality and Functions

High-Resolution, Progressive MOS Sensor
4K (UHD: 3840 x 2160) 29.97p* / 59.94p* supported
HD (1920 x 1080) 59.94p/50p/23.98p image acquisition are newly supported. HD image quality also dramatically improved.

29.5 mm Wide-Angle Optical 20x Zoom Lens
• 29.5 mm Wide-Angle: Achieves wide-angle in spite of its compact size.
• Optical 20x zoom: Covers a range from 29.5 mm wide angle to 612 mm close ups (35mm equivalent) for various applications.
• Intelligent Zoom (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.*

Stable Images with the 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.

Picture Adjustments like a High-End Cameras
• 16-Axis independent color correction: This function provides an independent effect to each of the 16 phases and saturation levels of video images. This fine color matching and rendering meet the needs of video production applications.
• 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 bright lighting.
• Shutter: The Slow Shutter and Synchro Scan functions are supported.
• 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: The gain can be increased either with AUTO or 0 dB to 30 dB (in 1 dB units), plus super gain (32 dB/36 dB). Iris adjustment can also be adjusted independently from the gain.
• White balance: AWB A, B (two-value memory) / P3200K / P5600K / ATW / VAR (2000 K to 15000 K). A new Variable mode has also been added for a finer setting capability. This allows color reproduction to better match the shooting situation.
• Image adjustments: Detail, V-detail, Detail coring, Skin tone detail, Color temperature, Chroma level, Chroma phase, Matrix (Norm/Cine-like/Still-like), Master pedestal, Gamma (HD norm/Cine-like/Still-like), Black gamma, Knee, NR control

Versatile Camera Functions
• Auto Focus: High-speed, high-performance auto focus technologies enable speedy focusing, excellent tracking, and superb stability for higher-quality 4K images.
• Focus Assist: Focusing is aided by a Peaking Display (emphasizing in-focus areas by the use of coloring).
• Push Auto: Pressing the button during Manual Focus mode temporarily activates Auto Focus.
• Infrared (IR) Shooting mode: Helpful for nighttime observation and surveillance.
• Pre Rec: Constantly records video and sounds from approximately 3 seconds before ordinary recording starts, to prevent missing decisive moments.
• Rec Check: Plays approximately the last 3 seconds that were recorded for confirmation.
• Zebra: Select any two levels from among 50% to 105% in 5% steps.
• Filters supported: Commercially available lens filters (49 mm diameter) supported.
POVCAM Applications Using the Compact Camera Head

For Close-up Face Shots in TV Program Production
By placing Camera Heads on the table during news or information show, close-up shots of the people seated around the table can be taken with highly natural expressions. Several cameras can be mounted even in a small studio, and a single operator can handle them with IP control. This also helps to reduce production costs.

For Indoor Events Such as Weddings and Reality TV Shows
By suspending a Camera Head unobtrusively from the ceilings, on a stage, or on a mic stand, images can be recorded that wouldn’t be possible by an ordinary camera operator.

For Nature Observations, Documentaries, Sports and Webcasts
While shooting extended images in high-quality 4K (UHD) or Full-HD format, live webcasts can be produced by IP streaming. The compact Camera Head can be flexibly mounted and combined with IP control for remote shooting, providing the high image quality that is required for video production. Infrared (IR) mode also allows nighttime shooting.

Infrared (IR) mode also allows nighttime shooting.

In the right shooting is required IR light. IR light is recommended the product of the wavelength 800 nm to 950 nm (850 nm is the most suitable). In order to shoot to clear the subject, it also requires a large amount of irradiation of IR light in addition to the performance of the camera.

System Examples with a Standalone Recorder

For Backing Up a Camera-Recorder
The compact, lightweight design and battery drive enable to use in outdoor locations. SDI input allows Full-HD acquisition from a wide variety of sources, including camera-recorders. Back-up recording* is also possible with the Rec Start/Stop function of the camera-recorder connected the Portable Recorder with SDI. Since simultaneous IP/SDI/HDMI output is possible, the Portable Recorder can be used as a signal distributor to monitors, PCs, and tablets.

*Linked automatic recording must be supported by the camera-recorder.

For Recording and Networking from a Information Camera
For recording an existing HD information camera or weather camera. In addition to the extended recording capability of large-capacity SDXC/SDHC Memory Cards and Double SD Memory Card Slots, the IP streaming function enables use as a network camera.

*PoE power supplies is not supported for the AG-UMR20. Only the AW-UE70W/K can supply power.
AG-UMR20 Specifications

General

Power: DC 7.28 V (with battery), DC 12 V (with AC adaptor)
Power consumption: 0.6 A
Operating temperature: 0 °C to 40 °C (32 °F to 104 °F)
Operating humidity: 10 % to 80 % (no condensation)
Dimensions: (W x H x D) (2-17/32 inches x 2-27/32 inches x 5-5/32 inches)
Memory Card Recorder
Recording media: SDHC memory card (4 GB to 32 GB), SDXC memory card (48 GB to 128 GB)
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
Still picture recording: Recording system: JPEG (DCF/Exif2.2)

Digital Video/Digital Audio

Output video signal: 8 bit 4:2:2
Video compression: MP4: MPEG-4, AVCHD: AVCHD.264 High Profile
Audio compression: MP4: LPCM, AVCHD: Dolby Audio
Headroom: 12 dB

Video Input/Output

Video Input: SDI IN: BNC x 1, 0.8 V [p-p], 75 Ω, 3 Gr.15 G HD SDI supported
SDI OUT: BNC x 1, 0.8 V [p-p], 75 Ω, 3 Gr.15 G HD SDI supported
HDMI OUT: Type A connector x 1, VIERA Link not supported
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 VpA 1 kHz), plug in power supported
SDI OUT: 2 CH (LPDM), switchable gain: 0 dB/-6 dB/-12 dB
HDMI OUT: 2 CH (LPDM)
Headphone: 3.5 mm diameter, stereo mini jack x 1
Speaker: 20 mm diameter, round x 1

AG-UCK20GJ 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)
Dimensions: (W x H x D) (3-15/16 inches x 2-3/32 inches x 5-1/2 inches)
Camera
Pickup device: 1/2.3-type MOS MOS solid state image sensor
Lens: Zoom: 20x motorized zoom
F-value: F1.8 to F3.6, Focal length: 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)
Shutter speed: 59.94 Hz / 50.00 Hz
Gain setting: AUTO mode, 3 dB to 30 dB (3 dB steps)
Image stabilizer: 5-Axis Hybrid image stabilizer (HD)

As of April, 2017

35 mm conversion: 29.5 mm to 612.0 mm
Gain setting: AUTO mode, 3 dB to 30 dB (3 dB steps)
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.

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Voltage/Capacity</th>
<th>Charge TIME*</th>
</tr>
</thead>
<tbody>
<tr>
<td>AG-VBR118G</td>
<td>7.2V 11800 mAh</td>
<td>Approx. 280 min.</td>
</tr>
<tr>
<td>AG-VBR89G</td>
<td>7.2V 8850 mAh</td>
<td>Approx. 240 min.</td>
</tr>
<tr>
<td>AG-VBR59</td>
<td>7.2V 5900 mAh</td>
<td>Approx. 300 min.</td>
</tr>
<tr>
<td>VW-VBD58</td>
<td>7.2V 5800 mAh</td>
<td>Approx. 320 min.</td>
</tr>
</tbody>
</table>

*When using the AG-BRD50.

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**Options**

- AG-C20003G 3 m (9.84 ft)
- AG-C20002G 20 m (65.62 ft)
- AG-VBR118G (11,800 mAh)
- AG-VBR89G (8,850 mAh)
- AG-VBR59 (5,900 mAh)
- AG-B23
- VW-VBD58 (5,800 mAh)
- Battery Pack AG-BRD50
- SD/SDHC/SDXC Memory Card
- Battery Pack AG-BRD50
- Battery Charger AG-BRD50
- Battery Pack AG-B23
- Battery Charger AG-B23

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**Cable Diameter**

- 21 mm (27/32 inches)
- 15 mm (19/32 inches)
- 6.60 mm (9/32 inches)

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**Camera Head Option Cable Dimensions**

- 2-15 Matsuba-cho, Kadoma, Osaka 571-8503 Japan
- http://pro-av.panasonic.net/

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**Specifications**

- Voltage/Capacity
- Charge TIME

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**Panasonic Corporation**

Connected Solutions Company

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

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

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- India +91 1860 425 1860
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- Vietnam +65 6277 7284

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**Battery Pack Charge Capacity and Charge Time**

- AG-VBR118G 7.2V 11800 mAh 86 Wh Approx. 280 min.
- AG-VBR89G 7.2V 8850 mAh 65 Wh Approx. 240 min.
- AG-VBR59 7.2V 5900 mAh 43 Wh Approx. 300 min.
- VW-VBD58 7.2V 5800 mAh 42 Wh Approx. 320 min.

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Manufacturers of AVC Networks Company have received SD/HDSMS-034-2004 The Environmental Management System certification. (Except for 3rd party’s peripherals.)