

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



AG-UCK20GJ
Compact Camera Head



AG-UMR20
Memory Card Portable Recorder

POV CAM

AVCHD™
Progressive

HDMI

SD™
XC

DOLBY AUDIO™

“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.



External Source



AG-UCK20GJ
Compact Camera Head

Optional Cable
(3 m (9.84 ft)/20 m (65.62 ft))

HD SDI IN

MIC/LINE



AG-UMR20
Memory Card Portable Recorder



SDXC/SDHC Memory Card

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

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).
- **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.

* When the image is reversed, the recorded image will remain in its original orientation.

* Even when the contours are emphasized, the recorded image will not be affected.



An example of user buttons



LCD reverse display



WFM display

Free Style Shooting and IP Networking Capability



* Pictures simulated.

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. 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 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 to the compact camera head, the audio input cannot be used.

- **USB 2.0:** PC connection is possible in Mass Storage mode (miniB terminal).
- Built-in speaker and headphone jack.



Double SD Memory Card Slots (SDXC Memory Card) and Relay Recording A Memory Card Recorder with High Image Quality and Extended Recording

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 (1920x1080) 59.94p/50p/25p* recording is equipped. PH mode for professional video production is also capable of FHD (1920x1080) 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/SDHC Memory Card) **NEW**

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.

* 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 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.
- **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

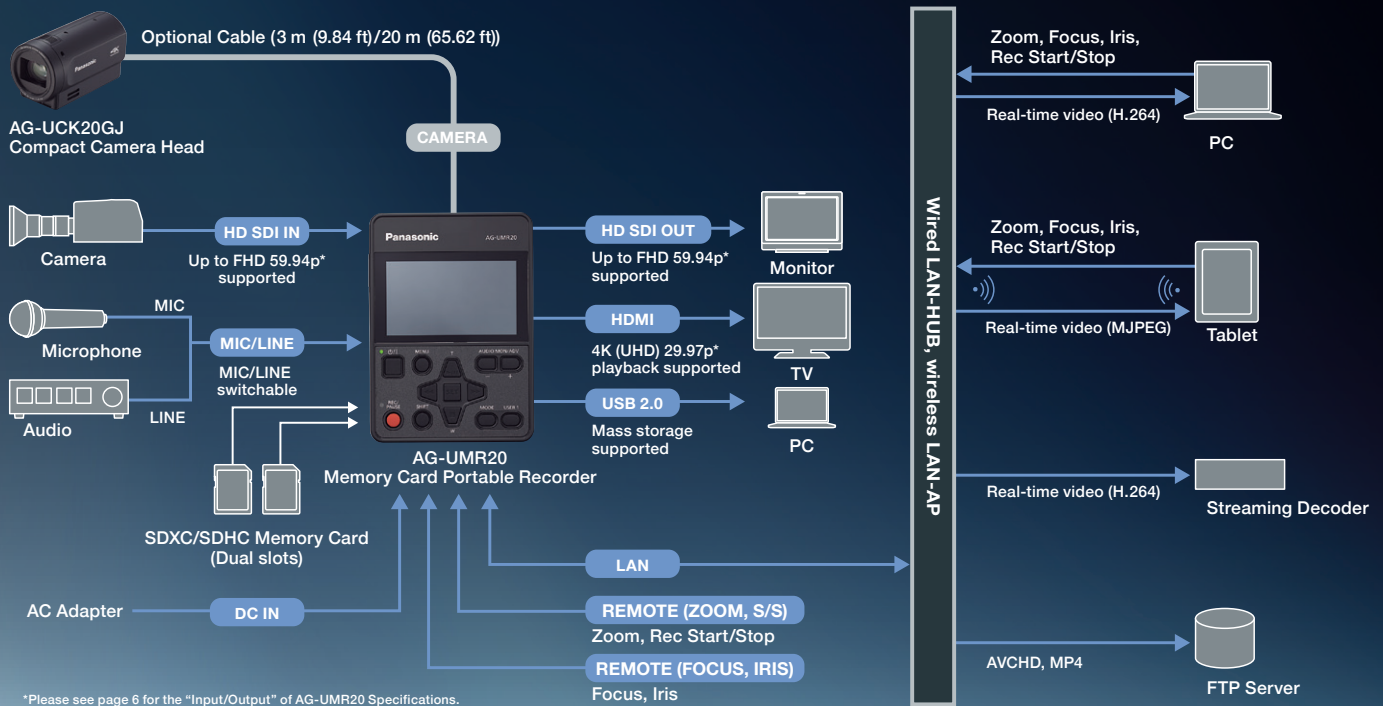
- **Repeat playback:** Continuous, automatic Repeat playback possible for one clip or multiple clips from the thumbnail display. Helpful for demonstrations and presentations.
 - **Resume playback:** When the Stop key is pressed during playback, the stop position is stored in memory. Simply press the Play key to start playing again from the stop position.
- * Turning off the power resets the memory. This function is disabled in the factory default setting.
- **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* ² (approx.)		
			59.94 Hz	50.00 Hz				
MP4* ¹	4K (UHD)	3840x2160	50 Mbps (VBR)	29.97p 23.98p	25p	LPCM 1.5Mbps	5 hours 20 minutes	
AVCHD	PS	1920x1080	25 Mbps (VBR)	59.94p	50p	Dolby Audio 384kbps	11 hours	
				59.94i	50i			12 hours 30 minutes
				23.98p	50i			
	HA	17 Mbps (VBR)	59.94i	50i	Dolby Audio 256kbps	17 hours		
	HE	1440x1080	5 Mbps (VBR)	59.94i	50i		56 hours	
	PH	1280x720	21 Mbps (VBR)	59.94p	50p	Dolby Audio 384kbps	12 hours 30 minutes	
8 Mbps (VBR)				59.94p	50p	Dolby Audio 256kbps	35 hours	

*1: When using the AG-UCK20GJ. *2: When continuous recording exceeds 10 hours, the recording is stopped and automatically restarted approximately every 10 hours, causing the recording to stop for several seconds.

System Diagram



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/23.98p/25p,* FHD (1920x1080) 59.94p/50p/23.98p image acquisition are newly supported. HD image quality also dramatically improved.

* 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.

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 (×1.4/×2/×4/×6/×8) allows zooming without any change in brightness. Combining optical zoom + intelligent zoom enables zooming up to a maximum of 240x.*
- *When using optical 20x zoom + i.Zoom + digital zoom 8x in HD format. The image quality decreases as the digital zoom magnification increases.

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 (33 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

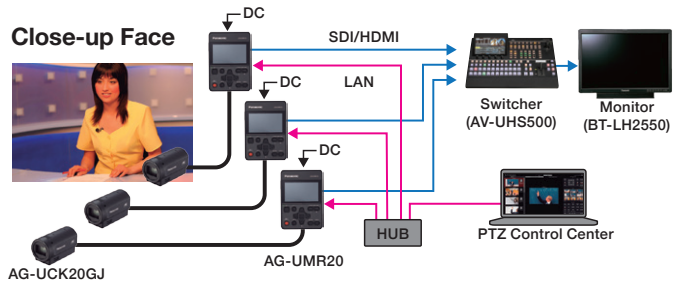
Versatile Camera Functions

- **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.

Applications Using the Compact Camera Head

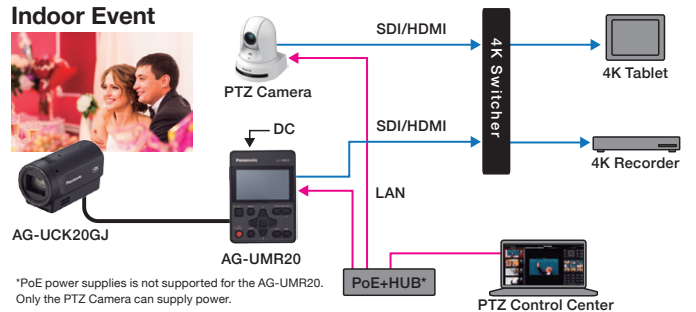
For Close-up Face Shots in TV Program Production

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 ceiling, on a stage, or on a mic stand, images can be recorded that wouldn't be possible by an ordinary camera operator.

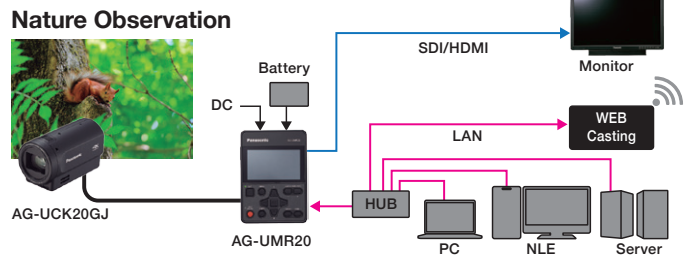


For Nature Observations, Documentaries, Sports and Webcasts

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.

*In the night 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.

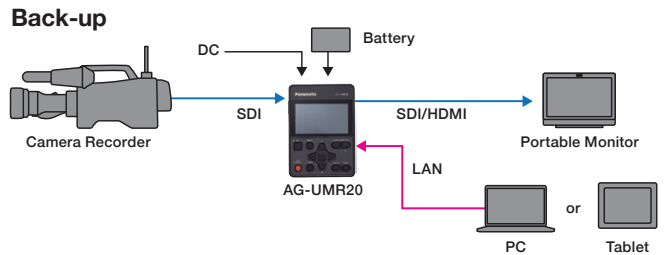


System Examples with a Standalone Recorder

For Backing Up a Camera-Recorder

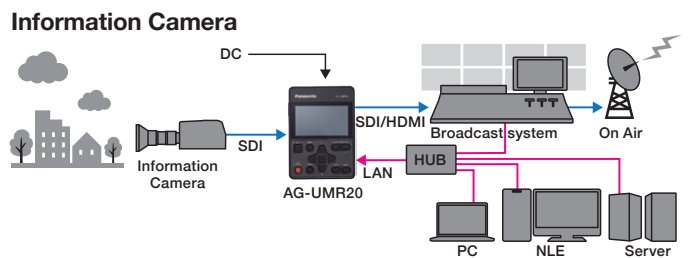
The compact, lightweight design and battery drive enable to use in outdoor locations. SDI input allows Full-HD acquisition from a wide variety of sources, including camera-recorders. Back-up recording* is also possible with the Rec Start/Stop function of the camera-recorder connected the Portable Recorder 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.



POVCAM-Compatible PC Software

PTZ Control Center (Free of Charge)

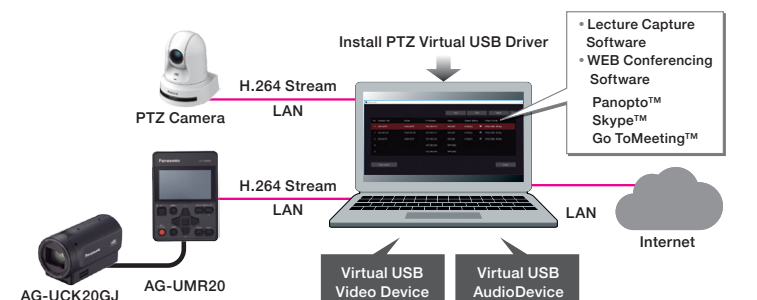
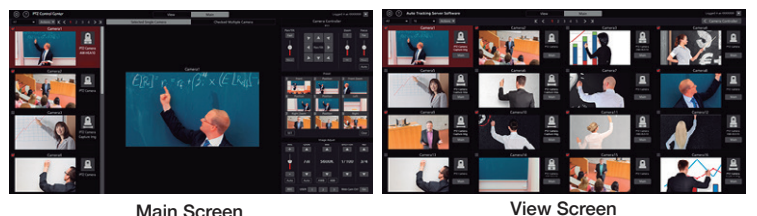
Several PTZ cameras or POVCAMs can be simultaneously controlled by a single PC.

- The images from several PTZ cameras or POVCAMs can be simultaneously checked, managed, and controlled.
- Control items consist of camera control (Focus, Iris, Zoom, Gain, White Balance, Shutter, and ND Filter) and Rec Start/Stop.
- Depending on user authority, functions can be limited and settings data can be moved between PCs.
- Wide-range panning and tilting are supported using panorama (still) images.
- Presets with thumbnail images can be registered, retrieved, and deleted (for up to 9 locations).

PTZ Virtual USB Driver (Free of Charge)

This driver allows the POVCAM to be used as a USB camera for purposes such as network distribution and conferences.

- Networked PTZ cameras and POVCAMs can be used as USB cameras.
- Up to 5 PTZ cameras or POVCAMs can be registered and controlled.



AG-UMR20 Specifications

As of April, 2022

General	
Power:	DC 7.28 V (with battery), DC 12 V (with AC adaptor)
Power consumption:	In standalone condition: 1.1 A (with battery), 0.7 A (with AC adaptor) With the optional AG-UCK20GJ 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: (W x H x D)	100 mm x 53.5 mm x 140 mm (excluding protrusion) (3-15/16 inches x 2-3/32 inches x 5-1/2 inches)

Memory Card Recorder	
Recording media:	SDXC memory card (48 GB to 128 GB) , SDHC memory card (4 GB to 32 GB) MP4: more than Class10, AVCHD: more than Class4
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
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
Speaker:	20 mm diameter, round x 1

AG-UCK20GJ Specifications

As of April, 2022

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. 325 g (0.717 lbs)
Dimensions: (W x H x D)	64 mm x 72 mm x 131 mm (excluding protrusion) (2-17/32 inches x 2-27/32 inches x 5-5/32 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.

External Terminal	
CAMERA:	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 (48kHz, 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/UniCast
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 x 1-7/16 inches x 2-1/4 inches)

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., 1/1000 sec., 1/1500 sec., 1/2000 sec., 1/3000 sec., 1/4000 sec., 1/8000 sec. 29.97p mode: 1/30 sec., 1/50 sec., 1/60 sec., 1/100 sec., 1/120 sec., 1/180 sec. to 1/8000 sec. (same as above) 23.98p mode: 1/24 sec., 1/48 sec., 1/50 sec., 1/60 sec., 1/100 sec., 1/120 sec., 1/180 sec. to 1/8000 sec. (same as above) 50i/50p mode: 1/50 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)
Connector:	20 pin dedicated interface (to the AG-UMR20)



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



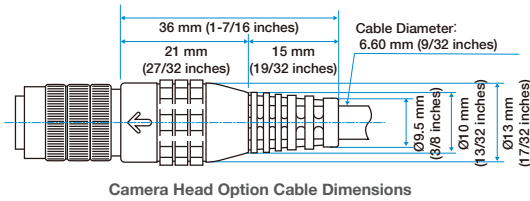
AG-VBR89G (8,850 mAh)
 Battery Pack



AG-VBR59 (5,900 mAh)
 Battery Pack



AG-BRD50
 Battery Charger



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.

*When using the AG-BRD50.

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



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