Panasonic

P2HD

AJ-PX5000G
Memory Card Camera Recorder

AVC ULTRA   AVC INTRA   AVC Long G   AVC Proxy   P2   micro P2   SD XC   HDMI
HIGH-DEFINITION MULTIMEDIA INTERFACE

*The lens, mic, viewfinder, wireless receiver and battery pack shown in the photo are optional accessories.

A High-End ENG Camera Recorder Featuring AVC-ULTRA*[1] Codecs, microP2 Card Slots and Network Support for Automatic FTP Transmission and On-Air Streaming.

Combining high-end image quality with cost-efficient operation, the AJ-PX5000G meets the new needs of broadcast workflows for the networking age, and sets a new standard for ENG.

AVC-ULTRA*[1] codecs let you choose the quality and bit rate that suit your application from AVC-Intra200, which produces images that approach the level of uncompressed master quality; the popular AVC-Intra100/50; AVC-LongG50/25, with low-bit-rate operation and Full-HD 1920 × 1080, 4:2:2, 10 bit image quality; and AVC-LongG12, with 8 bit, 4:2:0 images and extended recording time. Dual codec recording is also possible with the low-bit-rate and high-quality AVC-LongG6 codec (Proxy file/Full-HD 1920 x 1080), for breaking news. In addition to conventional P2 card slots, the AJ-PX5000G offers microP2 card slots, which dramatically reduce media costs. Featuring the 2.2-megapixel 2/3-type MOS image sensor, this advanced camera recorder achieves high F12 (59.94 Hz)/F13 (50 Hz) sensitivity and excellent images with an S/N ratio of 62 dB. Also enabling progressive full frame 1080/60p*[2] and 1080/50p shooting, the AJ-PX5000G supports camera output from a 3G-SDI/HDMI terminal, and line recording from a 3G-SDI IN terminal.

IT operation via wired/wireless LAN** or 4G/LTE** connection is enhanced by a number of network functions, include Previewing, Remote Operation, and Playlist Editing as well as a Rec During Upload function that automatically transfers data to a network server while recording, and on-air streaming of Full-HD images. This all contributes to a smoother ENG workflow based on networking and IT operation.

** For details, refer to "Notes Regarding Network Functions" on the back page.
*1: AVC-ULTRA is the name of Panasonic's professional video codec family.
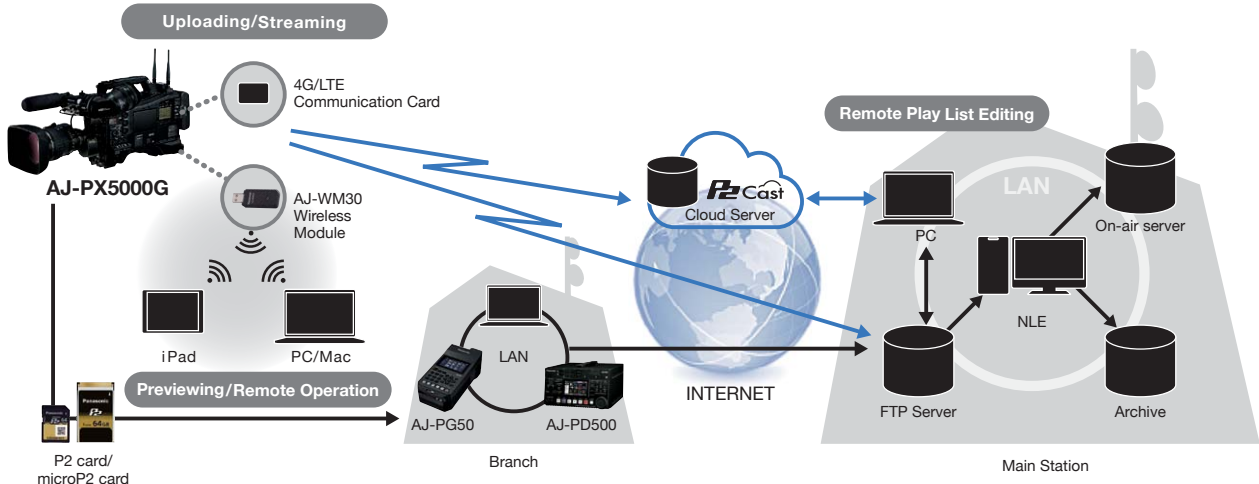　　The AJ-PX5000G does not support all of the formats included in the AVC-ULTRA family.
*2: 60p is actually recorded at 59.94 Hz.
　　The use of DCF Technologies is under license from Multi-Format, Inc

picture simulated

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Innovating Workflows with Network Functions** and AVC–ULTRA Codecs

(For details, see page 7.)

Uploading/Streaming — 4G/LTE Communication Card — AJ-WM30 Wireless Module — AJ-PX5000G — iPad — PC/Mac — **Previewing/Remote Operation** — P2 card/microP2 card — LAN — AJ-PG50 — AJ-PD500 — Branch — INTERNET — P2 Cast Cloud Server — **Remote Play List Editing** — PC — LAN — On-air server — NLE — FTP Server — Archive — Main Station

●**Acquisition --> Automatic Uploading**

Recorded clips (proxy or actual files) are uploaded directly from the AJ-PX5000G to a network. The new Rec During Upload function automatically uploads files to a network server in the background while recording.

●**Full-HD Streaming**

On-air streaming (via the internet) is possible while recording mainstream video onto a memory card, using only the AJ-PX5000G. This QoS (Quality of service) mode allows proxy images in Full-HD resolution to be streamed at a low bit rate by optimizing the bit rate to match the network condition.

●**Preview and Remote**

Wireless connection is supported via a wireless LAN. Clips recorded by a PC/Mac, tablet device or smartphone can be previewed and metadata can be checked and edited. P2 ROP App for iPad is also provided for multifunctional camera remote operation.

●**Cloud Solution**

Even smoother operation is possible by using a cloud service. Proxy files that are automatically uploaded to a cloud server can be edited (remote playlist editing) from a network, and only the necessary data can be sent from the AJ-PX5000G to an ingest server.

• **P2 Cast:** P2 Cast is the cloud service Panasonic provides for broadcast and production use. For details, please go to Panasonic web page (http://pro-av.panasonic.net/)

** For details, refer to "Notes Regarding Network Functions" on the back page.
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• Apple App Store and iPad are service marks or trademarks of Apple Inc. registered in the United States and other countries.

Broadcast Mastering Quality with Multi-Format and Multi-Codec Recording

High Sensitivity and Low Noise with the 2/3 type 3MOS Image Sensors

• **2/3 type 3MOS Image Sensors:**
The developed 2.2 megapixel 2/3 type 3MOS (RGB) image sensors offer full-pixel HD (1920 x 1080) resolution, F12 (59.94 Hz) or F13 (50 Hz) sensitivity and low noise with an S/N of 62 dB (with DNR ON). It also achieves rich gradation and vibrant color reproduction.
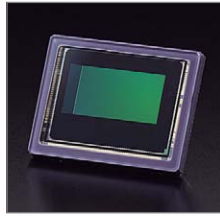

2/3 type, 2.2 megapixel MOS sensor

A Developed LSI for High Image Quality

This LSI incorporates a high-performance digital signal processor (DSP). It also integrates intricate image quality adjustment functions, including 12 axis + skin color 3 axis independent correction capable of hue adjustment for each color space, plus Skin Tone Detail and other settings. In addition, the DSP achieves lower power consumption than previous models.

• **Advanced Flash Band Compensation (FBC):** High-precision flash band detection and compensation.
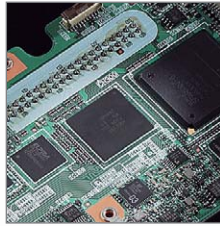

Camera signal processing LSI

Image-Enhancing Functions and Versatile Image Settings

• **CAC (Chromatic Aberration Compensation):** When using a CAC compatible lens, the small amount of circumjacent chromatic aberration (circumjacent blur) that is not corrected by the lens is compensated by this process.
• **DRS (Dynamic Range Stretch):** Suppresses blocked shadows and blown highlights to achieve a visually wide dynamic range.
• **Gamma:** Select from 7 mode (HD/SD/FILMLIKE 1/FILMLIKE 2/FILMLIKE 3/ FILM-REC/VIDEO-REC) gamma curves.
• **Digital Image Settings:** H detail, V detail, detail coring, skin tone detail, chroma level, color temperature, master pedestal, knee, matrix, color correction.

AVC-ULTRA Includes High-Quality AVC-Intra200 Codec

From mastering to streaming, the image quality and bit rate can be selected to match the application. Panasonic's professional A/V codec family, AVC-ULTRA, is provided as standard equipment to meet the particular needs of broadcasting and image production.
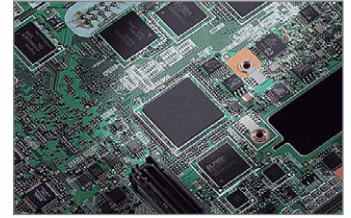
AVC-ULTRA Codec LSI

AVC INTRA An intra-frame compression method that is highly suited to image production. In addition to the conventional AVC-Intra100/50 codec, the AJ-PX5000G features the AVC-Intra200 codec with twice the bit rate (10 bit quantization, 4:2:2 sampling, and a bit rate of approximately 200 Mbps[*1]). With superb images that approach uncompressed quality and 24 bit audio, it offers a level of quality that meets the needs of mastering and archiving.

AVC LongG An inter-frame compression method that achieves high-quality HD recording at a low bit rate. Ideal for providing on-air content direct from the shooting location and for workflows using content transferred over the internet. Three bit rates are available: AVC-LongG50/25/12 Mbps. AVC-LongG50/25 provide 10 bit/4:2:2 quality at a bit rate of approximately 25 Mbps.

AVC Proxy Low-bit-rate, high-resolution, high-sound-quality proxy video (Quick Time/H.264) is also recorded with the actual data.[*2] Also includes metadata for efficient offline editing. See the table "AVC-Proxy Recording Modes and Recording Signals" on Page 4.

*1: For 1080/59.94i.
*2: Proxy data cannot be recorded when using the Loop Rec or Interval Rec function. Proxy data is low-resolution video and audio data with time code, metadata, and other management data in a file format.
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HD/SD Multi Format/Multi Codec

The AJ-PX5000G supports 59.94Hz/50Hz switching for convenient use in productions headed for global use, and records 1080/60i, 50i, 60p, 50p, 30p, 24p, 25p and 720/60p, 50p, 30p, 24p, 25p. HD/SD multiple format supported from AVC-Intra, AVC-LongG to DVCPRO HD, DVCPRO50, VCPRO and DV.

* 60i, 60p, 24p, and 30p are actually recorded at 59.94 Hz, 23.98 Hz, and 29.97 Hz respectively.
* 1080/24p, 1080/30p, and 1080/25p formats will be supported in the future by a firmware upgrade. Please go to the Product Information section on the Panasonic web page. http://pro-av.panasonic.net/
* 24p, 25p, and 30p are all available with native mode recording.

Standard-Equipped microP2 Card Slots

• **microP2 card:** While inheriting the high reliability of the P2 card and maintaining the large capacity of 64 GB,*1 the microP2 card was greatly downsized to match the size of an SD memory card, thus resulting in a considerable reduction in cost.

• **Content Protection System (CPS):** A security function featured on the microP2 card. The content recorded on the card is locked with a password to protect against unauthorized access. This prevents data from being stolen and enables secure media control.

• **P2 Card Slots:** Two conventional P2 card slots can be used.*2

*1: Total card capacity includes space for data management, such as system data; therefore, the actual usable area is less than the capacity indicated on the card. See the "Recording Times" table on Page 6 for recording times.
*2: Cannot be recorded to microP2 card slot and P2 card slot simultaneously. Switching in the menu is required.

High-Quality 24 Bit 4 Channel Audio Recording

The AVC-Intra or AVC-LongG modes support 24 bit digital audio recording* (16 bit for DVCPRO HD, DVCPRO 50, DVCPRO and DV). The AJ-PX5000G offers 4 channel audio in all recording modes. Each channel input can be selected from FRONT (mic), REAR (line) and WL (wireless). The level volume also supports 4 channels.

* The audio signal can be played back by using 24 bit digital audio equipment. For details, refer to "Note Regarding 24 bit Audio" on the back page.

Four Slots for Simul Rec and Other Recording Tasks

• **Four (2 x 2) Slots:** Features two slots each for microP2 cards and P2 cards.
• **Simul Rec:** Records simultaneously onto two microP2 cards or P2 cards.*1
• **Dual-codec recording:** Records a low-rate AVC-Proxy file while recording main data in AVC-Intra/AVC-LongG.
• **Hot-Swap Rec:** Thanks to the two card slots, you can hot-swap P2 cards for continuous non-stop recording.
• **One-Clip Rec Mode:** Records up to 99 consecutive cuts as a single clip. A text memo is automatically attached to the Rec Start point for easy searching for the beginning of the cut.
• **Pre Rec:** This stores approximately 8 seconds of video and audio data in memory while in standby mode and lets you recover and use the data from the point approximately 8 seconds before you started recording.
• **Loop Rec:** By allocating the open space on two microP2 cards or two P2 cards, the camera continues to record over that area until the operator pushes the stop button.
• **Interval Rec:** Automatically records intermittently based on a set interval and recording time.
• **One-Shot Rec:** A frame-shot recording function useful for producing animations.
• **Text Memo:***2 Up to 100 memos can be posted onto a clip as bookmarks.
• **Shot Marker:** *2 Used to mark clips as OK, NG, etc.
• **Rec Review:** This lets you run a quick playback check of the clip-end you have just recorded.
• **Metadata:** Data with information such as operator's name, shooting location, and text memos can be added via an SD memory card.

*1: Cannot be recorded onto microP2 card and P2 card simultaneously.
*2: The text memo and shot mark cannot be added in Loop Rec, Interval Rec, or One-Shot Rec mode.

Recording Codecs and Video Formats

Codec	1080							720					480	576
	60p	50p	60i	50i	30pN*1	24pN*2/23.98PsF	25pN*3	60p	50p	30pN	24pN	25pN	60i	50i
AVC-Intra200	—	—	√	√	√	√	√	√	√	—	—	—	—	—
AVC-Intra100	√	√	√	√	√	√	√	√	√	√	√	√	—	—
AVC-Intra50	—	—	√	√	—	—	—	√	√	—	—	—	—	—
AVC-LongG50	—	—	√	√	√	√	√	√	√	—	—	—	—	—
AVC-LongG25	√	√	√	√	√	√	√	√	√	—	—	—	—	—
AVC-LongG12	√	√	√	√	√	√	√	√	√	—	—	—	—	—
DVCPRO HD	—	—	√	√	—	—	—	√	√	—	—	—	—	—
DVCPRO 50	—	—	—	—	—	—	—	—	—	—	—	—	√	√
DVCPRO	—	—	—	—	—	—	—	—	—	—	—	—	√	√
DV	—	—	—	—	—	—	—	—	—	—	—	—	√	√

*1: 1080/29.97p over 59.94p output *2: 1080/23.98p over 59.94p output *3: 1080/25p over 50p output

AVC-Proxy Recording Modes and Recording Signals

Recording Mode*4	Video				Audio		
	Resolution	Codec	Bit Rate		Codec	CH	Bit Rate/ 1 CH
AVC-G6 2CH MOV	1080i mode: 1920 x 1080 720p mode: 1280 x 720	H.264 High Profile	6 Mbps*5		AAC-LC	2 CH	64 kbps
STD 2CH MP4	320 x 240 (QVGA)	MPEG-4 Simple Profile	1500 kbps		AAC-LC	2 CH	64 kbps
LOW 2CH MOV	1080i mode: 480 x 270 480-59.94i mode: 352 x 240 (SIF_NTSC) 576-50i mode: 352 x 288 (SIF_PAL) 1080 60/50p mode: 320 x 180	H.264 Baseline Profile	800 kbps		AAC-LC	2 CH	64 kbps
HQ 2CH MOV	640 x 360	H.264 High Profile	1500 kbps		AAC-LC	2 CH	64 kbps
HQ 4CH MOV	640 x 360	H.264 High Profile	1500 kbps		AAC-LC	4 CH	64 kbps
SHQ 2CH MOV	960 x 540	H.264 High Profile	3500 kbps		Linear PCM	2 CH	768 kbps

*4: Some recording modes are not supported depending on the main recording format. *5: For 720/30pN, 720/24pN or 720/25pN, the bit rates become 3 Mbps.

Functions, Specifications and Interfaces That Support the Broadcasting Workflow

Advanced Functions for Broadcast Applications

• **Scan Reverse Function:** This function cancels the image inversion that occurs when Angenieux or Canon HD lens adapters are used.

• **High-Sensitivity DS Gain:** High sensitivity is achieved without increasing noise.[1] Combined with gain, this enables a maximum +76 dB,[2] for ultrahigh sensitive recording at minimum subject illumination of 0.004 lx.

• **Digital Zoom:** 2x/3x/4x digital zoom boost.

• **Electronic Shutter with Half-Speed:** The AJ-PX5000G features six fixed shutter speeds of up to 1/2000 sec., plus "half-speed" (180 degree) and synchro-scan capability.

• **Two Optical Filters:** ND and CC, have four positions each.
The 3200K, 4300K, 5600K and 6300K positions of the CC filter help to express deeper colors.

[1]: Due to the use of image accumulation, the number of recorded frames per second decreases. This results in a frame-by-frame playback effect.
[2]: With super gain set at +42 dB and digital super gain (cumulative mode) at +34 dB.

Shooting Assist Functions

• **Focus Assist:** Features Focus in Red, Expand, and Focus Bar display functions. Focus in Red and Expand can be allocated to User buttons for one-touch control.

• **Shockless White Balance:** A smooth transition occurs when switching White Balance modes. This is effective, for example, when moving from outdoors to indoors.

• **User Buttons:** Functions can be freely allocated to the five User buttons.

• **WFM:** Simplified waveform and vectorscope display.

Setup Data Files

• **Setup Files:** Eight camera setup data files (including four scene files) can be saved on an SD/SDHC/SDXC memory card. Loading this file from memory card makes color setting easier for multiple cameras.

• **Lens Files:** Stores settings for interchangeable lenses. Eight files can be stored in the camera unit, and 64 (8 x 8) files can be saved on an SD/SDHC/SDXC memory card.

Recording Supported by Versatile Functions and Easy Operation

• **Mode Check:** Displays a list of the camera settings on the viewfinder and LCD monitor.

• **Zebra:** Select any two levels from among 0% to 109%, in 1% steps. A mode also allows two patterns to be overlaid and displayed.

• **Y-GET:** Measures brightness at center and displays numerical data.

• A 3 point locking viewfinder mount allows precise adjustment.

• The large audio dials (4 channel) feature a push lock function.

• The Audio Input level adjustment (front) can be switched ON/OFF and allocated to desired channels.

• **microP2 Card Window:** The microP2 card can be exchanged when holding the camera on your shoulder.*

• Light weight of approx. 3.4 kg (7.5 lbs., main unit only), low power consumption of 29 W (main unit only, 1080/59.94i, AVC-Intra100 standard recording status, LCD ON).

* Slot 3 only.

Optional Color and Black-and-White Viewfinders

You can select optional viewfinders from the AG-CVF15G Color HD Viewfinder, AG-CVF10G Color HD Viewfinder or AJ-HVF21KG Black-and-White HD Viewfinder.

Color LCD Monitor

The built-in 8.76 cm (3.45 inches) color LCD serves as a monitor when shooting, displays menus, and provides waveform and vectorscope displays. After recording, clips selected from clip and thumbnail displays can be played or deleted (single or multiple clips). In addition to VTR-like pause, fast-forward, and rewind functions, multiple clips can be consecutively played in any desired sequence for transmitting data from the shooting location.

* Clips with different recording formats cannot be consecutively played.

3G-SDI Input/Output and HDMI Output

HDMI
HIGH-DEFINITION MULTIMEDIA INTERFACE

• **3G-SDI IN:** Enables line recording. Improves operation on location. Can be used as digital Genlock input or return video input by switching in the menu.
• **3G-SDI OUT1:** 3 Gbps supports 1080/60p and 50p progressive full frame image output. Allows Rec Start/Stop linked backup recording with a Panasonic recorder equipped with SDI input.
• **3G-SDI OUT2:** Outputs separately from SDI OUT1. Can be set to HD-SDI or down-converted SD-SDI.
• **HDMI OUT:** This terminal allows digital A/V output to a wide range of devices with both professional and consumer specifications.
• **Aspect Conversion:** The aspect ratio can be selected from among Side Crop, Letter Box, or Squeeze mode when down-converting and outputting from SDI OUT1/SDI OUT2 terminals.

USB 3.0 High-Speed Transfer Interface

• **USB 3.0 (HOST):** High-speed file copying to external storage.*
• **USB 2.0 (DEVICE):** Allows use as a P2 card drive.

* Storage media with more than 2 TB of capacity cannot be used.

Other Interfaces

• **TC IN/TC OUT:** A built-in SMPTE time code generator/reader.
• **GENLOCK IN:** For synchronized recording with a multi-camera system.
• **UniSlot® compatible wireless receiver slot (2 channels).**
• **XLR Audio Input:** 2 channel mic/line inputs supporting 48V phantom power supply.
• Equipped with earphone terminals (stereo mini-jack) and speaker.
• Back tally, rear tally equipped. ON/OFF switchable.

Various Wired Camera Remote Systems*

• **10 pin Remote Terminal:** Camera remote operation is enabled with the optional AG-EC4G Extension Remote Control Unit, AJ-RC10G Remote Control Unit or AK-HRP200 Remote Operation Panel.
• **Camera Studio System:** The optional camera extension system (AG-CA300G Camera Adapter and AG-BS300 Base Station) support cost-efficient studio integration.
• **Wired LAN Remote:** Wired remote operation is enabled with the optional AK-HRP200G Remote Operation Panel.

* Only functions that are supported by the AJ-PX5000G can be controlled.

The P2 ROP App for Wireless Control using iPad**

The P2 ROP App (downloadable free of charge from the Apple App Store**) for iPad is available. It enables iPad to control functions/setting of the AJ-PX5000G Camera Recorder remotely via wireless connection**.
P2 ROP App can control variety of settings similar to those of the AG-EC4G Extension Control Unit controls, including picture quality settings and REC start/stop. Easy-to-see value display and easy-to-operate up/down touch keys provide settings and adjustments. Proxy browser is also built into the app so that operator can adjust the setting while checking recorded clips with thumbnail and previewing. Metadata can also be displayed and edited on iPad to support post production work.

** For details, refer to "Notes Regarding Network Functions" on the back page.
* It supports to iOS7.1 and iOS8.1.
• Apple App Store and iPad are service marks or trademarks of Apple Inc. registered in the United States and other countries.

"P2 ROP App" Control from iPad

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Card slot, LCD monitor and recorder-related function parts

Thumbnail View

Preview View

Network Functions Extending to Automatic File Transfers and On-Air Streaming

Wired/Wireless LAN, 4G/LTE Network Functions**

The standard LAN (Ethernet) port allows network connection via a wired LAN. When the optional AJ-WM30 Wireless Module is installed, the AJ-PX5000G gains wireless LAN (IEEE 802.11g/n) connectivity, enabling access to the following functions from a network-connected PC/Mac, tablet device or smartphone. 4G/LTE connection is also possible.

• **Proxy Preview:** Plays back proxy files (AVC-Proxy), downloads file/clip information, displays and allows editing of metadata, and enables addition/ deletion of shot marks and text memos.[1]

• **Camera Remote:** Easy remote operation is possible from various devices by using a web app. The iPad app (available free of charge from the Apple App Store, P2 ROP) enables multifunctional remote operation equivalent to ECU. (See page 6 for details.)

• **Playlist Editing:** Playlists can be created using proxy video with a PC/Mac or tablet. The workflow can be streamlined to be faster by rough editing on location, and then transferring the content files.

• **File Transfer:** When connected via wired/wireless LAN or 4G/LTE, the FTP client function lets you transfer clips from the camera recorder to a network. Recording and playback are possible during file transfer.

** For details, refer to "Notes Regarding Network Functions" on the back page.
[1]: Some functions are not supported by some devices.
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Full-HD Streaming Supported**

Full-HD (1920 × 1080) proxy video can be streamed via a network connection (wired LAN, wireless LAN, 4G/LTE network) while recording mainstream video onto a memory card. The video can be received and playback on a PC or Mac.

"QoS[1]" stands for Quality of Service. Using this function, bitrate is optimized to match the network condition and continue streaming distribution even when the communication bandwidth is reduced.

This provides solutions for a variety of situations such as news acquisition, while recording mainstream video, video for newsflash can be streamed live[2] to a broadcast station from the field.

** For details, refer to "Notes Regarding Network Functions" on the back page.
[1]: P2 Streaming Receiver software (Windows only, not supported by Mac; available free of charge) is required for receiving the QoS mode. Please visit Panasonic website <http://pro-av.panasonic.net/en/download/>.
[2]: The video and audio signals arrive with a delay. The latency varies depending on the network environment and the hardware/software environment of the PC, server, etc.

Streaming Mode Specifications

Mode	Resolution	Frame Rate	Bit Rate	Codec[1]
AVC-G6	1920 x 1080[2]	30 fps/25 fps[4]	6 Mbps	H.264 High Profile
	1280 x 720[3]	60 fps/50 fps		
HQ	640 x 360	30 fps/25 fps	1,500 kbps	
LOW	480 x 270	30 fps/25 fps	800 kbps	H.264 Baseline Profile
AVC-G (QoS)	1920 x 1080[2]	30 fps/25 fps[4]	Variable depending on the communication band, Maximum 9 Mbps	H.264 High Profile
	1280 x 720[3]	60 fps/50 fps		
SHQ (QoS)	960 x 540	30 fps/25 fps	Variable depending on the communication band, Maximum 6 Mbps	H.264 High Profile

[1]: The audio codec is AAC LC 2ch in all streaming mode.
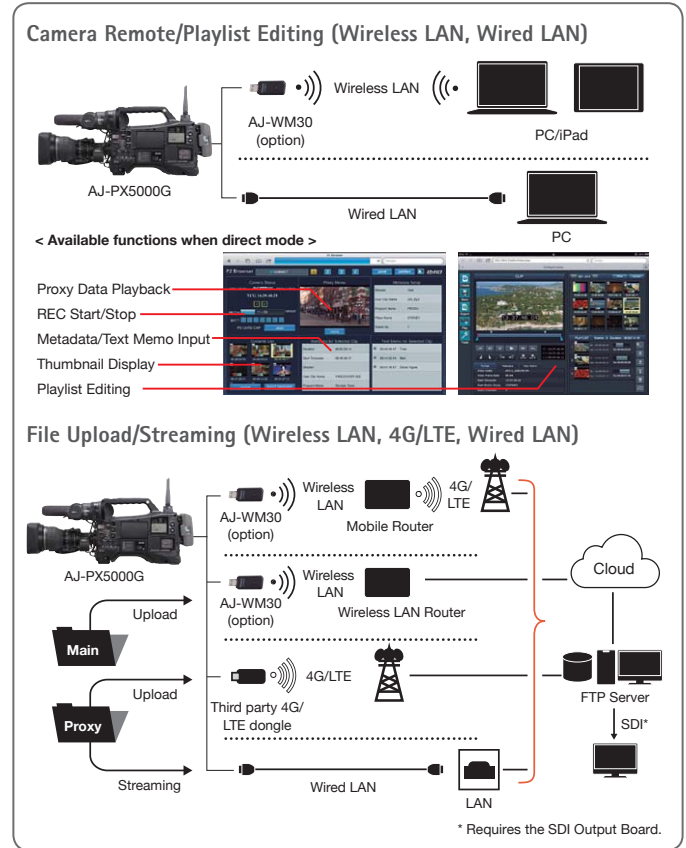[2]: When only the record signal is 1080/59.94i or 1080/50i.
[3]: When only the record signal is 720/59.94p or 720/50p.
[4]: Output becomes 1080/59.94i or 1080/50i.

Recording Format and Streaming Output

Recording Signal	Recording Codec	HD Streaming Mode AVC-G6, AVC-G (QoS)	SD Streaming Mode HQ, LOW, SHQ (QoS)
1080/59.94i 1080/50i 720/59.94p 720/50p	AVC-Intra200	—	—
	AVC-Intra100	✓	✓*
	AVC-Intra50	—	✓*
	AVC-LongG50	✓	✓*
	AVC-LongG25	✓	✓*

"✓" are supported, and "—" are not supported.   * [LOW] cannot be selected when 720 mode.

Camera Remote/Playlist Editing (Wireless LAN, Wired LAN)

< Available functions when direct mode >

- Proxy Data Playback
- REC Start/Stop
- Metadata/Text Memo Input
- Thumbnail Display
- Playlist Editing

File Upload/Streaming (Wireless LAN, 4G/LTE, Wired LAN)

* Requires the SDI Output Board.

Transferring Recorded Clips Automatically: Rec During Uploading Function

The Rec during Uploading function*, which automatically and sequentially transfers recorded clips to an FTP server or cloud service, has also been newly added. Uploading is done in the background, and recording/playback continues during the transfer. In addition to allowing the camera operator to concentrate on shooting without any concerns about uploading, this also boosts the levels of safety and immediacy. The transfer status can be checked on the LCD monitor or viewfinder. If the network is disconnected during transfer, or the power of the camera is turned off, transfer resumes when the connection or power is recovered. Manual transfer of up to 100 registered clips is also possible.

* During simultaneous recording, only recorded clips in slot 1 or slot 3 are automatically transferred. Clips of interval recording, loop recording, one-clip recording or one-shot recording are not transferred automatically. The streaming function are disabled, while using the Rec during Uploading function.
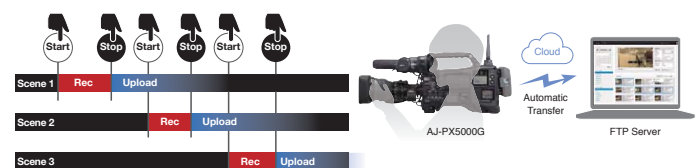

Direct Connection to The LiveU Video Uplink Solution**

The AJ-PX5000 supports direct connection to the LiveU Central management platform using public networks, such as 4G/LTE, wireless LAN or wired LAN. There is no need for special uplink equipment. This enables both live previews on the reception side, and on-air streaming.

** For details, refer to "Notes Regarding Network Functions" on the back page.
* Contract with LiveU is required separately. For details, contact LiveU : http://www.liveu.tv
  Contact: info_us@liveu.tv (US & Americas), info@liveu.tv (International)
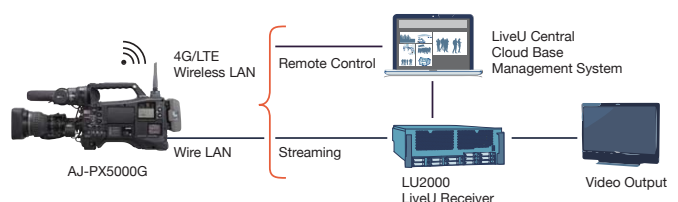
Optional Accessories

As of April, 2015

AG-CVF10G
Color HD EVF
Open one way for LCD monitor viewing

AG-CVF15G
Color HD EVF
Open two ways for LCD monitor viewing

AJ-HVF21KG
50.8 mm (2 inches) HD EVF
59.94 Hz/50 Hz switchable

AJ-MC900G
Stereo Microphone

BT-LH910G
228.6 mm (9 inches) HD/SD LCD monitor

BT-CS910G
VF Cable

AJ-P2M064AG
AJ-P2M032AG
microP2 Car

AJ-P2E064FG
AJ-P2E032FG
Memory Card "P2 card" F Series*

SD/SDHC/SDXC Memory Card

AJ-WM30
Wireless Module

AK-HRP200G
Remote Operation Panel (ROP)
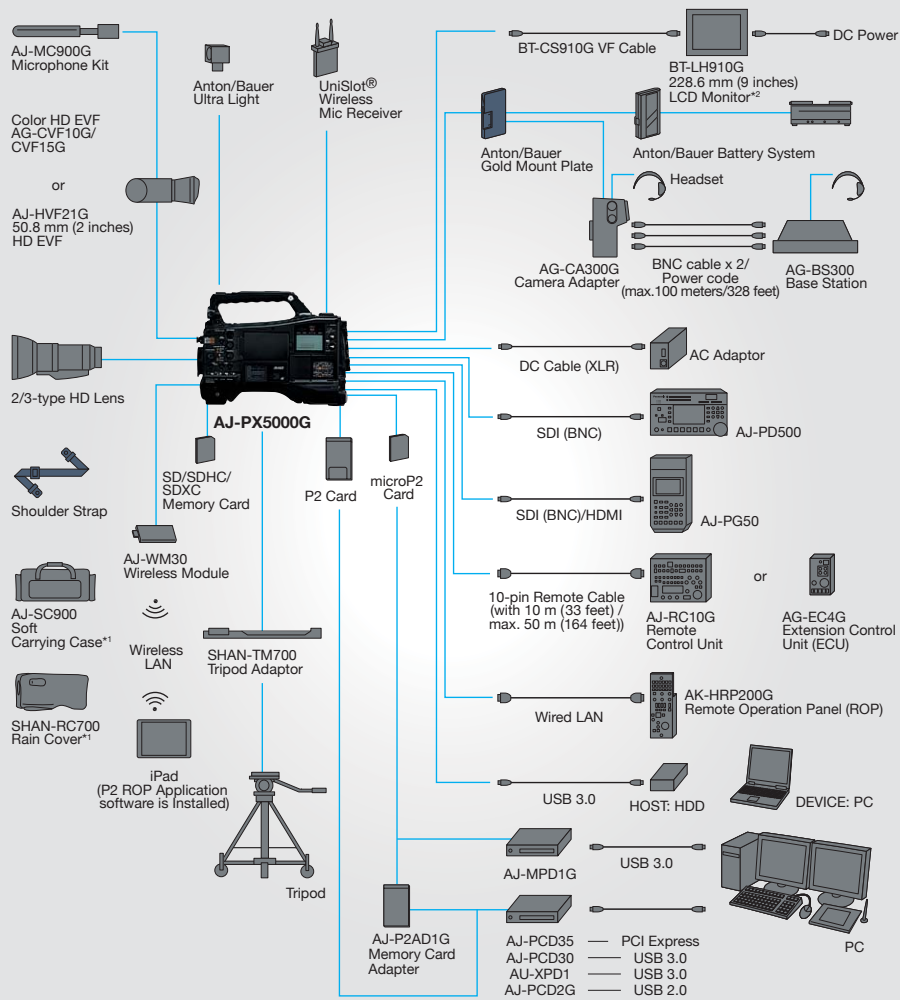
SHAN-TM700
Tripod Adaptor

AJ-SC900
Soft Carrying Case
*Not available in some areas.

SHAN-RC700
Rain Cover
*Not available in some areas.

* The P2 card E Series may require P2 equipment software to be updated. Please go to the P2 support page on the Panasonic web page http://pro-av.panasonic.net/

System Chart

AJ-MC900G Microphone Kit

Anton/Bauer Ultra Light

UniSlot® Wireless Mic Receiver

BT-CS910G VF Cable

DC Power

BT-LH910G 228.6 mm (9 inches) LCD Monitor*2

Color HD EVF AG-CVF10G/ CVF15G
or
AJ-HVF21G 50.8 mm (2 inches) HD EVF

Anton/Bauer Gold Mount Plate

Anton/Bauer Battery System

Headset

AG-CA300G Camera Adapter

BNC cable x 2/ Power code (max.100 meters/328 feet)

AG-BS300 Base Station

2/3-type HD Lens

AJ-PX5000G

Shoulder Strap

SD/SDHC/ SDXC Memory Card

P2 Card

microP2 Card

DC Cable (XLR)

AC Adaptor

SDI (BNC)

AJ-PD500

SDI (BNC)/HDMI

AJ-PG50

AJ-WM30 Wireless Module

AJ-SC900 Soft Carrying Case*1

Wireless LAN

SHAN-TM700 Tripod Adaptor

10-pin Remote Cable (with 10 m (33 feet) / max. 50 m (164 feet))

AJ-RC10G Remote Control Unit
or
AG-EC4G Extension Control Unit (ECU)

SHAN-RC700 Rain Cover*1

iPad (P2 ROP Application software is Installed)

Tripod

Wired LAN

AK-HRP200G Remote Operation Panel (ROP)

USB 3.0

HOST: HDD

DEVICE: PC

AJ-MPD1G

USB 3.0

AJ-P2AD1G Memory Card Adapter

AJ-PCD35 — PCI Express
AJ-PCD30 — USB 3.0
AU-XPD1 — USB 3.0
AJ-PCD2G — USB 2.0

PC

Standard Accessories

*1: Not available in some areas. *2: Mounting bracket is required to mount on a camera recorder.

Other Manufacturers' Products

2/3-type CAC Applicable Lenses

The use of Canon, Fujinon and Angenieux lenses with CAC (Chromatic Aberration Compensation) is recommended.

For the latest information on CAC applicable lenses, see "Support & Download" on the Panasonic website (http://pro-av.panasonic.net/).

The installation of CAC data might be required depending on the lens. Some Angenieux lenses do not support CAC operation. Be sure to specify CAC applicability when purchasing lenses.

Anton/Bauer Ultra Light

Anton/Bauer Dionic Battery

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AJ-PD500
"P2 deck"
Memory Card Recorder

AVC-ULTRA and microP2 supported. A half-rack size recorder for a high-quality, cost-effective workflow.

AJ-PG50
"P2 field redorder"
Memory Card portable Recorder

A portable field recorder with AVC-ULTRA codec and microP2 card compatibility, network function, and battery operation.

AJ-HPM200
"P2 mobile"
Memory Card Recorder/Player

Advanced P2 mobile with versatile functions such as networking, AVCHD compatibility (option) and eSATA interface.

AG-HPD24
"P2 portable"
Memory Card Portable Recorder

Equipped with USB 3.0 and RS-422A interfaces, this compact 2-slot P2 deck supports 3D recording.

USB 3.0

AJ-MPD1G
"microP2 drive"
Memory Card Drive

Compact, lightweight, cost-effective USB-Bus powered microP2 card drive with USB 3.0 support and 2 card slots.

AJ-P2AD1G
Memory Card Adapter[*1]

This is a conversion adapter for using the microP2 card in a P2 card slot.

AJ-PCD35
"P2 drive"
Memory Card Drive
High-speed PCI Express interface.

AJ-PCD30
"P2 drive"
Memory Card Drive

3-slot drive with USB 3.0 interface for high-speed 1.5 Gbps data transfer.

USB 3.0/2.0

AU-XPD1
"P2 drive"
Memory Card Drive[*2]

1-slot card drive for an expressP2 card/P2 card with bus power from a USB 3.0/2.0 interface.

USB 2.0

AJ-PCD2G
"P2 drive"
Memory Card Drive

USB-Bus powered 1-slot P2 drive Ideal for mobile application.

P2 Streaming Receiver
Streaming Receiver Software[*3]

Enables receive QoS (Quality of Service) mode. Windows only, not supported by Mac.

P2 Viewer Plus
Viewing Software[*4]

Supports P2HD. This Windows/Mac utility makes it easy to view and copy P2 files.

AJ-SK001G
(for P2 Viewer plus)
Ingesting Function Software Key[*5]

The ingesting function copies all clips on P2 cards to a storage medium, such as an HDD. During ingesting, the clips are verified for secure copying, with log files created.

Camera Studio System

AG-CA300G
AG-YA500G
AG-EC4G
AJ-RC10G
AG-BS300

BNC cables transmit degradation-free HD digital images up to 100 meters (328 feet) in addition to giving you full remote control.

AG-CA300G
Camera Adapter
AG-BS300
Base Station
AG-YA500G
VF Interface Box
AG-EC4G
Extension Control Unit
AJ-RC10G
RCU (Remote Control Unit) with 10 meters (32 feet) remote control cable
AJ-C10050G
Remote Control Cable (50 meters /164 feet)

Bound Cable for Camera Studio System (between AG-BS300 and AG-CA300G)
[Canare]
V2PCS25-5CFWCE-SF-SC (25 meters/82 feet)
V2PCS50-5CFWCE-SF-SC (50 meters/164 feet)
V2PCS100-5CFWCE-SF-SC (100 meters/328 feet)
Power Cable for Camera Studio System (between AG-BS300 and AG-CA300G)
[Canare]
DC50V10-CE01PS-SC (50 meters/164 feet)
DC100V10-CE01PS-SC (100 meters/328 feet)

Canare Electric Co., Ltd.
http://www.canare.co.jp/oversea/mainmenu.html

Avid NLE Plug-In Software

AJ-PS001G
Software Key
for AVC-Proxy re-link.

AJ-PS002G
Software Key
for AVC-Intra50/100 P2 file export.

AJ-PS003G
Software Key
for AVC-LongG P2 file export.

AJ-PS004G
Software Key
for AVC-LongG file import to edit.

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*1: AVC-Intra200, 1080/60p are not supported. *2: Connection of the AU-XPD1 requires two USB cables. And a power supply is connected with USB 3.0 port of PC or an AC adaptor. *3: For P2 Streaming Receiver download and operating requirement information, see "P2 Streaming Receiver" on the Panasonic web page http://pro-av.panasonic.net/en/download/ *4: For P2 Viewer Plus download and operating requirement information, see "P2 Viewer Plus" on the Panasonic web page http://pro-av.panasonic.net/en/sales_o/p2/p2viewerplus/ *5: For information on purchasing software keys, see "Service and Support" on the Panasonic web page http://pro-av.panasonic.net/

Specifications

General

Power:	DC 12 V (11.0 V to 17.0 V)
Power Consumption:	29 W (body only, 1080/59.94i, AVC-Intra 100 standard recording status, LCD ON) 70 W (with all optional accessories connected and maximum power supplied from each output terminal)
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 85 % (relative humidity)
Storage Temperature:	−20 °C to 60 °C (−4 °F to 140 °F)
Weight:	Approx. 3.4 kg (7.5 lbs.) (body only, excluding the battery and accessories)
Dimensions:	147 mm (W) × 267 mm (H) × 342 mm (D) (5-25/32 inches × 10-1/2 inches × 13-15/32 inches) Body only, excluding protrusion

Camera Unit

Pickup Device:	2/3-type 2.2 million pixels, MOS × 3
Lens Mount:	2/3-type bayonet
CC Filter:	A: 3200 K, B: 4300 K, C: 5600 K, D: 6300 K
ND Filter:	1: CLEAR, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND
Gain Setting:	NORMAL mode: −3 dB, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 15 dB, 18 dB, 21 dB, 24 dB, 27 dB, 30 dB HIGH SENS mode: −6 dB, −3 dB, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 15 dB, 18 dB, 21 dB, 24 dB, 27 dB, 30 dB
Digital Super Gain: (DS.GAIN)	Selectable from 6 dB, 10 dB, 12 dB, 15 dB, 20 dB, 24 dB, 28dB, 34 dB
Super Gain (S.GAIN):	Selectable from 30 dB, 36 dB, 42 dB
Shutter Speed:	59.94 Hz 60i/60p mode: 1/100 sec., 1/120 sec.,1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. HALF 30p mode: 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec., HALF 24p mode: 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec., HALF 180.0 deg, 172.8 deg, 144.0 deg, 120.0 deg, 90.0 deg, 45.0 deg 50 Hz 50i/50p mode: 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. HALF 25p mode: 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec., HALF 180.0 deg, 172.8 deg, 144.0 deg, 120.0 deg, 90.0 deg, 45.0 deg
Synchro Scan Shutter:	1/60.1 sec. to 1/7200 sec. (60i/60p mode) 1/30.0 sec. to 1/3600 sec. (30p mode) 1/24.0 sec. to 1/2880 sec. (24p mode) 1/50.1 sec. to 1/6000 sec. (50i/50p mode) 1/25.0 sec. to 1/3000 sec. (25p mode)
Shutter Open Angle:	Configurable between 3 deg and 359.5 deg (in 0.5 deg steps)
Sensitivity:	NORMAL mode: F9 (2000 lx, 3200 K, 89.9 % reflection, 1080/59.94i) F10 (2000 lx, 3200 K, 89.9 % reflection, 1080/50i) HIGH SENS mode: F12 (2000 lx, 3200 K, 89.9 % reflection, 1080/59.94i) F13 (2000 lx, 3200 K, 89.9 % reflection, 1080/50i)
Minimum Subject Illumination:	Approx. 0.004 lx (F1.4, +42 dB (S.GAIN), +34 dB (DS.GAIN))
Image S/N:	62 dB (standard)
Horizontal Resolution:	1000 TV or higher (center)

Memory Card Recorder

Recording Media:	P2 card, microP2 card
System Format:	1080/59.94p, 1080/59.94i, 1080/23.98PsF, 720/59.94p, 480/59.94i, 1080/50p, 1080/50i, 720/50p, 576/50i
Recording Format:	AVC-Intra200/AVC-Intra100/AVC-Intra50/ AVC-LongG50/AVC-LongG25/AVC-LongG12/ DVCPRO HD/DVCPRO50/DVCPRO/DV formats switchable
Recording Video Signal:	1080/59.94p, 1080/59.94i, 1080/29.97pN, 1080/23.98pN, 720/59.94p, 720/29.97pN, 720/23.98pN, 480/59.94i, 1080/50p, 1080/50i, 1080/25pN, 720/50p, 720/25pN, 576/50i

Recording/Playback Time*:

	16GB × 1	32GB × 1	64GB × 1
AVC-Intra200:	Approx. 8 min.	Approx. 16 min.	Approx. 32 min.
AVC-Intra100:	Approx. 16 min.	Approx. 32 min.	Approx. 64 min.
AVC-Intra50:	Approx. 32 min.	Approx. 64 min.	Approx. 128 min.
AVC-LongG50:	Approx. 32 min.	Approx. 64 min.	Approx. 128 min.
AVC-LongG25:	Approx. 64 min.	Approx. 128 min.	Approx. 256 min.
AVC-LongG12:	Approx. 120 min.	Approx. 240 min.	Approx. 480 min.
DVCPRO HD:	Approx. 16 min.	Approx. 32 min.	Approx. 64 min.
DVCPRO 50:	Approx. 32 min.	Approx. 64 min.	Approx. 128 min.
DVCPRO/DV:	Approx. 64 min.	Approx. 128 min.	Approx. 256 min.

These are reference values for continuous recording using the Panasonic products. The recording time may differ depending on the scene or the number of clips.

Digital Video

Sampling Frequency:	AVC-Intra200/AVC-Intra100/AVC-Intra50/ AVC-LongG50/AVC-LongG25/AVC-LongG12/DVCPRO HD: Y: 74.1758 MHz, P_B/P_R: 37.0879 MHz (59.94 Hz) Y: 74.2500 MHz, P_B/P_R: 37.1250 MHz (50 Hz) DVCPRO50: Y: 13.5 MHz, P_B/P_R: 6.75 MHz DVCPROY: Y: 13.5 MHz, P_B/P_R: 3.375 MHz
Quantizing:	AVC-Intra200/AVC-Intra100/AVC-Intra50/ AVC-LongG50/AVC-LongG25: 10 bit AVC-LongG12/DVCPRO HD/DVCPRO50/DVCPRO/DV: 8 bit
Video Compression Format:	AVC-Intra200/AVC-Intra100/AVC-Intra50: MPEG-4 AVC/H.264 Intra Profile AVC-LongG50/AVC-LongG25/AVC-LongG12: MPEG-4 AVC/H.264 DVCPRO HD: DV-Based Compression DVCPRO50/DVCPRO: DV-Based Compression DV: DV Compression

Digital Audio

Recording Audio Signal:	AVC-Intra200/AVC-LongG50/AVC-LongG25: 48 kHz/24 bit, 4 CH AVC-Intra100/AVC-Intra50: 48 kHz/16 bit, 4 CH and 48 kHz/24 bit, 4 CH switch AVC-LongG12/DVCPRO HD/DVCPRO50/DVCPRO/DV: 48 kHz/16 bit, 4 CH
Headroom:	18 dB/20 dB switchable menu

Proxy

Video Compression Format:	MPEG4 Simple Profile, H.264/AVC Baseline Profile, H.264/AVC High Profile
Audio Compression Format:	AAC-LC, Linear PCM
Approx. Recording Time*[2]: (1 GB)	AVC-G6 2 CH MOV Approx. 13 min, STD 2 CH MP4 Approx. 78 min SHQ 2 CH MOV Approx. 25 min, HQ 2 CH MOV Approx. 78 min HQ 4 CH MOV Approx. 72 min, LOW 2 CH MOV Approx. 135 min

Video Input/Output

SDI IN:	BNC x 1 HD-SDI: 3 G: 0.8 V [p-p], 75 Ω 1.5 G: 0.8 V [p-p], 75 Ω SD-SDI: 0.8 V [p-p], 75 Ω Switch the menu to use as <VIDEO IN> terminal/ return video input terminal/<GENLOCK IN> terminal
SDI OUT1:	BNC x 1 HD-SDI: 3 G: 0.8 V [p-p], 75 Ω, 1.5 G: 0.8 V [p-p], 75 Ω SD-SDI: 0.8 V [p-p], 75 Ω
SDI OUT2:	BNC x 1 HD-SDI: 3 G: 0.8 V [p-p], 75 Ω, 1.5 G: 0.8 V [p-p], 75 Ω SD-SDI: 0.8 V [p-p], 75 Ω
VIDEO OUT:	BNC x 1, Composite: 1.0 V [p-p], 75 Ω
HDMI OUT:	HDMI x 1 (HDMI type A terminal, not compatible with VIERA Link)

Audio Input/Output

AUDIO IN: (CH1/CH2)	XLR x 2, 3-pin, LINE/MIC/MIC+48V switchable type LINE: 4 dBu (−3 dBu/0 dBu/4 dBu selectable menu) MIC: −60 dBu (−60 dBu/−50 dBu selectable menu) MIC+48V: Phantom +48 V supported, −60 dBu (−60 dBu/−50 dBu selectable menu)
MIC IN:	XLR x 1, 5 pin, Phantom +48 V (selectable menu), −40 dBu (−50 dBu/−40 dBu selectable menu)
Wireless Slot:	25 pin, D-SUB, −40 dBu, 2 CH supported
AUDIO OUT: (CH1/CH2)	XLR×1, 5 pin, equilibrium low impedance 4 dBu (−3 dBu/0 dBu/4 dBu selectable menu)
PHONES Out:	Stereo mini jack x 2
Speaker:	20 mm diameter, round x 1

Other Input/Output

GENLOCK IN:	BNC x 1, 1.0 V [p-p], 75 Ω
TC IN:	BNC x 1, 0.5 V [p-p] − 8 V [p-p], 10 kΩ
TC OUT:	BNC x 1, 2.0 ±0.5 V [p-p], low impedance
DC IN:	XLR x 1, 4 pin, DC 12 V (DC 11.0 V to 17.0 V)
DC OUT:	4 pin, DC 12 V (DC 11.0 V to 17.0 V), maximum output current 1.5 A
REMOTE:	10 pin
LENS:	12 pin
VF:	20 pin
LAN:	100BASE-TX/10BASE-T
USB2.0 (device):	Type B connector, 4 pin
USB3.0 (host):	Type A connector, 9 pin
USB2.0 (host):	Type A connector, 4 pin
LIGHT:	2 pin, DC 12 V (DC 11.0 V to 17.0 V), maximum output current 4.5 A (up to 50 W equivalent)
LCD Monitor:	8.76 cm (3.45 inches) LCD monitor, approx. 921000 dots (16:9)

Included Accessories

Shoulder strap, Mount cap

Weight and dimensions shown are approximate. Specifications are subject to change without notice.

Notes Regarding the Handling of P2 Files Using a PC

Mounting and Transferring Files
The PC must be installed with the included P2 driver in order to recognize, copy and transfer P2 files. This driver is also necessary when using the PC card slot and when handling P2 files stored on a hard-disk device, such as P2 store. For other operating requirements, refer to the P2 installation manual. The P2 driver and the P2 installation manual can be downloaded free from a Panasonic website. Visit <http://pro-av.panasonic.net/en/download/>

Preview and Nonlinear Editing
To preview (play) P2 files on a PC, it is necessary to install P2 Viewer Plus software (downloadable for free, for Windows and Mac), both from Panasonic, or P2-compatible editing software available from other companies (for details, visit http://pro-av.panasonic.net/en/sales_o/p2/partners.html). Note that each software places specific requirements on the operating environment, and the operating environment must meet additional requirements to play and edit HD content on Windows PCs and Macs. For P2 Viewer Plus download and operating requirement information, visit <http://pro-av.panasonic.net/en/download/>. For operating requirements and details of other P2 editing software, visit the website of the relevant software manufacturer.

** Notes Regarding Network Functions

•For 4G/LTE connection: 4G/LTE module is required from a 3rd party. Availability of this function may vary depends on areas. For details, please visit Panasonic website <http://pro-av.panasonic.net/en/sales_o/p2/server/4glte.html>.
•For wireless LAN connection: Wireless module (optional, AJ-WM30) is required. For the OS, browser, device compatibility information, see "Service and Support" on the Panasonic website <http://pro-av.panasonic.net/>. Some functions are not supported by some devices.
•For iPad remote control: The P2 ROP App (downloadable free of charge from the Apple App Store) is required. For details, please visit Panasonic website <http://pro-av.panasonic.net/>.
•For streaming: Transfers only to a designated server (one server). The proxy image cannot be recorded while streaming. The streaming function cannot be used together with dual codec recording and simultaneous recording, or with the Rec during Uploading function. For details on downloading and the operating environment of video streaming compatible application software, please refer to the Panasonic website <http://panasonic.biz/sav/p2/aj-px5000>. For streaming, 4G/LTE USB modem and PC must be able to access directly each other by Public IP (Global IP). Please contact your provider to get Public IP (Global IP). To display the streaming video using P2 browser, player is required. (VLC MEDIA PLAYER for Windows PC, QuickTime Player for Mac.) P2 Streaming Receiver software (Windows only, not supported by Mac; available free of charge) is required for receiving the QoS mode. Please visit Panasonic website <http://pro-av.panasonic.net/en/download/>.

Precautions When Using SD Memory Cards

On the Memory Card Camera Recorder, use SD memory cards that conform to the SD standard, SDHC standard, or the SDXC standard. When performing proxy recording (extra-cost option), use SDHC memory cards, SDXC memory cards, or Panasonic SD memory cards with the class description of class2 or higher. The MMC (Multi Media Card) cannot be used. Be sure to format cards on the Memory Card Camera Recorder before use. In this Memory Card Camera Recorder, memory card of the capacity of SD (8 MB to 2 GB), SDHC (4 GB to 32 GB), and SDXC (32 GB to 128 GB) can be used.

Note Regarding 24 bit Audio

Clips recorded using 24 bit audio must be played back with 24 bit compatible P2 equipment or the P2 Viewer Plus. If clips are played back with equipment not compatible with 24 bit audio, the clip number will be indicated in red and the clips will not be played back.

*"P2HD", "AVC-Intra", "AVC-LongG", "AVC-Proxy", "DVCPRO HD", "DVCPRO 50" and "DVCPRO" logos are registered trademarks of Panasonic Corporation. SDHC logo and SDXC logo are trademarks of SD-3C, LLC. Apple App Store, iPad and Quick Time are trademarks of Apple, Inc., registered in the U.S. and other countries. VLC media player is trademarks internationally registered by the VideoLAN organization.

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