

# Panasonic

## P2HD

### AJ-PG50

Memory Card Recorder

High picture quality AVC-Intra200 codec.  
A compact field recorder realizing Network workflow.



AVC ULTRA AVC INTRA AVC LONG G P2 P2<sup>micro</sup> SD<sup>XC</sup>

# A portable field recorder with AVC-ULTRA\*1 codec and microP2 card compatibility, HDMI input/output, and data transfer over a network



Backup recording with 3G-SDI or HDMI input from a camera.



For monitoring, previewing, file copying and other applications.



A handy sized unit with wireless LAN compatibility for diverse field uses.

The AJ-PG50 Memory Card Recorder supports the AVC-ULTRA codec family, featuring the AVC-Intra200 codec, which rivals the outstanding quality of uncompressed images, the AVC-LongG codec, which lets you choose from a variety of bit rates, and AVC-Proxy for high-quality proxy video. It is compact and lightweight, equipped with microP2 and P2 card slots, operates on a battery pack, and comes with a high-resolution QHD LCD monitor.

The AJ-PG50 is provided with a variety of interfaces such as HDMI input/output, 3G-SDI input/output and others, so it connects to a wide range of video and audio devices for recording and playback of video and audio.

It also has a high-speed USB 3.0 (HOST) interface for transferring backup data to an external storage device and previewing externally stored files.\*2 Network connection is possible by wired/wireless LAN\*3 or 4G/LTE.\*4

The AJ-PG50 offers high speed and high quality and flexibly supports the most advanced AVC-ULTRA workflows.

\*1: Not all AVC-ULTRA formats are supported.

\*2: The USB 3.0 standard has a maximum transfer rate of 5 Gbps. However, the actual transfer speed depends on the system configuration. Playback is based on disk drive performance, including spindle speed. Panasonic cannot guarantee smooth playback without dropped frames.

\*3: For a wireless LAN connection, the AJ-WM30 Wireless Module is required.

\*4: Requires a telecommunications device (USB type) available from various carriers.

For details, please visit Panasonic website (<http://pro-av.panasonic.net/>).



## AVC-ULTRA Includes High-Quality AVC-Intra200 Codec

The AJ-PG50 supports the AVC-ULTRA codec family as standard. To meet the various needs from image production to streaming, the image quality and bit rate can be selected to match the application.

**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-PG50 features the AVC-Intra200 codec with twice the bit rate (10 bit, 4:2:2 sampling, and a bit rate of approximately 200 Mbps\*). 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** This inter-frame compression method achieves high-quality HD recording at a low bit rate. Three bit rates are available: AVC-LongG50/25/12 Mbps. AVC-LongG25 provides 10 bit/4:2:2 quality at a bit rate of approximately 25 Mbps (1080/59.94i).

**AVC Proxy** Low-bit-rate, high-resolution, high-sound quality proxy video (Quick Time/H.264) can be recorded simultaneously with main video.\*<sup>2</sup> Ideal for data transfer over a network and for efficient offline editing.



\*1: For 1080/59.94i.

\*2: Proxy data cannot be recorded when certain settings are made for recording modes, such as the Loop Rec and Simultaneous Rec modes, and system modes. 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

In addition to 1080i, the AJ-PG50 supports 1080p and 720p multi HD format and SD recording. 59.94 Hz/50 Hz switchable for convenient use in productions headed for global use. DVCPRO HD/DVCPRO50/DVCPRO/DV recording is also supported.

## Wired/Wireless LAN Network Functions\*<sup>1</sup>

The standard LAN (Ethernet) port allows network connection via a wired LAN. When installed with the optional AJ-WM30 Wireless Module, the AJ-PG50 gains wireless LAN (IEEE 802.11g/n) connectivity, enabling access to the following functions from a PC/Mac, tablet device or smartphone connected to the network.\*<sup>2</sup> The AJ-PG50 gives you a ready-to-use, cost-effective IT solution.

- 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.\*<sup>3</sup>
- Remote: Allows remote control of recording start/stop, time code setting, and user bits setting.
- File Transfer: The FTP client function lets you transfer clips from the recorder to a network.
- Playlist Editing: Playlists can be created using proxy video with a PC/Mac or tablet. The workflow can be streamlined and faster by rough editing on location, and then transferring the content files. Editing, saving, playback and SDI output of a playlist as well as EditCopy\*<sup>4</sup> can be performed using the Web app.

\*1: For the OS, browser, device compatibility information, see "Service and Support" on the Panasonic website (<http://pro-av.panasonic.net/>).

\*2: For the latest information, see "Service and Support" on the Panasonic web site (<http://pro-av.panasonic.net/>).

\*3: Function available may vary depends on the device.

\*4: EditCopy does not support AVC-LongG.

## 4G/LTE Network Connectivity

The AJ-PG50 can send data directly to a network server via FTP allowing broadcast stations to edit recorded data immediately at the editing desk. Low-rate, Full-HD AVC-G6 files are suitable for use in broadcasting news flashes.

## Video Streaming Capability

The AJ-PG50 is capable of proxy image streaming via a wired LAN, wireless LAN and 4G/LTE. There are three streaming modes (LOW, HQ, and AVC-G6), so the most suitable mode can be selected according to the line condition and application.

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## Small, Lightweight and Battery Operated

The AJ-PG50 main unit weighs just 1.1 kg (2.4 lbs) and is small enough to use with one hand. A powerful 5800-mAh battery pack (VW-VBD58 provided for approximately 170 minutes of continuous playback time) mounts to the main unit's back. The AJ-PG50 can also plug it into an ordinary AC outlet using the provided adaptor.

## microP2 Card Slots

The AJ-PG50 comes with two slots for the microP2 card, the broadcast-use memory card downsized to match the size of a conventional SD memory card.

- microP2 card: While inheriting the high reliability of the P2 card and maintaining the large capacity of 64 GB,\*<sup>1</sup> the microP2 card was greatly downsized to match the size of a SD Memory Card, resulting in a considerable reduction in cost.
- Content Protection System (CPS): A new 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 slot: One slot is also provided for the use of a conventional P2 card.\*<sup>2</sup> Files can be copied between a microP2 card and a P2 card.

\*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 3 for recording times.

\*2: microP2 and P2 cards cannot be simultaneously recorded on.

## Card Slots 2+1 for Multifunctional Recording\*<sup>1</sup>

- Simultaneous Rec: Records simultaneously onto two microP2 cards. This mode ensures redundant recording.
- Dual Codec Recording: Records the main video data with an AVC-Intra or AVC-LongG codec, while simultaneously recording proxy video data at a low bit rate.
- Hot-Swap Rec: The two microP2 card slots enable uninterrupted recording, and also allow switching of the active card slot and changing of cards while recording.
- Auto REC: Automatically starts recording according to the SDI/HDMI video signal input.
- Loop Rec: Maintains a recording of a certain time period through repeated loop recording. It always maintains the latest images from a weather camera, earthquake monitoring camera, etc., for a certain time period.
- Text Memo:\*<sup>2</sup> Up to 100 memos can be posted onto a clip as bookmarks.
- Shot Marker:\*<sup>2</sup> Used to mark clips as OK, NG, etc.
- CC REC: Records the closed caption signal via the SD SDI input.
- Metadata: Data with information such as operator's name, shooting location, and text memos can be added via an SD memory card.

\*1: microP2 and P2 cards cannot be simultaneously recorded.

\*2: The text memo and shot mark cannot be added in Loop Rec mode.

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## Diverse Playback Functions

- PB Position Selection: Allows selection of the playback start position when playing back from a thumbnail. The start position can be selected from three options: the end of the previous playback, the time code of the thumbnail position and the beginning of the clip.
- Repeat Playback: Plays back selected clip(s) (single/multiple) repeatedly.
- Down-conversion: Down-converts HD to SD and outputs an SD signal. There are three aspect ratio conversion modes (FIT-V, FIT-H, and FIT-HV) to choose from.

## High-Quality 24 bit Audio Recording

AVC-Intra and AVC-LongG codec support 24 bit/48 kHz four channels digital audio recording\*.

\*To play video clips recorded with 24 bit audio, use a 24 bit compatible P2 device or P2 viewer.

## User Buttons/User Files

Functions can be freely allocated to the six user buttons. A user file containing the settings can be saved onto an SD/SDHC/SDXC card.

## Thumbnail, Image and Waveform Display on an 8.76 cm (3-1/2 inches) LCD

- **Thumbnail Display:** Thumbnail images can be freely arranged for display, allowing instant playback, deletion or copying of selected clips.
- **Image Full-Screen Display:** Allows use as a recording or preview monitor.
- **WFM:** Waveform and vectorscope can be displayed for the playback or input video signal on the LCD monitor. It can also display on HDMI output and SDI output.
- **4:3 MARKER:** 4:3 marker can be displayed on the LCD monitor.



## USB 3.0 High-Speed Transfer Interface

- **USB 3.0 (Host):** From the microP2/P2 card to external storage,\*1 files can be copied at approximately 12 times normal speed.\*2 It can also connect an ordinary USB keyboard for easy metadata text input.
- **USB 2.0 (Device):** Device mode allows use as a P2 card drive for a PC/ Mac (nonlinear editor).
- **Playback:** P2 MXF files on an external storage can be displayed as thumbnails and played back.\*3 The audio playback is uninterrupted by slow hard disk performance, or when vibration temporarily delays data reading.

\*1: Storage media with more than 2 TB of capacity cannot be used.

\*2: For AVC-LongG25 codec files.

\*3: Playback is based on disk drive performance, including spindle speed. Panasonic cannot guarantee smooth playback without dropped frames.

## 3G-SDI Inputs/Outputs

3G-SDI input and 3G-SDI output are standard features. This enables high-quality line recording from a video camera, switcher, etc. When connected to a camera recorder, Rec Start/Stop can be linked to the camera trigger. Super and thumbnail displays can be output.

## HDMI Digital HD Input/Output

HDMI input/output terminals, the next-generation HD video-audio interface, are provided. The HDMI input terminal supports HDMI TC input and Rec Start/Stop. HDMI output provides digital output for a wide variety of both professional and consumer devices.

\* A signal of exactly 60 Hz is not supported. Use a 59.94 Hz or 50 Hz signal as an input signal. AJ-PG50 cannot receive the input signals which is not exact 59.94 Hz or 50 Hz. (There are some cases that PCs output deviated frequency.)

## Analog Input/Output

The AJ-PG50 has XLR analog audio inputs (CH 1/CH 2), an analog audio output and headphone output jack. Audio can also be monitored from the front speaker.

## Recording Codecs and Video Formats

Recording Format	Sampling	Quantization	Video Format			
			1080-59.94i 1080-50i	720-59.94p 720-50p	1080-59.94p 1080-50p	480-59.94i 576-50i
AVC-Intra200	4:2:2	10 bit	Recording/Playback	Recording/Playback	—	—
AVC-Intra100	4:2:2	10 bit	Recording/Playback	Recording/Playback	Recording/Playback <3G-SDI>	—
AVC-Intra50	4:2:0	10 bit	Recording/Playback	Recording/Playback	—	—
AVC-LongG50	4:2:2	10 bit	Recording/Playback	Recording/Playback	—	—
AVC-LongG25	4:2:2	10 bit	Recording/Playback	Recording/Playback	Recording/Playback <3G-SDI>	—
AVC-LongG12	4:2:0	8 bit	Recording/Playback	Recording/Playback	Recording/Playback <3G-SDI>	—
DVCPRO HD	4:2:2	8 bit	Recording/Playback	Recording/Playback	—	—
DVCPRO 50	4:2:2	8 bit	—	—	—	Recording/Playback
DVCPRO/DV*	4:1:1	8 bit	—	—	—	Recording/Playback

\* For 576/50i in DV codec, sampling become 4:2:0.

## Recording Times\*

Recording Format (Compression Format) 59.94Hz/50Hz	Card x 1		
	16 GB	32 GB	64 GB
AVC-Intra200	Approx. 8 min.	Approx. 16 min.	Approx. 32 min.
AVC-Intra100 DVCPRO HD	Approx. 16 min.	Approx. 32 min.	Approx. 64 min.
AVC-LongG50 AVC-Intra50 DVCPRO 50	Approx. 32 min.	Approx. 64 min.	Approx. 128 min.
DVCPRO	Approx. 64 min.	Approx. 128 min.	Approx. 256 min.
AVC-LongG25	Approx. 54 min.	Approx. 110 min.	Approx. 220 min.
AVC-LongG12	Approx. 108 min.	Approx. 220 min.	Approx. 440 min.

\* For 1080/59.94p and 1080/50p, the recording times become 1/2 of those shown above. All of the times apply when single clips are recorded continuously one after the other onto a P2 card. Depending on the number of clips to be recorded, the recordable time may be shorter than the times given.

## AVC-Proxy Recording Modes and Recording Signals

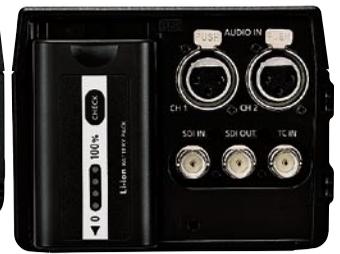
Recording Mode	Video			Audio		
	Resolution	Codec	Bit Rate	Codec	CH	Bit Rate /1 CH
AVC-G6 2CH MOV	1080i mode: 1920 x 1080 720p mode: 1280 x 720	H.264 High Profile	6 Mbps	AAC-LC	2 CH	64 kbps
SHQ 2CH MOV	960 x 540	H.264 High Profile	3500 kbps	Linear PCM	2 CH	768 kbps
HQ 2CH MOV	640 x 360	H.264 High Profile	1500 kbps	AAC-LC	2 CH	64 kbps
LOW 2CH MOV	480 x 270	H.264 Baseline Profile	800 kbps	AAC-LC	2 CH	64 kbps



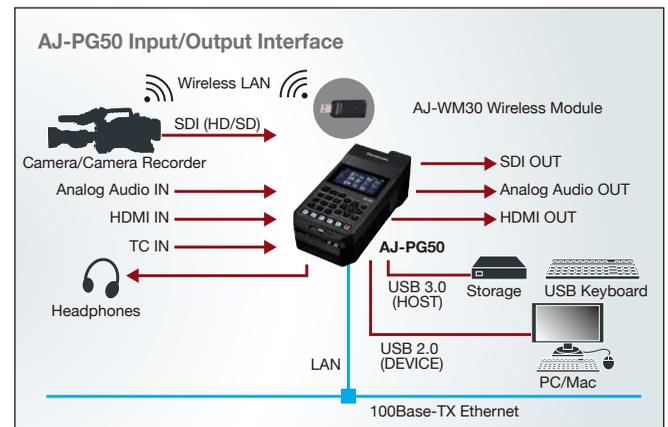
Side: Terminal



Front: Card slot and Speaker



Rear: Battery and Terminal



**GENERAL**

Power Supply:	DC 7.2 V (during battery use) DC 12 V (during AC Adaptor use)
Power Consumption:	21.4 W
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (non-condensing)
Storage Temperature:	-20 °C to 50 °C (-4 °F to 122 °F)
Weight:	1.1 kg (2.4 lbs)
Dimensions:	108 mm (W) x 85 mm (H) x 217 mm (D) (4-1/4 inches x 3-3/8 inches x 8-9/16 inches) (Excluding the foot parts and protrusions such as the cap)
Recording Media:	P2 memory cards, microP2 memory cards
Recording Formats:	AVC-Intra200/AVC-Intra100/AVC-Intra50/AVC-LongG50/ AVC-LongG25/AVC-LongG12/DVCPRO HD/DVCPRO50/ DVCPRO/DV formats are selectable.
Proxy:	File Formats: MOV (QuickTime format) Video Compression Formats: H.264/AVC Baseline Profile, H.264/AVC High Profile Audio: AAC-LC, Linear PCM
Video Recording Signals:	1080/59.94p, 1080/50p, 1080/59.94i, 1080/50i, 720/59.94p, 720/50p, 480/59.94i, 576/50i
Audio Recording Signals:	AVC-Intra200/AVC-LongG50/AVC-LongG25: 48 kHz, 24 bit, 4 CH AVC-Intra100/AVC-Intra50: 48 kHz, 24 bit, 4 CH 48 kHz, 16 bit, 4 CH AVC-LongG12: 48 kHz, 16 bit, 4 CH DVCPRO HD: 48 kHz, 16 bit, 4 CH DVCPRO 50: 48 kHz, 16 bit, 4 CH DVCPRO/DV: 48 kHz, 16 bit, 4 CH
Recording Times:	For details, see the "Recording Time" table on page 3.

**VIDEO (DIGITAL VIDEO)**

Sampling Frequencies:	AVC-Intra200/AVC-Intra100/AVC-LongG50/AVC-LongG25/ DVCPRO HD: (59.94 Hz) Y: 74.1758 MHz, Pb/Pr: 37.0879 MHz (50 Hz) Y: 74.2500 MHz, Pb/Pr: 37.1250 MHz AVC-Intra100/AVC-LongG25: (1080/59.94p) Y: 148.3516 MHz, Pb/Pr: 74.1758 MHz (1080/50p) Y: 148.5000 MHz, Pb/Pr: 74.2500 MHz DVCPRO50: Y: 13.5 MHz, Pb/Pr: 6.75 MHz DVCPRO: Y: 13.5 MHz, Pb/Pr: 3.375 MHz
Quantization:	AVC-Intra200/AVC-Intra100/AVC-Intra50/AVC-LongG50/ AVC-LongG25: 10 bit AVC-LongG12/DVCPRO HD/DVCPRO50/DVCPRO/DV: 8 bit
Video Compression Methods:	AVC-Intra200/AVC-Intra100/AVC-Intra50: MPEG-4 AVC/H.264 Intra Profile AVC-LongG50/AVC-LongG25/AVC-LongG12: MPEG-4 AVC/H.264 High Profile DVCPRO HD: DV-Based Compression (SMPTE ST 370)
Color Sampling:	AVC-Intra200/AVC-Intra100/AVC-LongG50/AVC-LongG25: Y:Pb:Pr = 4:2:2

Resolution:	AVC-Intra100/AVC-LongG25/AVC-LongG12: 1920 x 1080 (1080/59.94p, 1080/50p) AVC-Intra200/AVC-Intra100/AVC-LongG50/AVC-LongG25/ AVC-LongG12: 1920 x 1080 (1080/59.94i, 1080/50i) 1280 x 720 (720/59.94p, 720/50p) AVC-Intra50: 1440 x 1080 (1080/59.94i, 1080/50i) 960 x 720 (720/59.94p, 720/50p)
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**VIDEO INPUT**

SDI Input:	BNC x 1
HDMI Input:	HDMI x 1 (HDMI TYPE A connector) (VIERA Link not supported, HDCP supported)

**VIDEO OUTPUT**

SDI Output:	BNC x 1
HDMI Output*:	HDMI x 1 (HDMI Type A) (VIERA link not supported)

**AUDIO (DIGITAL AUDIO)**

Sampling Frequency:	48 kHz (synchronized with video)
Quantization:	16 bit (AVC-LongG12/DVCPRO HD/DVCPRO50/DVCPRO/DV) 16/24 bit selectable (AVC-Intra 100/AVC-Intra 50) 24 bit (AVC-Intra200/AVC-LongG50/AVC-LongG25)
Headroom:	12/18/20 dB (selectable)
De-emphasis:	T1=50 µs, T2=15 µs (ON/OFF auto select)

**AUDIO INPUT**

Analog Inputs (CH1, CH2):	XLR x 2
SDI Input:	BNC x 1
HDMI Input:	2 channels (Linear PCM), 16 bit

**AUDIO OUTPUT**

SDI Output:	BNC x 1
Analog Output (monitor (L/R)):	Stereo mini jack (3.5 mm (1/8 inches) dia.)
Headphone Output:	Stereo mini jack (3.5 mm (1/8 inches) dia.), variable level
HDMI Output:	2 channels (Linear PCM), 16 bit
Internal Speaker:	Round x 1 (monaural)

**OTHER INPUT/OUTPUT**

Time Code Input:	BNC x 1, 0.5 V[p-p] to 8.0 V[p-p], 10 kΩ
LAN:	RJ-45 x 1, 100BASE-TX/10BASE-T
USB HOST:	USB 3.0 Host (Type A) x 1
USB Device:	USB 2.0 Device (Type B) x 1

**INCLUDED ACCESSORIES**

Battery pack, AC adaptor/AC cable, Battery charger/AC cable

\*When "VIDEO" - "INPUT SEL" is set to "HDMI", video, audio, and other signals from the HDMI output connector will not be output.

The use of DCF Technologies is under license from Multi-Format, Inc.

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

Options



**VW-VBD58**  
Battery Pack  
(5800 mAh)



**AG-B23**  
Battery Charger



**AJ-P2M064AG**  
**AJ-P2M032AG**  
microP2 Card



**CGA-D54/CGA-D54s**  
Battery Pack  
(5400 mAh)



**AJ-WM30**  
Wireless Module

\* Not available in some areas.



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



SD/SDHC/SDXC  
Memory Card

Please refer to the latest product information, P2 Support, Download and Service Information, etc. at the following Panasonic web site.



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

## 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/> and click "P2 Support and 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](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/>. For operating requirements and details of other P2 editing software, visit the website of the relevant software manufacturer.

### Precautions When Using SD Memory Cards

On the Memory Card Camera Recorder/Memory Card 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/Memory Card Recorder before use. In this Memory Card Camera Recorder/Memory Card 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.

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JQA-0443



Factories of AVC Networks Company have received ISO14001:2004-the Environmental Management System certification. (Except for 3rd party's peripherals.)