

Panasonic

P2HD

AJ-PX270

Memory Card Camera Recorder

The "ULTRA" Handheld

The world's first*¹ handheld camera recorder to support the AVC-ULTRA*² codec family.



picture simulated

*The microphone shown in the photo is an optional accessory.

*1: The first handheld camera recorder with AVC-ULTRA recording and microP2 card slots, as of March 2014, according to a Panasonic survey.

*2: AVC-ULTRA is the name of Panasonic's professional video codec family. The AJ-PX270 does not support all of the formats included in the AVC-ULTRA family.

AVC **ULTRA** AVC **INTRA** AVC **Long G** AVC **Proxys** **P2** **P2** **micro** **XC** **HDMI**
HIGH-DEFINITION MULTIMEDIA INTERFACE

Featuring superb image quality, functionality and operability matching shoulder-type camera and network capability, this hand held camera recorder revolutionize ENG workflow.

The AJ-PX270 is a compact, lightweight professional ENG camera recorder for broadcast applications. It inherits Panasonic's accumulated broadcast technologies and know-how to offer high performance, easy operation and excellent versatility rivaling many shoulder-type models. The AJ-PX270 is the world's first*¹ handheld camera recorder to feature the AVC-ULTRA*² codec family and support the microP2 card. Its AVC-Intra/AVC-LongG/AVC-Proxy multi-codec recording capability responds to diverse broadcasting needs, ranging from program production to swift news gathering using networking functions. The AJ-PX270 is equipped with a powerful 22x zoom lens with three manual rings and the industry's first*³ high-resolution OLED viewfinder. Control switches, such as the front REC button, and a variety of terminals are positioned to match shoulder-type camera recorder specifications. Armed with networking functions, this camera recorder enables both file-based recording and more advanced network-based recording, to revolutionize your workflow. It will also connect directly to a server via a wired LAN, wireless LAN*⁴ or 4G/3G*⁵ network, for easy configuration of a streamlined news-gathering system.

*1: As of March 2014, according to a Panasonic survey.

*2: The AJ-PX270 does not support all of the formats included in the AVC-ULTRA family.

*3: For a professional handheld camera recorder, as of March 2014, according to a Panasonic survey.

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

*5: Available in the near future.



**ULTRA SPEED,
ULTRA QUALITY and
ULTRA USABILITY.**



ULTRA SPEED

Wired/Wireless LAN Network Functions*1

The standard LAN (Ethernet) port allows network connection via a wired LAN. When installed with the optional AJ-WM30 Wireless Module, the AJ-PX270 gains wireless LAN (IEEE 802.11g/n) connectivity, enabling access to the following functions from a network-connected PC/Mac, tablet device or smartphone. The AJ-PX270 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.*2
- **Camera Remote:** Allows confirmation of camera status and thumbnails and also enables remote camera control (recording, time code setting, and user bits).
- **File Transfer:** The FTP client function lets you transfer clips from the camera recorder to a network.
- **Playlist Editing:***3 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.*4 The results can be saved together with the edited playlist, then played out of the camera and /or copied using a web application.

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

*2: Some functions are not supported by some devices.

*3: Available in the near future.

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

4G/3G Network Connectivity (Available in the near future)*5

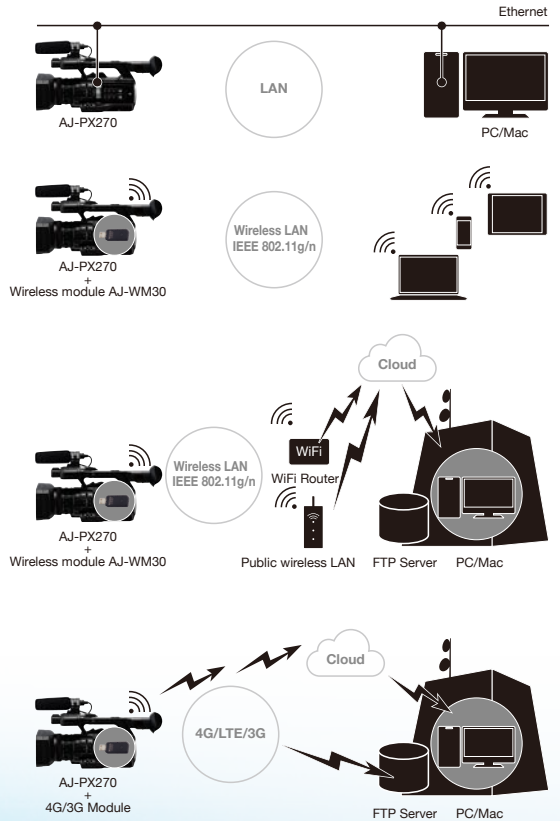
The AJ-PX270 can send data directly to a network server via FTP allowing broadcast stations to edit recorded data immediately at the editing desk.

*5: 4G/3G module is required from the 3rd party. For details, please go to Panasonic web page <http://pro-av.panasonic.net/>. For the OS, browser, device compatibility information, see "Service and Support" on the Panasonic website (<http://pro-av.panasonic.net/>).

Video Streaming Capability (Available in the near future)

The AJ-PX270 is capable of proxy image streaming via a wired LAN, wireless LAN, 4G or 3G. It enables live streaming while recording images onto a memory card.

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



picture simulated

ULTRA QUALITY

Newly Designed 22x Zoom Lens

The AJ-PX270 features a newly developed, high-performance, compact zoom lens. Zooming from 28mm to 616mm (35mm equivalent), this 22x zoom lens covers a wide field of view, from wide-angle to telephoto, without the need for a conversion lens. Combining 18 lens elements in 12 groups, this advanced lens unit further adds a UHR (Ultra High Refractive) glass element, a low dispersion element and aspherical lenses. This newest optical technology provides superbly high resolution. In addition, it is combined with our unique, Emmy awarded digital signal processing technology called Chromatic Aberration Compensation (CAC) to minimize color bleeding in the surrounding image areas and to achieve rich expression with finely rendered nuances and excellent shading.



Wide 28 mm

Tele 616 mm (22x)

22x optical zoom x
10x digital zoom (220x)

Three Manual Rings and Ultra Low-Speed Seesaw Zoom Levers

The AJ-PX270 has three manual rings: a mechanical (cam-type) zoom ring, a focus ring and an iris ring. The operating feel and rib pattern of these rings are carefully designed to make manual operation feel using an interchangeable lens. The focus ring is knurled for reliable fingertip control of delicate focusing. The seesaw zoom levers (grip/handle) support extra-slow zooming down to 180 seconds.



Lens Ring

Optical Image Stabilizer (OIS), Digital Zoom and ND Filter

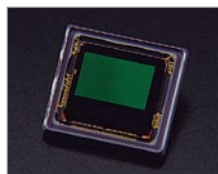
- Hand-shake correction with the built-in optical image stabilizer (OIS).
- Equipped with a digital zoom function.*1 Magnification control can be assigned to a user button for quick zooming to 2x, 5x or 10x. It provides a telephoto capability of up to 220x in combination with the optical zoom.
- Built-in ND filter (OFF, 1/4, 1/16, 1/64).

*1: Flash Band Compensation will not operate while digital zooming.

High Sensitivity and Low Noise with New 1/3-Type 3MOS Image Sensors

Newly developed 2.2 megapixel 1/3 type 3MOS (RGB) image sensors offer full-pixel HD (1920 x 1080) resolution, F11 (59.94 Hz) or F12 (50 Hz) sensitivity*2 and low noise. They also achieve rich gradation and vibrant color reproduction.

*2: With [HIGH SENS.] mode



1/3 type, 2.2 megapixel
MOS sensor

Image Adjustment Function from a New Menu

The AJ-PX270's camera signal processing LSI enables hue-adjustable 12 axis color compensation for each color gamut, independent 3 axis skin-tone color compensation, and also has a detailed image adjustment function. The new image adjustment menu brings you intuitive image control.

Setting Items: H detail, V detail, detail coring, skin tone detail, chroma level, color temperature, master pedestal, knee, matrix, color correction, RB gain control, chroma setting, black control, gamma, high color, white clip.



New image adjustment menu

Professional Image Quality and Advanced Functions

- **Advanced Flash Band Compensation (FBC):** High-precision flash band detection and compensation.
- **DRS (Dynamic Range Stretch):** Suppresses blocked shadows and blown highlights to achieve a visually wide dynamic range.
- **Gamma:** Select from 7 mode gamma curves (HD/SD/FILMLIKE 1/ FILMLIKE 2/FILMLIKE 3/FILM-REC/VIDEO-REC).
- **Three-position Gain Selector and +36dB Super Gain:** The 3-position gain selector can be assigned with gain levels selected from a range of -3 dB to +18 dB to its L, M and H positions. The AJ-PX270 is also equipped with a +24 dB/+30 dB/+36 dB Super Gain function to enable extra-high sensitivity recording of scenes with subject luminance of as low as 0.02 lx.*3
- **Electronic Shutter with Slow Shutter Capability:** The shutter speed can be set in seven steps between 1/60 and 1/2000 second (60i/60p mode). It is also equipped with Slow and Synchro Scan (variable) mode. The shutter opening angle (deg value) can be set with synchro scan mode.
- **Shockless Auto White Balance:** A smooth transition occurs when switching White Balance modes. This is effective, for example, when moving from outdoors to indoors.

*3: When set to F1.6, 18 dB gain, 1-second accumulation, [HIGH SENS.] mode

Variable Frame Rate Supporting 1080p

The Variable Frame Rate function (AVC-Intra100)*4 was inherited from the Panasonic VariCam, which is widely used for producing movies, TV series and TV commercials. Featuring a variable frame rate of 1 to 60 fps, this function creates a wide range of film-camera-like images, such as overcranking for slow-motion and undercranking for quick-motion effects.

*4: Pre-Rec, Loop Rec, Interval Rec, One-Shot Rec, Dual Rec and One-Clip Rec cannot be used while recording at the native variable frame rate.



Overcranking (higher-speed shooting)



Undercranking (lower-speed shooting)

Advanced Focus Assist Functions

A variety of focus assist functions support quick and accurate focusing in manual focus mode.

- **Turbo-Speed One-Push AF:** Pressing the PUSH AUTO button enables focusing in 0.5 seconds or less.*5
- **Focus-in-Red Display:** Emphasizes the image areas in focus by marking the edges in red.
- **Expand:** Enlarges the center portion for increased visibility.
- **Focus Bar:** The meter graphically displays the focus level.

*5: The focusing time varies depending on the shooting conditions and subjects.



Focus-in-Red



Expand

Industry's First* OLED EVF and High-Resolution LCD Panel

The AJ-PX270 is the first professional handheld camera recorder to feature a viewfinder with a high-resolution OLED display (approximately 2,360 K dots; image display area: approximately 1,770 K dots) for minimal image delay and superb color reproduction. The LCD monitor uses a QHD IPS LCD panel. These allow more easy focusing.

* The first handheld camera recorder with OLED EVF, as of March 2014, according to a Panasonic survey.



OLED EVF

New Built-in Electronic Level Gauge

The electronic level lets you easily confirm camera tilting on the LCD monitor screen. It helps to keep the camera level during handheld shooting, low-angle shooting and high-angle shooting.



Electronic Level Gauge

Other Recording Support Functions

- **Scene File/User File:** Six preset scene files can be changed freely. One set of scene files can be stored internally in the AJ-PX270, and eight sets can be stored on an SD Memory Card. In addition, one user file containing camera settings can also be stored internally in the AJ-PX270, and eight files can be stored on an SD Memory Card.

Scene File Preset (Initial Settings): F1 for standard setting, F2 (FLUO.) for shooting under fluorescent lights, F3 (SPARK) for emphasizing contrast, F4 (B-STR) for enhanced gradation of luminance in low-light scenes, F5 (CINE V) for cine-like setting with priority on contrast, and F6 (CINE D) for cine-like setting with priority on dynamic range.

- **Eight User Buttons:** Functions can be freely assigned to the eight user buttons.

- **WFM/VECTOR:** Simplified waveform and vectorscope display.

- **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 the center and displays numerical data.

- **Knee Mode Setting (AUTO/MANUAL/OFF).**

- **Two-value (A/B) memory and preset (3200/5600/VAR) white balance selector.**

- **Scan Reverse Function:** Displays/records images in vertically or horizontally inverted orientation.

- **Marker Display:** Displays a center marker, safety zone marker and frame marker.



ULTRA QUALITY

AVC-ULTRA Codec Supported as Standard

The AJ-PX270 is the first handheld camera recorder that features the AVC-ULTRA codec family as standard. To meet the various needs from mastering to streaming, the image quality and bit rate can be selected to match the application.

(See the table on the next page.)



AVC-ULTRA Codec LSI

AVC Intra AVC-Intra using intra-frame compression method which is highly suited to image production. In addition to the conventional AVC-Intra100/50, AVC-Intra200 codec will be available as option.*¹ Visually lossless images quality and superb 24 bit audio, it offers a level of quality that meets the needs of mastering or archiving.

AVC LongG This inter-frame compression method 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-LongG25 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) can be recorded simultaneously with main video.*¹ Also includes metadata for efficient offline editing.



*¹: Available in the near future. 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. The use of DCF Technologies is under license from Multi-Format, Inc.

Dual Codec Recording for Smooth Network Connection*²

The AJ-PX270 can record the main video data (MXF format) with an AVC-Intra100/50 or AVC-LongG50/25 codec, while simultaneously recording proxy video data at a low bit rate. Using the network function, it is capable of IP transmission of proxy video data via LAN, wireless LAN*³ or 4G/3G network.*⁴ This enables news flash distribution and advance editing before the main video data arrives, dramatically speeding up the video production workflow.

*²: Some formats are not supported depending on the recording mode. For details, visit Panasonic website (<http://pro-av.panasonic.net/>).

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

*⁴: Available in the near future. 4G/3G module is required.

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Metadata Function Supporting Wireless Connection

The metadata function attaches metadata (text memos tagged to time, GPS data, selected character strings and frames) to P2 files. Metadata can be edited using a tablet or smartphone connected via USB or wireless LAN.*⁵ Metadata can be used effectively for searching and management, facilitating the editing, distribution and archiving of video data.

*⁵: For a wireless LAN connection, the AJ-WM30 Wireless Module is required.

High-Quality 24 Bit 4 Channel Audio Recording

AVC-Intra and AVC-LongG*⁶ modes support 24 bit digital audio recording*⁷ (16 bit for DVCPR0 HD, DVCPR0 50, DVCPR0 and DV). The AJ-PX270 offers 4 channel audio in all recording modes. Channel input locates in front and rear (both selectable from mic/line). The level volume also supports 4 channels.

*⁶: The AVC-LongG12 mode does not support 24 bit digital audio recording.

*⁷: The audio signal can be played back by using 24 bit digital audio equipment. For details, refer to "Note Regarding 24 bit Audio" on page 9.

MicroP2 Card Slots

The AJ-PX270 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,*⁸ the microP2 card was greatly downsized to match the size of an SD Memory Card, resulting in a considerable reduction in cost. One P2 card slot is also provided for the use of a conventional P2 card.*⁹

- **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.

- **Highly Mobile and Reliable:** The microP2 and P2 cards are highly resistant to temperature changes, dust, impacts, and vibration, and there are no worries about condensation, head clogging, or dropout as there are with VTR systems. Data is recorded onto empty card spaces, so there is no need to search for the beginning and ending of recorded portions. There is also no danger of mistakenly recording over existing data.

*⁸: 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.

*⁹: microP2 and P2 cards cannot be simultaneously recorded on.

HD/SD Multi Format/Multi Codec

In addition to 1080/60i,*¹⁰ the AJ-PX270 supports 24p,*¹⁰ 30p,*¹⁰ 60p,*¹⁰ and 720p multi HD format and SD recording. 59.94 Hz/50 Hz switchable for convenient use in productions headed for global use.

*¹⁰: 60i, 60p, 24p, and 30p are actually recorded at 59.94 Hz, 23.98 Hz, and 29.97 Hz respectively.

Full Frame Progressive Recording

1080/60p*¹¹ (50p) full frame progressive recording is supported for the first time in the AJ-PX270. In addition to being able to record with the AVC-Intra100 or AVC-LongG25/LongG12 codec, the camera can be capable of camera through output from the 3G SDI and HDMI output terminals.

*¹¹: 60p is actually recorded at 59.94 Hz.

Multifunctional Recording*¹² Including Simultaneous Recording

- **Simultaneous Rec:***¹³ Records simultaneously onto two microP2 cards. A recording mode that continuously records onto one of the two cards will be available in the near future.

- **Hot-Swap Rec:***¹³ Thanks to the two card slots,*¹⁴ you can hot-swap microP2 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 3 seconds of HD or 7 seconds of SD video and audio data in memory while in standby mode and lets you recover and use the data from the point before you started recording.

- **Loop Rec:** Maintains a recording of a certain time period through repeated loop recording.

- **Interval Rec:** Automatically records intermittently based on a set interval and recording time.

- **One-Shot Rec:** A frame-shot recording function for producing animations.

- **Text Memo:***¹⁵ Up to 100 memos can be posted onto a clip as bookmarks.

- **Shot Marker:***¹⁵ Used to mark clips as OK, NG, etc.

- **Last Clip Delete:** Deletes the last recorded clip with a single touch.

- **Rec Check:** This lets you run a quick playback check of the clip-end you have just recorded.

*¹²: microP2 and P2 cards cannot be simultaneously recorded.

*¹³: Recording is possible only through the microP2 card slots.

*¹⁴: Slots cannot be switched during recording.

*¹⁵: The text memo and shot mark cannot be added in Loop Rec, Interval Rec, or One-Shot Rec mode.

Recorder Section

Recording Codecs and Video Formats

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

*1: Available in the near future. *2: 1080/23.98 PsF output will be supported in the near future.

Recording Times*3

Recording format (Compression Format) 59.94Hz/50Hz	Card x 1		
	16 GB	32 GB	64 GB
AVC-Intra200 (Option)*4	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.
AVC-LongG25/ DVCPRO/DV	Approx. 64 min.	Approx. 128 min.	Approx. 256 min.
AVC-LongG12	Approx. 120 min.	Approx. 240 min.	Approx. 480 min.

AVC-Proxy Recording Modes and Recording Signals (when using 1080-60i/50i recording for main video)*5

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

*3: For 1080/60p 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. *4: Available in the near future. *5: 720p recording will be supported for main video recording in the near future.
*For detailed information on recording formats, visit Panasonic website (<http://pro-av.panasonic.net/>).



ULTRA USABILITY

New Design – Switches Match Like Those on Shoulder-Type Models

The AJ-PX270 was designed for easy operation as an ENG camera. It inherits the functions, switch layout and dials of shoulder-type camera recorders. Users of professional shoulder-type camera recorders will be able to take advantage of the mobility of the AJ-PX270 immediately.

- **Front Rec Button:** The front Rec button is positioned immediately below. When a tripod is used, this button allows smooth recording starts after operating the lens.
- **Industry First* – Front Audio Level Dials:** This is the industry's first handheld camera recorder to feature audio input level controls (which can be allocated with ON/OFF and CH) on the front side of the unit. This allows quick operation during recording.
- **Industry First* – Triple Toggle Switches:** Three toggle switches – DISP/MODE CHECK, GAIN and WHITE BAL – are provided. They are located at the same location as on a shoulder-type model to support operation during recording.
- **Audio Level Dials:** Large 2-channel (switchable between CH1/ and CH2) audio level dials.

* As of March 2014, according to a Panasonic survey.



New Design – Separately Positioned XLR Audio Input Terminals

The AJ-PX270 is equipped with 2-channel XLR mic/line audio input terminals supporting a +48V phantom power supply. They are arranged on the front and rear sides of the unit, just like on a shoulder-type model. The front mic terminal is located behind the rear mic mounting section, eliminating problems resulting from catching protrusions on the side panel. The rear external audio terminals are located on the right side for comfortable holding of the AJ-PX270 against the chest during recording, and also permit easy connection and disconnection while holding the camera recorder in shooting position.



Battery Replacement during Recording

The large-capacity battery is housed in the main body, and does not extend beyond the rear panel. This ensures comfortable holding of the AJ-PX270 against the chest. When power is supplied to the DC power supply input terminal using the AC adaptor, the battery can be changed while recording.

Handle with Multi-Stage Zoom Lever

The zoom lever located on the upper part of the handle is also provided with a multi-stage variable zoom function. It provides the same smooth zooming operation from a super-low speed as the zoom lever on the hand grip, allowing smooth zooming when shooting from a low angle or using a tripod.



New Design Offering Enhanced Mobility and Easy Operation

Even with its high-power zoom lens, the AJ-PX270 is compact and has a low center of gravity. It remains stable during handheld shooting, and provides excellent visibility and a wide field of view. The lens hood with a built-in cover improves convenience and safety while moving. The magnesium alloy diecast chassis is rugged and durable.



3G SDI Output and HDMI Output

- **3G SDI OUT:** A 3-Gbps speed supports 1080/60p and 50p progressive full frame image output. Can be set to HD SDI or down-converted SD SDI. Allows Rec Start/Stop linked backup recording with a Panasonic recorder equipped with SDI input.
- **HDMI OUT:** This terminal allows digital A/V output to a wide range of devices such as an HD monitor.
- **Aspect Conversion:** The aspect ratio can be selected from among Side Crop, Letter Box, or Squeeze mode when down-converting and outputting from the SDI OUT terminal.



Operation & Connection

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.

Multi-Camera Synchronizing with Genlock IN and TC IN/OUT

This handheld camera recorder supports a multi-camera configuration. It features a built-in SMPTE time-code generator/reader, TC input/output, and Genlock input for multi-camera recording with time-code synchronization. Images can be synchronized and output to a switcher, providing the same level of operation as many shoulder-type models.

Interfaces and Devices

- Supports live video transfer uplink equipment (scheduled for the near future).
- Equipped with an audio output terminal (stereo mini-jack).
- Equipped with a headphone terminal (stereo mini-jack).
- Back tally, rear tally equipped. ON/OFF switchable.
- Camera Remote: Focus, iris, zoom and REC start/stop can be controlled.



Rear Terminal (when cover is open)

Side Terminal (when cover is open)



Options and P2 HD Equipment

As of March, 2014



AG-MC200G
XLR Microphone



VW-VBD58
Battery Pack (5,800 mAh)
CGA-D54/CGA-D54s
Battery Pack (5,400 mAh)

NEW



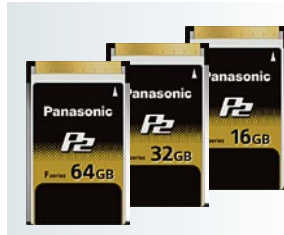
AG-B23
Battery Charger



AJ-WM30
Wireless Module



AJ-P2M064AG
AJ-P2M032AG
microP2 Card



AJ-P2E064FG
AJ-P2E032FG
AJ-P2E016FG
Memory Card "P2 card" F Series*1



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-AKR200G **Coming Soon**
Upgrade Software Key
Enables AVC-Intra 200 codec recording.
* Available in the near future.



AJ-PCD2G "P2 drive"
Memory Card Drive
USB-Bus powered 1 slot P2 drive
Ideal for mobile application.



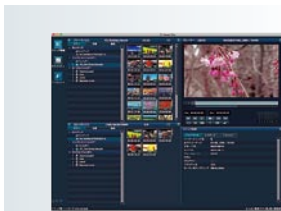
AJ-PCD30 "P2 drive"
Memory Card Drive
3-slot drive with USB 3.0 interface for
high-speed 1.5 Gbps data transfer.



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



AJ-PD500 "P2 portable deck"
Memory Card Recorder
AVC-ULTRA and microP2 supported.
A half-rack size recorder for a high-
quality, cost-effective workflow



P2 Viewer Plus*2
Viewing Software
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*3
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.

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.

*1: The P2 card F 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/>

*2: For information on purchasing software keys, see "Service and Support" on the Panasonic web page <http://pro-av.panasonic.net/>

*3: 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/

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. For the latest information on 24 bit compatible P2 equipment and P2 Viewer Plus, see "Support & Download" on the Panasonic web page <http://pro-av.panasonic.net/>

Specifications

As of March, 2014

General

Power:	DC 7.2 V (when the battery is used) DC 12 V (when the AC adaptor is used)
Power consumption:	19.5 W (when the LCD monitor is used)
Operating Temperature:	0°C to 40°C (32°F to 104°F)
Operating Humidity:	10% to 80% (no condensation)
Weight:	Approx. 2.2 kg (4.9 lbs.) (body only, excluding lens hood, battery, and accessories) Approx. 2.6 kg (5.7 lbs.) (including lens hood, supplied battery, and microphone holder)
Dimensions:	176 mm(H) x 171 mm(W) x 329 mm (D) (excluding protrusion) (6-15/16 inches x 6-23/32 inches x 12-15/16 inches)

Camera Unit

Pickup Device:	1/3-type 2.2 million pixels, MOS solid state image sensor x3
Lens:	Optical image stabilizer lens, optical 22x motorized zoom F1.6 to F3.2 (f=3.9 mm to 86 mm) 35 mm conversion: 28 mm to 616 mm (16:9)
Filter Diameter:	72 mm
Optical System:	Prism system
ND Filter:	OFF, 1/4, 1/16, 1/64
Shortest Shooting Distance: (M.O.D.)	1.1m from the front lens Approx. 0.06 m from front lens (When Macro=On, at wide-end)
Gain Setting:	L/M/H selector switch-3 dB to 18 dB (in 1 dB steps) (Negative value of gain is only in [HIGH SENS.] mode.) (When assigning [S.GAIN] to the USER button: Switching between 24 dB, 30 dB, and 36 dB)
Color Temperature Setting:	ATW, ATW LOCK, Ach, Bch, preset 3200 K/preset 5600 K/VAR (2000 K to 15000 K)
Shutter Speed:	When [SYSTEM MODE] = 59.94 Hz • 60i/60p mode: 1/60 (shutter off) sec., 1/100 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. • 30p mode: 1/30 sec., 1/50 (shutter off) sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. • 24p mode: 1/24 sec., 1/50 (shutter off) sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. When [SYSTEM MODE] = 50 Hz • 50i/50p mode: 1/50 (shutter off) sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. • 25p mode: 1/25 sec., 1/50 (shutter off) sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec.
Slow Shutter Speed:	Setting is possible when [VFR]=[OFF] When [SYSTEM MODE] = 59.94 Hz • 60i/60p mode: 1/1 sec., 1/2 sec., 1/4 sec., 1/6 sec., 1/15 sec., 1/30 sec. • 30p mode: 1/1 sec., 1/2 sec., 1/4 sec., 1/6sec., 1/15 sec. • 24p mode: 1/1 sec., 1/2 sec., 1/4 sec., 1/6 sec., 1/12 sec. When [SYSTEM MODE] = 50 Hz • 50i/50p mode: 1/1 sec., 1/2 sec., 1/4 sec., 1/6 sec., 1/12 sec., 1/25 sec. • 25p mode: 1/1 sec., 1/2 sec., 1/4 sec., 1/6 sec., 1/12 sec.
Synchro Scan Shutter:	When [SYSTEM MODE] = 59.94 Hz and [SYNC SCAN TYPE] = [sec] • 60i/60p mode: 1/60.0 sec. to 1/249.8 sec. • 30p mode: 1/30.0 sec. to 1/249.8 sec. • 24p mode: 1/24.0 sec. to 1/249.8 sec. When [SYSTEM MODE] = 50 Hz and [SYNC SCAN TYPE] = [sec] • 50i/50p mode: 1/50.0 sec. to 1/250.0 sec. • 25p mode: 1/25.0 sec. to 1/250.0 sec.
Shutter Open Angle:	3.0 deg to 180.0 deg to 360.0 deg (in 0.5 deg steps, angle display)
VFR Recording Frame Rate:	• 1080/59.94p: 1, 2, 4, 6, 9, 12, 15, 18, 20, 21, 22, 24, 25, 26, 27, 28, 30, 32, 34, 36, 40, 44, 48, 54, and 60 (frames per second) • 1080/50p: 1, 2, 4, 6, 9, 12, 15, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 30, 32, 34, 37, 42, 45, 48, and 50 (frames per second)
Sensitivity:	[HIGH SENS.] mode F11 (2000 lx, 3200 K, 89.9% reflection, 1080/59.94i) F12 (2000 lx, 3200 K, 89.9% reflection, 1080/50i)
Minimum Subject Illumination:	0.02 lx (F1.6, gain 18 dB, [1S.EXP.], [HIGH SENS.] mode)
Digital Zoom:	x2/x5/x10
Lens Hood:	Hood with lens cover

Memory card recorder

Recording Media:	microP2 card, P2 card
Recording Slot:	microP2 card slot x2, P2 card slot x1
System Format:	1080/59.94p, 1080/59.94i, 720/59.94p, 480/59.94i 1080/50p, 1080/50i, 720/50p, 576/50i
Recording Format:	AVC-Intra100/AVC-Intra50/AVC-LongG50/ AVC-LongG25/AVC-LongG12 DVCPRO HD/DVCPRO50/DVCPRO/DV formats
Recording Video Signal:	1080/59.94p, 1080/59.94i, 1080/29.97pN, 1080/23.98pN, 720/59.94p, 480/59.94i, 480/29.97p 1080/50p, 1080/50i, 1080/25pN, 720/50p, 576/50i, 576/25p
Recording/Playback Time:	AVC-Intra100/DVCPRO HD: 16 GBx1 Approx. 16 min. 32 GBx1 Approx. 32 min. 64 GBx1 Approx. 64 min. AVC-Intra50/AVC-LongG50/DVCPRO50: 16 GBx1 Approx. 32 min. 32 GBx1 Approx. 64 min. 64 GBx1 Approx. 128 min. AVC-LongG25/DVCPRO/DV: 16 GBx1 Approx. 64 min. 32 GBx1 Approx. 128 min. 64 GBx1 Approx. 256 min. AVC-LongG12: 16 GBx1 Approx. 120 min. 32 GBx1 Approx. 240 min. 64 GBx1 Approx. 480 min.

Digital video

Sampling Frequency:	AVC-Intra100/AVC-Intra50/AVC-LongG50/ AVC-LongG25/AVC-LongG12/DVCPRO HD Y: 74.1758 MHz, Pb/Pb: 37.0879 MHz (59.94 Hz) Y: 74.2500 MHz, Pb/Pb: 37.1250 MHz (50 Hz) DVCPRO50 Y: 13.5 MHz, Pb/Pb: 6.75 MHz DVCPRO Y: 13.5 MHz, Pb/Pb: 3.375 MHz
Quantizing:	AVC-Intra100/AVC-Intra50/AVC-LongG50/AVC-LongG25: 10 bits AVC-LongG12/DVCPRO HD/DVCPRO50/DVCPRO/DV: 8 bits
Video Compression Format:	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 (SMPTE 370M) DVCPRO50/DVCPRO: DV-Based Compression (SMPTE 314M) DV: DV Compression (IEC 61834-2)

Digital audio

Recording Audio Signal:	AVC-Intra100/ AVC-Intra50: 48 kHz/16 bits, 4CH and 48 kHz/24 bits, 4CH switch AVC-LongG50/AVC-LongG25: 48 kHz/24 bits, 4CH AVC-LongG12/DVCPRO HD/DVCPRO50: 48 kHz/16 bits, 4CH DVCPRO/DV: 48 kHz/16 bits, 4CH
Headroom:	12 dB/18 dB/20 dB switchable menu

AVC proxy

File Format:	MOV
Video Compression Format:	H.264/AVC Baseline Profile, H.264/AVC High Profile
Audio Compression Format:	AAC-LC, Linear PCM
Approximate Recording Time (1 GB)*2:	AVC-G6 2CH MOV: Approx. 13 min. SHQ 2CH MOV: Approx. 25 min. HQ 2CH MOV: Approx. 78 min. LOW 2CH MOV: Approx. 135 min.

Video input/output

SDI OUT:	BNCx1, HD (3G/1.5G), SD: 0.8 V [p-p], 75 Ω
VIDEO OUT:	BNCx1, Also used as the GENLOCK IN, IN/OUT switch selection Composite: 1.0 V [p-p], 75 Ω
HDMI OUT:	HDMIx1 (HDMI type A terminal, not compatible with VIERA Link)

Audio input

Built-in Microphone:	Supports stereo microphone
AUDIO INPUT 1/AUDIO INPUT 2:	XLRx2, 3 pin.Input high impedance, LINE/MIC switch selection LINE: 4 dBu/0 dBu (selectable menu) MIC: -40 dBu/-50 dBu/-60 dBu (selectable menu), +48 dB on/off (switch selection)

Audio output

AUDIO OUT:	3.5 mm diameter stereo mini jack x1, Output level: 600 Ω, 316 mV
Headphones:	3.5 mm diameter stereo mini jack x1 100 Ω, -16 dBV (32 Ω load, at maximum output level)
Speaker:	20 mm diameter, round x1

Other input/output

CAM REMOTE:	2.5 mm diameter super mini jack x1 ZOOM S/S 3.5 mm diameter mini jack x1 FOCUS IRIS
GENLOCK IN:	BNCx1, also used as the VIDEO OUT, IN/OUT switch selection, 1.0 V [p-p], 75 Ω
TC IN/OUT:	BNCx1 Used as the input and output terminals, IN/OUT switch selection Input: 1.0 V - 4.0 V [p-p], 10 kΩ Output: 2.0 V±0.5 V [p-p], low impedance
LAN:	100BASE-TX/10BASE-T
USB2.0 DEVICE (device):	Type miniB connector, 4 pin
USB3.0 HOST (host):	Type A connector, 9 pin
USB2.0 HOST(sub-host):	Type A connector, 4 pin (exclusively for wireless module AJ-WM30)
DC IN 12V:	DC 12 V (DC 10.5 V - 13.5 V), EIAJ type 4

Monitor

LCD Monitor:	3.5 type QHD color monitor (Approx. 1560000 dots)
Viewfinder:	0.5 type OLED (organic EL display) (Approx. 2360000 dots, video display area: Approx. 1770000 dots)

Included Accessories

Battery (VW-VBD58), Shoulder strap, Battery charger, AC adaptor, Microphone holder, Screw for microphone holder (12 mm), Power code x 2, Eye cup, Lens hood, Grip belt

*1: Figures are for continuous recording as one clip. Depending on the number of clips, the overall recording time may be shorter than the above.

*2: 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.

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



P2 Asset Support System

The free member's service program for P2HD/AVCCAM

Extensive information for video professionals

Thirsty for Knowledge?

No purchase necessary
Information services for members

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5 year extended warranty program



Extended for free upon registration

* Availability of this extended service program and service content may depend on country/region and model.

* A maximum 5 year or pre-specified hours of operation from the date of purchase, whichever comes first.

* Not all repair work is covered by this extended warranty program.

Please refer to the latest Non-linear Compatibility 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). 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, 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.

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Panasonic®

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JQA-Q443



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