

**Panasonic**  
ideas for life

**P2HD**

**AJ-HPM200**  
Memory Card Portable Recorder/Player



**AVC INTRA** **DVC PRO HD** **DVC PRO 50** **DVC PRO** **IX** **AVCHD**

# The Network-Ready P2 Mobile Has Evolved Now with Newly Upgraded Functions

Panasonic's P2 Mobile already sees wide use in professional broadcasting and video production. Used in OB vans, on desktops and in studios, this portable recorder is ideal for news gathering and countless other applications. Now the P2 Mobile has evolved further, adding a host of new functions highlighted by network compatibility. The new AJ-HPM200 comes equipped with Gigabit Ethernet and eSATA interfaces for high-speed data transfer. It connects to the Internet, allowing file transfer without a PC. For high-image-quality recording, it comes standard with AVC-Intra, the latest broadcast video codec. The AJ-HPM200 is also the first P2HD device to support the AVCHD

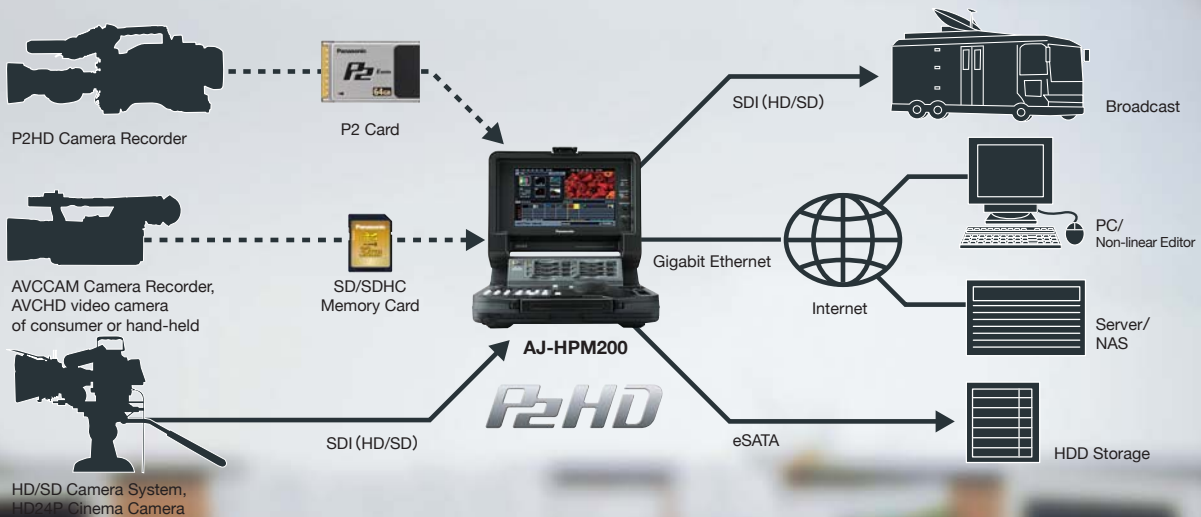
codec (the optional AJ-YCX250G codec board is required), which makes it possible to record and play P2HD and AVCHD files, and to convert files between the two formats.

The upgraded AJ-HPM200 also features an enhanced playlist function with easy, intuitive operation, and a newly evolved editor graphical user interface (GUI) that also improves ease of use.

Providing powerful support for P2HD recording, field editing, HD news flash broadcasting through file transfers, data backup and more, the AJ-HPM200 is a high-speed, high-image-quality solution to a wide range of broadcasting and video production needs.







- Comes standard with AVC-Intra codec for superior image quality and efficiency.
- Equipped with a Gigabit-Ethernet-compatible server/client function for direct network connection.
- Upgraded editing functions and intuitive nonlinear GUI for enhanced editing operation.
- Capable of playing\* content and copying it at high-speed to an external eSATA/USB hard disk drive.
- Equipped with AES/EBU digital audio input/output, as well as SDI (HD/SD).
- AVCHD compatibility for simultaneous P2HD/AVCHD recording and cross-conversion (optional).

\* Play back is based on a best-effort basis. Panasonic does not guarantee smooth playback without frame drops.

## P2 Memory Card Recorder: Lower Operating Costs, Better for the Environment

### P2 Reduces Total Cost of Ownership

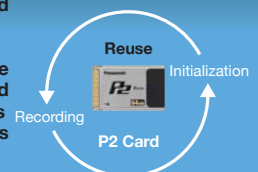
- (1) Faster, easier editing because digitization is not necessary
- (2) Lower media costs because memory cards are reusable
- (3) Lower maintenance costs because there is no moving mechanism

Reducing editing, media and maintenance costs, P2 can help improve your bottom line. Users can also take advantage of a special five-year free-repair service program that Panasonic offers for P2 HD equipment.



### The P2 Card Helps Preserve the Environment: Repeated Reusability and Low Power Consumption

Allowing repeated file copying and initialization, a single P2 card can be used and re-used, again and again. When combined with an IT-based workflow that requires no dubbing, P2 cards can greatly reduce storage media expenses. And because a memory card recorder has no moving mechanism, it uses less power. For example, the AJ-HPM200 uses about 58% less power than the tape-based AJ-LT95 recorder.



MULTI-FORMAT RECORDING AND PLAYBACK SYSTEM – COMES EQUIPPED WITH AVC-INTRA AND SUPPORTS 24PsF

**AVC-Intra Codec**

AVC-Intra is the latest codec that further advances HD production.

It complies with the MPEG-4 AVC/H.264 international standard based on advanced image compression technology, and offers both superb image quality and highly efficient compression. It uses an intra-frame compression system to bring important advantages to professional editing. The AJ-HPM200 can record in AVC-Intra 100 for maximum picture quality or in AVC-Intra 50, which has a lower compression rate, for versatile operation. It also supports DVCPRO HD codec recording.



- AVC-Intra 100: With the same bit rate as DVCPRO HD, this mode supports full 10-bit recording with 1920 x 1080\* pixels. It captures master-quality video for high-end video production.

- AVC-Intra 50: This mode delivers video quality very similar to DVCPRO HD with 1440 x 1080\* pixels, yet is able to do so at bit rates usually associated with standard definition (e.g., DVCPRO 50). AVC-Intra 50's lower bit rate doubles the recording time and cuts the transferring time in half.

\*These figures are for 1080 mode. The AJ-HPM200 also supports 720p mode.

**Up-/Down-/Cross-Conversion**

The AJ-HPM200 can convert up or down between HD and SD or cross-convert between 720p and 1080i during playback. It can also up-convert SD input for recording in HD, and it features an aspect conversion function.

\*The cross-converter function is disabled during up-conversion recording. During up-conversion recording, the closed caption signal in the SD signal is recorded as a 608-format HD (VANC) signal (59.94 Hz only). The closed caption signal is not output on SDI during up-conversion, down-conversion or cross-conversion playback.

**24PsF Compatible, HD/SD Multi-Format**

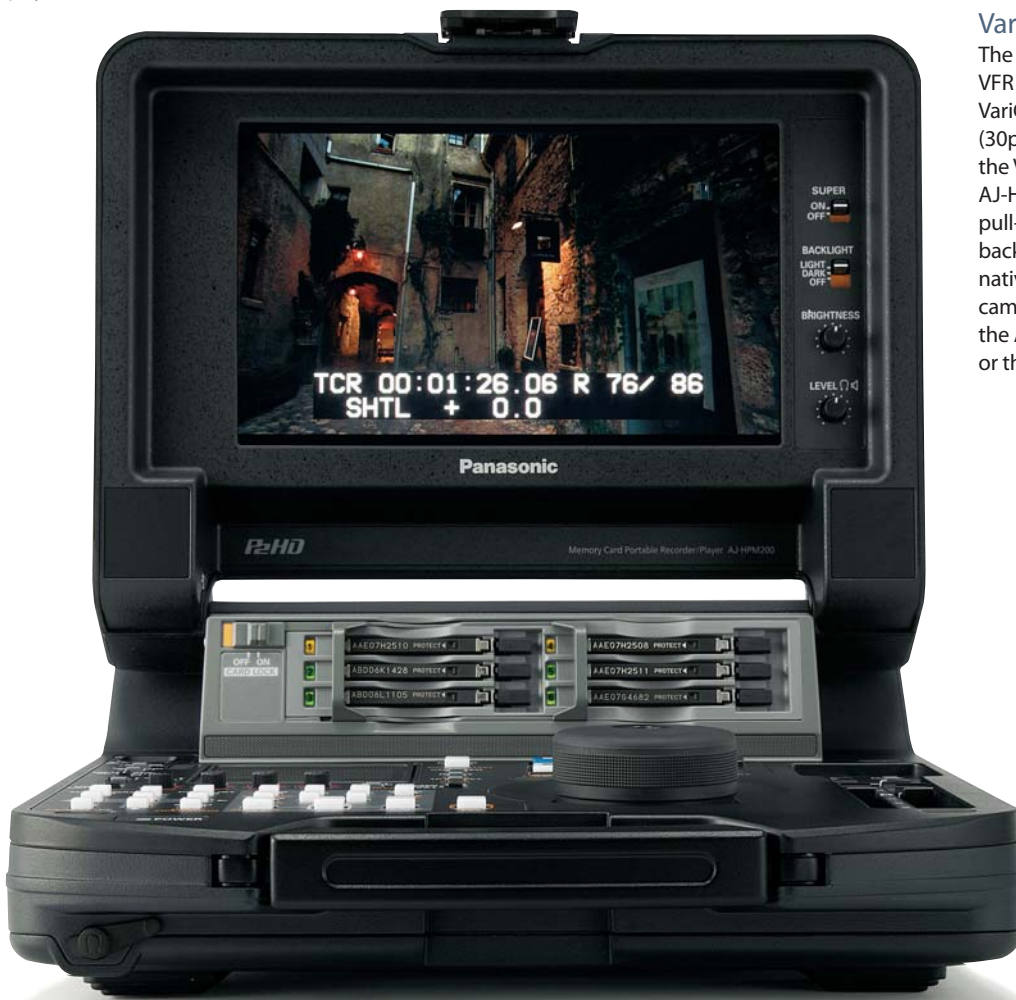
Supporting a wide range of HD formats, such as 1080p, 1080i and 720p, the AJ-HPM200 can be switched to 59.94 Hz or 50 Hz to adapt to the world's HD broadcasting formats. The AJ-HPM200 supports 1080/24p (30p/25p) recording and playback with the AVC-Intra codec. In HD SDI mode, it supports 1080/24PsF input/output for use in high-end movie production. It also supports SD, and multi-codec recording (DVCPRO 50, DVCPRO, DV) is possible in both NTSC (480i) and PAL (576i).



**Gamma Conversion Function for Cinema Production**

The AJ-HPM200 provides a simple, low-cost solution for producing cinema or film-like video. It has two modes (GAMMA 1\*, GAMMA 2\*) for converting source materials recorded using the FREC mode and gamma curve into video images with a film-like tone. There's also a GAMMA 3 (Cineon) mode for converting data into a gamma curve suitable for film recording.

\* Same as the AJ-GBX27G HD gamma corrector's modes: GAMMA 1 = TELECINE 5 and GAMMA 2 = TELECINE 6



**VariCam Speed Effects**

The AJ-HPM200 can extract active frames from VFR (variable frame rate) signals output by a VariCam and record them in 720/24p (30p/25p). The built-in monitor lets you check the VFR effect during playback. The AJ-HPM200 can also provide VariCam-like 60p pull-down output (50p from 25p) by playing back a video clip in a P2 card recorded in native 720/24p (30p/25p) by P2HD camcorders AJ-HPX2700, AG-HPX500 series, the AG-HPX300 series, the AG-HPX170 series or the AG-HVX200A series.

## Input Signals and Corresponding Recording Formats

HD/SD Input Signal	HD Recording Format	Recording Time (With Six 64 GB P2 cards)			SDI Output**		
		AVC-Intra100	AVC-Intra50	DVCPRO HD	1080	720	480/576
1080/59.94i	1080/59.94i	384 min.	768 min.	384 min.	1080/59.94i	720/59.94p	480/59.94i
1080/50i	1080/50i	384 min.	768 min.	384 min.	1080/50i	720/50p	576/50i
1080/29.97PsF	1080/29.97pN**3	384 min.	768 min.	—	1080/29.97PsF	720/29.97PsF over 59.94p	480/29.97PsF over 59.94i
	1080/59.94i	—	—	384 min.			
1080/23.98p over 59.94i**2	1080/23.98pN**3	480 min.	960 min.	—	1080/23.98PsF 1080/23.98p over 59.94i	720/23.98p over 59.94p	480/23.98p over 59.94i
	1080/59.94i	—	—	384 min.			
1080/23.98PsF	1080/23.98pN**3	480 min.	960 min.	—	1080/23.98PsF	—	—
1080/24PsF	1080/23.98pN**3	480 min.	960 min.	—	1080/24PsF	—	—
1080/25PsF	1080/25pN**3	384 min.	768 min.	—	1080/25PsF	720/25PsF over 50p	576/25PsF over 50i
720/59.94p	720/59.94p	384 min.	768 min.	384 min.	1080/59.94i	720/59.94p	480/59.94i
720/50p	720/50p	384 min.	768 min.	384 min.	1080/50i	720/50p	576/50i
720/29.97p over 59.94p**2	720/29.97pN**3	768 min.	1536 min.	768 min.	1080/29.97PsF	720/29.97p over 59.94p	480/29.97p over 59.94i
720/23.98p over 59.94p**2	720/23.98pN**3	960 min.	1920 min.	960 min.	1080/23.98PsF	—	—
720/24p over 60p**2	720/23.98pN**3	960 min.	1920 min.	960 min.	1080/24PsF	—	—
720/25p over 50p**2	720/25pN**3	768 min.	1536 min.	768 min.	1080/25PsF	720/25p over 50p	576/25p over 50i
720/25p over 60p**2	720/25pN**3	768 min.	1536 min.	768 min.	1080/25PsF	720/25p over 50p	576/25p over 50i
480/59.94i	1080/59.94i	384 min.	768 min.	384 min.	1080/59.94i	—	480/59.94i
	720/59.94p	384 min.	768 min.	384 min.	—	720/59.94p	480/59.94i
576/50i	1080/50i	384 min.	768 min.	384 min.	1080/50i	—	576/50i
	720/50p	384 min.	768 min.	384 min.	—	720/50p	576/50i

SD Input Signal	SD Recording Format	Recording Time (With Six 64 GB P2 cards)		SDI Output**		
		DVCPRO 50	DVCPRO/DV	1080	720	480/576
480/59.94i	480/59.94i	768 min.	1536 min.	1080/59.94i	720/59.94p	480/59.94i
480/29.97p over 59.94i	480/59.94i			1080/29.97PsF	720/29.97p over 59.94p	480/29.97p over 59.94i
480/23.98p over 59.94i	480/59.94i			1080/23.98PsF**4	720/23.98p over 59.94p	480/23.98p over 59.94i
				1080/23.98p over 59.94i		
576/50i	576/50i	—	720/50p	576/50i		
576/25p over 50i	576/50i	—	720/25p over 50p	576/25p over 50i		

\*1: Settings must be made on the menu screen (system frequency mode). \*2: 2-3, 2-3-3-2 or 2-2 pull-down output signal from P2HD Camera Recorder or DVCPROHD Camera recorder.

\*3: N=Native This mode records only effective frames. \*4: Output is produced only when the playback system frequency is set to 23.98 or 59-23.

### AVC-Intra Technology: Intra-Frame (I-Frame Only) Compression

Motion-image compression can be divided roughly into two methods: I-Frame Only compression, which completes all processing within each frame, and Long GOP compression, which processes across multiple frames. AVC-Intra uses I-Frame Only compression.

When the images of adjacent frames are similar, Long GOP compression achieves an advantageously low bit rate. However, this trait is not often seen in broadcasts like fast-action sports, and music shows with confetti and electronic displays. Also, because processing is performed frame-by-frame in I-Frame Only, new-generation multi-core CPUs offer high-speed parallel processing. This makes I-Frame Only compression more suitable for nonlinear editing than Long GOP, for which parallel processing is difficult due to its inter-frame dependence. With its I-Frame Only compression, AVC-Intra produces remarkably stable images that are unaffected by adjacent frames, and meets professional needs in virtually all situations and workflows.

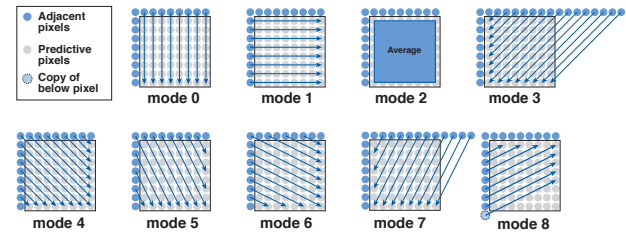
### AVC-Intra Technology: Twice the Compression Efficiency of MPEG-2

By selecting the most effective compression techniques from among those in compliance with the H.264 standard, AVC-Intra has doubled the compression ratio of MPEG-2. Its two methods are particularly effective for boosting compression efficiency.

### Intra-frame predictive coding (intra prediction)

This process generates predictive images based on adjacent blocks of 8 x 8 pixels. Selecting the most suitable predictive mode from among nine luminance signal modes (see illustration) and four color signal modes, it generates accurate predictive images. The residual data (obtained by

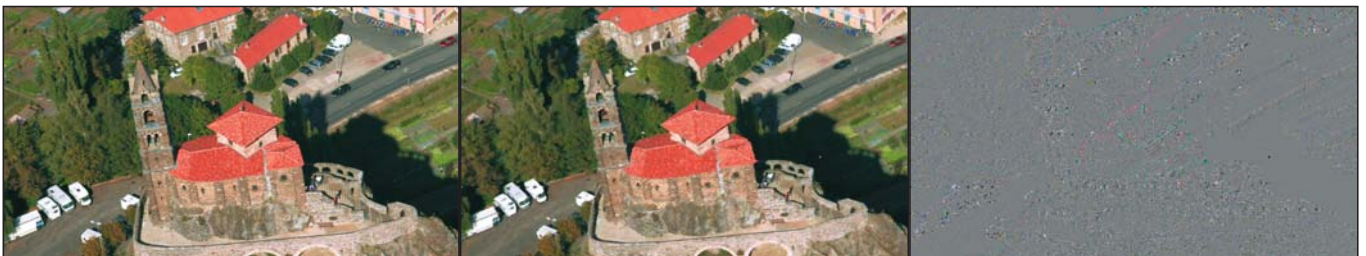
subtracting a predictive image from the original input image) is recorded together with the predictive image. Because the prediction accuracy is high, there's minimal residual data, and thus high compression is achieved. This process is conducted within the frame, so prediction accuracy remains high even with fast-motion images.



### Context-adaptive entropy coding

The entropy coding process used in MPEG-4 AVC/H.264 utilizes CAVLC (Context Adaptive VLC) and CABAC (Context Adaptive Binary Arithmetic Coding), both of which are context adaptive. MPEG-2 uses a fixed table when performing the VLC coding, with the result that compression efficiency is low with some types of images. In context-adaptive coding, on the other hand, operation varies with different kinds of images and high compression efficiency is maintained at all times.

For further information about MPEG-4 AVC/H.264, including an explanatory video, please visit: <https://eww.pavc.panasonic.co.jp/pro-av/technology/>



Sample Images of Intra-Frame Prediction

Left: Original image Center: Intra-frame predictive image Right: Difference image obtained from subtracting the intra-frame predictive image from the original image. This shows the high accuracy of intra prediction.



NEW GUI FOR EASIER PLAYLIST EDITING  
ENHANCED RECORDING, PLAYBACK AND EDITING FUNCTIONS

Reliable, Low-Cost P2 Card with 64 GB Capacity

The P2 card offers a large capacity of up to 64 GB\* in a small, lightweight package. Its rugged design withstands even harsh professional use. It is highly resistant to temperature fluctuations, dust, impact and vibration, and is free of the problems that are common in tapes, such as condensation, head clogging and dropouts. The P2 card promises solid reliability and excellent mobility under the often difficult conditions of field recording. Because data is automatically recorded in blank card spaces, there is no need for cueing and the risk of accidentally overwriting valuable data is eliminated. The newly released, low-cost E Series (AJ-P2E016XG, AJ-P2E032XG, and AJ-P2E064XG) provides a new level of convenience by meeting a wide range of user needs.



\*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.

Advanced Recording Functions Employing Six Card Slots

With its six card slots, the AJ-HPM200 will play a continuous, extended clip recorded in sequence onto six P2 cards. Or, you can mount five P2 cards, and output the playlist editing result to a sixth P2 card.

• Hot-swap rec: You can replace a full memory card with a blank one while recording onto another card. Successively swapping cards give you virtually unlimited recording capacity.

• Loop rec: This function continuously records video data onto available two or more P2 cards. When the cards become full, older data is deleted to free up the recording area, resulting in loss-less, endless recording. When used with cameras for time-sensitive information gathering like weather and news reporting, the loop rec function holds the latest video data for a predetermined time period.

\* For detailed recording times, see the table entitled "Input Signals and Corresponding Recording Formats" on page 5.

Clip Copying and Editing

P2 records a scene as a clip (file). To play back or delete a clip, or to check and edit its metadata (file information) or add or delete a shot marker, just select the clip from the thumbnail display on the built-in 9" LCD monitor. The AJ-HPM200 also provides a number of functions that are convenient in the field, including:

• Clip Copy: The multiple card slots let you copy clips from one P2 card to another. You can copy only the usable scenes to use the card's capacity more effectively.

• Thumbnail Image Change: At a desired location within a clip, you can change the thumbnail to a different image.

- Text Memo: When recording or previewing a clip, you can attach a memo (similar to a bookmark) at a desired location (up to 100 locations on a frame basis). The simplified editing function lets you copy a segment between memos and create a new clip. Text information can be added to a memo.
- Shot Marker: During or after recording, you can mark each clip with OK, NG or another designation.

Clip Metadata Function

A clip's metadata can contain such information as the camera operator's name, reporter's name and shooting location. By adding and recording metadata together with P2 content files, data can be efficiently managed, searched and edited. With the AJ-HPM200, metadata can be edited and created. When using a software keyboard or USB keyboard (optional), text data can be entered easily. You can also create a metadata upload file (produced with P2 Viewer software) on an SD/SDHC card, and load it as clip metadata.

New Playlist Editor GUI for Intuitive Operation

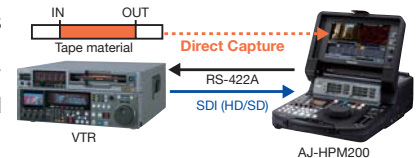
The P2 Mobiles playlist function enables speedy cut editing\* of up to 100 events (or a 24-hour timeline). The AJ-HPM200 features an all-new editor GUI. It can simultaneously display player-side (source material) thumbnails or a preview screen on the left side, a recorder-side (timeline) preview screen on the right side, and the timeline at the bottom. This allows smooth, intuitive operation for users familiar with nonlinear editors and users accustomed to conventional DVCPRO laptop editors.

\* No transition settings or effects are available.  
V fade between events can be set only for audio.

Direct Capture from an External VTR

The AJ-HPM200 is equipped with a Direct Capture function. It lets you set IN and OUT points on the player-side preview screen by controlling an external VTR connected via an RS-422A interface, and register or capture (digitization and clip creation) video footage directly onto the editing timeline.

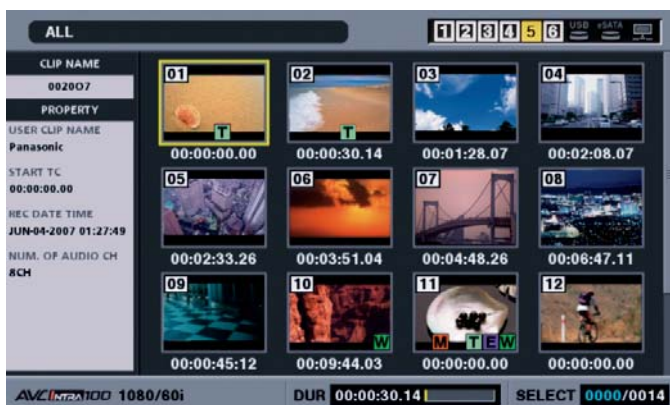
This allows quick P2HD production from tape sources in a linear-like fashion. Files on an external HDD (eSATA/USB connection) can be used as editing materials.



Playlist Editing Function and Others

• AV Independent Edit: From the video track and 4-channel audio track, a desired track can be selected and edited independently. Voiceovers for inserting a narration using a microphone is also possible.

• Insert Edit and Overwrite Edit: There are two editing modes -- the insert editing mode for inserting a new event between events and the overwrite editing mode for overwriting an existing event with a new event.



Example of a thumbnail list



Playlist preparation example 1: Displaying thumbnails



- Audio Level Adjustment of Desired Segment: By using the audio fader, the audio level of a desired segment can be adjusted.
- Editcopy function: Playlists can be saved as files and reused. The editcopy function can also write out the result of playlist playback as a separate clip. The AJ-HPM200 lets you edit and copy image data over multiple P2 cards or external eSATA/USB HDD for extended HD editing.

### Versatile Playback Functions Meet Diverse Needs

- Format Auto Playback: This automatically detects the video format and codec for each video clip to playback and output.
- Variable Speed Playback: For slow-motion and double-speed playback.
- Resume Playback: If you press the Stop key during playback, the AJ-HPM200 temporarily “bookmarks” the stop position until another operation is performed. When you press the Play key, playback resumes at the bookmarked position. The bookmark memory is reset when the power is turned off. The Resume Playback function is factory-set to OFF.
- Single-Clip Playback: This convenient function plays back one video clip with a one-touch operation.
- Repeat Playback: For presentations and demonstrations, use the AJ-HPM200 for repeated playback of a selected clip or multiple (but same format) clips. Playback is seamless, with no need for rewinding or cueing. There is no wear or image deterioration even after extended, continuous playback.

### Menu Settings and User File

Using the crosshair cursor buttons or jog dial, it's easy to select menu items and make settings on the LCD monitor. A user file containing up to five groups of settings can be saved or loaded. You can assign frequently used menu items to the four PF keys, then select them instantly with the touch of a finger.

### Edit Control Panel with Jog/Shuttle Dial and Audio Fader

Like a broadcast editor, the AJ-HPM200 is equipped with a jog and shuttle dial. You can shuttle search at 100x normal speed in forward or reverse and jog search within a range of -1x to +1x speed. Audio can be monitored up to 10x normal speed. Equipped with large audio fader levers, the AJ-HPM200 can be set the playback audio level easily. The control keys of the AJ-HPM200 are similar to those on a conventional editing controller, so you can perform editing operations, such as IN/OUT point registration, cue, review and trim, intuitively and accurately.

### Waveform or Vectorscope Display

The AJ-HPM200 has waveform and vectorscope display functions for the playback or input video signal on the LCD monitor. During up-conversion recording, the post-conversion waveform is displayed.



Playlist preparation example 2: Displaying player side and recorder side playback screens (with the player side selected)



Example of a waveform display

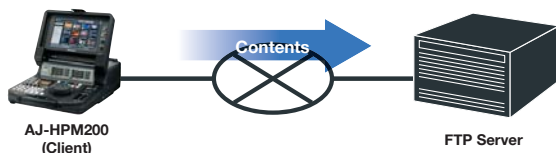


## NETWORK-READY INTERFACES AND AVCHD RECORDING, PLAYBACK, AND CONVERSION FUNCTIONS

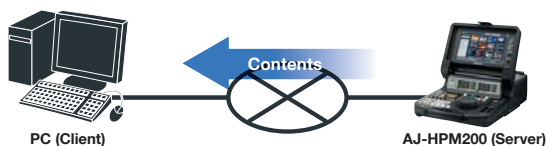
### Gigabit Ethernet for FTP Transfers

The AJ-HPM200 is provided with an Ethernet port (1000Base-T/100Base-TX/10Base-T) and features the following network functions. This enables the AJ-HPM200 to connect to a network without using a PC for easy file transfers over the Internet.

- **FTP Client Function:** This function lets you connect the AJ-HPM200 to an FTP server to send or receive clips to or from the FTP server. You can upload files from a P2 card or external hard disk to an FTP server, or download files from an FTP server to a P2 card or external hard disk. Files can be uploaded or downloaded easily by using thumbnails. SD/SDHC memory card can be transferred card by card only.



- **FTP/Samba Server Function:** Files can be downloaded from the P2 card in the AJ-HPM200 slot or from an external hard disk connected to the AJ-HPM200 by using a PC connected to the network.\*1



- **HTTP Server Function:** You can view thumbnails and metadata from a PC.\*1
- **WWW Browser Function:** You can access various web pages\*2 without a PC. It is also possible to enter authentication information (ID and password) for network access.

\*1: SD/SDHC memory cards cannot be accessed. In server mode, transferring the data into P2 card is not supported.

\*2: Some web pages may not be displayed properly due to content. Download functions on web pages cannot be used. Video clips on web pages or linked video files cannot be played.

### eSATA/USB2.0-Compatible HDD Host Function

In addition to USB, the AJ-HPM200 comes with an eSATA interface. This enables high-speed backup copying and data restoration at up to about 4x normal speed using an eSATA hard-disk drive. The maximum data transfer speed of the USB 2.0 port has been increased to approximately 2x normal speed. In device mode, the AJ-HPM200 can be used as a P2 card drive of a PC (nonlinear editor).



### Playback and Editing of Source Materials on a Hard Disk

Source materials on an external hard disk connected via eSATA or USB 2.0 can be played\* back smoothly from thumbnails. If the data reading speed decreases temporarily due to vibration or when using a low-speed hard disk, it is possible to output only audio for continuous playback. Source materials on a hard disk can also be used in playlist editing, just like source materials on a P2 card.

\* Playback is based on a best-effort basis. Panasonic does not guarantee smooth playback without frame drops.

### AVCHD Recording/Playback and P2HD/AVCHD Conversion (Option)

The AJ-HPM200 is the first P2HD recorder to offer compatibility with low bit rate AVCHD. When equipped with the optional AJ-YCX250G AVCHD codec board, the AJ-HPM200 can record and play back AVCHD files on an SD/SDHC memory card. It can also convert and copy files between P2HD and AVCHD at normal speed.

- **AVCHD Data Playback Output:** AVCHD can be played back on the built-in monitor and output from the HD SDI terminal. This function is useful for using an AVCCAM camera recorder or consumer AVCHD camera recorder.



- **P2HD/DVCPRO HD Simultaneous Recording:** HD SDI input can be recorded on a P2 card in the AVC-Intra/DVCPRO HD format and AVCHD format simultaneously. It is not possible to record in AVCHD format only.



- **AVCHD to P2HD Conversion:** Clips recorded by an AVCCAM camcorder can be converted and copied into the AVC-Intra/DVCPRO HD format for use in playlist editing with the AJ-HPM200 or a P2-HD-compatible nonlinear editor.

- **P2HD to AVCHD Conversion:** By copying P2HD clips into low bit rate AVCHD files, it is possible to perform transfer clips to a server at high speed or perform offline editing at high speed.

\*The clip metadata will not be copied by conversion copying.

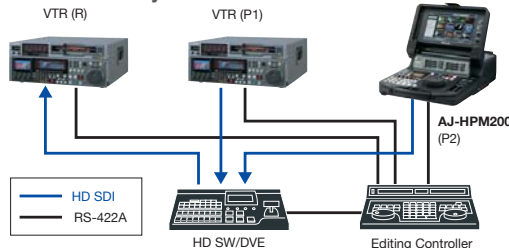


### RS-422A Remote

The AJ-HPM200 is equipped with an RS-422A remote terminal same as a broadcasting VTR. Using an external controller, this lets you operate the AJ-HPM200 as an editor-player.

\*Remote control with the RS-422A interface is not possible in AVCHD mode.

### RS-422A A/B Roll Edit System



### AES/EBU-Compatible, High-Quality Digital Audio

The AJ-HPM200 can record and play back high-quality, 16-bit/48-kHz digital audio. It comes with 4-channel AES/EBU digital audio input and output (BNC) terminals. This allows the connection of digital audio equipment with a 48-kHz sampling rate or digital VTR. Since the AJ-HPM200 supports SDI embedded audio, it can record and play back up to 8 channels.



## Rugged Casing

With its rugged casing and magnesium die-cast frame, the AJ-HPM200 is tough enough for go-anywhere field production. The rear connector section is protected by a cover. With the editing panel closed, the AJ-HPM200 is the size of a large briefcase and comes equipped with a metal handle for easy carrying. You can take it onboard an airplane as a carry-on.



## SD/SDHC Memory Card Slot

When using an SD/SDHC memory card, metadata can be imported and AVCHD files can be recorded and played.



Side Connector Panel

## Serial Digital Interface

The AJ-HPM200 has broadcast-standard SDI (HD/SD) input and output terminals. This allows it to handle a variety of operations, such as line recordings, studio production and on-air broadcasting. The input system can be separately selected for video and audio with the Input Select key on the front panel. The output supports display of titles and thumbnails.

## AC/DC

The versatile AJ-HPM200 runs on either 100 to 240 V AC or 12 V DC. Plug it in and you have an outstanding desktop recorder, or take the AJ-HPM200 outside and mount it in an OB van or carry it right into the field.

## IEEE 1394 Digital Interface

An IEEE 1394 digital interface comes standard on the AJ-HPM200. Connect a DVCPRO HD camera-recorder/VTR, and the AJ-HPM200 can input or output a DVCPRO-compressed stream with no image degradation.

\* Input/output is possible only when the system frequency mode is set to 59.94/50 Hz. Input/output is not possible in AVC-Intra and AVCHD mode.

## Analog Input/Output

The AJ-HPM200 is equipped with various analog I/Os: Composite In, Composite Out, Audio In/Out (4 channels), Audio Monitor Out (2 channels), Time Code In/Out and Reference Video In.



Rear Connector Panel

# FLEXIBLE WORKFLOW IN THE FIELD, ON A DESKTOP AND IN THE STUDIO FOR BROADCASTING AND MOVIE PRODUCTION

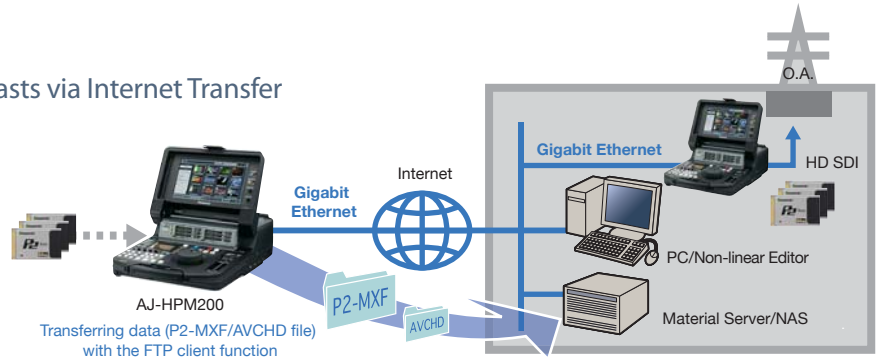
## FIELD RECORDING: As a Viewer and Editor

The AJ-HPM200 is extremely versatile. It can be used to preview P2HD recordings, field edit using the playlist function, and make backups on another memory card or external hard disk. When equipped with the optional AJ-YCX250G AVCHD codec board, the AJ-HPM200 can be used to view video recorded with an AVCCAM camcorder or consumer-type AVCHD camera-recorder or to convert files to or from the P2 format. The AJ-HPM200 easily operates in a mixed P2 and AVCHD environment.



## FIELD ACQUISITION: HD Newsflash Broadcasts via Internet Transfer

Equipped with an FTP client function, the AJ-HPM200 can connect directly to the Internet via Gigabit Ethernet. This lets you transfer files to the server of a broadcasting station. By converting files from P2HD to AVCHD (when equipped with the optional AJ-YCX250G AVCHD codec board), files can be transferred at high speed for newsflash broadcasts in HD.



## IN EDITING STUDIOS: Interfacing with Both Linear and Nonlinear Systems

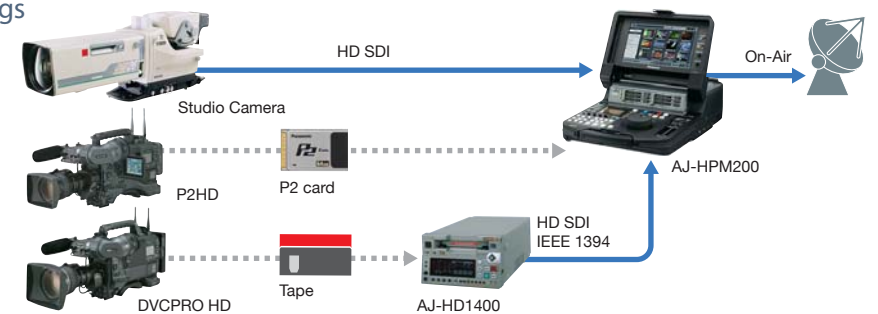
When connected to a nonlinear editor via USB 2.0, the AJ-HPM200 serves as a P2 drive.\* The RS-422A terminal lets you control a VTR player, while the Direct Capture function simplifies the production of P2 files from tape sources. The AJ-HPM200 helps to shift from tape-based to file-based workflows.

\*PCs must be installed with the included P2 driver in order to mount P2 cards. For editing, PCs must be installed with P2-compatible editing software available from various companies. Read "Notes Regarding the Handling of P2 Files Using a PC" on the back page.



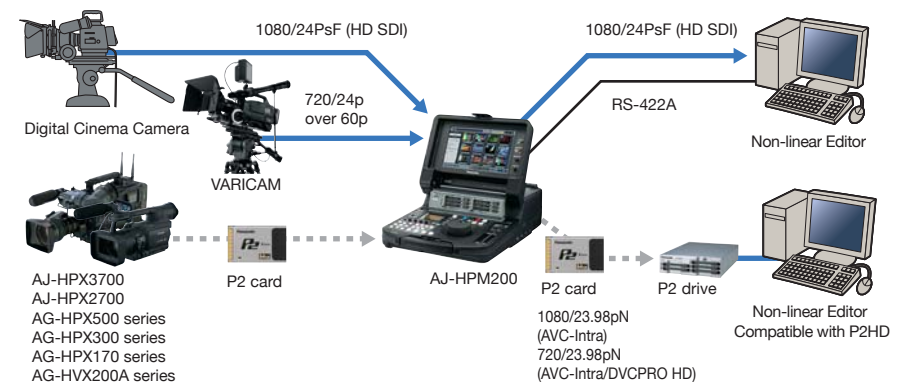
## OB VAN: Immediate Processing of Recordings

Compact, lightweight and versatile, the AJ-HPM200 lets you make effective use of the limited space in an OB van. Use it to make line recordings of SDI (HD/SD) input data, or for digital tape-to-card copying of DVCPRO HD data input via IEEE 1394. The AJ-HPM200 can combine the input content with a source recorded on a P2 card for relay broadcasts, and it expedites playlist transmission.



## CINEMA-LIKE PRODUCTION: 1080/24p Recording from Digital Cinema Cameras

The AJ-HPM200 can record signals from a digital cinema camera via the 1080/24PsF interface in native 1080/24p format using the AVC-Intra 100 or AVC-Intra 50 codec. It can also input signals of 720/24p over 60p from a VariCam and record them in native 24p. P2 cards containing 1080/24p recorded by the P2HD camera-recorder can be inserted into the AJ-HPM200 for direct transfer. The versatility of the AJ-HPM200 responds to a wide range of cinema and cinema-like program production needs.



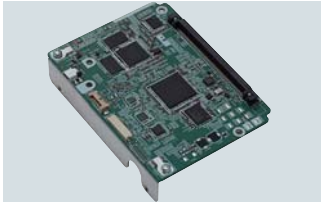
- AJ-HPX3700
- AJ-HPX2700
- AG-HPX500 series
- AG-HPX300 series
- AG-HPX170 series
- AG-HVX200A series

- 1080/23.98pN (AVC-Intra)
- 720/23.98pN (AVC-Intra/DVCPRO HD)



## AJ-HPM200 OPTIONAL EQUIPMENT

(As of September 2009)



**AJ-YCX250G**  
AVCHD Codec Board



**AJ-P2C064AG**  
**AJ-P2C032AG**  
**AJ-P2C016AG**  
Memory Card (P2 card A series)



**AJ-P2E064XG**  
**AJ-P2E032XG**  
**AJ-P2E016XG**  
Memory Card (P2 card E series)



**SD/SDHC Memory Card**

## AJ-HPM200 SPECIFICATIONS

(As of September 2009)

### General Specification

Power Source:	AC 100 V to 240 V, 50 Hz/60 Hz 60W DC 12 V/4.8 A
Operating Temperature:	0° C to 40° C (32° F to 104° F)
Operating Humidity:	10 % to 80 % (no condensation)
Weight:	6.6 kg (14.55 lbs)
Dimensions (W x H x D):	301 mm x 120 mm x 412mm (11-7/8" x 4-3/4" x 16-1/4" )
Recording Format:	AVC-Intra 100/AVC-Intra 50/DVCPRO HD/ DVCPRO 50/DVCPRO/DV/AVCHD*1 selectable
Recording Video Signal:	1080/59.94i, 1080/23.98p, 1080/24p,1080/29.97p, 1080/25p, 1080/50i, 720/59.94p, 720/50p, 480/59.94i, 576/50i
Recording Audio Signal:	AVC-Intra100/AVC-Intra50/DVCPRO HD: 48 kHz 16 bits 8 CH DVCPRO50: 48 kHz 16 bits 4 CH DVCPRO/DV: 48 kHz 16 bits 2/4 CH selectable
Recording Media:	P2 card
Recording/Playback Time*2:	[AVC-Intra100/DVCPRO HD] using 6 card slots
64 GB Card	by single card Approx. 64 min.
32 GB Card	Approx. 32 min.
16 GB Card	Approx. 16 min.
Recording/Playback Time*2:	[AVC-Intra 50/DVCPRO 50] using 6 card slots
64 GB Card	by single card Approx. 128 min.
32 GB Card	Approx. 64 min.
16 GB Card	Approx. 32 min.
Recording/Playback Time*2:	[DVCPRO/DV] using 6 card slots
64 GB Card	by single card Approx. 256 min.
32 GB Card	Approx. 128 min.
16 GB Card	Approx. 64 min.

### Video Specification (Digital Video)

Sampling Frequency:	AVC-Intra 100/DVCPRO HD (59.94 Hz): Y:74.17586 MHz, P <sub>B</sub> /P <sub>R</sub> :37.0879 MHz (50 Hz): Y:74.2500 MHz, P <sub>B</sub> /P <sub>R</sub> :37.1250 MHz DVCPRO 50: Y:13.5 MHz, P <sub>B</sub> /P <sub>R</sub> :6.75 MHz DVCPRO: Y:13.5 MHz, P <sub>B</sub> /P <sub>R</sub> :3.375 MHz
Quantizing:	AVC-Intra 100/AVC-Intra 50: 10 bits DVCPRO HD/DVCPRO 50/DVCPRO/DV: 8 bits
Compression Format:	AVC-Intra 100/AVC-Intra 50: H.264/AVC Intra Profile DVCPRO HD: DV-Based Compression (SMPTE 370M) DVCPRO 50/DVCPRO: DV-Based Compression (SMPTE 314M) DV: DV Compression (IEC61834-2)
Color Sampling:	AVC-Intra100: Y:P <sub>B</sub> :P <sub>R</sub> = 4:2:2
Resolution:	AVC-Intra 100: 1920 x 1080 (1080/59.94i, 1080/50i) 1280 x 720 (720/59.94p, 720/50p) 1440 x 1080 (1080/59.94i, 1080/50i) 960 x 720 (720/59.94p, 720/50p)

### Video Input Signal

Analog Composite Input:	BNC x 1 (VIDEO IN), 1.0 V[P-P] (75 Ω)
Reference Input:	BNC x 1 (loop-through x 1), Black Burst/HD 3 value SYNC, 75 Ω auto
SDI (HD/SD) Input:	BNC x 1, serial digital component HD Serial Digital: SMPTE 292M/296M/299M standard SD Serial Digital: SMPTE 259M-C/272M-A standard ITU-R BT.656-4 standard

### Video Output Signal

SD Analog Composite Output:	BNC x 1
SDI (HD/SD) Output:	BNC x 1, serial digital component HD Serial Digital: SMPTE 292M/296M/299M standard SD Serial Digital: SMPTE 259M-C/272M-A standard ITU-R BT.656-4 standard

### Video Adjustment Range

Output Gain:	-∞ to +3 dB or -∞ to +6 dB
Chroma Output Gain:	-∞ to +3 dB
Chroma Phase:	± 30°
Setup Level:	± 10%
Sink Phase:	± 15 μs
SC Phase:	± 180°

### Audio Specification (Digital Audio)

Sampling Frequency:	48 kHz (sync video)
Quantizing:	16 bits
Frequency Response:	20 Hz to 20 kHz, ± 1.0 dB (reference level)
Dynamic Range:	More than 85 dB (1 kHz, emphasis off, "A" weighted)
Distortion:	Less than 0.1% (1 kHz, emphasis off, reference level)
Cross Talk:	Less than -80 dB (1 kHz, between 2 channels)
Headroom:	20/18/12 dB switchable
De-emphasis:	T1=50 μsec, T2=15 μsec (on/off auto)

### Audio Input Signal

Audio (Analog) Input:	XLR x 4 (CH1/CH2/CH3/CH4), 600 Ω /high-impedance switchable, +4/0/ -3/ -20 dBu switchable LINE/MIC/MIC+48V switchable at CH2 MIC: -60 dBu, MIC+48 V: Phantom +48 V, -60 dBu
Digital Input:	BNC x 2 (CH1/2, CH3/4), AES/EBU format SMPTE 276M
SDI Input:	BNC x 1 HD Serial Digital: SMPTE 292M/296M/299M standard SD Serial Digital: SMPTE 259M-C/272M-A standard ITU-R BT. 656-4 (576/50i) standard

### Audio Output Signal

Audio (Analog) Output:	XLR x 4 (CH1/CH2/CH3/CH4), low-impedance, +4/0/ -3/ -20 dBu switchable
Digital Input:	BNC x 2 (CH1/2, CH3/4), AES/EBU format SMPTE 276M
SDI Output:	BNC x 1 HD Serial Digital: SMPTE 292M/296M/299M standard SD Serial Digital: SMPTE 259M-C/272M-A standard ITU-R BT. 656-4 (576/50i) standard
Monitor Output:	Pin jack x 2, -8 dBV, 600 Ω
Headphones:	Stereo mini jack (3.5 mm diameter), 8 Ω, variable level

### Other Input and Output

Time Code Input:	BNC x 1, 0.5 V[P-P] to 8.0 V[P-P], 10 k Ω
Time Code Output:	BNC x 1, 2.0 V[P-P] ± 0.5 V[P-P], low impedance
RS-422A Input:	D-sub 9pin, RS-422A Interface
IEEE 1394 Input/Output:	6-pin x 1, 400/200/100 Mbps switchable IEEE 1394-1995 standard IEC 61883-Part1, Part2 standard SMPTE 396M standard AV/C Command Set standard
USB2.0:	Host x 1, Device x 1
LAN:	1000BASE-T/100BASE-TX/10BASE-T x 1
eSATA:	eSATA 3Gbit port x 1

\*1: When an AJ-YCX250G AVCHD codec board (optional) is installed.

\*2: All of the above times apply when single clips are recorded continuously one after the other on the P2 card. Depending on the number of the clips to be recorded, the recordable time may be shorter than the times given above.

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

# P2 Asset Support System The member's service program

Providing necessary information when you need it

P2 Asset Support System assists your P2HD use by providing extended warranty repairs & various technical information (update notices, operation guides, etc.) upon registration.

**Free registration, no membership fees**

**5-year extended warranty repairs**

Exclusive offer for P2HD!

Maximum 5-year extended warranty repairs are applied for P2HD models after registration. Several other services are also provided to members.



1st year	2nd year	3rd year	4th year	5th year
Basic warranty**	P2HD Extended warranty repair**			

**Latest news only for you**

In the member's web site, information is selected and presented for your models only. To be alerted to new firmware information and other releases, an email newsletter can be subscribed to.

**Document library**

You can filter through and find various technical information (operation guides, technical descriptions, etc.) quickly from the library.

**Manage your equipment**

You can easily know the update status and past service history of each unit, and can leave comments in free text as memos about your equipment.

\* Not all models are eligible for extended warranty coverage.

\* Please note that this extended warranty is not available in some countries/region see website below for the details.

\*1: The basic warranty period may vary depending on the country/region see enclosed warranty card for warranty coverage.

\*2: Not all repair work is covered by this extended warranty see enclosed warranty card for warranty coverage.

The maximum warranty period may be adjusted depending on the number of hours the device has been used.

Details and user registration: [http://panasonic.biz/sav/pass\\_e](http://panasonic.biz/sav/pass_e)

Please refer to the latest Non-linear Compatibility Information, P2 Support and Download and Service Information, etc. at panasonic web site.



<https://www.pavc.panasonic.co.jp/pro-av/index.html>

## 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. The included P2 driver is compatible with Windows Vista, Windows XP, Windows 2000 and Mac OSX. 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 web site. Visit <https://www.pavc.panasonic.co.jp/pro-av/> 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 software (downloadable for free, for Windows only) or P2 CMS content management software (downloadable for free, for both Windows and Mac), both from Panasonic, or P2-compatible editing software available from other companies (for details, visit [https://www.pavc.panasonic.co.jp/pro-av/sales\\_o/p2/partners.html](https://www.pavc.panasonic.co.jp/pro-av/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 or P2 CMS download and operating requirement information, visit <https://www.pavc.panasonic.co.jp/pro-av/>. For operating requirements and details of other P2 editing software, visit the website of the relevant software manufacturer.

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

SP-HPM200PE1



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