Panasonic
ideas for life

AG-HPX300 *series*

Memory Card Camera Recorder
(AG-HPX302/AG-HPX303/AG-HPX304)

P2HD

*Shown above with Standard Lens,Permanetly-set Viewfinder, Optional Microphone, and Optional Battery.

AVC-INTRA DVCPRO HD DVCPRO 50 DVCPRO DV

IN A


Panasonic
P2HD
AUDIO OUT
CH 1
CH 2
TC IN
GENLOCK IN
SDI OUT 2
TC OUT
VIDEO OUT

FIELD OF ITS OWN

WORLD'S FIRST* AVC-INTRA CAMERA-RECORDER WITH1/3-INCH, 2.2-MEGAPIXEL IMAGE SENSOR

*According to a Panasonic study, as of February 2009

Panasonic brings professionals a new style of camera-recorder. The AG-HPX300 series debuts with a totally redesigned body that's compact, lightweight and has a low center of gravity. Mobility is outstanding. Operation is easy. And the AG-HPX300 series comes packed with Panasonic's most advanced P2 HD technology. Featuring a newly designed image sensor, the AG-HPX300 series supports AVC-Intra, the newest motion image compression codec in addition to the DVCPRO codecs. Data is recorded onto reliable P2 memory cards. With its high picture quality, superb image rendering, long recording time, easy operation and flexible adaptability to IT, the AG-HPX300 series is a powerful answer to today's advanced video production demands. It also offers low operating costs and high environmental performance.

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

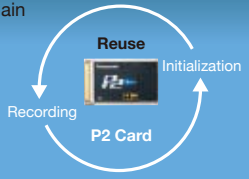
P2 Reduces Total Cost of Ownership

(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

By 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

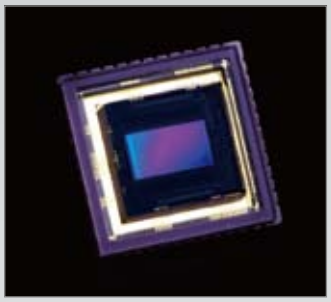
Allowing repeated file copying and initialization, a single P2 card can be used and re-used, again and again. When combined with an IT-based workflow that requires no dubbing, P2 cards can greatly reduce storage media expenses. And because a memory card recorder has no moving mechanism, it uses less power. For example, the AG-HPX300 series uses about 54% less power than the tape-based AJ-HDX900 camcorder.



Camera Section

The AG-HPX300 series features a newly developed camera section with a 2.2-megapixel image sensor and 20 bit digital signal processor. Image quality is outstanding.

Newly Developed 2.2-Megapixel Image Sensor



The AG-HPX300 series boasts the 3 Full HD MOS image sensors for RGB. They are 1/3-inch, 2.2-megapixel (1920 x 1080) image sensors which is capable of acquiring full-HD images. This new sensor and Newly designed signal process LSI is the key technology behind the AG-HPX300 series superior picture quality. It also helps make possible the compact size, light weight and low power consumption that distinguish the AG-HPX300 series.

Fujinon High-Performance 17x Zoom Lens

The AG-HPX300 series comes equipped with a Fujinon 1/3-inch 17x zoom lens. Optimized for use with the AG-HPX300 series, this high-performance HD lens incorporates advanced broadcast lens technologies to achieve a compact size, light weight, 4.5 mm f-value at the wide end, and excellent zoom response. The zoom is comfortable to grip and use. Also, quick zoom and autocruising zoom functions can be allocated to the VTR and RET switches.

Chromatic Aberration Compensation (CAC)

This exclusive technology sets up a conversation between lens and camera which allows for a highly sophisticated algorithm to be deployed that will automatically compensate the registration error that is caused mainly by lens chromatic aberration, and minimize the circumjacent blur.

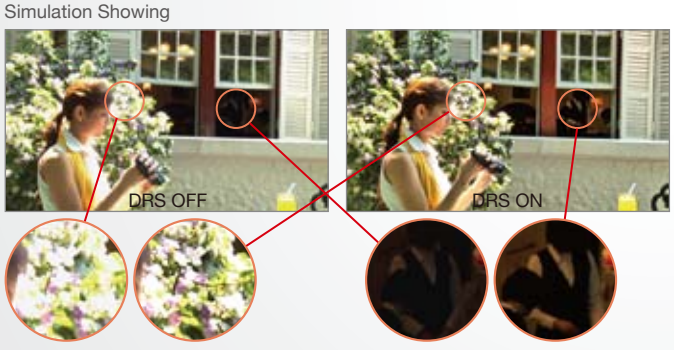
Simulation Showing the CAC (Chromatic Aberration Compensation) Effect

Full screen | CAC OFF | CAC ON

Dynamic Range Stretch (DRS)

In scenes with mixed contrast, such as when panning from indoors to outdoors, the DRS function automatically suppresses blocked shadows and blown highlights. A gamma curve and knee slope are estimated to match the contrast of each pixel, and applied in real time. When dark, bright, and intermediate shades are all contained in the same scene, this produces excellent gradation for each shade and minimizes blocked shadows and blown highlights. The images that result are enhanced by a visually wide dynamic range. *The DRS function does not operate in 1080/25p mode.

Simulation Showing



Blown highlights are suppressed.

Blocked shadows are suppressed.

3-Position Gain Selector / 24dB Gain-Up Function

There is a 3-position gain selector, with L, M and H settings. To each setting you can assign a gain value from –3 dB to 12 dB, in 3 dB steps. There is also a USER button –- just give it a quick touch to instantly boost the gain by 24 dB.

Newly Developed 20 bit Digital Signal Processor

The AG-HPX300 series incorporates a high-performance 20 bit DSP that handles image rendering processes such as gamma and various detail enhancement functions with exceptional precision. Consuming less power than conventional processors, the new DSP contributes to the AG-HPX300 series outstanding environmental performance.

Scene File Dial

Set this dial for an instant set of shooting conditions. Six preset files are provided, and you can change any of the six file names and their settings as desired. You can also store and load the settings to an SD card.

• File Description	
F1: —	Standard settings
F2: FLUO.	Indoor shooting under fluorescent lights
F3: SPARK	Highlighting subjects at receptions, dinners etc.
F4: B-STR	Enhanced gradations of luminance in low light scenes
F5: CINE V	Cine-Like setting shifted to prioritize contrast*
F6: CINE D	Cine-Like setting shifted to prioritize dynamic range*

*Selecting this file does not change the video recording format. If you want to switch 25p, you must do so as a separate procedure.

Slow, Synchro and High-Speed Shutter

The shutter speed can be set between 1/6.25 second on the slow end and 1/2000 second on the fast end. Used with the variable frame rate function, this allows you to create a blurring effect or crystal-clear stop-motion of sports action. The AG-HPX300 series also features a synchro scan function for capturing screen shots from a computer monitor.

Advanced Image Adjustments Built-In

- Matrix setting including a Cine-Like mode
- Adjustable H detail level, V detail level, detail coring and skin tone detail
- Adjustable chroma level, chroma phase, color temp and master pedestal
- Knee point settings: Auto, Low, Mid and High
- User files can be saved to an SD card and shared with other cameras.
- 4-position (off, 1/4 ND, 1/16 ND, 1/64 ND) optical neutral density filter wheel

Cine-like Functions

The gamma, variable frame rate and other advanced functions let you capture images with a cinema-like feel, expanding your creative and expressive possibilities.

7-Mode Gamma for Richer Gradation

Drawing on technologies developed for the VariCam, Panasonic has equipped the AG-HPX300 series with advanced gamma functions that address seven different shooting scenarios and enhance your creative abilities. This includes the Cine-Like Gamma, which produces the characteristic tone of film recordings.

AG-HPX300 series Gamma Modes

HD NORM:	Suitable for standard HD recording
LOW:	Works to flatten out a high contrast scene
SD NORM:	Normal setting for SD
HIGH:	Provides more contrast and color gradation
B.PRESS:	Provides more contrast and blacks in low contrast scenes
CINE-LIKE D:	The Cine-Like mode shifted to prioritize dynamic range
CINE-LIKE V:	The Cine-Like mode shifted to prioritize contrast

VIDEO GAMMA

CINE-LIKE GAMMA

20-Step Variable Frame Rate

Like the VariCam, the AG-HPX300 series allows undercranking and overcranking common in film cameras, to create fast-motion and slow-motion effects. In 720p mode,* the frame rate can be set to any of 20 steps.

*In 1080 and 576 modes, the frame rate can be set only to 25p.

Frame Rate	Speed Effect in 25p base
12p	208% (Quick)
15p	167% (Quick)
18p	139% (Quick)
20p	125% (Quick)
21p	119% (Quick)
22p	114% (Quick)
23p	109% (Quick)
24p	104% (Quick)
25p	100% (Standard)
26p	96% (Slow)
27p	93% (Slow)
28p	89% (Slow)
30p	83% (Slow)
32p	78% (Slow)
34p	74% (Slow)
37p	68% (Slow)
42p	60% (Slow)
45p	56% (Slow)
48p	52% (Slow)
50p	50% (Slow)

• **Normal cinematic shooting** (at 25 fps) refers to the near rate of used in film cameras. The AG-HPX300 series can record in 1080/25p or 576/25p (over 50i) mode, as well as 720/25p mode. 25 fps is the standard frame rate used in the production of TV commercials, music videos and video software.

• **Higher-speed shooting** (at over 26 fps) produces slow-motion effects. This is especially effective for high-action scenes like car chases or crashes, or to create a dramatic impact in a scene.

• **Lower-speed shooting** (at under 24 fps) lets you attain a fast-motion effect. This technique can be combined with a warp-speed effect to give special emphasis to flowing water, fast-moving clouds, etc.

Shown above is a sample of operation style.

Native and Over-50p Modes

• 720p Native Mode

In Native mode, the AG-HPX300 series records images at the frame rate set in the camera. For example in 25pN mode, it only records 25 frames instead of the normal 50 frames. Using the AG-HPX300 series to play back the recording at the normal rate, you can preview the speed effect right on the spot, without using a frame rate converter. Native mode also extends the recording time of a P2 card.

• 720p over 50p Mode

This is a mode for recording 50p-converted video. For example, in 25p mode, it records 50 frames by applying a 2:2 pulldown. The recording time is the same as in 1080i or 720p mode, but the unit can output a DVCPRO HD stream from the IEEE 1394 connector as it records.* This lets you produce a backup copy using a connected external P2 recorder such as AJ-HPM110 or AG-HPG20, DVCPRO HD recorder or hard-disk recorder such as the Focus Enhancements FireStore FS-100.

*Only when the recording format is DVCPRO HD. There is no output when the AVC-Intra codec is used.

1080/576 25p Shooting Mode

The 1080 and 576 progressive recording systems convert recordings to 50i in 25p shooting mode. The 25p shooting mode uses 2:2 pulldown and performs 25p/50i conversion with minimum image degradation when recording data is uploaded via an IEEE 1394 interface to a compatible nonlinear editing system. This lets you maintain superior image quality throughout the production process.

Scan Reverse Function for Use with Film Lenses

The AG-HPX300 series comes with scan reverse. This function cancels the image inversion that occurs when a Cinema lens adaptor is used.

AVC-Intra Codec

High-quality 1920 x 1080 pixel, 10 bit, 4:2:2 HD recording

Comes Equipped with AVC-Intra Codec

An AVC-Intra codec board is included as standard equipment. It allows recording in either of two modes: AVC-Intra 100, for full-pixel HD (1920 x 1080 and 1280 x 720) images, or AVC-Intra 50 for low-bit-rate, low-cost operation. AVC-Intra is a new 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.
In the AG-HPX300 series, a new single-chip digital signal processor is integrated with the AVC-Intra codec circuit. This is another way the AG-HPX300 series cuts power consumption.

High-Image-Quality AVC-Intra 100 Mode

With the same bit rate as DVCPRO HD, this mode supports full 10 bit recordings with 1920 x 1080 pixels. It enables the AG-HPX300 series to capture master-quality video for high-end video production.

Low-Bit-Rate AVC-Intra 50 Mode

This mode delivers video quality very similar to DVCPRO HD, 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 per P2 card over DVCPRO HD and lowers storage requirements for editing.

HD Multi-Format Capability, Including Native 25p

The AVC-Intra 100 and 50 codecs let you record in a choice of HD video formats: 1080/25p as well as 1080/50i. These HD formats bring extra flexibility to all of your production needs. The AG-HPX300 series also supports 720p recording for HD image production in a variety of formats, including 50p.

A sample image recorded by an AVC-Intra 100 codec. It is a still image captured from 1920 x 1080-pixel video recorded using 10 bit/4:2:2 sampling.

Selectable DVCPRO HD Recording

The AG-HPX300 series also supports the conventional DVCPRO HD codec. Because the AG-HPX300 series is designed to be used with the AG-HPX170/HVX200A or a DVCPRO HD VTR, it adapts to a variety of system configurations.

48-kHz/16 bit, 4-Channel Digital Audio

The AG-HPX300 series can record full 48-kHz/16 bit digital audio on all four channels. You can freely select the audio source for each channel, choosing from mic-in, line-in and wireless receiver.

AVC-INTRA TECHNOLOGY

Sample Images of Intraframe 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.

Intra-Frame (I-Only) Compression Superiority

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

The MPEG-4 AVC/H.264 standard encompasses both methods.

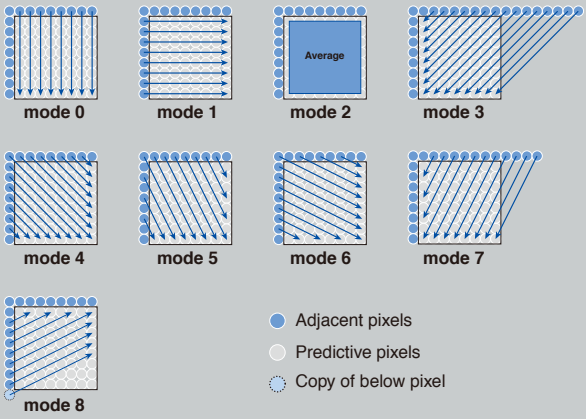
When the images of adjacent frames are similar, Long GOP compression achieves an advantageously low bit rate. However, this trait is not often seen in broadcasts like flash-filled press conferences, fast-action sports, and music shows with confetti and electronic displays. Also, because processing is performed frame-by-frame in I-Only, new-generation multi-core CPUs offer high-speed parallel processing. This makes I-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-Only compression, AVC-Intra produces remarkably stable images that are unaffected by adjacent frames, and meets professional needs in virtually all situations and workflows.

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, even with I-Only compression. Its intraframe predictive and context-adaptive entropy coding are particularly effective methods for boosting compression efficiency.

Intraframe 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

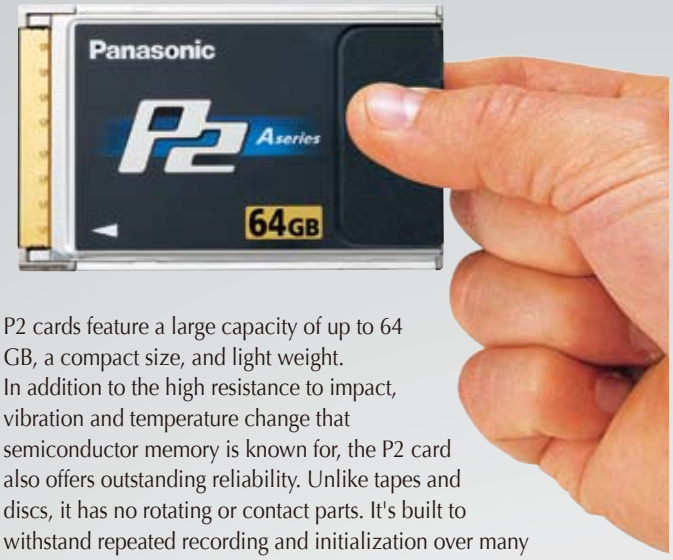
The entropy coding process used in MPEG-4 AVC/H.264 utilizes CAVLC (Context Adaptive VLC) and CABAC (Context Adaptive Binary Arithmetic Coding), both of which are context adaptive. MPEG-2 uses a fixed table when performing the VLC coding, with the result that compression efficiency is low with some types 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/

P2 Recorder Section

The P2 recorder section offers reliable, large-capacity, high-speed memory card recording and a number of advanced functions.

The P2 Card: Reliable, Reusable and with Extended Recording Time



P2 cards feature a large capacity of up to 64 GB, a compact size, and light weight. In addition to the high resistance to impact, vibration and temperature change that semiconductor memory is known for, the P2 card also offers outstanding reliability. Unlike tapes and discs, it has no rotating or contact parts. It's built to withstand repeated recording and initialization over many years of use. The P2 card connector is specifically designed to stand up to the repeated insertion and removal involved in professional use.

*Total card capacity includes space for data management such as system data; therefore, actual usable area is less than the capacity indicated on the card.

AG-HPX300 series Recording Format & Recording Time

HD Format	Pull down	Codec & Recording Time (with two 64 GB P2 Card)		
		DVCPRO HD	AVC-Intra 100	AVC-Intra 50
1080/50i	—	128 min.	128 min.	256 min.
1080/25p over 50i	2-2		—	—
1080/25pN (Native)*1	—	—	128 min.	256 min.
720/50p	—	128 min.	128 min.	256 min.
720/25p over 50p*2	2-2		—	—
720/257pN (Native)*1	—	256 min.	256 min.	512 min.
SD Format	**Pull down**	**Codec & Recording Time (with two 64 GB P2 Card)**		
		DVCPRO 50	**DVCPRO**	**DV**
576/50i	—	256 min.	512 min.	512 min.
576/25p over 50i	2-2			

*1: Native modes record only the effective frames.
*2: When you select 25 FRAME in VFR mode in DVCPRO HD 50p mode.

Immediate Startup and Better Data Protection

When you press the Record button in standby mode, the AG-HPX300 series instantly finds a blank area on the P2 card and begins recording. It can begin recording immediately even when you're using it to preview video. In normal use, there is no chance of accidentally overwriting a recording. Recordings will not be erased unless you intentionally delete a file or initialize the card.

Direct Upload to a PC or Nonlinear Editor

The AG-HPX300 series records the A/V data for each recording as a file on the P2 card, which eliminates the need for digitizing. The files can be used directly in a nonlinear editing system or transferred over a network or simply onto a Hard Disk Drive. The P2 card transfers data at a high speed, giving you faster, easier operation. The P2 card is convenient too — you can plug it directly into the card slot on certain laptops.

* 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.

Clip Thumbnail Function

The P2 HD camcorder automatically generates a thumbnail image for each clip. You can view thumbnails on the built-in color LCD monitor. Any of the clips can be accessed instantly. Thumbnail images can be paused, fast-forwarded, and reversed just like a tape, and unwanted cuts can be deleted by selecting and deleting the corresponding thumbnail image. You can also specify a number of clips for seamless playback* or on-air broadcasting. And if a shooting opportunity should arise during playback, the P2 HD cam lets you start recording immediately with no cueing required and no risk of accidentally overwriting valuable data.

* Seamless playback is not possible between clips recorded in different formats.

Advanced Recording Functions Employing Two Card Slots

In addition to continuous, double-card recording, the AG-HPX300 series also enables some useful recording functions that are possible only with memory cards.

- **Card selection:** The recording slot can be changed (sequential switching). This lets you review, organize, edit and transmit just-recorded content. Content can also be organized while shooting, by switching cards for each scene category.
- **Hot-swap rec:** Thanks to the two card slots, you can hot-swap P2 cards for continuous non-stop recording. With multiple cards you can record for hours without interruption.
- **Loop-rec*:** The real benefit of loop recording can only be dramatized when you don't know when the event is going to happen, you just know that it will. By allocating the open space on the cards the camera will continue to record over that area until the operator pushes the stop button, thereby assuring that the recording has been made, and the event captured.
- **Pre-rec*:** While in standby mode, you can continuously store, and subsequently record, up to 3 seconds in HD (7 seconds in SD). This will help you to get your shot every time.
- **Interval rec*:** This gives you automatic intermittent recording based on a set interval and recording time.
- **One-shot rec*:** This frame-shot recording function is useful for producing animations.
- **Rec review:** This lets you run a quick playback check of the 2 to 10 seconds that lead up to the end of the clip you have just recorded.

* These functions cannot be used for variable frame rate recording, native recording, and 25p (over 50i or 50p) recording.
* Pre-rec is not possible in loop-rec, interval-rec, or one-shot rec mode.

SD/SDHC Card Slot

The AG-HPX300 series comes with an SD/SDHC card slot. You can create a metadata upload file (produced with P2 Viewer software) containing information such as clip name, the name of the camera operator, the recording location, and text memos on an SD/SDHC card, and load it as clip metadata. This information will be very useful when it comes to editing the project and quickly finding the right clip to place on the timeline. The SD card slot is also used to upload scene files and firmware updates.

Text Memo (Bookmark) for Simple Editing

When recording or previewing a clip, press the Text Memo button at any of up to 100 locations and a text memo label, similar to a bookmark, is registered. Using only the AG-HPX300 series, you can create a new clip with data copied between text memo labels. Text information can also be written into each memo using the AG-HPX300 series or a PC with P2 Viewer installed.
A shot mark, which allows convenient OK and NG marking, can also be added to each clip during or after recording.

*Text memo, shot mark can not be added in Loop-rec, Interval-rec, or One-shot rec mode.

Text memo editing window on P2 Viewer software.(Downloadable on Panasonic web site. <http://panasonic.biz/sav/p2/>)

Proxy Data Recording (Option)

When the AJ-YAX800G proxy video encoder is installed, the AG-HPX300 series can record MPEG-4 proxy (low-resolution) data onto a P2 card or SD/SDHC card. This can be used for quick viewing of dailies with timecode, and its low bit rate provides easy transmission over wired and wireless networks.

*Proxy data cannot be recorded when recording with the variable frame rate in Native/Pull-down mode, or when Loop-rec, interval-rec, or one-shot rec is used. Proxy data refers to MPEG-4 low-resolution AV data in file form for moving images and audio, with timecode, metadata, and other management data included. The use of DCF Technologies is under license from Multi-Format, Inc.

Side Crop　Letter Box　Squeeze

16:9/4:3 Aspect Ratio Conversion

The 16:9/4:3 Conversion mode can be used with SD-recorded images or SD output down-converted from HD playback. You can select from three modes: side crop, letterbox, and squeeze.

Compatibility with Nonlinear Editing Systems

In developing P2 products, Panasonic has been working in collaboration with a number of strategic P2 Partners.
There are many nonlinear editing products in the market that already support P2. P2 native editing makes it possible for you to maintain high-quality video and a flexible editing workflow.*

* For information on compatible nonlinear editing systems, visit <https://eww.pavc.panasonic.co.jp/pro-av/> and click "Nonlinear Compatibility Information." For the operating requirements and other details of editing software, visit the website of the relevant software manufacturer.

Operation

The New design improves mobility and operating ease while supporting a variety of assist functions.

New Design for a New Level of Mobility

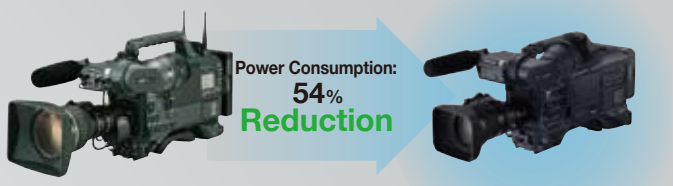
The AG-HPX300 series innovative new form brings greater mobility, comfort and operating ease to the familiar shoulder-held shooting style. The body is small and weighs just 3.6 kg with viewfinder. A large shoulder pad and low center of gravity combine to ensure outstanding stability on the shoulder. The low-profile design also provides an unobstructed view to the camera operator's right.

Controls and Card Slots Grouped on One Side

All operation switches and volume controls are set on the left side of the camera. P2 card slots, which were set on the right side in previous models, have also been moved to the left side. Their logical horizontal arrangement makes it easy to insert and remove cards quickly.

Low Power Consumption — Only 18 W

By developing a new energy-efficient DSP and integrating the AVC-Intra codec circuitry with it, Panasonic significantly downsized the printed circuit board. This not only makes the AG-HPX300 series smaller and lighter, it also reduces power consumption. The new image sensor helps lower power consumption too. Together, these innovations reduce power use to only 18 W during recording. The lower battery consumption can mean greater mobility in the field.



AJ-HDX900
Power Consumption:38.8w
(Main 35W + EVF 3.8W)

AG-HPX300 series
Power Consumption:18W
(EVF、LCD ON)

Focus Assist Functions

Press the Focus Assist button and the center section of the screen expands in size, making it easier to determine if the focus is correct. Also, the Focus Bar* that visually indicates the focus level can be displayed on the screen.

*When 'Focus Bar' in Display Menu is "ON".

Focus Assist OFF

Focus Assist ON

Simplified Waveform and Vectorscope Display

The AG-HPX300 series has waveform and vectorscope display functions of the captured video signal on the LCD monitor.

Waveform

Vectorscope

Three User Buttons

The AG-HPX300 series allows 15 functions (listed below) to be assigned to the User buttons. The three buttons are arranged in a group for easy use. Assigned functions can be accessed at the touch of a button.

Assignable Functions

REC REVIEW:	Rec review function
SPOTLIGHT:	Spotlight compensation
BACKLIGHT:	Backlight compensation
ATW:	Auto tracking white balance
ATW LOCK:	ATW lock function
GAIN: 24dB:	24dB gain up
Y GET:	Display the center brightness value
DRS:	Dynamic range stretch
TEXT MEMO:	Add text memo
SLOT SEL:	Switch recording slot
SHOT MARK:	Add/Delete a shot mark
MAG A. LVL:	Enlarged display of audio level meter
PRE REC:	Pre-rec function
PC MODE:	USB mode ON/OFF (Host or Device to be set on MENU)
WFM:	Switches waveform monitor display

High Image Quality Color Viewfinder and LCD

The AG-HPX300 series color EVF uses a 0.45-inch approx. 1,226,000 dots-equivalent (852 x 3[RGB] x 480) LCOS (liquid crystal on silicon) display panel. This newly developed system delivers bright, detailed, high-resolution images and a high response speed. The AG-HPX300 series LCD monitor is a 3.2-inch panel with a 16:9 aspect ratio. With approx. 921,000 dots (1920 x 480), it boasts higher resolution than the LCDs in previous models.

Support Functions for Greater Convenience

- White balance: Three values (A/B/Preset) of white balance with the auto tracking white function.
- Mode check: Displays a list of the camera settings on the viewfinder and LCD monitor.
- Zebra: Select any two levels from among 50% to 109%, in 1% steps.
- Y-GET: Measures brightness at the screen center and displays precise numerical data.
- The Audio Rec level adjustment features a push lock function.
- The Audio Input level adjustment (front) can be switched on/off and allocated to desired channels.

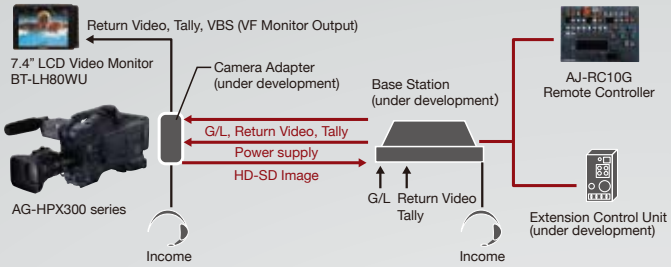
System Interface

The AG-HPX300 series comes equipped with a wealth of interfaces.

New Camera Remote System

The AG-HPX300 series supports the new camera remote system that's now under development and due to be released in autumn 2009*. This system gives professionals the advantage of remote control over transmission of high-quality image data.

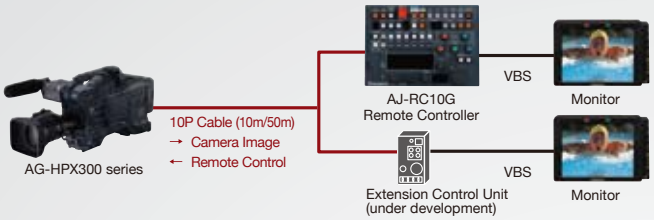
*To use the camera remote system, you must upgrade the software in the camera unit (fee charged).



Remote Control Unit

The AJ-RC10G comes with a 10-pin multi-cable that can connect to the AG-HPX300 series down-conversion video OUT terminal for monitoring at the RCU. The AJ-RC10G provides control of the AG-HPX300 series camera and recorder functions.

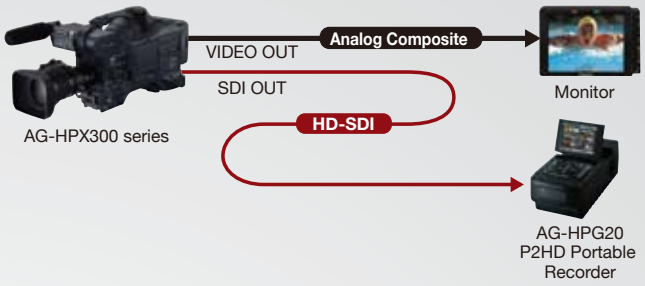
* The AJ-RC10G can control only functions supported by the AG-HPX300 series. It cannot control unsupported keys or dials.



HD/SD SDI Output Terminals and Down-Converter

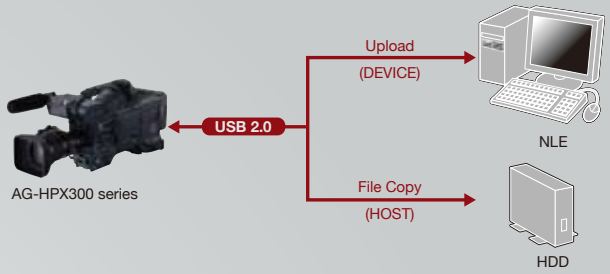
The AG-HPX300 series comes with two different types of outputs. One is composite out which is the down-converted signal from the HD signals and two HD-SDI outputs which could also be switched to be Standard definition. The outputs can be used as needed for monitoring and line recording. The AG-HPX300 series also has an internal down-converter that allows output of high-quality SD video for transmission. The aspect mode is selectable.

- **SDI OUT (HD/SD):** Can also output signals with embedded audio. When the AG-HPX300 series is set for HD-SDI output, backup recording operation can be interlinked with the Rec Start/Stop controls of an HD-SDI input-equipped Panasonic recorder, such as the AG-HPG20. The AG-HPX300 series can also output down-converted SD-SDI from an HD source.
- **VIDEO OUT:** Outputs SD (composite) signals. HD signals are down-converted.



USB2.0 Interface

The AG-HPX300 series standard USB2.0 connector supports both Host and Device modes. In Device mode, a P2 card slot can be used as an external PC device, making it easy to upload data to a nonlinear editing system or network server. In Host mode an external hard disk drive can be connected to the slot, making it easy to copy data from the P2 card, write data to the card, or view thumbnails of stored video clips.



IEEE 1394 Interface

The IEEE 1394-compliant DVCPRO (6-pin) output connector lets you input/output HD/SD compression streams including DVCPRO HD without decoding.* This means you can connect and use a DVCPRO HD VTR for degradation-free backup recording.

* Output is not possible in 720p native mode (25pN), Interval-rec, and One-shot rec mode. AVC-Intra is not supported. Text memo, shot mark can not be added in Loop-rec, Interval-rec, or One-shot rec mode.

TC IN, TC OUT, and GENLOCK IN Terminals

The AG-HPX300 series has a built-in SMPTE time code generator/reader. TC IN and OUT terminals make time code throughput possible. The GENLOCK IN terminal permits external time-code lock.

Other System Functions and Options

- UniSlot® wireless receiver compatible (dual channel)

* UniSlot® is a trademark of Ikegami Tsusinki Co., Ltd.

- XLR audio input: 2-channel mic/line inputs supporting 48V phantom power supply.
- Multiple battery support, including Anton Bauer batteries.
- Equipped with earphone terminal (mini-jack) and speaker.

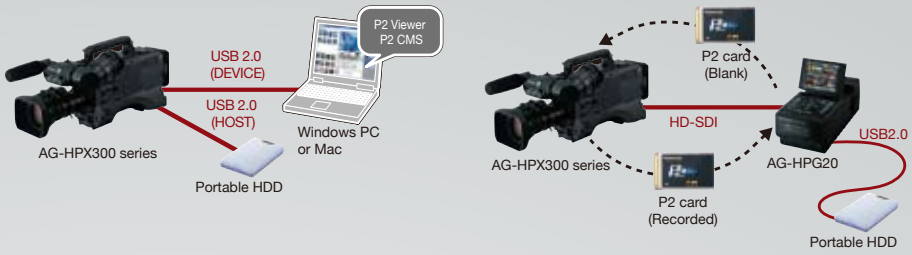
Rear terminal

Side terminal

System Workflow

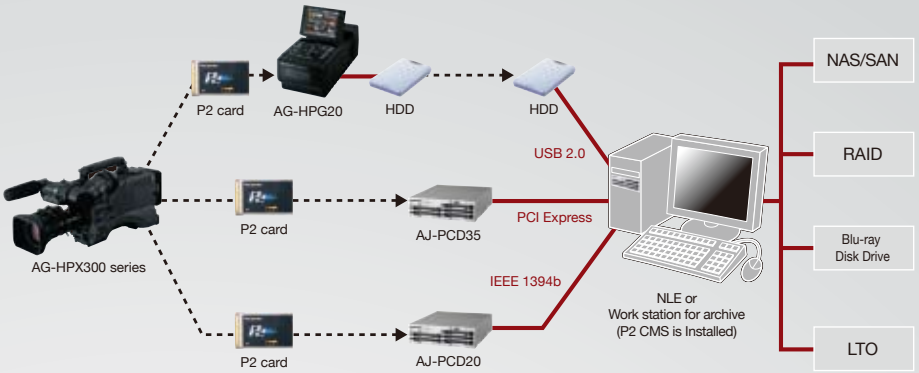
News Acquisition and On-site Storage

The AG-HPG20 P2 Portable Recorder also enables easy on-site viewing, backup recording, and card-to-card file copying. Data files can be stored on a portable hard disk drive. Using a Windows PC and P2 Viewer software (available free of charge), it is possible to view files, display properties and perform simple editing, create metadata, edit voice and text memos, and copy files.*1



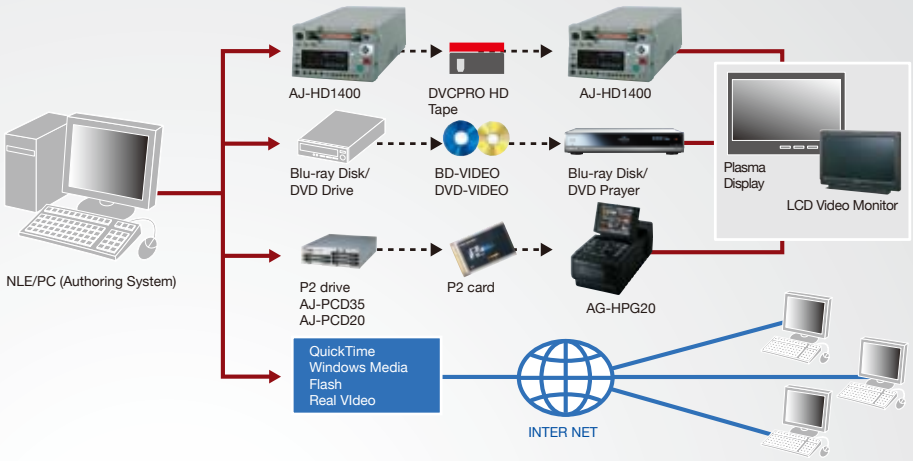
Editing, Production and Archiving

The AJ-PCD35 or AJ-PCD20 P2 drive, and the AG-HPG20/AG-HPG10 let you use P2 cards in nonlinear editing systems, and portable HDD units like the AJ-PCS060G P2 store and Focus FS-100 let you use HDD data in the same way.*1 There is no need for digitizing, so files can be used immediately as clips. P2 CMS content management software (available for free for both Windows and Mac) lets you copy P2 files to an HDD while automatically creating a metadata-tagged database to simplify operations ranging from searching and sorting to file copying, backup, and archiving. This makes it easy to backup or archive files onto optical media.*2



Distribution and Viewing

HD content produced by a nonlinear editor can be copied degradation-free to DVCPRO HD tape via IEEE 1394. This makes it possible to use HD or SD down-conversion in existing broadcast and viewing systems. Authoring of BD and DVD discs and writing into Quick Time®, Windows Media®, Adobe Flash®, or Real Video® format are also possible for Internet distribution.*3
The AG-HPG10 P2 gear can further be used as a player complete with repeat function, allowing high-quality, reliable HD playback of P2 card data for events or various image display applications.



*1: For details, see the rear cover page (Notes Regarding the Handling of P2 Files Using a PC) *2: Cannot be used with some types of nonlinear editing systems, PCs, and software. *3: Conversion to file formats requires authoring or conversion software for the desired format.

P2HD Equipment

(As of February, 2009)

AJ-P2C064AG
AJ-P2C032AG/AJ-P2C032RG
AJ-P2C016AG/AJ-P2C016RG
Memory Card (P2 card)

AJ-PCD35
Memory Card Drive "P2 drive"
(Interface: PCI-Express)

AJ-PCD20
Memory Card Drive "P2 drive"
(Interface: USB 2.0 / IEEE 1394b)

NEW

AG-HPG20
Memory Card Portable Recorder
"P2 Portable"
AVC-Intra supported. SDI-Input available.

Optional Accessories (As of February, 2009)

AG-MC200G
Microphone

AJ-MC700P
Microphone Kit

SHAN-TM700
Tripod Adapter

AG-SDV032G
AG-SDV016G
SDHC memory card
* Not available in some areas.

AJ-RC10G
RCU (Remote Control Unit)
with 10m remote control cable

AJ-C10050G
Remote Control Cable (50m)

* Not available in some areas.
* The AJ-RC10G can control only functions supported by the AG-HPX300 series. It cannot control unsupported keys or dials.

Anton/Bauer

Hytron Battery
Dionic Battery

FireStore FS-100
Portable DTE Recorder
(FOCUS Enhancements, Inc.)

AJ-YAX800G
Video Encoder Card
(For proxy recording)

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

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

BT-LH2550
25.5” Wide
HD/SD LCD monitor

BT-LH1760
17” Wide
HD/SD LCD monitor

BT-LH1710
17” Wide
HD/SD LCD monitor

BT-LH900A
8.4” HD/SD LCD monitor

BT-LH80WU
7.9” Wide
HD/SD LCD monitor

BT-CS80G
VF Cable
(Viewfinder Cable, DC Cable)

AG-HPG10
Memory Card Portable Recorder
(P2 Gear)

P2 Viewer 3.6
viewing software (Download Free)

P2 CMS
Contents management software
(Download Free)

*For P2 Viewer or P2 CMS download and operating requirement information, visit https://eww.pavc.panasonic.co.jp/pro-av/.

Details


Panasonic
P2HD
FUJINON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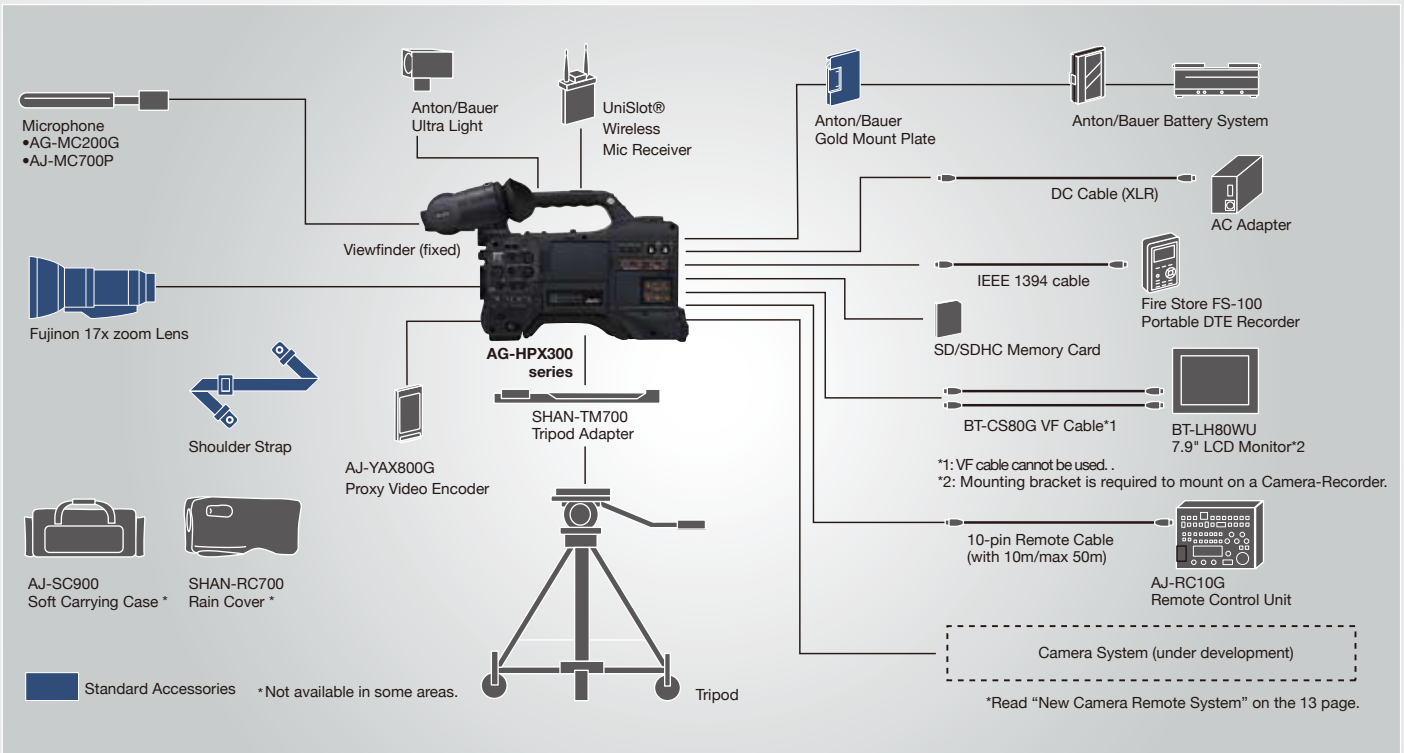

Microphone
•AG-MC200G
•AJ-MC700P
Anton/Bauer
Ultra Light
UniSlot®
Wireless
Mic Receiver
Anton/Bauer
Gold Mount Plate
Anton/Bauer Battery System
DC Cable (XLR)
AC Adapter
Viewfinder (fixed)
IEEE 1394 cable
Fire Store FS-100
Portable DTE Recorder
Fujinon 17x zoom Lens
SD/SDHC Memory Card
AG-HPX300
series
Shoulder Strap
SHAN-TM700
Tripod Adapter
BT-CS80G VF Cable*1
BT-LH80WU
7.9" LCD Monitor*2
AJ-YAX800G
Proxy Video Encoder
*1: VF cable cannot be used. .
*2: Mounting bracket is required to mount on a Camera-Recorder.
10-pin Remote Cable
(with 10m/max 50m)
AJ-RC10G
Remote Control Unit
AJ-SC900
Soft Carrying Case *
SHAN-RC700
Rain Cover *
Camera System (under development)
Standard Accessories
*Not available in some areas.
Tripod
*Read “New Camera Remote System” on the 13 page.

Specifications

General

Supply Voltage:	DC12V (11V to 17V)
Power Consumption:	Approx. 18 W (with standard VF, lens, LCD monitor ON)
Operating Temperature:	0°C to 40°C
Keeping Temperature:	–20°C to 60°C
Operating Humidity:	10% to 85% (no condensation)
Weight:	Approx. 3.6 kg excluding battery and accessories Approx. 5 kg with supplied Fujinon lens
Dimensions (WxHxD):	246 mm x 251 mm x 441 mm, excluding prominent parts 246 mm x 251 mm x 549 mm, with Fujinon lens, excluding prominent parts

Camera

Pick-up Device:	2.2M Pixels MOS Image sensor x 3 (1/3-inch interline transfer type and progressive modes supported)
Lens Mount:	1/3" bayonet type
Optical Color Separation:	Prism system
ND Filter:	4 position (Clear, 1/4 ND, 1/16 ND, 1/64 ND)
Gain Selection:	–3dB, 0dB, 3dB, 6dB, 9dB, 12dB, 24dB
Shutter Speed (Preset):	50i/50p mode: 1/50 (OFF) sec., 1/60 sec., 1/120 sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec. 25p mode: 1/25 (OFF) sec., 1/50sec., 1/60 sec., 1/120sec., 1/250 sec., 1/500 sec., 1/1000 sec., 1/2000 sec.
Shutter Speed (Variable):	50i mode: 1/50.0 sec. to 1/250.0 sec. 25p mode: 1/25.0 sec. to 1/250.0 sec.
Shutter Speed (Slow):	50i/50p mode: 1/12.5 sec., 1/25 sec. 25p mode: 1/6.25 sec., 1/12.5 sec.
Aperture Angle:	3 deg to 359.5 deg, 0.5 deg step select
Variable Frame Rate :	12/15/18/20/21/22/23/24/25/26/27/28/30/32/34/37/42/45/48/50fps (frame/sec)
Horizontal Resolution :	More than 1000 TV lines (Center)
Minimum Luminance:	0.67 lx (F1.6 , Gain 24dB , Shutter Speed 1/25 sec.)

Memory Card Recorder

Recording Media:	P2 Card
Recording Format:	AVC-Intra 100/AVC-Intra 50/DVCPRO HD/DVCPRO50/ DVCPRO/DV selectable
Recording Video Signal:	1080/50i, 1080/25p, 1080/25pN, 720/50p, 720/25p, 720/25pN, 576/50i, 576/25p
Recording Time*:	AVC-Intra 100/DVCPRO HD Approx. 16 min. with a 16GB P2 card Approx. 32 min. with a 32GB P2 card Approx. 64 min. with a 64GB P2 card
	AVC-Intra 50/DVCPRO50 Approx. 32 min. with a 16GB P2 card Approx. 64 min. with a 32GB P2 card Approx. 128 min. with a 64GB P2 card
	DVCPRO/DV Approx. 64 min. with a 16GB P2 card Approx. 128 min. with a 32GB P2 card Approx. 256 min. with a 64GB P2 card

* Time shown above is when you record a series of 1 shot to P2 card. Depending on numbers of shots you record, time will get shorter than the number shown above.

Digital Video

Sampling Frequency:	AVC-Intra 100/DVCPRO HD: Y: 74.1758MHz, PB/PR: 37.0879MHz DVCPRO50: Y: 13.5MHz, PB/PR: 6.75MHz DVCPRO: Y: 13.5MHz, PB/PR: 3.375MHz
Quantizing:	AVC-Intra 100/AVC-Intra 50: 10bit DVCPRO HD/DVCPRO50/DVCPRO/DV: 8bit
Video Compression:	AVC-Intra 100/AVC-Intra 50: MPEG-4 AVC/H.264 Intra Profile DVCPRO HD: DV Base Compression (SMPTE 370M) DVCPRO 50/DVCPRO: DV Base Compression (SMPTE 314M) DV: DV Compression (IEC 61834-2)

Digital Audio

Recording Audio Signal:	AVC-Intra 100/AVC-Intra 50/DVCPRO HD: 48kHz/16bits, 4CH DVCPRO50: 48kHz/16bits, 4CH DVCPRO/DV: 48kHz/16bits, 2CH/4CH Switchable
Headroom:	20dB/18dB (Switchable)

Video Input/output

GENLOCK IN:	BNC × 1, 1.0V [p-p] 75 Ω
VIDEO OUT:	BNC × 1, 1.0V[p-p] 75 Ω
SDI OUT:	BNC × 2, 0.8V[p-p] 75 Ω HD: SMPTE292M/296M/299M Standard SD: SMPTE259M-C/272M-A/ITU-R.BT656-4 Standard

Audio Input/output

MIC IN:	XLR (3pin) x 2, +48 V compatible MIC: –40/–50/–60 dBu (Switchable on Menu)
AUDIO IN:	XLR (3pin) x 2 (CH1/CH2), LINE/MIC/+48V switchable LINE: 0 dBu, MIC: –50/–60 dBu (Switchable on Menu)
Wireless:	25 pin, D-SUB, 40dBu
Audio Out:	Pin Jack x 2 (CH1/CH2), Out: 316 mV, 600Ω,
Earphone:	Stereo Mini jack (3.5mm diameter)
Internal Speaker:	28mm round shape x 1

Other Input/Output Signal

TC In:	BNC x 1, 0.5 V [p-p] to 8 V [p-p], 10kΩ
TC Out:	BNC x 1, Low impedance, 2.0 V ±0.5 V [p-p]
IEEE 1394:	6 pin, Digital In/Out, based on IEEE 1394 Standard
DC In:	XLR x 1, 4-pin, DC12V (DC11.0V to 17.0V)
DC Out:	4-pin, DC12V (DC11.0V to 17.0V), max 1.5 A.
Remote:	10 pin
Lens:	12 pin
USB 2.0 (Device):	Type-B, 4-pin (USB ver2.0)
USB 2.0 (Host):	Type-B, 4-pin (USB ver2.0)

Monitor, Speaker and Other packages

LCD Monitor:	3.2-inch approx. 921,000 dots (16:9)
View Finder:	0.45-inch approx. 1,226,000 dots (16:9)
Supplied Accessories:	Fujinon lens, Front lens cap, Rear lens cap, Zoom lever, Lens connector cap, Lens hood, Lens hood cap, Eye cup, Shoulder belt, Front audio level knob with screw, Mount cap, BNC connector cap, XLR connector cap, Software CD-ROM

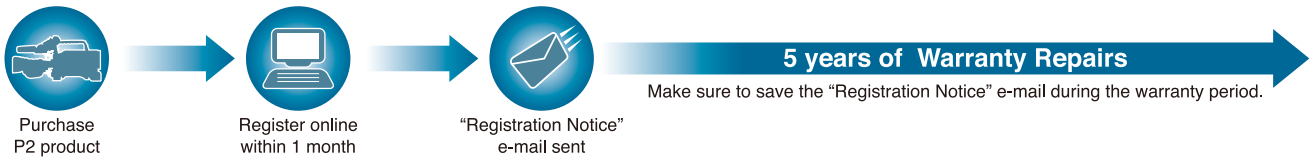
Weight and dimensions shown are approximate.
The content of this catalog is a thing as of February, 2009.
Specifications are subject to change without notice.

P2HD 5 Year Warranty Repair Program[*1]

Customers who register as users on the website will receive an extended warranty valid for up to five years.

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

*1: Please note this extended warranty is not available in some countries/regions. See web site below for details. *2: Not all models are eligible for extended warranty coverage. *3: The basic warranty period may vary depending on the country/region. See enclosed warranty sheet for warranty coverage. *4: Not all repair work is covered by this extended warranty. See enclosed warranty sheet for warranty coverage. *5: The maximum warranty period may be adjusted dependig on the number of hours the device has been used.



Details about user registration and the extended warranty: http://panasonic.biz/sav/pass_e

Please refer to the latest nonlinear compatibilty Information,
P2 Support and Downlord and Service Information, etc. at panasonic web site.

https://eww.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 website. Visit https://eww.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://eww.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://eww.pavc.panasonic.co.jp/pro-av/. For operating requirements and details of other P2 editing software, visit the website of the relevant software manufacturer.

Panasonic

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Japan
Phone +81 6 6901 1161 Fax +81 6 6908 5969
https://eww.pavc.panasonic.co.jp/pro-av/

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Bahrain	+973 252292
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(Hong Kong	+852 2313 0888)
Egypt	+20 2 23938151
India	+91 11 2437 9961 to 4
Indonesia	+62 21 385 9449
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Jordan	+962 6 5859801
Kazakhstan	+7 727 298 0891
Kuwait	+96 522431385
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	+60 3 7809 7888
New Zealand	+64 9 272 0100
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Saudi Arabia	+96 626444072
Singapore	+65 6270 0110
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Syria	+963 11 2318422/4
Thailand	+66 2 731 8888
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	+971 4 8862142
Ukraine	+380 44 4903437
Vietnam	+848 38370280

JQA-0443

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

Mixed Sources
Product group from well-managed forests and other controlled sources
www.fsc.org Cert no. SGS-COC-003518
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