Panasonic
ideas for life

P2HD

AG-HPD24
Memory Card Portable Recorder

A COMPACT P2 DECK WITH 24P AND 3D COMPATIBILITY
FOR STUDIO PRODUCTION AND ON-AIR TRANSMISSION.

AVC INTRA   DVCPRO HD   DVCPRO 50   DVCPRO   DV

A High-Performance P2 Portable Deck in a Half-Rack Size

AVC-Intra Recording, HDMI*[1] Output and USB 3.0*[2] Interface
2-Unit Sync Operation Records and Plays Superb 3D Images
Versatile Functions for Broadcasting and Image Production Work

*1: Supports 3D   *2: USB3.0 host interface

AVC-Intra Codec

The AVC-Intra codec 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 AG-HPD24 can record in AVC-Intra 100 for maximum picture quality or in AVC-Intra 50, which adopts a lower bit rate, for versatile operation. It also supports the DVCPRO HD codec.

• **AVC-Intra 100:** With the same bit rate as DVCPRO HD, this mode gives you full 10 bit recording with 1920 x 1080* pixels. It captures master-quality video for high-end image 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 data transfer time in half.

* These figures are for 1080i/p mode. The AG-HPD24 also supports 720p mode.

24PsF Compatible, HD/SD Multi-Format

Handling a wide range of HD formats, such as 1080p, 1080i and 720p, the AG-HPD24 can be switched between 59.94 Hz and 50 Hz to adapt to the world's HD broadcasting formats. The AG-HPD24 supports 1080/24p native recording and playback with the AVC-Intra codec. HD SDI mode provides 1080/24PsF input/output for use in high-end movie production. And SD recording in both NTSC (480i) and PAL (567i) are available with multi codec (DVCPRO 50, DVCPRO, DV).

Up-/Down-/Cross-Conversion

The AG-HPD24 can convert up or down between HD and SD or cross-convert between 720p and 1080i during playback. It also features an aspect conversion function.

* Only cross-conversion is available in 3D mode.
* The closed caption signal in the SD signal is not output during up-/down-/cross-conversion playback.

VariCam Speed Effects

The AG-HPD24 can extract active frames from VFR (variable frame rate) signals output by a VariCam and record them in 720/24p. VariCam-like 60p pull-down output can also be provided by playing back a video clip in a P2 card recorded in native 720/24p by the AJ-HPX2700, the AG-HPX500 Series, the AG-HPX370 Series, the AG-HPX170 Series or the AG-HPX250 (scheduled for release in Autumn 2011) P2HD camera recorders.

* Not supported in 3D mode.

Gamma Conversion for Cinema Production

This function converts images recorded by a VariCam or images recorded in the Film Rec mode of the AJ-HPX3100 to the same kind of film-like look as the Telecine 5 or Telecine 6 mode of the AJ-GBX27G HD Gamma Corrector. It can also convert to the Cineon curve for film-recording.

High-Quality 24 bit Audio Recording

AVC-Intra mode features high-quality 24 bit digital audio recording. You can select either 24 bit 4 channel or 16 bit 8 channel recording. DVCPRO HD mode provides 16 bit 8 channel, and DVCPRO 50/DVCPRO/DV mode includes 16 bit 4 channel recording.

* To play video clips recorded with 24 bit audio, use a 24 bit-compatible P2 device or P2 viewer. A P2 device that is not 24 bit compatible will display the clip number in red, and playback will not be possible. A P2 viewer that is not 24 bit compatible will not produce normal sound. Use the latest P2 viewer version. For current information on 24 bit-compatible P2 devices and P2 viewers, see the Service and Support section of the Panasonic website (http://panasonic.biz/sav/).

Excellent Reliability and Mobility with the P2 Card

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.

* 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. For details on recording times, see the table below on the compatibility of input signals and recording formats.

AG-HPD24 Corresponding Input/Recording Formats

HD Input Signal	Recording Format	Recording Time*1 (With Two 64 GB P2 cards)			SDI Output*2		
		AVC-Intra100	AVC-Intra50	DVCPRO HD	1080	720	480/576
1080/59.94i	1080/59.94i	Approx. 128 min.	Approx. 256 min.	Approx. 128 min.	1080/59.94i	720/59.94p	480/59.94i
1080/50i	1080/50i	Approx. 128 min.	Approx. 256 min.	Approx. 128 min.	1080/50i	720/50p	576/50i
1080/23.98p over 59.94i*3	1080/23.98pN*4	Approx. 160 min.	Approx. 320 min.	—	1080/23.98PsF	—	—
	1080/59.94i	Approx. 128 min.	Approx. 256 min.	Approx. 128 min.	1080/23.98p over 59.94i	720/23.98p over 59.94p	480/23.98p over 59.94i
1080/23.98PsF	1080/23.98pN*4	Approx. 160 min.	Approx. 320 min.	—	1080/23.98PsF	—	—
1080/24PsF	1080/23.98pN*4	Approx. 160 min.	Approx. 320 min.	—	1080/24PsF	—	—
720/59.94p	720/59.94p	Approx. 128 min.	Approx. 256 min.	Approx. 128 min.	1080/59.94i	720/59.94p	480/59.94i
720/50p	720/50p	Approx. 128 min.	Approx. 256 min.	Approx. 128 min.	1080/50i	720/50p	576/50i
720/23.98p over 59.94p*3	720/23.98pN*4	Approx. 320 min.	Approx. 640 min.	Approx. 320 min.	1080/23.98PsF	—	—
720/24p over 60p*3	720/23.98pN*4	Approx. 320 min.	Approx. 640 min.	Approx. 320 min.	1080/24PsF	—	—

SD Input Signal	Recording Format	Recording Time*1 (With Two 64 GB P2 cards)		SDI Output*2		
		DVCPRO 50	DVCPRO/DV	1080	720	480/576
480/59.94i	480/59.94i			1080/59.94i	720/59.94p	480/59.94i
480/23.98p over 59.94i	480/59.94i	Approx. 256 min.	Approx. 512 min.	1080/23.98PsF*5 1080/23.98p over 59.94i	720/23.98p over 59.94p	480/23.98p over 59.94i
576/50i	576/50i			1080/50i	720/50p	576/50i

• 3D recording and playback is possible only in the AVC-Intra codec.
*1: All of the 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. *2: Settings must be made on the menu screen (system frequency mode). *3: 2-3, 2-3-3-2 or 2-2 pull-down output signal from P2HD Camera Recorder or DVCPRO HD Camera recorder.
*4: N=Native This mode records only effective frames. *5: Output is produced only when the playback system frequency is set to 23.98 or 59-23.

Advanced Recording Functions Employing Two Card Slots

In addition to continuous, double-card recording, the AG-HPD24 enables some useful recording functions that are possible only with memory cards.

• **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.

• **Auto Rec:** This function automatically starts recording in response to SDI video input.

• **Loop Rec*:** This function continuously records video data onto available memory card areas. When the card becomes 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.

* Not supported in 3D mode.

Text Memo, Shot Marker and Metadata

• **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:** This function lets you browse and edit metadata, such as the name of the camera operator and reporter, shooting location and text memos. Text data can also be easily inserted by connecting a USB or software keyboard, and metadata files can be uploaded from an SD/SDHC card.

* Not supported in 3D mode.

USB Keyboard Connection

The USB 2.0 keyboard terminal lets you connect an ordinary USB keyboard for easy metadata text input. A software keyboard is also provided.

Clip Thumbnail Display with Free Clip Sequencing

Using the clip thumbnail (image list) display, you can select clips for instant playback, deletion, copying* or resequencing. This makes it easy to gather and display clips for broadcasting or editing. The advanced GUI displays the clip properties on the same screen as the clips and clearly shows the source data – with scroll bar, clip count and playback position – at a glance. The thumbnail display can be changed to show any of the images in the clip.

* Not supported in 3D mode.

Versatile Playback Functions Meet Diverse Needs

• **Format Auto Playback:** This automatically detects the video format and codec for each video clip to play back and output.

• **Variable Speed Playback:** For slow-motion and double-speed playback.

• **PB Position Selection:** This lets you select the playback position when playing from a thumbnail image. You can select from three different options: Previous playback position, thumbnail time code position, or the beginning of the clip.

• **Repeat Playback:** This plays the selected clip (single or multiple) repeatedly.

Waveform or Vectorscope Display

The AG-HPD24 has waveform and vectorscope display functions for the playback or input video signal on the LCD monitor. It can also display on Video Out and SDI Out.

Example of a waveform display

User Buttons/User Files

You can select from a total of 31 functions for allocation to the six user buttons. These settings are saved internally and protected when the power is turned off. They can also be easily checked on a diagnostic display. An user file containing the settings can be saved onto an SD/SDHC card.

USB 3.0 Interface Allows High-Speed Transfers[*1] to an External Storage[*2]

- **USB 3.0 (Host):** AVC-Intra 100 codec files can be copied to external storage at approximately 4 times normal speed.[*3]
- **USB 2.0 (Device):** Device mode allows use as a P2 card drive for a PC (nonlinear editor).
- **Playback:** P2 MXF files on an external storage can be displayed as thumbnails and played back.[*4]
P2 audio playback is uninterrupted by slow hard disk performance, or when vibration temporarily delays data reading.

USB3.0/External Storage

*1: Not supported in 3D mode.
*2: 2 TB or more cannot be used.
*3: For AVC-Intra 100 or DVCPRO HD.
*4: Playback is based on disk drive performance, including spindle speed. Panasonic cannot guarantee smooth playback without dropped frames.

HDMI Digital HD Output (3D Compatible)

The AG-HPD24 features an HDMI output terminal, the next-generation interface for HD images and sound. This provides digital output for a wide variety of both professional and consumer devices. It is also compatible with 3D images. (See next page.)

* HDMI output and SDI output cannot be used simultaneously.
* An optional adaptor cable may be necessary for connecting a professional monitor.

RS-422A Remote

The AG-HPD24 also features the same RS-422A remote terminal (9-pin) that is found on many broadcast VTRs, allowing it to be controlled as a player by an external editing controller.

HD/SD SDI Input/Output Terminals

HD/SD SDI input and output terminals are provided as standard equipment. This enables high-quality line recording using signals from a video camera or a video switcher. When connected to a camera recorder, the AG-HPD24 syncs Rec Start/Stop with the camera trigger. On-Screen Display (OSD) and thumbnail displays can also be output.*

* Not supported in 3D mode.

Analog Input/Output Terminals

The AG-HPD24 has Ref input, analog video (composite) output,* XLR analog audio inputs (Ch 1/Ch 2), audio monitor outputs (L/R), time code input/output, and a headphone jack.

* This is not output when the system frequency is 24 Hz. Also, the left image is output during 3D mode.

2U Half-Rack Size and Battery Drive

Half-rack size with a 2U height, the AG-HPD24 weighs only about 2.0 kg (4.41 lb). Mounting the large battery (CGA-D54/5,400 mAh) enables 160 minutes of continuous playback. The included AC adaptor allows operation from an AC power source.

Front Speaker

Audio can be monitored from the front speaker.
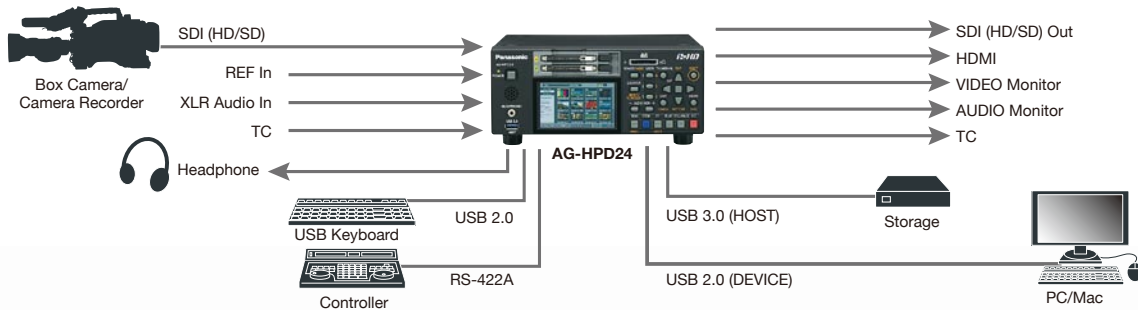
2-UNIT SYNC 3D MODE SUPPORTS HIGH-QUALITY FULL HD 3D PRODUCTION.

Left/Right Sync Recording from a 3D Camera

Dual HD SDI (left/right video) signals from a 3D rig-type camera system or an integrated twin-lens 3D camera, such as the AG-3DA1 or AG-3DP1 (scheduled to be released in Winter 2011), can be sync recorded on two AG-HPD24 decks (left image on the first deck, and right image on the second). The AVC-Intra codec records high-quality images with full-pixel HD and full sampling data for both left and right channels for high-end 3D image production.

* 3D recording is possible only with the AVC-Intra codec.
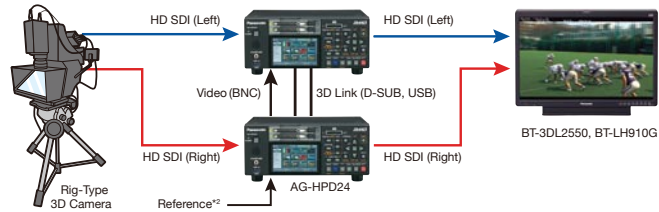
*2: When the Setup → System → Frequency menu item is set to 59.94 Hz or 50 Hz, only a black burst reference input signal can be received for the 3D record and playback modes and sync playback mode. When this menu item is set to 23.98 Hz or 24 Hz, only an HD tri-level sync reference input signal can be received.

Left/Right Sync Playback on a 3D Monitor

The left and right images from two AG-HPD24 decks can be played back in sync. HDMI output is possible to a home-use 3DTV, or HD SDI dual output is possible to a professional 3D monitor or projector. Using the control panel of the master (left) AG-HPD24, left/right sync operations include Rec Start/Stop,*1 Clip Thumbnail Display, Clip Playback*1 (including variable speed playback), Clip Delete, Text Memo, and Shot Marker addition.
This makes 3D images as easy to handle as 2D images.

*1: External remote control is also possible via the RS-422A terminal.

3D PROFESSIONAL

5
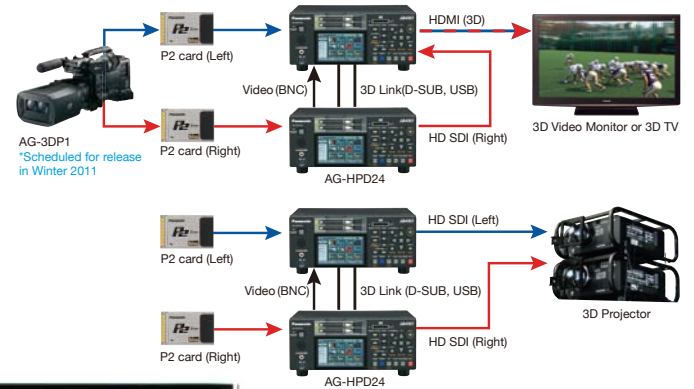
OPTIONAL EQUIPMENT

AJ-P2E064XG
AJ-P2E032XG
AJ-P2E016XG
P2 Card (E series)

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

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

BT-3DL2550
647.7 mm (25.5 inches)
3D LCD Video Monitor

*The BT-LH910G does not display 3D images.

SPECIFICATIONS

GENERAL

Power Source:	7.2 V DC / 7.9 V DC
Power Consumption:	19.8 W
Operating Temperature:	0 °C to 40 °C (32 °F to 104 °F)
Operating Humidity:	10 % to 80 % (no condensation)
Storage Temperature:	–20 °C to 50 °C (–4 °F to 122 °F)
Weight:	2 kg (4.41 lb) (without battery) 2.3 kg (5.07 lb) (with supplied battery)
Dimensions:	214 mm (W) x 88 mm (H) x 200 mm (D) (8-7/16 inches × 3-7/16 inches ×7-7/8 inches) (not including the support legs)
Recording Media:	P2 card
Recording Formats*1:	AVC-Intra 100/AVC-Intra 50/DVCPRO HD/ DVCPRO50/DVCPRO/DV (selectable)
Recording/Playback Time:	*See page 2 for Corresponding Input/Recording Formats
Video Recording Signals:	1080/59.94i, 1080/50i, 1080/23.98p, 1080/24p, 720/59.94p, 720/50p, 480/59.94i, 576/50i
Audio Recording Signals:	AVC-Intra 100/50: 48 kHz, 16 bits, 8 channels/ 24 bits, 4 channels (selectable) DVCPRO HD: 48 kHz, 16 bits, 8 channels DVCPRO50: 48 kHz, 16 bits, 4 channels DVCPRO/DV: 48 kHz, 16 bits, 2/4 channels selectable

VIDEO (DIGITAL VIDEO)

Sampling Frequencies:	AVC-Intra 100/DVCPRO HD (59.94 Hz): Y: 74.1758 MHz, P$_B$/P$_R$: 37.0879 MHz AVC-Intra 100/DVCPRO HD (50 Hz): Y: 74.2500 MHz, P$_B$/P$_R$: 37.1250 MHz DVCPRO50: Y: 13.5 MHz, P$_B$/P$_R$: 6.75 MHz DVCPRO: Y: 13.5 MHz, P$_B$/P$_R$: 3.375 MHz
Quantization:	AVC-Intra 100/AVC-Intra 50: 10 bits DVCPRO HD/DVCPRO50/DVCPRO/DV: 8 bits
Video Compression Methods:	AVC-Intra 100/50: MPEG-4 AVC/H.264 Intra Profile DVCPRO HD: DV-based Compression (SMPTE 370M) DVCPRO50/DVCPRO: DV-based Compression (SMPTE 314M) DV: DV Compression (IEC61834-2)
Color Sampling:	AVC-Intra 100: Y: P$_B$:P$_R$ = 4:2:2
Resolution:	AVC-Intra 100: 1920 × 1080 (1080/59.94i, 1080/50i) 1280 × 720 (720/59.94p, 720/50p) AVC-Intra 50: 1440 × 1080 (1080/59.94i, 1080/50i) 960 × 720 (720/59.94p, 720/50p)

AUDIO (DIGITAL AUDIO)

Sampling Frequency:	48 kHz (synchronized with video)
Quantization:	16 bits (DVCPRO HD/DVCPRO50/DVCPRO/DV) 16/24 bits selectable (AVC-Intra 100/AVC-Intra 50)
Headroom:	12/18/20 dB (selectable)
De-emphasis:	T1=50 µs, T2=15 µs (auto on/off)

VIDEO INPUT

Reference Input:	BNC × 1, Auto switching of black burst / HD tri-level sync
SDI input:	BNC × 1

VIDEO OUTPUT

Video Output:	BNC × 1, SD Analog Composite
SDI Output:	BNC × 1, HD SDI/SD SDI switchable
HDMI Output:	HDMI × 1 (HDMI type A), 3D supported (VIERA link not supported) •When 59.94 Hz of system frequency 1080/59.94i Frame Packing / Side-by-Side selectable (3D only), 720/59.94p Frame Packing / Side-by-Side selectable (3D only), 1080/59.94i, 720/59.94p, 480/59.94p •When 50 Hz of system frequency 1080/50i Frame Packing / Side-by-Side selectable (3D only), 720/50p Frame Packing / Side-by-Side selectable (3D only), 1080/50i, 720/50p, 576/50p •When 23.98 Hz of system frequency 1080/23.98p Frame Packing / Side-by-Side selectable (3D only), 1080/23.98p •When 24 Hz of system frequency 1080/24p Frame Packing / Side-by-Side selectable (3D only), 1080/24p

AUDIO INPUT

Analog Inputs:	XLR × 2 (CH1, CH2)
SDI Input:	BNC × 1

AUDIO OUTPUT

SDI Output:	BNC × 1
Monitor Outputs:	Pin jacks × 2, –10 dBV, 600 Ω
Headphone Output:	Stereo mini jack (3.5 mm dia.), 8 Ω, variable level
HDMI Output:	2 channels (linear PCM)
Internal Speaker:	Round × 1 (monaural)

OTHER INPUT/OUTPUT

Time Code Input:	BNC × 1, 0.5 V[p-p] to 8.0 V[p-p], 10 kΩ
Time Code Output:	BNC × 1, low impedance, 2.0 V ±0.5 V[p-p]
RS-422A Input/Output:	9-pin D-SUB × 1, RS-422A interface
USB 3.0:	Host (Type A) × 1
USB 2.0:	USB 2.0 Devices (Type B) × 1
For connection of 3D REC/PB or SYNC PB modes:	9-pin D-SUB × 1, RS-422A interface USB 2.0 Devices (Type A) × 1
Keyboard:	USB 2.0 (Type A) × 1 (maximum 100 mA)
P2 Card Slot:	P2 Card Slot × 2
SD Card Slot:*2	SD/SDHC Memory Card Slot × 1
LCD Monitor:	87.63 mm (3.45 inches), approx. 921,000 pixels
Included Accessories:	Battery (5400 mAh), Battery charger, AC adaptor, 3D connection label and Software CD-ROM

*1: 3D recording and playback is possible only in the AVC-Intra codec. *2: Multi Media Cards cannot be used.
Weight and dimensions shown are approximate. Specifications are subject to change without notice.

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 to 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.
In addition, a memory card recorder uses less power since it has no moving mechanism. The AG-HPD24 has achieved approximately a 23% reduction in power consumption as compared to the previous model AJ-HD1400.

Reuse **Initialization**
Recording **P2 Card**
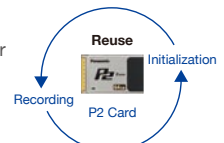
P2 Asset Support System

The free member's service program for P2HD/AVCCAM

Extensive information for video professionals

P2HD

5 year extended warranty program

1st year Basic Warranty
2nd year
3rd year
4th year
5th year with the warranty program

Thirsty for Knowledge?

No purchase necessary
Information services for members

▶ **The latest technical information**
▶ **FAQs, user's voices**
▶ **Tool download**

Always the best performance

Additional content with product registration

▶ **Firmware, utility downloads**
▶ **Quick inspection, service history**
▶ **Newsletters**

Contact us through PASS

Direct answers to your inquiries. Sign up now (no purchase necessary)

▶ **http://panasonic.biz/sav/pass_e**

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.

Informative product-related content also available with equipment registration.

Please refer to the latest Non-linear Compatibilty Information,
P2 Support and Downlord 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. 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 the following 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.

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

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Australia	+61 2 9986 7400	Malaysia	+60 3 7809 7888	Thailand	+66 2 731 8888
Bahrain	+973 252292	Mexico	+52 55 5488 1000	Turkey	+90 216 578 3700
Belgium	+32 (0) 2 481 04 57	Netherlands	+31 73 64 02 577	U.A.E. (for All Middle East)	
Brazil	+55 11 3889 4035	New Zealand	+64 9 272 0100		+971 4 8862142
Canada	+1 905 624 5010	Norway	+47 67 91 78 00	Ukraine	+380 44 4903437
China	+86 10 6515 8828	Pakistan	+92 5370320 (SNT)	U.K.	+44(0)1344 70 69 13
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Czech Republic	+420 236 032 552/511	Panama	+507 229 2955	Vietnam	+848 38370280
Denmark	+45 43 20 08 57	Peru	+51 1 614 0000		
Egypt	+20 2 23938151	Philippines	+63 2 633 6163		
Finland, Latvia, Lithuania, Estonia		Poland	+48 (22) 338 1100		
	+358 (9) 521 52 53	Portugal	+351 21 425 77 04		
France	+33 (0) 1 55 93 66 67	Puerto Rico	+1 787 750 4300		
Germany, Austria	+49 (0)611 235 0	Romania	+40 21 211 4855		
Greece	+30 210 96 92 300	Russia & CIS	+7 495 6654205		
Hungary	+36 (1) 382 60 60	Saudi Arabia	+96 626444072		
India	+91 120 247 1000	Singapore	+65 6270 0110		
Indonesia	+62 21 385 9449	Slovak Republic	+421 (0) 2 52 92 14 23		
Iran		Slovenia, Albania, Bulgaria, Serbia,			
(Vida)	+98 21 2271463	Croatia, Bosnia, Macedonia, Montenegro			
(Panasonic Office)	+98 2188791102		+36 (1) 382 60 60		
Italy	+39 02 6788 367	South Africa	+27 11 3131622		
Jordan	+962 6 5859801	Spain	+34 (93) 425 93 00		
Kazakhstan	+7 727 298 0891	Sweden	+46 (8) 680 26 41		
Korea	+82 2 2106 6641	Switzerland	+41 (0) 41 259 96 32		
Kuwait	+96 522431385	Syria	+963 11 2318422/4		

JQA CERTIFIED MANAGEMENT SYSTEM
ISO 9001
JQA-0443

ISO 14001 JACO
AUDIT AND CERTIFICATION ORGANIZATION FOR ENVIRONMENT AND QUALITY · JAPAN
EC98J2010

UKAS MANAGEMENT SYSTEMS
051

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

SP-HPD24PE

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