



# XDCAM HD422 Family

**PDW-F800/PDW-700**

XDCAM HD422 Camcorder

**PDW-F1600/PDW-HD1500**

XDCAM HD422 Recording Deck

**PDW-HR1**

XDCAM HD422 Field Recorder

**XDCAM HD**

**MPEG HD422**

**CINEALTA**



# Setting a New Benchmark: XDCAM HD422 Takes the Lead in File-based Production

Since its introduction in 2003, Sony's XDCAM® Series has been embraced around the world for its file-based recording capability utilizing high-capacity and reliable Professional Disc™ media. Within this series, top-of-the-line XDCAM HD422 products were introduced in 2008; today, they represent an ever-expanding range that delivers a brilliant image resolution of 1920 x 1080 and eight channel 24-bit uncompressed audio. With fast file based operation and outstanding picture quality, XDCAM HD422 products are ideal for applications such as news gathering, when speed is a key concern, and for production of TV dramas, documentaries, and mainstream entertainment programs where a high quality impression is crucial.

## XDCAM HD422 Series



**PDW-F800**  
Camcorder



**PDW-HR1**  
Field Recorder



**PDW-F1600**  
Recording Deck



**PDJ-A640**  
Cart



**PDW-700**  
Camcorder



**PDW-U1**  
Drive Unit



**PDW-HD1500**  
Recording Deck



**PDJ-C1080**  
Cart



# XDCAM HD422 - At the Top of the XDCAM Series

Sony is proud to introduce the XDCAM HD422 lineup as its top-of-the-line products in the XDCAM Series. These powerful tools provide stunning, high quality recording in both image and audio, as well as versatile operation enabled by a range of interfaces.

## HD 1920 x 1080 and 1280 x 720 Recording Using the MPEG HD422 Codec

XDCAM HD422 products record and play back high-definition video with 1920 x 1080 and 1280 x 720 resolutions using MPEG HD422 compression, which employs MPEG-2 4:2:2P@HL compression technology. Data rates of up to 50 Mbps are used for recording, providing the highest picture quality in the XDCAM Series while keeping data size as low as possible for easy transfer and transmission. Moreover, the MPEG HD422 codec is based on industry standard MPEG compression, offering high compatibility with many other devices such as nonlinear editing systems.

## Wide Choice of Video Formats: Interlace and Progressive

XDCAM HD422 products offer a wide choice of video formats for both frame rates and scanning mode. They include 59.94i, 50i, 29.97p, 25p, and 23.98p\*1 in a resolution of 1920 x 1080, and 59.94p and 50p in 1280 x 720.

\*1: PDW-700 requires the CBKZ-FC02 key, PDW-HD1500 requires the PDBK-F1500 hardware key.

## A Variety of Selectable Recording Modes and Video Formats

In addition to high quality MPEG HD422 50-Mbps mode, the XDCAM HD422 lineup can record and play back videos at different bit rates and in a variety of video formats. As far as the common system frequency, clips recorded in different formats can be recorded on a single disc\*1.

\*1: When playing back across clips recorded in different recording formats, video and audio playback may stop and then restart at the point where formats change.

## High-quality Uncompressed Audio Recording

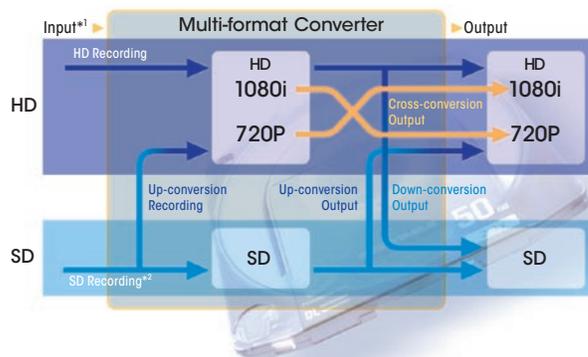
In addition to HD video recording, eight channel high-quality audio is an equally significant feature in the XDCAM HD422 system. The PDW-F1600/HD1500 has eight audio channels (HD-SDI), while the PDW-F800/700 camcorder has four audio channels. Both can record 24-bit, 48 kHz uncompressed audio on each channel.

## Up/down and Cross Conversion Capability

XDCAM HD422 products come equipped with powerful up/down and cross conversion systems, which provide great operational flexibility. Conversions can be done via HD-SDI input\*1/output, SD-SDI input\*2/output and composite input\*2/output.

\*1: PDW-F800/700 requires optional CBK-HD01 board.  
\*2: PDW-F800/700 requires optional CBK-SC02 board.

XDCAM HD422 Format Conversion Capability on PDW-F800/700/F1600/HD1500/HR1



\*1: PDW-F800/700 requires optional CBK-HD01 or CBK-SC02 board for signal input (please refer to P12: Pool-feed Operation).  
\*2: PDW-700 requires optional CBKZ-MD01 key. PDW-HD1500 requires optional PDBK-S1500 or PDBK-F1500 hardware key.

### XDCAM HD 422 Recording/Playback Specifications

Mode (Codec)	Number of Pixels	Bit Rate (Mbps)	Audio Bits	Audio Channels	Y/C Sampling	Frame Frequency	Recording Time (Unit: Minutes)	
							PFD23A 23.3 GB	PFD50DLA 50 GB
MPEG HD422 (MPEG-2 4:2:2P@HL)	1920 x 1080	50	24	8*3	4:2:2	59.94i, 50i, 29.97p, 25p, 23.98p*4	Approx. 43	Approx. 95
	1280 x 720						Approx. 43	Approx. 95
MPEG HD (MPEG-2 MP@HL)	1440 x 1080	35	16	4	4:2:0	59.94i, 50i, 29.97p, 25p, 23.98p*4	more than 65	more than 145
				2*2			more than 68	more than 150
				4			Approx. 85	Approx. 190
				2*2			Approx. 90	Approx. 200
	1280 x 720	35	16	4	4:2:0	59.94p, 50p, 23.98p(Pull-down)	more than 112	more than 248
				2*2			more than 122	more than 265
MPEG IMX*1 (MPEG-2 4:2:2P@ML)	720 x 480 (NTSC) / 720 x 576 (PAL)	50	16	4	4:2:2	59.94i, 50i	more than 65	more than 145
				8*3			more than 68	more than 150
				4			Approx. 45	Approx. 100
				8*3			Approx. 55	Approx. 120
				4			Approx. 68	Approx. 150
				8*3			Approx. 85	Approx. 185
DVCM*1	720 x 480 (NTSC) / 720 x 576 (PAL)	25	16	4	4:1:1 (NTSC) / 4:2:0 (PAL)	59.94i, 50i	Approx. 85	Approx. 185

\*1: PDW-700 requires optional CBKZ-MD01 key, PDW-HD1500 requires optional PDBK-S1500 or PDBK-F1500 hardware key.  
\*2: Playback only.  
\*3: Up to 4 ch with PDW-F800/700.  
\*4: PDW-700 requires optional CBKZ-FC02 key, PDW-HD1500 requires optional PDBK-F1500 hardware key.

## Powerful Nonlinear Recording - Professional Disc Media



PFD50DLA



PFD23A

Media characteristics are critical to video production workflow. Sony's Professional Disc media are highly reliable yet cost effective, and specifically developed with utmost consideration for professional recording applications.

- PFD50DLA 50-GB disc and PFD23A 23-GB disc
- Split second random access
- No need to cue up when starting recording
- Long recording times: up to 95 minutes in MPEG HD422 (50 Mbps) with the PFD50DLA
- Outstanding archival life
- No mechanical contact between disc and optical pickup - achieving high durability for rewriting
- Phase change recording - effective against erosion caused by ultraviolet rays
- Packaged in an extremely durable, dust resistant and easy handling cartridge

### Professional Disc Specifications

	PFD50DLA	PFD23A
Dimension	5 1/8 x 5 1/4 x 3/8 inches (129 x 131 x 9 mm)	
Weight	3 oz (90 g)	
Capacity*1	50 GB	23.3 GB
Transfer rate*2	max. 86 Mbps (with a single pickup)	
Read cycles	more than 1,000,000	
Rewright cycles	more than 1,000	
Recording format	Phase change recording	
Estimated archival life*3	50 years	

\*1: A portion of the user data area will be used for data management. The total user area may vary.

\*2: Transfer rate varies by products and recording formats.

\*3: Estimation from Sony's accelerated test.

## Data File Recording by User Data Folder

Professional Disc media formatted by XDCAM HD422 products\*1 can be used for data storage. As well as XDCAM AV files, every type of PC file can be recorded onto the User Data folder of the disc, allowing users to deliver and archive precious AV content with related materials.

\*1: Capacity for this purpose is up to 21.5 GB with the PFD23A, and up to 46.4 GB with the PFD50DLA. Discs formatted by XDCAM SD and XDCAM HD products do not support this capability; however, they have 500 MB of general data area.

## File Format for Content Exchange and Sharing: Material eXchange Format (MXF)

In Sony's XDCAM Series, recordings are made as data files in the industry-standard MXF (Material eXchange Format) file format, which is compliant with SMPTE 378M (OP-1a). This allows material to be handled with great flexibility in an IT-based environment - it is easily available for copying, transferring, sharing, and archiving.

## IT/Network Friendly

As standard, XDCAM HD422 camcorders and decks come equipped with IT-friendly, computer-based interfaces for transferring material. These include an i.LINK®\*1 interface supporting File Access Mode and an Ethernet interface. Equipped with a Direct FTP function, XDCAM HD422 camcorders and decks can transfer files via Ethernet without a PC.

\*1: i.LINK is a Sony trademark used only to designate that a product is equipped with an IEEE 1394 connector. Not all products with an i.LINK connector may communicate with each other. Please refer to the documentation that comes with any device having an i.LINK connector for information on compatibility, operating conditions, and proper connection.



## EDL-based Editing - Scene Selection Function

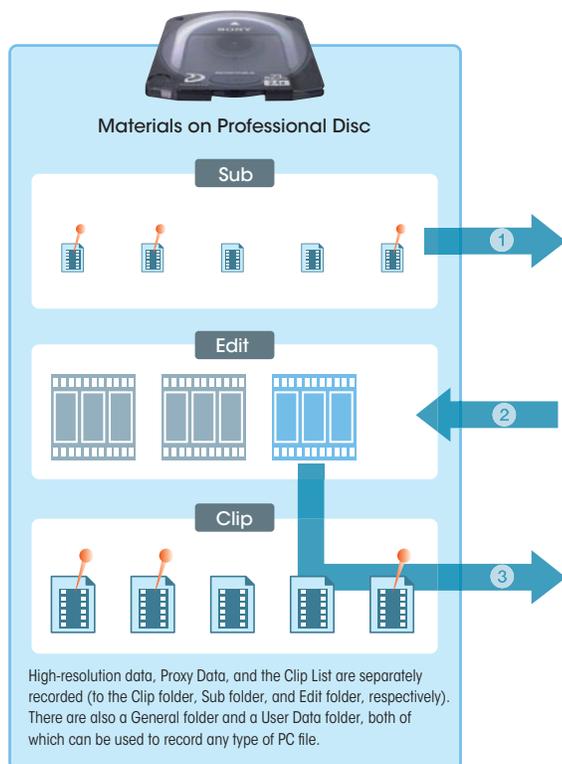
The Scene Selection function allows simple cuts only editing\*1 to be performed within the camcorder or deck itself. The result of these edits can be saved as an XDCAM EDL (also called a Clip List), which can be written back to the original disc so as to stay with the material.

\*1: The video and audio of a clip cannot be edited independently.



## Proxy Data

At the same time as recording high resolution video and audio data, a low resolution version of this AV data (called Proxy Data) is recorded on the same disc. Proxy Data is much smaller in size, can be transferred at an amazingly high speed, easily browsed and simply edited using PDZ-1 Proxy Browsing Software (or compatible editing software offered by many other industry leading manufacturers).

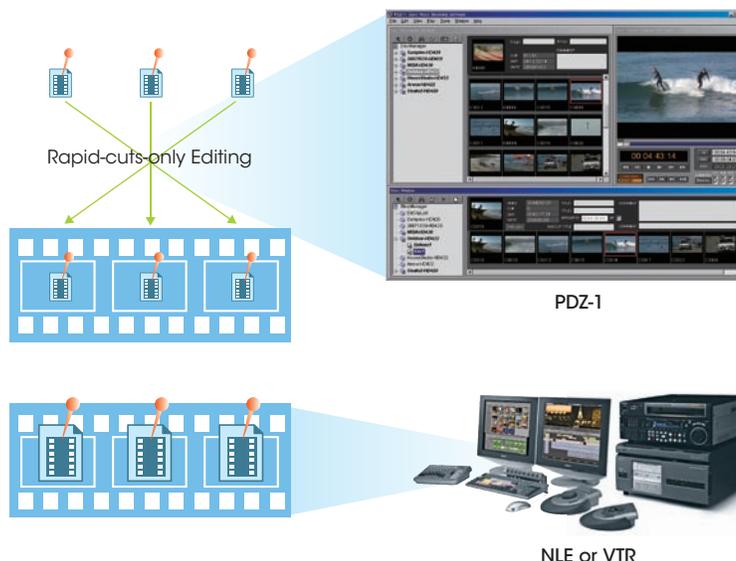


## Metadata

All XDCAM HD422 products are capable of recording a variety of metadata, which provides a huge advantage when searching for specific data after an initial recording has been made. Information such as production dates, creator names, and camera setup parameters can be saved together with the AV material. This makes it possible to organize and search through all recordings effectively. One particular metadata, called EssenceMark™ (Shot Mark), is a convenient reference that can be added to desired frames to make them easy to recall in subsequent editing processes. Clipflag is another convenient metadata which users can add to their desired clips as "OK", "NG" (No Good) or "KP" (Keep). This simplifies efficient clip management, enabling for example batch ingesting of OK clips or deletion of all NG clips.

## XDCAM Workflow: Rapid Cuts-only Editing and Partial Transfer

- 1 Proxy Data can be downloaded at an amazingly high speed. Users can easily find required material by referring to metadata.
- 2 Users can quickly make a storyboard using PDZ-1 software. Storyboarding can now be performed in the field with just a mid-specification notebook computer, because Proxy Data is so light in size. Storyboard data (the Clip List) is recorded back to Professional Disc media.
- 3 If required, only the parts necessary for the storyboard are transferred to the editing system. XDCAM HD422 products can transfer materials to NLE systems in remote locations via Ethernet. Users can also transfer material to a VTR using an HD-SDI interface.



## XMPilot: Workflow Empowered by XDCAM Metadata

Before shooting starts, users can import the metadata that will be used. This type of metadata is named Planning Metadata, and it includes information about the clips to be shot. It diminishes the time and effort of inputting metadata at a location, thus achieving a smooth interface with post-production and archiving.

Users can make a PC file of Planning Metadata, including clip names and EssenceMarks, and import this file to camcorders via Ethernet, USB memory, or smart phones\*1.

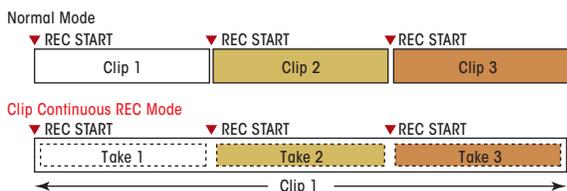
\*1: Requires the optional CBK-WA01 adapter and CBKZ-UPG01 key.

### Planning Metadata Upload Using CBK-WA01 Wi-Fi Adapter



## Selectable Modes of File Recording

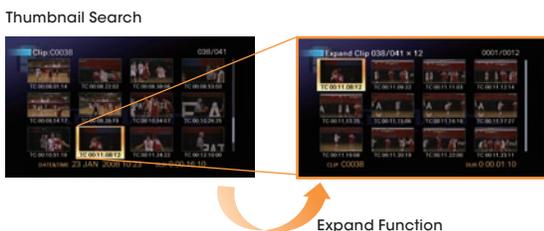
XDCAM HD422 products provide two types of file recording modes. In standard operation, one clip file is created each time recording is started and stopped. In the other mode, called Clip Continuous REC mode, one clip file can be created at the user's discretion. Although it is a single clip, Thumbnail Search operation and the Expand function are available just as if individual clips were created. Users can choose the most suitable mode depending on the type of application.



## File based Search Operation

The XDCAM HD422 Series comes with the following functions which further facilitate the search process:

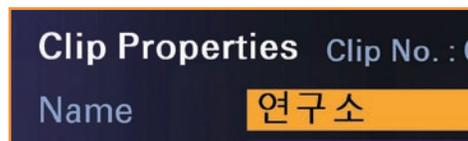
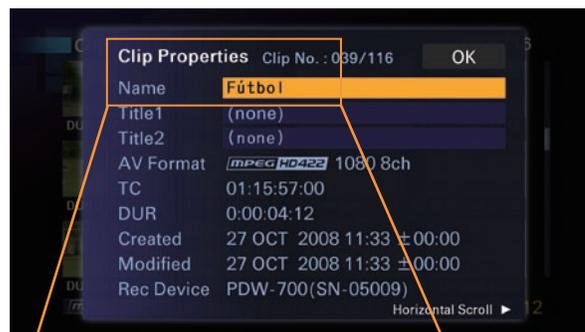
- Thumbnail Search and Expand function: allows users to search for materials using thumbnails as a visual reference



- Clip Filtering: can use Clipflag, Planning Metadata, and the AV format to sort out the desired clips

## Local Language Support

A number of fonts for local languages can be used in Clip/Disc Properties. Supported languages include: Chinese, German, French, Korean, Spanish, Russian, Japanese, and more.



# XDCAM HD422 Camcorder



Multi Format  
Production Camcorder  
**PDW-F800**  
EFP/ENG oriented yet  
Versatile Camcorder  
**PDW-700**

## PDW-F800 Features

1080/23.98p and  
SD Recording as Standard

**CINEALTA**

The PDW-F800 is a multi format and versatile camcorder that is ideal for cinema and TV drama production as well as ENG applications.

## Slow & Quick Motion Function

The PDW-F800 offers a powerful Slow & Quick Motion function that enables users to create elegant fast- and slow-motion footage - commonly known in film shooting as over- and under-cranking.

### PDW-F800 Slow & Quick Motion

Format	Capturing	Slow & Quick Motion
1080/23.98p	1p to 48p in 1p increments	1/2x (slow) to 24x (quick)
1080/25p	1p to 50p in 1p increments	1/2x (slow) to 25x (quick)
1080/29.97p	1p to 59.94p in 1p increments	1/2x (slow) to 30x (quick)

The Slow & Quick Motion function is available in MPEG HD422 mode only. Audio recording is not supported with Slow & Quick Motion function. The following features cannot function with Slow & Quick Motion:

1. Picture Cache Recording
2. Interval Recording
3. Disc Exchange Cache
4. Clip Continuous Recording
5. Live logging

## User Gamma

The PDW-F800 allows users to customize gamma curves with the supplied CvpFileEditor software for Windows® PCs. An easy GUI enables users to change the shape of the gamma curve; they can then load this curve into the camcorder via Memory Stick™, Memory Stick PRO™, or Memory Stick PRO Duo™ media.

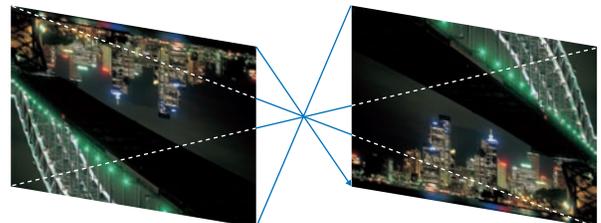


## Focus Assist Function

A Focus Assist Indicator is a helpful tool for manual focus adjustments. A bar graph indicator is displayed at the bottom or in other positions of the viewfinder frame, enabling users to make more accurate and fine focus adjustments.

## Image Inverter Function

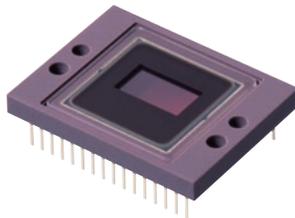
The Image Inverter function allows the use of a variety of image inverting lenses, anamorphic lens adaptors, and cinema lenses with 2/3-inch adaptors.



## PDW-F800 and PDW-700 Common Features

### 2/3-inch type Three HD Power HAD FX CCDs

The PDW-F800/700 is equipped with three 2/3-inch type 2.2 megapixel full HD progressive CCDs, which are also used in the well-proven HDC-1500 Sony Multi format HD Camera. Based on Sony Power HAD™ FX sensor technology and the latest on-chip lens structure, this CCD offers a high sensitivity of F11 at 59.94 Hz (F12 at 50Hz) and an excellent signal-to-noise ratio of 59dB in Noise Suppression (NS) mode, which helps to reduce the high frequency noise elements of video signals using Sony's advanced digital processing technology.



### 14-bit A/D Conversion

The PDW-F800/700 incorporates a high-performance 14-bit A/D converter that enables images captured by the high performance CCDs to be processed with maximum precision. In particular, this high resolution A/D conversion allows the gradation in mid-to-dark-tone areas of the picture to be faithfully reproduced. Thanks to the 14-bit A/D converter, pre-knee signal compression in highlighted areas can be eliminated, and the camera can clearly reproduce a high luminance subject at a 600% dynamic range.

### State-of-the-art DSP LSI

The newly developed DSP (Digital Signal Processing) LSI is the heart of the image-processing device of the PDW-F800/700 camcorder. In conjunction with the 14-bit A/D converter, it reproduces images captured by the CCD at maximum quality. In addition, on its large scale logic circuits, this DSP comes with a variety of image-correction capabilities, some of which used to be on analog circuits, allowing for stable image correction. Moreover, a newly incorporated function - Automatic Lens Aberration Compensation\*1 - can optimize lens performance to provide stunning picture quality.

\*1: Works only with applicable lenses. Please contact lens manufacturers for details.

### Supported Recording Formats - HD/SD and Interlace/Progressive

One of the big appeals of the PDW-F800/700 is its highly flexible multi format recording capability. Users can select a recording format from HD (MPEG HD422 and MPEG HD) and SD (MPEG IMX™\*1 and DVCAM™\*1), in a variety of frame frequencies (as shown in the table on page 4).

\*1: PDW-700 requires optional CBKZ-MD01 key.

### High-quality 24-bit Audio Recording

The PDW-F800/700 records uncompressed four-channel, 24-bit audio (MPEG HD422 mode). It is also equipped with a range of audio interfaces.

### Well-balanced Compact Body

The PDW-F800/700 is designed to be very compact and ergonomically well balanced, providing a high level of mobility and comfort in various shooting situations. It weighs only 13 lb 4 oz (6.0 kg) including the HDVF-20A viewfinder, the ECM-680S microphone, the PFD50DLA disc and the BP-GL95A battery pack.

### Shock and Dust resistant Disc Drive

To minimize errors caused by shock or dust entering the disc drive, the PDW-F800/700 has several unique ways of providing operational resistance to such factors. The disc drive entrance is concealed by two lids, helping to prevent any dust from entering the drive. In addition, four rubber dampers are used to hold the disc drive block in place and to absorb shocks that would otherwise go into the disc drive.

### Viewfinders\*1

Two types of optional viewfinders are available for users: the HDVF-20A and HDVF-200 2.0-inch\*2 monochrome viewfinders and the HDVF-C30WR 2.7-inch\*2 and HDVF-C35W 3.5-inch\*2 color viewfinders.

\*1: No viewfinder is supplied with the PDW-F800/700.

\*2: Viewable area measured diagonally.



HDVF-C30WR



HDVF-C35W



HDVF-20A



HDVF-200

## Wide Choice of Audio Options\*1

The PDW-F800/700 is compatible with a variety of microphones. Three shotgun-type microphones, the ECM-680S, ECM-678, and ECM-674 are available as options. The ECM-680S can operate in either stereo or monaural (uni-directional) mode, allowing it to be used in both EFP and ENG applications. Stereo mode is ideal for capturing environmental sound with a natural quality, while monaural mode is ideal for capturing clear voice and sound from a distance. These modes can be selected from the switch on the microphone or from the PDW-F800/700 itself. The camcorder is also equipped with a slot to accommodate the DWR-S01D\*2 digital wireless microphone receiver, which provides two-channel audio with stable and secure transmission that's tolerant to interference waves. The WRR-855 series microphone receiver can also be used within this slot.

\*1: No microphone is supplied with the PDW-F800/700.

\*2: The digital wireless microphone system is not available in some countries where prohibited by the radio law.



DWT-B01  
Digital Wireless Transmitter



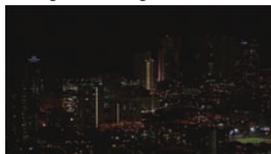
DWR-S01D  
Digital Wireless Receiver

## Slow Shutter

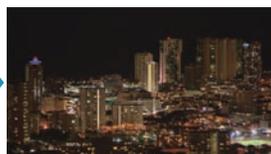
The shutter speed of the PDW-F800/700 is selectable down to a 16-frame period (in 2-, 3-, 4-, 5-, 6-, 7-, 8- and 16-frame periods\*1). During such a long frame period, electrical charges accumulate on the CCDs, which dramatically increases sensitivity. This helps camera operators to shoot in extremely dark environments. The Slow Shutter function also allows operators to use shutter speeds longer than the frame rate and to intentionally blur images when shooting a moving object, for increased shooting creativity.

\*1: Only even number of frame settings is available in 720 mode. Slow Shutter can not function with the Digital Extender.

### Low-light Shooting

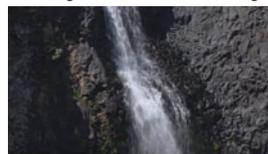


Normal

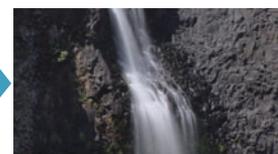


Slow Shutter

### Creating an Intentional Blur Image



Normal



Slow Shutter

## Interval Recording

The PDW-F800/700 offers an Interval Recording function which intermittently records signals at pre-determined intervals. This is convenient for shooting over long periods of time, and also when creating pictures with special effects of extremely quick motion.

## Picture Cache Recording and Disc Exchange Cache

The PDW-F800/700 offers a Picture Cache Recording function that is especially useful during ENG applications. Up to 30 seconds of audio and video signals are buffered into the camcorder's internal memory before the Rec start button is even pressed (when in Standby mode). This means that everything that happened 30 seconds before the Rec start button was pressed will still be recorded on to the disc, helping to prevent the loss of any unexpected, yet important events. The caching period can be adjusted by a menu setting. This camcorder cache memory also allows users to exchange the discs while recording. By removing a disc from the drive and inserting a new disc within 30 seconds, video, audio and time code can be recorded seamlessly onto the new disc.



## Live & Play Function \*1

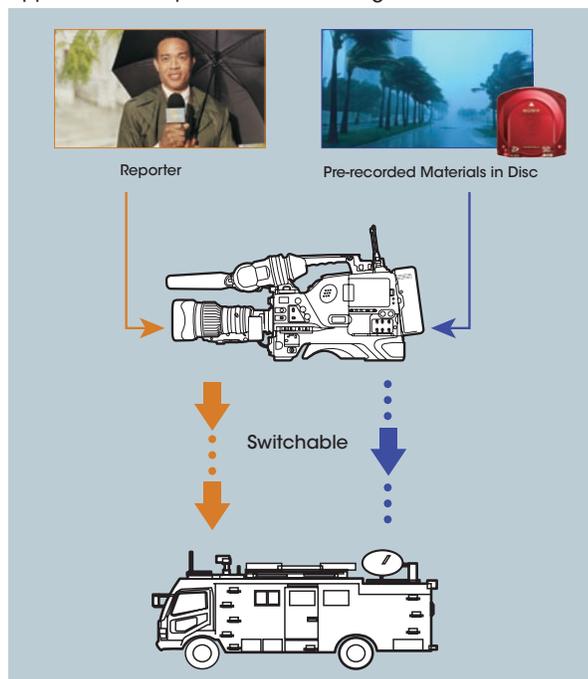
The PDW-F800/700 camcorder has a Live & Play function that allows users to check both playback signals (images already recorded) and incoming camera signals (images seen through the viewfinder) simultaneously, and sequentially output them without any switching noise. Both signals are fed to their respective output and viewfinder connectors independently, and can be viewed at the same time. This allows users to frame the next shot, adjust the exposure, and then focus the lens while the camcorder is playing back the pre-recordings from the disc. For instance, the camcorder can be used to perform the following three stages of a news broadcast:

1. The introduction to a news report (Output of incoming camera signals)
2. Pre-recorded clips (Output of playback signals)
3. The conclusion of the report (Output of incoming camera signals)

\*1: Only one of the following functions can work at any one time:

1. Live & Play function
2. Focus Magnification
3. Letter Box mode in SD down-conversion
4. In-phase output between HD and SD.

## Application Example of News Gathering



## Affordable MPEG TS Option for Field and Satellite Transmission

The HDCA-702 MPEG TS Adaptor, which can be docked onto the PDW-F800/700 camcorder, transmits an MPEG Transport Stream (TS) of MPEG-2 MP@HL via DVB-ASI output. Transmission can be simultaneous with PDW-F800/700 recording to disc. The bit rate is selectable from 15 Mbps to 43.25 Mbps in 10-kbps steps, which is suitable for material transmission via microwave and satellite modulators. The frame pixel size is 1440 x 1080 or 1280 x 720. When the bit rate is 35 Mbps or higher, 1920 x 1080 mode can be selected instead of 1440 x 1080. In addition, the HDCA-702 can output the MPEG-2 MP@H-14(HDV 1080) at the rate of 25 Mbps over i.LINK connector.



HDCA-702 PDW-700 with HDCA-702

## Smooth Gain Control

A wide choice of gain and its easy-to-use control system is one remarkable feature of the PDW-F800/700 camcorders. By setting the gain to the gain selector or assignable switches, the user can easily access the desired gain. And the transition to each gain value is extremely smooth thus eliminating undesirable abrupt changes to the overall image.

## ND and CC Filters

- Optical ND Filters and Optical CC Filters: PDW-F800  
The PDW-F800 comes equipped with wheel-type optical ND (Neutral Density) and CC (Color Correction) filters.



- Optical ND Filters and Electrical CC Filters: PDW-700  
The PDW-700 camcorder comes equipped with optical ND filters and electrical CC filters. With electrical CC filters, users can easily select a color temperature - 3200K/4300K/5600K/6300K - by rotation using a camcorder assignable switch. Users can also obtain the specific value with just a single click, which is useful when there's a sudden change in the shooting environment and a quick setting is required.



## Auto Tracing White Balance

The Auto Tracing White Balance function of the PDW-F800/700 automatically adjusts the camera's color temperature according to changes in the lighting conditions. This function is useful when recording outside for long periods, and the lighting changes gradually over time. If required, the user can hold the auto tracing at a desirable color balance via an assignable switch.

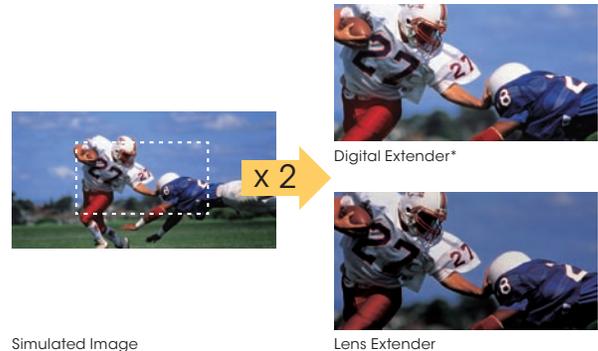
## HyperGamma

HyperGamma is a powerful feature, which is inherited from Sony's CineAlta™ camcorders. The PDW-F800/700 provides four types of HyperGamma curves. Operators can select the best suited preset gamma curve depending on the scene being shot and their desired 'look' for the image. All HyperGamma curves are quickly accessible via the set-up menu.

## Digital Extender\*<sup>1</sup>

The Digital Extender function of the PDW-F800/700 enables images to be digitally doubled in size. Unlike lens extenders, the Digital Extender function performs this capability without any loss of image sensitivity, which is often referred to as the F-drop phenomenon.

\*1: Use of the Digital Extender function reduces image resolution by half. The Digital Extender function can not operate with Slow Shutter.



## Pool feed Operation

For pool feed operations, the optional CBK-HD01 and CBK-SC02 boards provide HD- and SD-SDI inputs, and SD composite input respectively.

## Trigger REC Function

The PDW-F800/700 camcorder has the Trigger REC function that enables synchronized recording with PDW-F1600/HD1500/HR1/F75 XDCAM decks or HDCAM® portable decks connected via the HD-SDI interface - a convenient feature for backup recording.

## Planning Metadata Import via a Wi-Fi Adapter

With the optional CBK-WA01 \*<sup>1</sup> Wi-Fi Adapter, users can import Planning Metadata via smart phones equipped with a Wi-Fi interface. Using metadata ensures a smooth workflow. Remote Live Logging operation is also possible with a smart phone or with PDZ-1 software on a PC.

\*1: Optional CBKZ-UPG01 key is required to operate the CBK-WA01 adapter.



## Other Camcorder Features

- Compatible with a variety of remote control units\*<sup>1</sup>: RM-B750/B150, MSU-1500/1000, and RCP-1530/1501/1500/1001/1000
- Two HD/SD-SDI outputs and a composite/HD-Y output
- Ethernet interface (100BASE-TX) and i.LINK (File Access Mode) interface
- Freeze Mix function: superimposes a previously recorded image on the viewfinder; this allows users to quickly and easily frame or reposition a subject when a shot must be taken from the same position or in the same framework as a previous take
- Focus Magnification function: magnifies the center of the screen on the viewfinder to twice its size, making it easier to confirm focus settings during manual focusing
- Single Clip Playback: allows users to play back just one selected clip
- Proxy Data recording on USB memory\*<sup>2</sup>: provides two ways to record - in simultaneous recording mode with Professional Disc media, or (after clip selection) copy required clips from the recorded clips onto Professional Disc media
- Easy metadata input via a USB keyboard or software keyboard
- Direct FTP function: allows file transfer via Ethernet without a PC
- Customizable user menu: users can change the names of user menu files
- Six assignable buttons enable users to assign frequently used functions; there are two buttons on the camera handle, three on the inside panel (including a Color Temperature button) and a RET button on the lens
- Turbo Gain function: boosts camera gain up to +42 dB, which helps reproduce images in very low light environments
- Memory Stick™, Memory Stick Pro™, and Memory Stick Pro Duo™ media (up to 4-GB) enable storage of camcorder setup files
- 3.5-inch\*<sup>3</sup> type color LCD to instantly review recorded footage
- Clip title indication on the viewfinder and LCD: allows users to see the clip file name when playing back and recording; users can also see the file name of the next shot while in standby.
- Monochrome LCD: shows the time code and remaining recording time of the disc, even when power is off
- Extended Clear Scan (ECS)
- Intelligent light system synchronizes strobe on/off to the Rec start button
- Output markers such as SkinG, Safety, Aspect, and Center on HD-SDI OUTPUT
- CBKZ-UPG01 Software Upgrade Key
  - Live logging via Ethernet or Wi-Fi\*<sup>4</sup> connection: enables users, while recording, to register EssenceMark metadata with a real time view of content
  - Planning Metadata upload via a Web browser
  - Enables CBK-WA01 Wi-Fi Adapter connection

\*1: The operable distance (cable length) depends on cable characteristics. Please refer to the supplied operational manual.

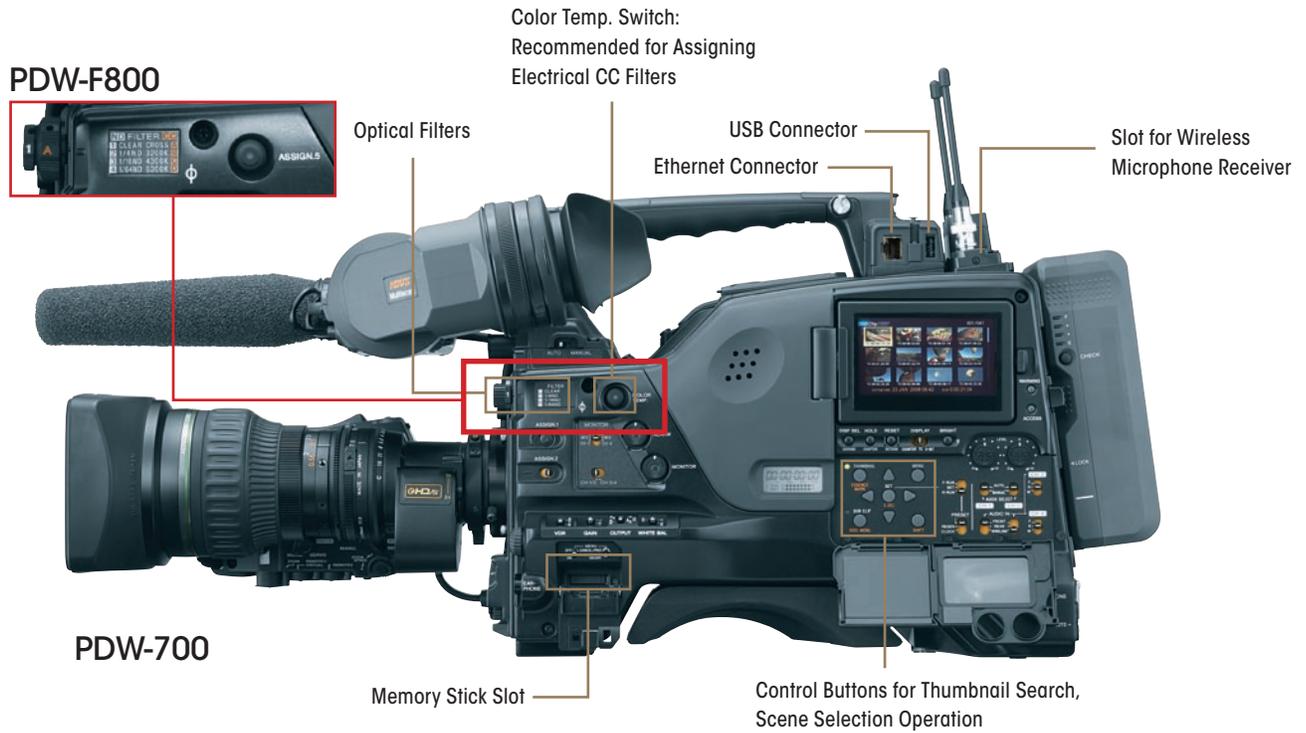
\*2: May not function properly with some USB flash memories, depending on their characteristics. Please refer to the supplied operation manual.

\*3: Viewable area measured diagonally.

\*4: PDW-F800/700 requires optional CBK-WA01 adapter.



# Camcorder View



## Top View



## Connector Panel

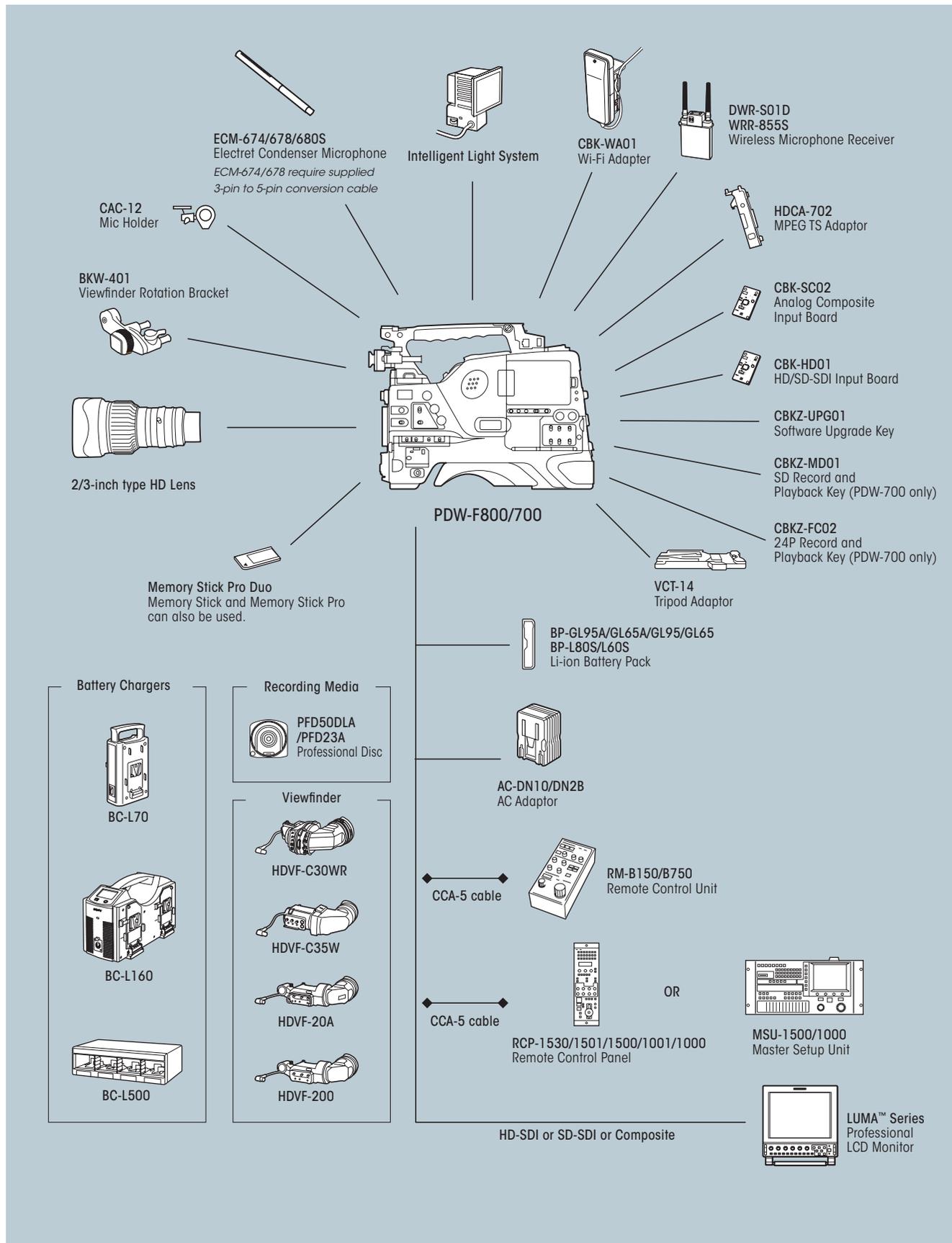
Side



Rear



# Camcorder System Diagrams



# XDCAM HD422 Recording Deck



Full-HD/SD Standard  
Compact Recorder  
With Linear Editing Capability

**PDW-F1600**

Full HD Standard  
Compact Recorder

**PDW-HD1500**

## PDW-F1600 Features

- Linear Editing\*1 using RS-422A control
  - Assemble
  - Audio/Video insert
  - A/V split



- 1080/23.98p format recording and playback capability as standard

**CINEALTA**

- Supports SD (MPEG IMX/DVCAM) recording modes as standard

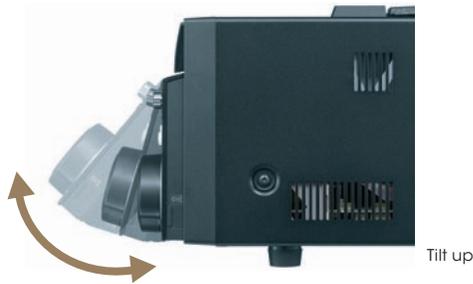
\*1: Files generated by some NLE systems may not be edited.

## PDW-F1600 and PDW-HD1500 Common Features

- High performance dual-optical head
- Multi format HD/SD recording/playback capability
  - HD recording at up to 50 Mbps using MPEG HD422 (MPEG-2 4:2:2P@HL compression)
  - Recording and playback in the MPEG HD format (MPEG-2 MP@HL compression)
  - 1080i and 720p recording and playback
  - Up/down-conversion and cross-conversion between 1080i and 720p
  - Three types of picture output mode are supported for down-conversion: Edge Crop, Squeeze, and Letterbox (16:9/14:9/13:9)
- High quality eight channel (HD-SDI) 24-bit audio recording
- High speed file transfer
  - i.LINK File Access Mode (FAM)
  - Gigabit Ethernet (1000BASE-T)
- Direct FTP function: allows file transfer via Ethernet without a PC
- RS-422A 9-pin remote control interface
- A wide variety of video and audio inputs and outputs, including two HD-SDI outputs
- Compatible with XDCAM carts: the PDJ-C1080 and PDJ-A640
- Compact and lightweight: half-rack size and 14 lb 5 oz (6.5 kg)
- AC, DC, or battery powered



- Built-in audio speaker
- Low power consumption: 65 W (DC powered) and 55 W (in power save mode, DC powered)
- Tilt up front panel



- A large easy-to-see 4.3-inch\*1-type color LCD display
- Trigger REC function (synchronized recording with compatible camcorders\*2)
- Video process control, by front panel operation or remote control panel via RS-422A
- Easy-to-use Jog/Shuttle dial
  - Jog: -1 to +1 times normal speed
  - Variable: -2 to +2 times normal speed
  - Shuttle: -20 to +20 times normal speed
  - Fast forward/rewind: -35/+35 times normal speed
  - A faster search mode can be used (approx. -50/50 times) in shuttle and fast forward/rewind
- Single Clip Playback for playout operation: allows users to play back just one selected clip
- Easy metadata input via USB keyboard\*3 or software keyboard
- VANC (Vertical Ancillary) metadata recording and playback
  - Multiple VANC packets: handles nine packets per three lines (up to four packets in one line) and 18 packets per one frame
  - Closed-caption recording and playback via SDI input and output: SD (EIA-608), HD (EIA-708)
  - Closed-caption conversion recording: SD (EIA-608) closed-caption signals on SD-SDI input can be recorded as HD (EIA-708) closed captions
  - Optional PDBZ-UPG02 key expands functionality
- Disc Exchange Cache (up to 30 seconds)

- Clip Continuous REC function via RS-422A or HD-SDI using a Trigger REC function
- Optional accessories that enhance operational features:
  - PDBK-201 MPEG TS IN/OUT Board: allows users to input and output an HDV™ compatible stream in 1080i/720p format
  - PDBZ-UPG02 Software Upgrade Key
    - expands functionality for closed-caption handling
    - User Bit Insert
  - PDBK-F1500\*4 24P Record and Playback Key: includes an SD (MPEG IMX/DVCAM) recording/playback capability
  - PDBK-S1500\*4 (MPEG IMX/DVCAM) Recording and Playback Key

\*1: Viewable area measured diagonally.  
 \*2: PDW-F800/700, HDW-650 Series, HDW-790, and HDW-F900R camcorders.  
 \*3: Some Keyboard cannot be used. Please refer to the supplied manual.  
 \*4: For PDW-HD1500 only. PDW-F1600 has this capability as standard.

## Inputs/Outputs

PDW-F1600/HD1500 Inputs/Outputs

		PDW-F1600/HD1500
Signal input	SDI (HD/SD switchable)	BNC x 1
	Reference	BNC x 1
	Reference/Through	BNC x 1
	Analog Audio (Line)	XLR x 2
	Digital Audio, AES/EBU	BNC x 2, 4 Ch (2 Ch each, 1/2 Ch and 3/4 Ch)
	Time Code	BNC x 1
Signal output	HD-SDI	BNC x 1
	HD-SDI	BNC x 1 (Character On/Off)
	SD-SDI	BNC x 1
	SD-SDI	BNC x 1 (Character On/Off)
	SD Composite	BNC x 1
	SD Composite	BNC x 1 (Character On/Off)
	Analog Audio Line	XLR x 2
	Analog Audio Monitor	XLR x 2
	Digital Audio, AES/EBU	BNC x 2, 4 Ch (2 Ch each, 1/2 Ch and 3/4 Ch)
IT	i.LINK	6-pin x 1*1, File Access Mode or HDV*2 1080i/720P
	Ethernet	1000Base-T/100Base-TX/10Base-T x 1
Others	Phones	Stereophone-jack x 1
	Remote	D-sub 9-pin x 1, RS-422A
	Video Control	D-sub 9-pin x 1, EIA RS-423
	USB	x 2 (for maintenance)
Power	AC IN	x 1
	DC IN	XLR x 1
	DC OUT (12 V)	4-pin x 1

\*1: AV/C (DV) interface is NOT supported.  
 \*2: Requires optional PDBK-201 board.

PDW-F1600/HD1500 VANC Metadata (Closed Caption) Recording and Playback

Functions	Standard	PDBZ-UPG02
<b>E to E output and recording</b>		
HD-SDI (EIA708) input => HD-SDI output (EIA708)	●	●
HD-SDI (EIA708) input => SD-SDI output (EIA608)	-	●
HD-SDI (EIA708) input => HD recording (EIA708)	●	●
SD-SDI (EIA608) input => SD-SDI output (EIA608)	●	●
SD-SDI (EIA608) input => HD-SDI output (EIA708)	-	●
SD-SDI (EIA608) input => SD recording*1 (EIA608)	●	●
SD-SDI (EIA608) input => HD recording (EIA708 with "wrapped EIA608")	●	●
<b>Playback</b>		
HD recording (EIA708) => HD-SDI output (EIA708)	●	●
HD recording (EIA708 with "wrapped EIA608") => HD-SDI output (EIA708)	●	●
HD recording (EIA708 with "wrapped EIA608") => SD-SDI output (EIA608)	-	●
SD recording*1 (EIA608) => SD-SDI output (EIA608)	●	●
SD recording (EIA608) => HD-SDI output (EIA708)	-	●
HD cross conversion playback: 1080 (EIA-708) <=> 720 (EIA-708)	-	●

\*1: PDW-HD1500 requires optional PDBK-S1500 or PDBK-F1500 hardware key.



PDW-F1600/HD1500 Rear Panel

# XDCAM HD422 Field Recorder



HD/SD Field/In-house  
Multi purpose Recording Device  
**PDW-HR1**

## PDW-HR1 Features

- Multi format HD/SD recording/playback capability
  - HD recording at up to 50 Mbps using MPEG HD422 (MPEG-2 4:2:2P@HL compression)
  - Recording and playback in MPEG HD format (MPEG-2 MP@HL compression)
  - 1080i and 720p recording and playback
  - Up/down-conversion and cross-conversion between 1080i and 720p
  - Three types of picture output mode are supported for down-conversion: Edge Crop, Squeeze, and Letterbox (16:9/14:9/13:9)
- 1080/23.98p format recording and playback capability as standard

**CINEALTA**

- Supports SD (MPEG IMX/DVCAM) recording modes as standard
- 9-inch\*3 type WVGA LCD
- Built in stereo speaker
- AC, DC, or battery powered



- Easy-to-use Jog/Shuttle dial
  - Jog: -1 to +1 times normal speed
  - Shuttle: -20 to +20 times normal speed
- Disc Exchange Cache (up to 30 seconds)
- Trigger REC function (synchronized recording with compatible camcorders\*4)

- Excellent user interface for EDL-based (non-destructive) editing
  - Intuitively operable key panel
  - VTR editing-like GUIs
  - External player device control (e.g., a VTR/XDCAM deck) via the RS-422A interface



- Key panel illumination light for use in low light environments



- Video process control via front panel operation
- Phantom powered stereo microphone input
- Audio level control
- Audio channel mix monitor output
- Direct FTP function: allows file transfer via Ethernet without a PC
- EDL based voice over: video over and audio over\*5 (option: PDBZ-UPG03\*6 or PDBK-MK1\*6)



- EDL based audio split and audio level editing
- Clip Continuous REC function
- Easy metadata input via USB keyboard\*7 or software keyboard
- Composite input
- HDMI output for viewing
- IT interfaces for file transfer
  - i.LINK File Access Mode (FAM)
  - Gigabit Ethernet (1000BASE-T)
- Input and output of an HDV compatible stream in 1080i/720p format (option: PDBK-202)
- DVB-ASI output (option: PDBK-202)

- SxS Memory Card Adaptor (option: PDBK-MK1\*6)
  - Two slots for SxS™ PRO™ Memory Card
  - Simultaneous recording on Professional Disc media and SxS Pro Memory Card
  - File copying or baseband copying\*8 between Professional Disc media and SxS Pro Memory Card
  - Material copying from Professional Disc media to SxS Pro Memory Card based on a Clip List
  - EDL based voice over: video over and audio over\*5 (the PDBK-MK1 adaptor includes the function of the PDBZ-UPG03 key)



\*1: Audio specifications vary according to recording mode.  
 \*2: 18-Mbps mode is playback only.  
 \*3: Viewable area measured diagonally.  
 \*4: PDW-F800/700, HDW-650 Series, HDW-790, and HDW-F900R camcorders.  
 \*5: Audio track must be less than three minutes.  
 \*6: Planned for release in the second half of 2010.  
 \*7: Some keyboards cannot be used. Please refer to the supplied manual.  
 \*8: Capabilities depend on recording formats.

**PDBK-MK1 Applications**

**Simultaneous Recording**



**On-location Copy and Reuse**



PDW-HR1 Rear Panel



Hand Grip

# XDCAM Drive Unit

- Handles files in all formats of XDCAM HD422, XDCAM HD and XDCAM SD formats
- Handles both the dual layer disc (PFD50DLA) and single layer disc (PFD23A)
- Supports the Hi-Speed USB (USB 2.0) interface - compatible with most PCs
- Direct access to files on Professional Disc media from a USB connected PC
- High speed file transfers with the newly developed optical drive
- Material browsing on the supplied PDZ-VX10 XDCAM Viewer software and PDZ-1 Proxy Browsing software
- Data file recording by User Data folder
- Highly compact and lightweight
- Dimensions (W x H x D): 2 3/8 x 6 1/2 x 9 inches (59 x 164 x 226 mm)
- Weight: 3 lb 1 oz (1.4 kg)
- Can be operated either horizontally or vertically



External PC drive with a Hi-Speed USB Interface  
**PDW-U1**

## PDW-U1 Specifications

		PDW-U1
Power requirements		DC 12 V
Power consumption		10 W
Operating temperature		+41 to +104 °F (5 to 40°C)
Storage temperature		-4 to +140 °F (-20 to +60°C)
Humidity		20 to 90% (relative humidity)
Weight		3 lb 1 oz (1.4 kg)
Dimensions		2 3/8 x 6 1/2 x 9 inches (59 x 164 x 226 mm)
Recording /playback format	Video	MPEG HD422 (50 Mb/s)
		MPEG HD (35/25/18 Mb/s)
		MPEG IMX (50/40/30 Mb/s),
		DVCAM (25 Mb/s)
	Proxy Video	MPEG-4
	Audio	MPEG HD422: 8 ch/24 bits/48kHz
MPEG HD: 4/2 ch/16bits/48kHz		
MPEG IMX: 8 ch/16 bit/48 kHz, or 4 ch/24 bit/48 kHz		
DVCAM: 4 ch/16 bit/48 kHz		
Proxy Audio	A-law (8/4/2 ch/8 bit/8 kHz)	
Interfaces		Hi-Speed USB (USB 2.0) x 1
Supplied accessories		Operation manual (x1) PDZ-1 Proxy Browsing Software (x1) PDZ-VX10 XDCAM Viewer Software (x1) PDZK-P1 XDCAM Transfer Software (x1) XDCAM Drive Software (x1)

# XDCAM Cart

- Accommodates XDCAM decks
- Ideal for multi disc ingesting, nearline archiving and on air playout applications
- Equipped with the VCC protocol (RS-422A or RS-232C)
- File based content management using metadata
- Equipped with a barcode reader unit
- Optional PDJ-CS10 application software allows third-party applications to transfer files from the cart over a network, without controlling the cart's robotics or decks
- High reliability with low cost maintenance
- Data file recording with a Professional Disc user data folder



PDJ-C1080



PDJ-A640

Robotic disc library with 640-disc capacity  
**PDJ-A640**

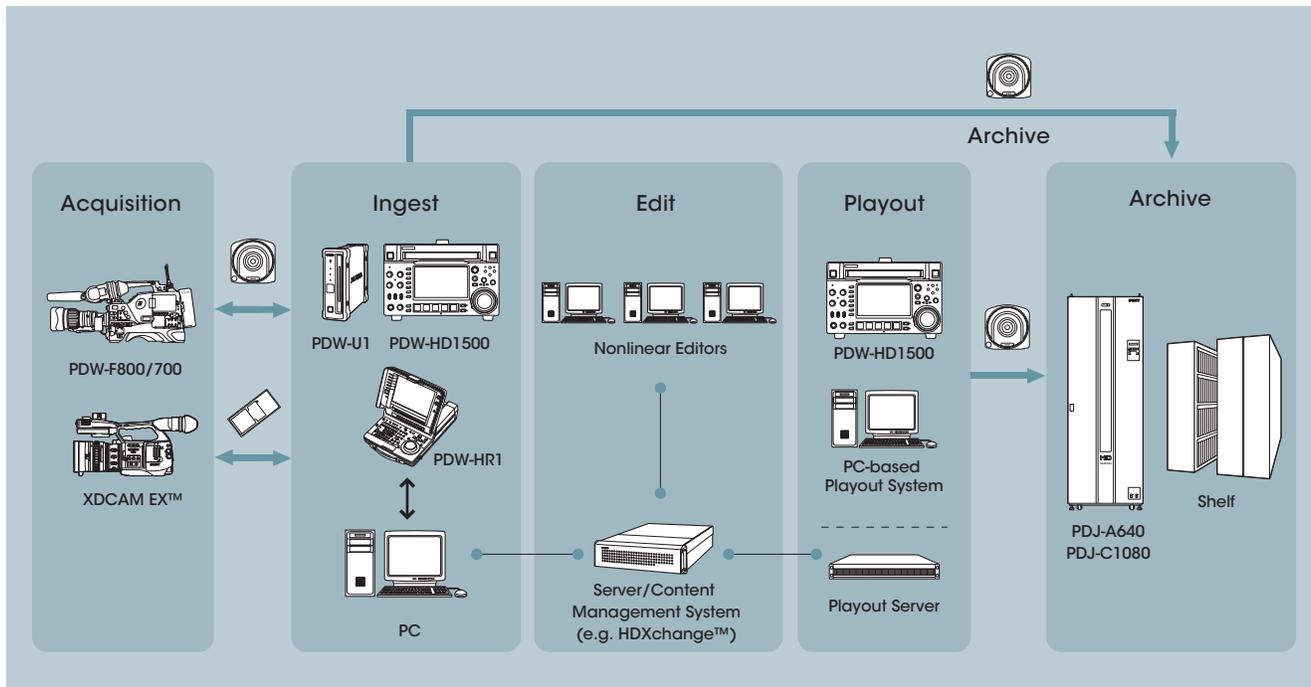
Robotic disc library with 80-disc capacity  
**PDJ-C1080**

## XDCAM Cart Main Specifications

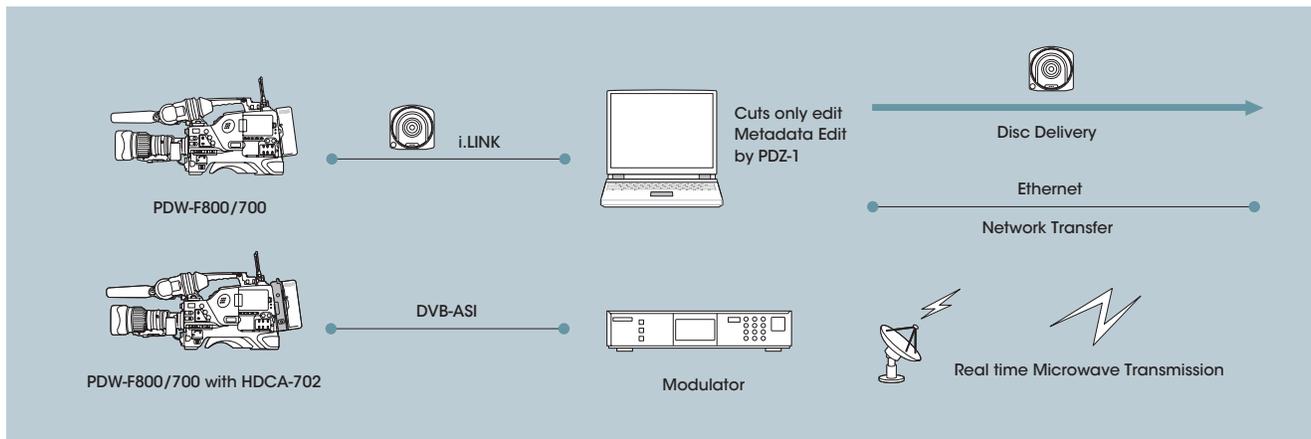
	PDJ-A640	PDJ-C1080
Max. number of discs	640	80
Total storage capacity	32 Terabytes (50-GB disc x 640) 15 Terabytes (23-GB disc x 640)	4.0 Terabytes (50-GB disc x 80) 1.8 Terabytes (23-GB disc x 80)
Max. number of decks installed	4	4
Compatible decks	PDW-F1600, PDW-HD1500, PDW-F75*1, PDW-1500 in any combination	PDW-F1600, PDW-HD1500, PDW-1500 in any combination

\*1: Requires optional PDBK-A640 XDCAM Cart Mount Kit for PDW-F75

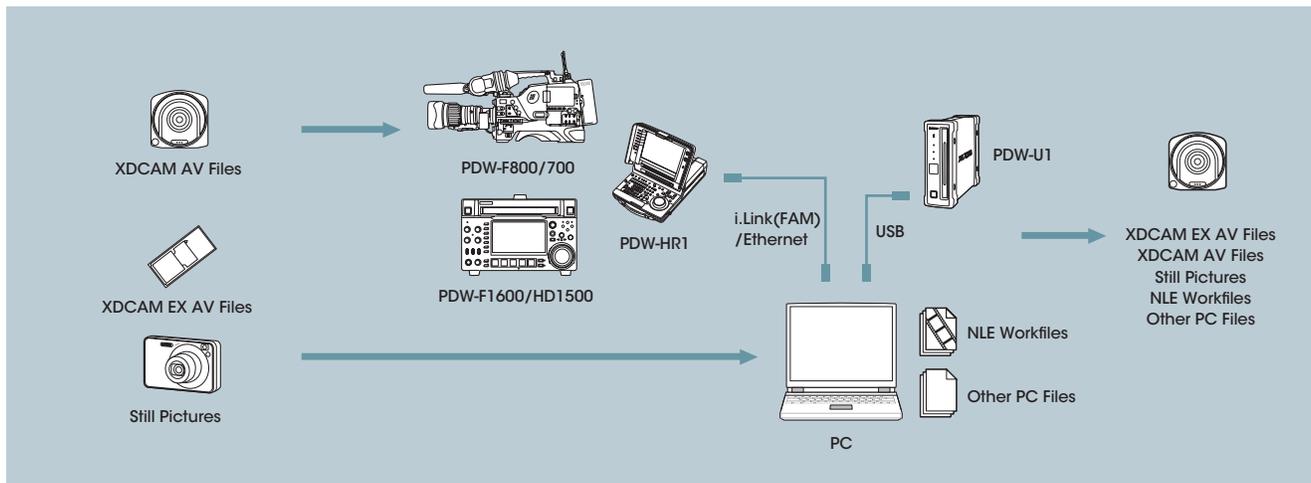
## XDCAM HD422 Workflow



## XDCAM Transfer Operation



## Data File Recording by User Data Folder



# XDCAM Application Software

All XDCAM HD422 products come with a variety of free application software packages that maximize the benefits of XDCAM disc and file based operations.

## PDZ-1

PDZ-1 software is a simple-to-use PC application that allows users to easily browse and storyboard video clips recorded by an XDCAM system. It runs on Windows-based PCs and supports three types of interfaces: i.LINK (File Access Mode), Ethernet and USB\*1.

Once Proxy Data recorded on Professional Disc media is transferred to a PC with the PDZ-1 software installed, users can conveniently view and storyboard recorded footage right on the PC.

\*1: USB interface is only for PDW-U1.

## PDZ-1 Features

- Supported interfaces: i.LINK (File Access Mode), Ethernet, and USB (only for connection with the PDW-U1)
- High speed ingestion of Proxy Data from XDCAM devices
- Browsing of Proxy Data recorded by XDCAM devices
- Simple and quick cuts only editing (storyboarding)\*1 with the following functions:
  - Preview results of the storyboard on PC
  - Save the results as a Clip List (XDCAM EDL)
  - Convert the Proxy Data on the storyboard to an ASF file for replay on Windows Media™ Player
  - Export the Clip List in AAF, BVE-9100, NewsBase™ XML, and ALE (Avid Log Exchange) formats
  - Transfer high resolution clips according to the Clip List
- Live logging\*2: enables users, while recording, to register EssenceMark metadata with a real time view of content
- Disc copy - entire disc (all clips) or only selected clips
- Transfer selected clips with margins at the head and tail of the clips
- Registration of metadata for a disc or clip such as "title", "creator", or "comments"

- Registration of EssenceMark metadata for instant cue-up to desired scenes; names for EssenceMark metadata can also be easily assigned
- Automatic renaming of clips by predetermined rule (uses a predetermined prefix plus sequential numbers)
- Clip Search function using the registered metadata as a keyword
- Print function allows metadata such as thumbnails, creation date, and comments to be printed out in an easy-to-see storyboard view

\*1: The video and audio of a clip cannot be edited independently.

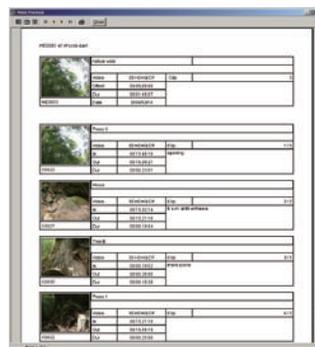
\*2: PDW-F800/700 requires optional CBKZ-UPG01 key.

## System Requirements

- OS: Windows XP®: Professional (SP3 or later)  
Windows Vista®: Business 32 bit/64 bit (SP2 or later)  
Ultimate 32 bit/64 bit (SP2 or later)  
Windows 7: Professional 32 bit/64 bit  
Ultimate 32 bit/64 bit
- CPU: Pentium® M processor or higher
- NOTE: In Live Logging mode, the recommended CPU is Pentium 4 2 GHz or higher
- RAM: 512 MB or more
- Other: Internet Explorer® 6.0 (SP1 or later), DirectX® 8.1b or later, screen size XGA (1024 x 768) or higher



Storyboarding



Printing of Storyboard



Live Logging

## PDZ-VX10 Sony XDCAM Viewer

PDZ-VX10 software allows the user to view high resolution and Proxy MXF files recorded by XDCAM systems on their PC. With this software installed, thumbnails for all clips can be displayed in Windows Explorer, enabling the content of a disc to be scanned easily and quickly.



### System Requirements

OS: Windows XP: Professional (SP3 or later),  
 Windows Vista: Business 32 bit/64 bit (SP2 or later),  
 Ultimate 32 bit/64 bit (SP2 or later)  
 Windows 7: Professional 32 bit/64 bit,  
 Ultimate 32 bit/64 bit  
 CPU: Intel Core Duo processor 2.66 GHz or higher, or  
 Intel Pentium 4 3 GHz or higher  
 RAM: 1 GB or more  
 Other: Internet Explorer 6.0 (SP1 or later), DirectX 9.0c or later

## Proxy Viewer

The Proxy Viewer is a simple application to play back Proxy Data on a PC.



### System Requirements

OS: Windows XP: Professional (SP3 or later)  
 Windows Vista: Business 32 bit/64 bit (SP2 or later),  
 Ultimate 32 bit/64 bit (SP2 or later)  
 Windows 7: Professional 32 bit/64 bit,  
 Ultimate 32 bit/64 bit  
 CPU: Pentium M processor or higher  
 NOTE: In Live Logging mode, the recommended CPU is  
 Pentium 4 2-GHz or higher  
 RAM: 512 MB or more  
 Other: Internet Explorer 6.0 (SP1 or later), DirectX 8.1b or later,  
 screen size XGA (1024 x 768) or higher

## PDZK-P1 XDCAM Transfer for Apple Final Cut Pro Nonlinear Editing Systems

PDZK-P1 XDCAM Transfer is plug-in software for Apple Final Cut Pro® nonlinear editing systems that provides native support for MXF files recorded by XDCAM systems. With this software installed, XDCAM devices can be mounted on Mac Finder via a FireWire/i.LINK connection, and users can seamlessly import, edit and export recorded material.



### System Requirements

OS: Mac® OS X version 10.4.11, 10.5.8, 10.6.2, or later  
 CPU: Intel Core2 Duo 2 GHz, Intel Xeon® 2 GHz or higher  
 Other: QuickTime® version 7.3.1 or later, Final Cut Pro version 6.0.3 or later

The latest versions of software can be downloaded from the Sony website.  
 Please contact your nearest Sony office for more details.

# Optional Accessories

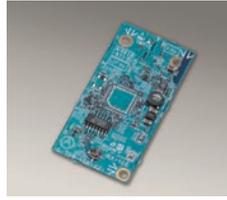
## PDW-F800/700 Camcorder Common Options



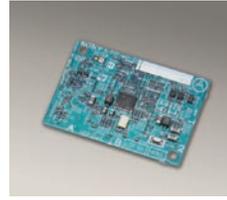
**PFD50DLA**  
Professional Disc



**PFD23A**  
Professional Disc



**CBK-HD01**  
HD/SD-SDI Input Board



**CBK-SC02**  
Analog Composite Input Board



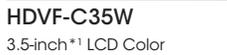
**CBK-WA01**  
Wi-Fi Adapter



**CBKZ-UPG01**  
Software Upgrade Key



**HDVF-C30WR**  
HD Electronic Viewfinder



**HDVF-C35W**  
3.5-inch\*1 LCD Color Viewfinder



**HDVF-20A**  
2.0-inch\*1 CRT B/W Viewfinder



**HDVF-200**  
2.0-inch\*1 CRT B/W Viewfinder



**BP-GL95A/GL65A/  
L80S/L60S/GL95/  
GL65**  
Lithium-ion Battery Pack



**BC-L500**  
Battery Charger



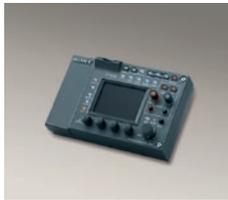
**BC-L160**  
Battery Charger



**BC-L70**  
Battery Charger



**AC-DN10/DN2B**  
AC Adaptor  
(Photo shows AC-DN10)  
AC-DN10: Max. 100 W  
AC-DN2B: Max. 150 W



**RM-B750/B150**  
Remote Control Unit  
(Photo shows RM-B750)



**RCP-1530/1501/  
1500/1001/1000**  
Remote Control Unit  
(Photo shows RCP-1530)



**MSU-1500/1000**  
Master Setup Unit  
(Photo shows MSU-1500)



**DWR-S01D**  
Wireless Microphone Receiver



**WRR-855S**  
Wireless Microphone Receiver



**ECM-680S**  
Shotgun-type Electret Condenser Microphone



**ECM-674/678**  
Shotgun-type Electret Condenser Microphone  
(Requires supplied 3-pin to 5-pin conversion cable. Photo shows ECM-674)



**HDCA-702**  
MPEG TS Adaptor



**VCT-14**  
Tripod Adaptor



**BKW-401**  
Viewfinder Rotation Bracket

\*1: Viewable area measured diagonally.

### PDW-F800/700 Camcorder Common Options



**CAC-12**  
Mic Holder



**LC-424TH**  
Carrying Case (Hard)

### PDW-700 Camcorder Options

**CBKZ-FC02**  
24P Record and Playback Key

**CBKZ-MD01**  
SD Record and Playback Key

### PDW-F1600/HD1500 Recording Deck and PDW-HR1 Field Station Common Options



**PFD50DLA**  
Professional Disc



**PFD23A**  
Professional Disc



**BP-GL95A/GL95/L80S**  
Lithium-ion Battery Pack



**RM-280**  
Editing Controller  
(Ver 2.03 or later)

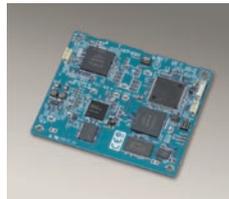


**RCC-5G**  
Remote Control Cable (5 m)

### PDW-F1600/HD1500 Recording Deck Common Options



**BKP-L551**  
Lithium-ion Battery Adaptor



**PDBK-201**  
MPEG TS IN/OUT Board



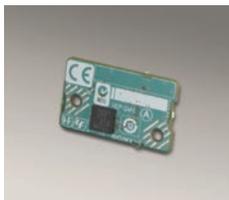
**HKDV-900**  
Video Control Unit  
(Ver 2.00 or later)

**LCPDW1500TH**  
Carrying Case (Hard)

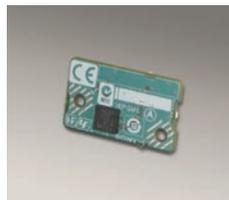
**PDBZ-UPG02**  
Software Upgrade Key

**RMM-HD15**  
Rack Mount Kit

### PDW-HD1500 Recording Deck Options



**PDBK-S1500**  
SD Record and Playback Key



**PDBK-F1500**  
24P and SD Record and Playback Key

### PDW-HR1 Field Recorder Options



**PDBK-202**  
MPEG TS IN/OUT Board



**PDBK-MK1\*1**  
SxS Memory Adaptor for HR1

**LCPDWHR1TH**  
Carrying Case (Hard)

**PDBZ-UPG03\*1**  
Software Upgrade Key

### XDCAM HD422 Common Options



**LUMA Series**  
Professional LCD Monitor



**Vegas Pro 9**

\*1: Planned for release in the second half of 2010.

# XDCAM HD422 Camcorder Specifications

	PDW-F800	PDW-700
<b>General</b>		
Weight	9 lb 8 oz (4.3 kg) (body), 13 lb 4 oz (6.0 kg) (w/ V/E Mic, Disc, BP-GL95A battery)	
Power requirements	DC 12 V +5.0 V/-1.0 V	
Power consumption	40 W (while recording, w/o options, color LCD On) 44 W (while recording, w/viewfinder, color LCD On, manual lens, microphone)	
Operating temperature	32°F to 104°F (-5°C to +40°C)	
Storage temperature	-4°F to +140°F (-20°C to +60°C)	
Humidity	10% to 90% (relative humidity)	
Continuous operating time	Approx. 100 min w/BP-GL95A battery (while recording, w/viewfinder, color LCD On, manual lens, microphone)	
Recording format (Video)	MPEG HD422 (CBR: 50 Mbps) MPEG HD: HQ mode (VBR, maximum bit rate: 35 Mbps), SP mode (CBR, 25 Mbps), LP mode (VBR, maximum bit rate: 18 Mbps) (playback only) MPEG IMX**1 (CBR, 50/40/30 Mbps) DVCAM**1 (CBR, 25 Mbps)	
Recording format (Audio)	MPEG HD422: 4 ch/24 bits/48 kHz MPEG HD: 4 ch/16 bits/48 kHz MPEG IMX**1: 4 ch/24 bits/48 kHz or 4 ch/16 bits/48 kHz DVCAM**1: 4 ch/16 bits/48 kHz	
Recording format (Proxy Video)	MPEG-4	
Recording format (Proxy Audio)	A-law (4 ch/8 bits/8 kHz)	
Recording/Playback time (MPEG HD422)	50 Mbps: Approx. 95 min (PFD50DLA), Approx. 43 min (PFD23A)	
Recording/Playback time (MPEG HD)	35 Mbps, 4-ch audio: More than 145 min (PFD50DLA), More than 65 min (PFD23A) 35 Mbps, 2-ch audio (playback only): More than 150 min (PFD50DLA), More than 68 min (PFD23A) 25 Mbps, 4-ch audio: Approx. 190 min (PFD50DLA), Approx. 85 min (PFD23A) 25 Mbps, 2-ch audio (playback only): Approx. 200 min (PFD50DLA), Approx. 90 min (PFD23A) 18 Mbps, 4-ch audio (playback only): More than 248 min (PFD50DLA), More than 112 min (PFD23A) 18 Mbps, 2-ch audio (playback only): More than 265 min (PFD50DLA), More than 122 min (PFD23A)	
Recording/Playback time (MPEG IMX)	50 Mbps**1: Approx. 100 min (PFD50DLA), Approx. 45 min (PFD23A) 40 Mbps**1: Approx. 120 min (PFD50DLA), Approx. 55 min (PFD23A) 30 Mbps**1: Approx. 150 min (PFD50DLA), Approx. 68 min (PFD23A)	
Recording/Playback time (DVCAM)	25 Mbps**1: Approx. 185 min (PFD50DLA), Approx. 85 min (PFD23A)	
<b>Inputs/Outputs</b>		
GENLOCK IN	BNC (x1), 1.0 Vp-p, 75 Ω (Composite input (option: CBK-SC02) shares the same connector)	
TC IN	BNC (x1), 0.5 Vp-p to 18 Vp-p, 10 kΩ	
SDI IN	(Option: CBK-HD01) BNC (x1), (HD/SD switchable) HD-SDI: SMPTE 292M (w/embedded audio) SD-SDI: SMPTE 259M (w/embedded audio)	
AUDIO IN	CH-1/CH-2: XLR-type 3-pin (female) (x2), Line/Mic/Mic +48V/AES/EBU selectable	
MIC IN	XLR-type 5-pin (female, stereo) (x1)	
TEST OUT	BNC (x1), (switchable) HD Y/SD composite (character On/Off)	
SDI OUT	BNC (x2) 1 (HD/SD switchable) HD-SDI: SMPTE 292M (w/embedded audio) SD-SDI: SMPTE 259M (w/embedded audio) 2 (HD/SD switchable, character On/Off) HD-SDI: SMPTE 292M (w/embedded audio) SD-SDI: SMPTE 259M (w/embedded audio)	
AUDIO OUT	CH-1/CH-2: XLR-type 5-pin (male, stereo) (x1)	
TC OUT	BNC (x1), 1.0 Vp-p, 75 Ω	
EARPHONE	Mini-jack (x2) (front: monoaural, rear: stereo/monoaural)	
DC IN	XLR-type 4-pin (male) (x1), 11 V to 17 V	
DC OUT	4-pin (x1) (for wireless microphone receiver), 11 V to 17 V DC (max 1.0 A)	
LENS	12-pin	
REMOTE	8-pin	
LIGHT	2-pin, DC 12 V, max. 50 W	
Camera adaptor	50-pin	
I.LINK	IEEE 1394**2, 6 pin (x1), File Access Mode	
Memory Stick	(x1) for camera setup files	
Ethernet	RJ-45 (x1), 100BASE-TX: IEEE 802.3u, 10BASE-T: IEEE 802.3	
USB	(x1)	
<b>Audio Performance</b>		
Frequency response	20 Hz to 20 kHz, +0.5 dB/-1.0 dB	
Dynamic range	More than 93dB	
Distortion	Less than 0.08% (at 1 kHz, reference level)	
Crosstalk	Less than -70 dB (at 1 kHz, reference level)	
Wow & flutter	Below measurable limit	
Headroom	20/18/16/12 dB (selectable)	
<b>Camera Section</b>		
Pickup device	3-chip 2/3-inch type HD Power HAD FX CCDs	
Effective picture elements	1,920 x 1,080 (H x V)	
Optical system	F1.4 prism	
Built-in optical filters	CC: A: Cross, B: 3200K, C: 4300K, D: 6300K ND: 1: Clear, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND	1: Clear, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND
Shutter speed	59.94i, 59.94p: 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS, SLS 50i, 50p: 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS, SLS 29.97p: 1/40, 1/60, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS, SLS 25p: 1/33, 1/50, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS, SLS 23.98p or 720/23.98p (Pull-down): 1/32, 1/48, 1/50, 1/60, 1/96, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS, SLS	59.94i, 59.94p: 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS, SLS 50i, 50p: 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS, SLS 29.97p: 1/40, 1/60, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS, SLS 25p: 1/33, 1/50, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS, SLS 23.98p**3 or 720/23.98p (Pull-down): 1/32, 1/48, 1/50, 1/60, 1/96, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS, SLS
Shutter speed (Slow shutter (SLS))	2-, 3-, 4-, 5-, 6-, 7-, 8-, 16-frame accumulation	
Slow & Quick Motion function	(MPEG HD422 mode only) 23.98p: Selectable from 1 to 48 frame/sec as recording frame rate 25p: Selectable from 1 to 50 frame/sec as recording frame rate 29.97p: Selectable from 1 to 59.94 frame/sec as recording frame rate	-
Lens mount	2/3-inch type 48 bayonet mount	
Sensitivity (2000 lx, 89.9% reflectance)	59.94i: F11, 50i: F12 (typical)	
Minimum illumination	Approx. 0.016 lx (F1.4 lens, +42 dB, with 16-frame accumulation)	
Gain selection	-6, -3, 0, 3, 6, 9, 12, 18, 24, 30, 36, 42 dB	
Smear level	-135 dB (typical)	
S/N ratio	59 dB (54 dB w/o NS)	
Horizontal resolution	1,000 TV lines or more (1920 x 1080i mode)	
Registration	Less than 0.02%	
Modulation depth	45% or more at 27.5 MHz (typical)	
<b>Viewfinder</b>		
Viewfinder	Option	
<b>Others</b>		
Built-in LCD Monitor	3.5-inch**4 type color LCD monitor	
Built-in Speaker	(x1)	
<b>Supplied Accessories</b>		
	Shoulder belt (x1), Operation manual (x1), XDCAM Application Software CD-ROM (x1), Microphone cable (for converting 3-pin to 5-pin) (x1)	

\*1: The PDW-700 requires optional CBKZ-MD01 key.

\*2: AV/C (DV) interface is NOT supported.

\*3: Requires optional CBKZ-FC02 key.

\*4: Viewable area measured diagonally.

## XDCAM HD422 Deck and Field Recorder Specifications

	PDW-F1600	PDW-HD1500	PDW-HR1
<b>General</b>			
Power requirements	AC 100 V to 240 V, 50/60 Hz, DC 12 V		AC 100 V to 240 V, 50/60 Hz, DC +12 V, Battery
Power consumption	AC: 80 W, DC: 65 W, SAVEMODE (DC): 55 W		AC: 65 W, DC: 55 W
Operating temperature	+41°F to 104°F (5°C to 40°C)		32°F to 104°F (0°C to 40°C)
Storage temperature	-4°F to +140°F (-20°C to +60°C)		
Humidity	25% to 90% (relative humidity)		
Weight	14 lb 5 oz (6.5 kg)		16 lb 5 oz (7.4 kg)
Dimensions (W x H x D) (excluding protrusions)	8 3/8 x 5 1/4 x 15 5/8 inches (210 x 132 x 396 mm)		11 7/8 x 5 1/8 x 15 3/4 inches (300 x 129 x 400 mm)
Recording/Playback format (Video)	MPEG HD422 (CBR: 50 Mbps) MPEG HD: HQ mode (VBR, maximum bit rate: 35 Mbps), SP mode (CBR, 25 Mbps), LP mode (VBR, maximum bit rate: 18 Mbps) (playback only), MPEG IMX*1 (CBR: 50/40/30 Mbps) DVCAM*1 (CBR: 25 Mbps)		
Recording/Playback format (Audio)	MPEG HD422: 8 ch/24 bits/48 kHz MPEG HD: 4 ch/16 bits/48 kHz MPEG IMX*1: 4 ch/24 bits/48 kHz or 8 ch/16 bits/48 kHz DVCAM*1: 4 ch/16 bits/48 kHz		
Recording/Playback format (Proxy Video)	MPEG-4		
Recording/Playback format (Proxy Audio)	A-law (8 ch/8 bits/8 kHz)		
Recording/Playback time (MPEG HD422)	50 Mbps: Approx. 95 min (PFD50DLA), Approx. 43 min (PFD23A)		
Recording/Playback time (MPEG HD)	35 Mbps, 4-ch audio: More than 145 min (PFD50DLA), More than 65 min (PFD23A) 35 Mbps, 2-ch audio (playback only): More than 150 min (PFD50DLA), More than 68 min (PFD23A) 25 Mbps, 4-ch audio: Approx. 190 min (PFD50DLA), Approx. 85 min (PFD23A) 25 Mbps, 2-ch audio (playback only): Approx. 200 min (PFD50DLA), Approx. 90 min (PFD23A) 18 Mbps, 4-ch audio (playback only): More than 248 min (PFD50DLA), More than 112 min (PFD23A) 18 Mbps, 2-ch audio (playback only): More than 265 min (PFD50DLA), More than 122 min (PFD23A)		
Recording/Playback time (MPEG IMX)	50 Mbps*1: Approx. 100 min (PFD50DLA), Approx. 45 min (PFD23A) 40 Mbps*1: Approx. 120 min (PFD50DLA), Approx. 55 min (PFD23A) 30 Mbps*1: Approx. 150 min (PFD50DLA), Approx. 68 min (PFD23A)		
Recording/Playback time (DVCAM)	25 Mbps*1: Approx. 185 min (PFD50DLA), Approx. 85 min (PFD23A)		
Search speed range (Shuttle mode)	-20 times to +20 times normal speed		
Search speed range (Variable mode)	-2 times to +2 times normal speed		-1 time to +1 time normal speed
Search speed range (Jog mode)	-1 time to +1 time normal speed		-1 time to +1 time normal speed
Search speed range (FFwd/Rev)	-35/+35 times normal speed		-20/+20 times normal speed
<b>Inputs/Outputs</b>			
Reference input	BNC (x2) (including loop-through), HD Tri-level sync (0.6 Vp-p/75 Ω/negative) or SD blackburst/composite sync (0.286 Vp-p/75 Ω/negative)		
Analog composite input	-		BNC (x1), 1.0 Vp-p/75 Ω/negative, SMPTE 170M
HD-SDI input	BNC (x1), (HD/SD switchable) HD-SDI: SMPTE 292M (w/embedded audio) SD-SDI: SMPTE 259M (w/embedded audio)		
Analog audio input	XLR-type 3-pin (female) (x2) (channel selectable), +4/0/-3/-6 dBu (selectable), 10 kΩ, balanced		XLR-type 3-pin (female) (x4) (channel selectable), +4/0/-3/-6 dBu (selectable), 10 kΩ, balanced CH1 and CH2: switchable phantom powered mic input
Digital audio input (AES/EBU)	BNC (x2), 4 ch (2 ch each, 1/2 ch and 3/4 ch), AES-3id-1995		-
Time code input	BNC (x1), SMPTE time code, 0.5 Vp-p to 18 Vp-p/3.3 kΩ/unbalanced		
Analog composite output	BNC (x2), 1: 1.0 Vp-p/75 Ω/negative, SMPTE 170M 2: 1.0 Vp-p/75 Ω/negative, SMPTE 170M, character On/Off		BNC (x1), 1.0 Vp-p/75 Ω/negative, SMPTE 170M, character On/Off
HD-SDI output	BNC (x2), 1: SMPTE 292M (w/embedded audio) 2: SMPTE 292M (w/embedded audio), character On/Off		
SD-SDI output	BNC (x2), 1: SMPTE 259M (w/embedded audio) 2: SMPTE 259M (w/embedded audio), character On/Off		BNC (x1), SMPTE 259M (w/embedded audio), character On/Off
HDMI	-		(x1), output
Analog audio output	XLR-type 3-pin (male) (x2) (channel selectable), +4/0/-3/-6 dBu (selectable), 600 Ω, Lo-z, balanced		XLR-type 3-pin (male) (x4) (channel selectable), +4/0/-3/-6 dBu (selectable), 600 Ω, Lo-z, balanced CH3 and CH4: switchable analog audio monitor
Analog audio monitor	XLR-type 3-pin (male) (x2), +4 dBu, 600 Ω, Lo-z, balanced		-
Digital audio output (AES/EBU)	BNC (x2), 4 ch (2 ch each, 1/2 ch and 3/4 ch), AES-3id-1995		-
Headphone output	JM-60 Stereo phone jack (x1), -13 dBu, 8 Ω, unbalanced		
Time code output	BNC (x1), SMPTE time code, 1.0 Vp-p/75 Ω/unbalanced		
Video control	D-sub 9-pin (female) (x1), EIA RS-423		-
i.LINK	IEEE 1394*2 6-pin (x1), File Access Mode, (Option: PDBK-201) HDV 1080i/720p IN/OUT		IEEE 1394*2 6-pin (x2), 1: File Access Mode, 2: (Option: PDBK-202) HDV 1080i/720p IN/OUT
Ethernet	RJ-45 (x1), 1000BASE-T: IEEE 802.3ab, 100BASE-TX: IEEE 802.3u, 10BASE-T: IEEE 802.3		
Remote (9P) input	D-sub 9-pin (female) (x1), RS-422A		-
Remote (9P) input/output	-		D-sub 9-pin (female) (x1), RS-422A
DC input (12 V)	XLR-type 4-pin (male) (x1)		
DC output (12 V)	4-pin (female) (x1), DC 12 V, 7.5 W		
Maintenance	USB (x2)		
AC input	(x1), 100 V to 240 V, 50/60Hz		
<b>Video Performance</b>			
Sampling frequency	Y: 74.25 MHz, Pb/Pr: 37.125MHz		
Quantization	8 bits/sample		
Error correction	Reed Solomon Code		
<b>Processor Adjustment Range</b>			
Video level	-∞ to +3 dB		
Chroma level	-∞ to +3 dB		
Set up/black level	± 30 IRE/±210 mV		
Chroma phase	±30°		
System sync phase	±15 μs		
System sync phase (fine)	0 ns to 400 ns		
System SC phase	0 ns to 400 ns		
<b>Audio Performance</b>			
Sampling frequency	48 kHz		
Quantization	24 bits		
Frequency response	20 Hz to 20 kHz +0.5/-1.0 dB (0 dB at 1 kHz)		
Dynamic range	More than 90 dB		
Distortion	Less than 0.05% (at 1 kHz)		
Headroom	20/18/16/12 dB (selectable)		
<b>Others</b>			
Built-in display	4.3-inch*3 type color LCD monitor		9-inch*3 type color LCD monitor
Built-in speaker	(x1), monaural		(x2), L/R
Supplied Accessories	Operation manual (x1), Installation manual (x1), XDCAM Application Software CD-ROM (x1)		

\*1: The PDWHD1500 requires optional PDBK-S1500 or PDBK-F1500 hardware key.

\*2: AV/C (DV) interface is NOT supported.

\*3: Viewable area measured diagonally.

PDW-F800, PDW-700, PDW-F1600, PDW-HD1500, and PDW-HR1 are produced at Sony EMCS Corporation Kosai Tec or Sony UK Technology Centre, which have received ISO14001, the Environmental Management System certification.



Sony Electronics Inc.  
1 Sony Drive  
Park Ridge, NJ 07656  
[sony.com/xdcam](http://sony.com/xdcam)

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