

XDCAM HD422 Family

XDCAM HD
Professional Disc System

MPEG HD422

Power HAD.FX



SONY



PDW-700

XDCAM HD422 Camcorder

PDW-HD1500

XDCAM HD422 Recording Deck

PDW-U1

XDCAM Drive Unit



SONY

The new standard for tapeless High Definition production XDCAM **HD422** Takes XDCAM performance to a new level

SINCE ITS INTRODUCTION IN 2003, the Sony XDCAM system has revolutionised video production. The combination of file-based operation, optical recording and Sony's industry-leading camcorder technology has opened up new ways of working to broadcast and production facilities around the world. Now, Sony has expanded the XDCAM line-up at the top end with the PDW-700 XDCAM HD422 camcorder. The PDW-700 captures stunning HD images. It features three newly developed 2/3-inch progressive Power HAD FX CCDs at 1920 x 1080 resolution. 14-bit A/D conversion and advanced digital signal processing are also used to ensure the highest picture quality. The PDW-700 records at a data rate of up to 50Mb/s using an MPEG-2 4:2:2P@HL compression technology called MPEG HD422.

The camcorder features multi-format recording at 1080/50i, 1080/59.94i, 1080/25P, 1080/29.97P, 720/50P and 720/59.94P. It also supports record and playback of XDCAM HD (4:2:0) at 35Mb/s, 25Mb/s and 18Mb/s**, and XDCAM standard definition MPEG IMX and DVCAM material*. With fast file-based operation and outstanding picture quality, the XDCAM HD422 line-up has widened the appeal of XDCAM for applications such as TV drama, documentaries and general entertainment programs, and for ENG where speed of operation is a critical requirement.

The PDW-HD1500 is a half-rack-wide recording deck equipped with a range of AV and IT interfaces including HD-SDI, SD-SDI, i.LINK™³ and Ethernet. One of the distinctive features of this product is its powerful dual-optical head, offering fast file transfer.

The PDW-U1 is another powerful product in the lineup, offering a compact, mobile and highly cost-effective solution for various applications. It serves as an external PC drive, connected via the Hi-Speed USB (USB 2.0) interface, and allows users to instantly view material recorded to Professional Disc™ media on their PC. It can also be used as a source feeder to non-linear editing systems.

MPEG HD422

Power HAD™ FX

With fast file-based operations and outstanding picture quality, the XDCAM HD422 lineup provides invaluable tools for applications such as news gathering, where speed is a key concern, and for production of TV dramas, documentaries and mainstream entertainment programmes, where a high-quality impression is crucial.



- 1 PDW-700 requires optional CBKZ-MD01.
PDW-HD1500 requires optional PDBK-S1500 or PDBK-F1500 hardware key.
- 2 Recording capability is not supported for MPEG HD 18 Mb/s mode.
- 3 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.



XDCAM™: Tapeless HD422 Products for File-Based Production

Combining the best of the AV and IT worlds and ideal for quick turnaround projects where deadlines are tight.

XDCAM is the family name of the Sony line-up of tapeless camcorders and decks. Offering the most flexible path to file-based production, XDCAM uses MPEG-2 HD data compression to record breathtaking pictures. Simply choose the recording format and bitrate best suited to the programme being created.



XDCAM HD 422

XDCAM HD422 sits at the top of the XDCAM family which also includes the affordable XDCAM EX range, as well as the popular and versatile XDCAM HD series.

The stunning HD picture quality delivered at recording and playback rates of up to 50 Mb/s, with 2/3-inch 1920 x 1080 resolution CCDs, 14 bit A/D conversion and 4:2:2 recording increases the appeal of Professional Disc for applications such as European TV drama, documentary and for mainstream entertainment programmes that require a high quality look.

File-based acquisition with thumbnail and proxy operation is also ideal for fast turnaround news and live applications where speed of production is a critical requirement.

"We are pleased to be once again introducing a Sony format after Betacam and Digital Betacam"

Mr Herbert Tillmann,
Production and Technology Director
Bayerischer Rundfunk

"As this was a significant investment decision, we had to make sure we made the right choice"

Mr Ubaldo Toni,
Head of Engineering Group, Production TV Department,
RAI Radiotelevisione Italiana

"Following the excellent experiences with the existing Sony Camcorders, the decision was made in collaboration with all SRG SSR enterprise units tpc, TSR and TSI for the new SONY PDW-700 and the XDCAM HD format"

Roberto Pomari,
Head of Production SRG SSR

"The PDW-700 will be heavily used for news production and a range of other programming. It's intuitive to use, easy to handle and the picture quality is fabulous."

Jozef Mertens,
Technical Director

XDCAM HD422

At the Top of the XDCAM Series

Sony is proud of the XDCAM HD422 lineup offering these top-of-the-line products leading the XDCAM series. These powerful tools provide stunningly high-quality recording in both image and audio, as well as versatile operations enabled by a range of interfaces, all of which include capabilities essential to broadcasters, and content producers today.

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

XDCAM HD422 products record and play back high-definition videos 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 Mb/s are used for recording, providing the highest picture quality in the XDCAM series while keeping the data size as low as possible to easily transfer and transmit. Moreover, the MPEG HD422 codec is based on industry standard MPEG compression, offering high compatibility with many other devices such as non-linear 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 and 25P in a resolution of 1920 x 1080, and 59.94P⁽¹⁾ and 50P in 1280 x 720. Recording and playback capability in 23.98P is also available by installing options.

* PDW-700 requires the CBKZ-FC02 software planned to be available in summer 2009.
PDW-HD1500 requires the PDBK-F1500 hardware key planned to be available in summer 2009.

A Variety of Selectable Recording Modes and Video Format

In addition to the high-quality MPEG HD422 50 Mb/s mode, the XDCAM HD422 lineup can record and play back videos in a variety of bit rates and video formats.



High-quality Uncompressed Audio Recording

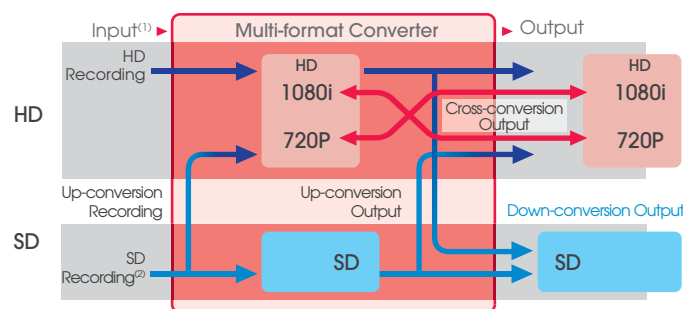
In addition to HD video recording, eight-channel high-quality audio is an equally significant feature in the XDCAM HD422 system. The PDW-HD1500 has eight audio channels (HD-SDI), while the PDW-700 camcorder has four audio channels. Both can record 24-bit, 48 kHz uncompressed audio on each channel.

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⁽¹⁾/output and composite input⁽²⁾/output.

(1) PDW-700 requires optional CBK-HD01 board.
(2) PDW-700 requires optional CBK-SC02 board.

XDCAM HD422 Format Conversion Capability on PDW-700/PDW-HD1500



(1) PDW-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 software.
PDW-HD1500 requires optional PDBK-S1500 or PDBK-F1500 hardware key.

XDCAM HD422 Recording/Playback Specifications

Mode (Codec)	Number of Pixels	Bit Rate (Mb/s)	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					59.94P, 50P, 23.98P(Pull-down)	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	
	18 ⁽²⁾	4 ⁽²⁾	more than 112	more than 248				
		2 ⁽²⁾	more than 122	more than 265				
1280 x 720	35	4	4:2:0	59.94P, 50P, 23.98P(Pull-down)	more than 65	more than 145		
	25				Approx. 85	Approx. 190		
MPEG IMX ⁽¹⁾ (MPEG-2 4:2:2P@ML)	720 x 480 (NTSC) / 720 x 576 (PAL)	50	24	4	4:2:2	59.94i, 50i	Approx. 45	Approx. 100
			16	8 ⁽³⁾			Approx. 55	Approx. 120
			24	8 ⁽³⁾			Approx. 68	Approx. 150
		40	24	4			Approx. 85	Approx. 200
			16	8 ⁽³⁾			more than 112	more than 248
			24	8 ⁽³⁾			more than 122	more than 265
30	16	4	Approx. 85	Approx. 190				
	16	8 ⁽³⁾	more than 65	more than 145				
DVCAM ⁽¹⁾	720 x 480 (NTSC) / 720 x 576 (PAL)	25	16	4	4:2:0 (NTSC) / 4:1:1 (PAL)	59.94i, 50i	Approx. 85	Approx. 185

(1) PDW-700 requires optional CBKZ-MD01 software. PDW-HD1500 requires optional PDBK-S1500 or PDBK-F1500 hardware key.

(2) Playback only.

(3) Up to 4 ch with PDW-700.

(4) PDW-700 requires optional CBKZ-FC02 software planned to be available in summer 2009. PDW-HD1500 requires optional PDBK-F1500 hardware key planned to be available in summer 2009.

In addition to its impressive HD picture quality, what makes the XDCAM HD422 system so distinguished is its file-based disc recording capability. This brings huge benefits such as instant random access and IT connectivity, to name just two.



PFD50DLA



PFD23A



Powerful Non-linear Recording – The Professional Disc Media

The XDCAM HD422 products use a large-capacity non-linear optical disc for recording, called the Professional Disc media, which Sony has developed specifically for professional recording applications. The PFD50DLA and PFD23A are 12 cm, reusable optical discs. The PFD50DLA is a dual-layer disc with an overwhelming capacity of 50 GB, while the PFD23A is a single-layer, 23-GB disc. The large capacity of the PFD50DLA makes it possible to record up to approximately 95 minutes of high-quality MPEG HD422 material.

The Professional Disc is highly reliable and durable because it experiences no mechanical contact during recording or playback, and is packaged into an extremely durable and dust-resistant disc cartridge. Non-contact recording and playback also makes it an ideal medium for long-term storage of AV assets. Whereas traditional tape archive systems must be rewound on a periodic basis to remove magnetic powder debris, the Professional Disc completely eliminates this process. Its reliability has already been demonstrated by the huge number of XDCAM products deployed worldwide since 2003.

Data Storage Media

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.

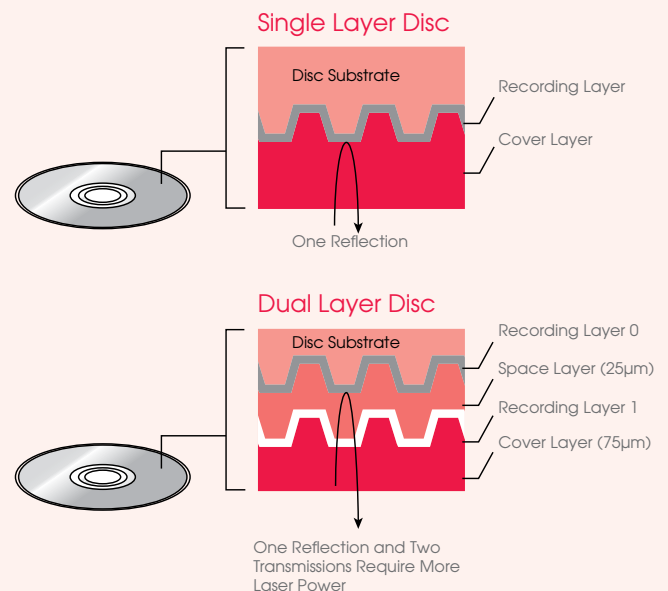
⁽¹⁾ Capacity for this purpose is up to 21.5 GB with the PFD23A, and up to 46.4 GB with the PFD50DLA. Discs formatted by XDCAM SD and XDCAM HD products do not support this capability; however, they have 500 MB of general data area.

The Key Technologies Enabling Dual-layer Recording

The development of the dual-layer disc, PFD50DLA, offers users a much longer recording time on the XDCAM HD422 system. This large-capacity dual-layer disc with compatible disc drive, provide four technological advances:

1. Increased recording density and the dual-layer disc structure offer more than twice the capacity of the single-layer disc.
2. The new substrate and production method for Professional Disc media enhance the stable reflection and transmission of the laser.
3. The new pickup uses much higher laser power – enough to record on a dual-layer disc, while maintaining a long life equivalent to the pickup used for single-layer disc recording.
4. The newly developed servo-control mechanism – which is resistant to the noises that occur at laser reflections and transmissions at each layer – enables fewer access errors, even in unstable situations.

In addition to these advances, the dual-layer disc provides superb robustness and reliability equivalent to those of the single-layer disc.



IT/Network Friendly

In the Sony XDCAM series of products, recordings are made as data files in the industry-standard MXF (Material eXchange Format) file format. This allows material to be handled with great flexibility in an IT-based environment easily available for copying, transferring, sharing and archiving. All these operations are accomplished without the need for a digitising process. File-based data copying allows for degradation-free dubbing of AV content, which can be performed easily on a PC. The file-based recording system also allows for material to be viewed directly on a PC, simply by linking it to the XDCAM unit via an i.LINK connection. This works in just the same way as a PC reading files on an external drive. The XDCAM HD422 camcorder and deck come equipped with IT-friendly, computer-based interfaces. These include an i.LINK interface supporting File Access Mode as standard, and the Ethernet interface⁽¹⁾. Connecting the XDCAM HD422 system to an Ethernet network offers users a new style of network-based operations that can dramatically improve workflow efficiency.

⁽¹⁾ The PDW-HD1500 supports Giga-bit Ethernet, and the PDW-700 supports 100Base-TX Ethernet.



No Overwriting of Footage and Immediate Recording

By virtue of recording on optical disc media, the XDCAM HD422 system makes each new recording on an empty area of disc. This is extremely useful, especially when shooting with camcorders, as it relieves the concerns of camera operators about accidentally recording over good takes, and eliminates the burden of searching for the correct position to start the next recording. In short, it means the camera is always ready for the next shot.

Instant-access Thumbnail Search with Expand Function

With all XDCAM HD422 products, video and audio signals are recorded as one clip file each time a recording is started and stopped. During playback, cue-up to the next or previous clip is possible simply by pressing the Next or Previous button, as if operating a CD or DVD player. Furthermore, thumbnails are automatically generated for each clip as a visual reference, allowing operators to cue-up to a desired scene simply by guiding the cursor to a thumbnail and pressing the Play button. For further convenience, the Expand function allows one selected clip in the thumbnail display to be divided into 12 evenly timed intervals, each with their own thumbnail identifier. This is useful if the user wants to quickly search for a particular scene within a lengthy clip.

Thumbnail Search



Expand Function

Scene Selection Function

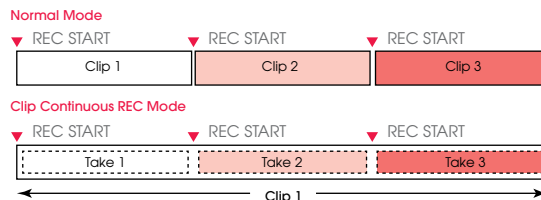
The Scene Selection function of XDCAM HD422 products allows simple cuts-only editing⁽¹⁾ to be performed within the camcorder or deck itself. The results of the edits can be saved as an XDCAM EDL (called "Clip List"), which can be written back to the original disc so as to stay with the material. The disc can then be played back according to the Clip List so that only selected portions are played out in the desired order. The Scene Selection function presents dramatic improvements to conventional workflows, such as when transferring material to a non-linear editor and/or server, or when searching for material and/or edit points in linear editing systems. A multi-control dial is provided on XDCAM HD422 products, providing intuitive and quick scene searches. When GUI-based operation is preferred, the Scene Selection operation can also be performed on a PC running the PDZ-1 Proxy Browsing Software supplied with all XDCAM products, providing a visually familiar working environment.

⁽¹⁾ The video and audio of a clip cannot be edited independently.

Selectable Modes of File Recording

XDCAM HD422 camcorder and deck 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⁽¹⁾, one clip file can be created at the users 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.

⁽¹⁾ Each take needs to be longer than two seconds summer 2009.



Power of Proxy Data – Highly Streamlined Workflows

At the same time as recording its high-resolution video and audio data, the XDCAM HD422 products also record a low-resolution version of this AV data on the same disc. Called "Proxy Data", this is much smaller in size than the high-resolution data. The bit rate is 1.5 Mb/s for video and 0.5 Mb/s for audio (up to eight channels).

Because of its lower resolution, Proxy Data can be transferred to a standard PC at an amazingly high speed, and easily browsed and edited using the PDZ-1 Proxy Browsing Software (or other compatible editing software offered by many industry-leading manufacturers). What's more, with the PDZ-1 software, it can be converted to the popular ASF format for playback on Windows Media Player, providing dramatic improvements in production workflows. Proxy Data can also be viewed directly on a PC without data transfer using an i.LINK (File Access Mode) connection, and can even be sent over a standard Ethernet network.

The overall flexibility of Proxy Data means that it can be used for a variety of applications, such as immediate logging on location, off-line editing, daily rushes of shooting on location, client approvals, and more.

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⁽¹⁾ can be saved, together with the AV material, on the same disc using the supplied PDZ-1 software. 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" (Okay), "NG" (No Good) or "KP" (Keep).

(1) Saving camera setup parameters requires a software upgrade planned to be available in summer 2009.

Local Language Support

A number of fonts for local languages can be used in Clip/Disc Properties in the PDW-700 and the PDW-HD1500.



Supported Languages

- German, French, Spanish, Russian, Japanese and more.

Easy Maintenance and High Reliability

XDCAM HD422 products use the same platform as the XDCAM products in wide use around the world. They share the advantage of no mechanical contact between the equipment and the recording media, achieving both a high level of durability and a long media life. XDCAM HD422 products also offer the same high resistance to shock and vibration as other XDCAM products.

XDCAM HD422 Camcorder PDW-700

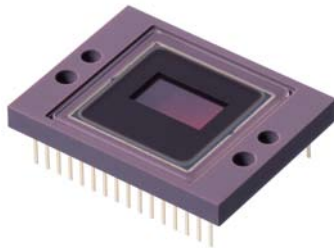


The PDW-700 is a new camcorder equipped with newly developed Power HAD FX CCDs, which are 1920 x 1080 pixels, bringing strikingly high picture quality. It provides recording capabilities in both 1080 and 720, an signal-to-noise ratio of 59 dB with Noise Suppression mode and sensitivity of F11 at 59.94 Hz (F12 at 50 Hz). It can record four-channel 24-bit audio of uncompromised quality.

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

The PDW-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. In addition to this performance, a wide variety of capturing frequencies of 59.94i, 50i, 29.97P, 25P and 23.98P⁽¹⁾ for 1080 mode, 59.94P and 50P for 720 mode are available.

(1) Requires optional CBKZ-F02 software.



14-bit A/D Conversion

The PDW-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 for the PDW-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 analogue circuits, allowing for stable image correction.

Supported Recording Formats – HD/SD and Interface/Progressive

One of the big appeals of the PDW-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) Requires optional CBKZ-MD01 software.

High-quality 24-bit Audio Recording

The PDW-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-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 6.0 kg (13 lb 4 oz) including the HDVF-20A viewfinder, the ECM-680S microphone, the PFD50DLA disc and the BP-GL95 battery pack.

Shock- and Dust-resistant Disc Drive

To minimise errors caused by shock or dust entering the disc drive, the PDW-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-C35W 3.5-inch⁽²⁾ colour viewfinder.

(1) No viewfinder is supplied with the PDW-700.

(2) Viewable area measured diagonally.



Wide Choice of Optional Microphones⁽¹⁾

The PDW-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-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-700.

(2) The digital wireless microphone system



3.5-inch⁽¹⁾ LCD

A large, easy-to-view, colour LCD screen on the PDW-700 camcorder's side panel enables operators to instantly review recorded footage, as well as access the camera's set-up menus and view status indications such as four-channel audio meters, and the remaining time available on the disc and battery. It also enables advanced operations such as Thumbnail Search and Scene Selection.

(1) Viewable area measured diagonally.

Slow Shutter

The shutter speed of the PDW-700 is selectable down to a 16-frame period⁽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 setting is available in 720 mode. Slow Shutter can not function with the Digital Extender.

Interval Recording

The PDW-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-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 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⁾

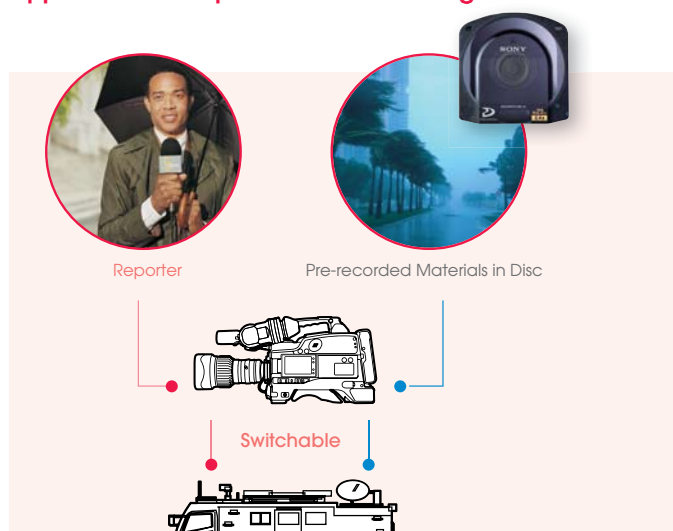
The PDW-700 camcorder has a Live & Play function that allows users to check both playback signals (images already recorded) and incoming camera signals (images seen through the viewfinder) simultaneously, and sequentially output them without any switching noise. Both signals are fed to their respective 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 at News Gathering



Affordable MPEG TS Option for Field and Satellite Transmission

The HDCA-702 MPEG TS Adaptor, which can be docked onto the PDW-700 camcorder, transmits MPEG Transport Stream (TS) of MPEG HD420 (1440 x 1080i) for either 1080i or 720P via DVB-ASI output. This can be done simultaneously as the PDW-700 records onto disc. The bit rate is selectable from 17.25 Mb/s to 43.25 Mb/s at every 10 kb/s, which is suitable for material transmissions using microwave and satellite modulators. When the bit rate is 35 Mb/s or higher, 1920 x 1080i mode can be selected.



Shockless Gain Control

A wide choice of gain and its easy-to-use control system is one remarkable feature of the PDW-700 camcorder. 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.

Optical ND Filters and Electrical CC Filters

The PDW-700 camcorder comes equipped with optical ND (Neutral Density) filters and electrical CC (Colour Correction) filters. The optical ND filter is controlled via a built-in ND filter wheel – Clear, 1/4ND, 1/16ND/ and 1/64ND. And with the electrical CC filter, the user can easily obtain the desired colour temperature by setting the mode – 3200K/4300K/5600K/6300K – on a camcorder-assignable switch. The user can select the four values cyclically or choose the one preset value. Another usage of CC filter function is colour temperature setting which can instantly set the necessary temperature with the absolute value, 3200K, 4300K, 5600K or 6300K. This is also available via assignable switch. This is useful when a sudden change happens in shooting environment and a quick and direct setting is required.

Auto Tracing White Balance

The Auto Tracing White Balance function of the PDW-700 automatically adjusts the camera’s colour 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⁽¹⁾ the auto tracing at a desirable colour balance via an assignable switch.

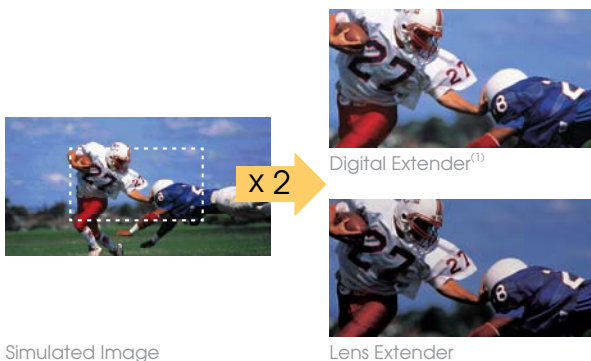
(1) Requires a software upgrade planned to be available in summer 2009.

HyperGamma

HyperGamma is a powerful feature, which is inherited from Sony’s CineAlta camcorders. The PDW-700 provides four types of HyperGamma curve: HyperGamma 1, 2, 3, and 4. Operators can select the best-suited preset gamma curve depending on the scene being shot and their desired ‘look’ for the image. HyperGamma 1 and 3 enhance natural tonal reproduction in low-key areas, while HyperGamma 2 and 4 are suitable for scenes with wide dynamic ranges. All HyperGamma are quickly accessible via the set-up menu.

Digital Extender⁽¹⁾

The Digital Extender function of the PDW-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.

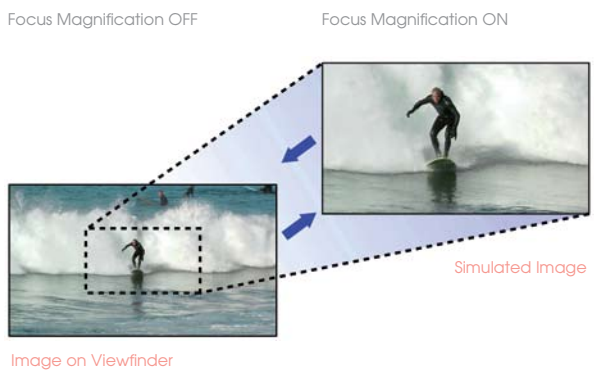


(1) Use of the Digital Extender function reduces image resolution by half. Digital Extender can not function with Slow Shutter.

Focus Magnification⁽¹⁾

At the touch of an assignable button, the centre of the screen on the viewfinder of the PDW-700 camcorder can be magnified to about twice the size, making it easier to confirm focus settings during manual focusing.

- (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



Wide Variety of Interfaces

The PDW-700 camcorder comes equipped with a wide range of interfaces.

PDW-700 Inputs/Outputs

PDW-700		
Signal input	SDI (HD/SD Switchable)	BNC x 1 ⁽¹⁾
	SD Composite	BNC x 1 ⁽²⁾
	Genlock video	BNC x 1
	Audio	XLR-3pin (female) x 2, Line/Mic/ Mic +48V/ASE/ EBU selectable EPU
	Mic	XLR-5pin (female, stereo) x 1
	Timecode	BNC x 1
Signal output	SDI (HD/SD Switchable)	BNC x 1
	SDI (HD/SD Switchable)	BNC x 1, Character ON/OFF
	HD Y/Composite (Switchable)	BNC x 1
	Audio	XLR-5pin (male, stereo) x 1
	Earphone	Mini-jack x 2 (front: monaural, rear: stereo/monoral)
	Timecode	BNC x 1
IT	i.LINK	6-pin x 1(3), File Access Mode
	Ethernet	100Base-TX/10 Base-T x 1
Others	Camera Adaptor	50-pin x 1
	Light	2-pin x 1 (max 12 V, 50 W)
	Lens	12-pin x 1
	Memory Stick	x 1 (for camera setup files)
	USB	x 1 (for maintenance)
Power	DC IN	XLR x 1
	DC OUT (12 V)	4-pin x 1 (for wireless microphone receiver)

(1) Requires an optional CBK-HD01 board.

(2) Requires an optional CBK-SC02 board, and share the same connector as the genlock video.

(3) AV/C (DV) interface is NOT supported.

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-700 camcorder has the Trigger REC function that enables synchronised recording with PDW-HD1500 and PDW-F75 XDCAM decks or HDCAM™ portable decks connected via the HD-SDI interface – a convenient feature for backup recording.

Other Camcorder Features

- › Compatible with a variety of remote control units⁽¹⁾: RM-B750/B150, MSU-950/900 and RCP-920/921/750/751
- › Freeze Mix function superimposes a previously recorded image on the viewfinder; this allows the operator 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
- › Thumbnail Search function
- › Expand function
- › Scene Selection function for in-camera cuts-only editing⁽²⁾
- › Ability to write EDL (the result of the Scene Selection) back onto disc

- › Proxy Data recording
- › Data file recording by User Data folder
- › USB keyboard can be used for input text data on thumbnail GUI
- › Customisable user menu: user can change the names of user menu files
- › Five assignable buttons: two buttons on the camera handle, three on the inside panel (including Colour Temp. button), which enable operators to assign frequently used functions (RET button on the lens can be used for this purpose)
- › The Turbo Gain function can boost the 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) function for storage of camcorder setup files
- › Monochrome LCD to show the time code and remaining recording time of the disc even when the power is off
- › Metadata recording: UMID, Extended UMID, EssenceMark (Shot Mark), Clipflag
- › Extended Clear Scan (ECS)
- › Intelligent light system synchronises strobe on/off to the Rec start button

(1) Operable distance (cable length) depends on the cable characteristics. Please refer to the supplied operational manual.
 (2) The video and audio cannot be edited independently.

Camcorder View



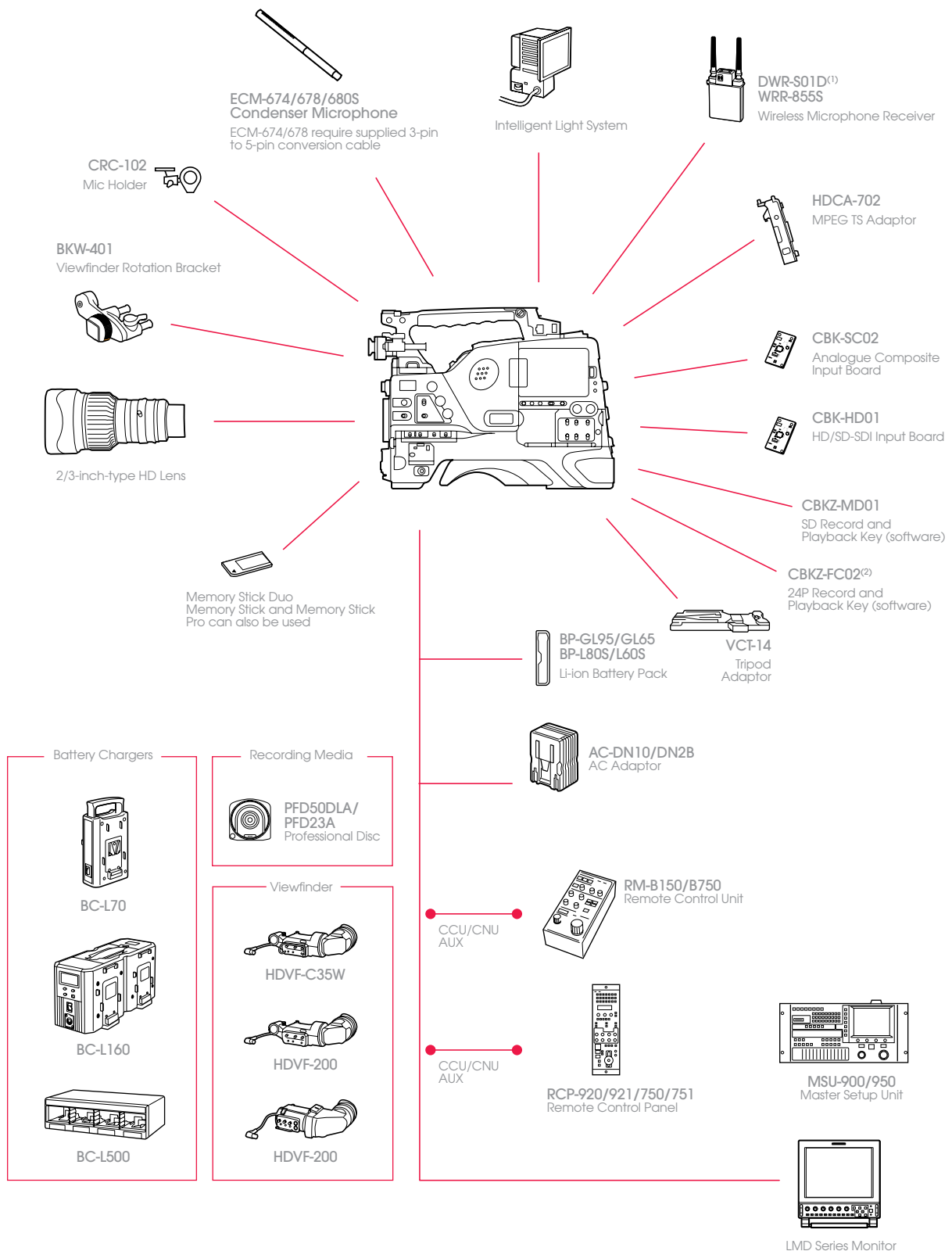
Top view



Connector Panel



Camcorder System Diagrams



(1) The digital wireless microphone system is not available in some countries where prohibited by the radio law.
 (2) Planned to be available in summer 2009.

Recording Deck

PDW-HD1500

The PDW-HD1500 is a compact HD recorder which provides outstanding picture quality of MPEG HD422 as well as an eight-channel (HD-SDI), 24-bit audio recording capability. What's unique about this deck is its ability to operate either AC, DC or battery.

With its large 4.3-inch⁽¹⁾ LCD and built-in speaker, it performs as a versatile and high-quality recorder which is suitable for both in-house and field operations. It comes equipped with a multi-format up/down converter, which is highly useful when employing both HD- and SD-format materials at the same time. What's more, the RS-422A interface enables the PDW-HD1500 to be used as a player deck for linear editing.

The PDW-HD1500 deck boasts fast data transfer at approx. 220 Mb/s⁽²⁾ through Gigabit Ethernet, thanks to its newly developed dual-optical head.

(1) Viewable area measured diagonally.

(2) When the material is recorded in MPEG HD422 mode.



PDW-HD1500 Features

- › Multi-format HD/SD Recording/Playback Capability
 - HD recording at up to 50 Mb/s 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 modes 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
 - › Handles both the dual-layer disc (PFD50DLA) and single-layer disc (PFD23A)
 - › High-speed file transfer
 - i.LINK File Access Mode (FAM)
 - FTP via Gigabit Ethernet
 - › RS-422A 9-pin remote control interface, allows the deck to be used as a feeder for linear editing
 - › A wide variety of video and audio inputs and outputs, including two HD-SDI outputs
 - › Compatible with XDCAM Carts: the PDJ-C1080 and the PDJ-A640
 - › Compact and lightweight: half-rack size and 6.5 kg (14 lb 5 oz)
 - › 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 colour LCD display
 - › Trigger REC function (synchronised recording with compatible camcorders⁽²⁾)
 - › TBC Control, by front panel operation or remote control panel via RS-422
 - › Easy and intuitive search operation
 - Thumbnail Search function
 - Expand function
 - Equipped with a Jog/Shuttle dial, providing VTR-like operation (Jog: -1 to +1 time normal speed, Variable: -2 to 2 times normal speed, Shuttle: -20 to +20 times normal speed)
 - › Metadata recording: UMID, Extended UMID, EssenceMark, Clipflag
 - › Easy metadata input by using USB keyboard or software keyboard
 - › Cache Recording and Disc Exchange Cache functions
 - › Data file recording by User Data folder
 - › Clip Continuous REC function via RS-422A or HD-SDI using Trigger REC function⁽³⁾
 - › Optional accessories that enhances operational features:
 - PDBK-S1500 (MPEG IMX/DVCAM) Recording and Playback Key
 - PDBK-201 MPEG TS IN/OUT Board: allows to input and output HDV™ compatible stream in 1080i/720P format
 - PDBK-F1500⁽³⁾ 24P Record and Playback Key (includes SD (MPEG IMX/DVCAM) recording/playback capability)

(1) Viewable area measured diagonally.

(2) PDW-700, HDW-650/730/750 series, HDW-790 and HDW-F900R camcorders.

(3) Planned to be available in summer 2009.



Battery Powered



Tilt-up

Recording Deck

PDW-HD1500

PDW-HD1500		
Signal input	SDI (HD/SD switchable)	BNC x 1
	Reference	BNC x 1
	Reference/Through	BNC x 1
	Analogue 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)
	Analogue Audio Line	XLR x 2
	Analogue Audio Monitor	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

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
Power	USB	x 2 (for maintenance)
	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-HD1500 Rear Panel



PDW-HD1500 Front Panel

Drive Unit

PDW-U1

The PDW-U1⁽¹⁾ is another powerful tool in the XDCAM HD422 lineup, which offers a compact, mobile and highly cost-effective solution for many different applications.

It serves as an external drive connected via a common USB interface, and enables material recorded on Professional Disc media to be viewed directly on a PC. The PDW-U1 can also be used as a source feeder for non-linear editing systems. One of the most distinguished features of the PDW-U1 is its ability to handle all XDCAM HD422, HD and SD discs, providing a high level of versatility and cost efficiency. Its compact and lightweight design makes it equally ideal for field and in-house desktop uses.

- › Handles files in all formats of XDCAM HD422, XDCAM HD and XDCAM SD formats
- › Handles both the new 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⁽²⁾
- › Highly compact and lightweight
- › Dimensions (W x H x D): 59 x 164 x 226 mm (2 3/8 x 6 1/2 x 9 inches)
- › Mass: 1.4 kg (3 lb 1 oz)
- › Can be operated either horizontally or vertically

(1) Support for Mac OS is planned to be available in the first half of 2009.
 (2) Requires a VFAM driver software upgrade planned to be available in summer 2009.

PDW-U1 Specifications

PDW-U1	
Power requirements	DC 12 V
Power consumption	10 W
Operating temperature	5 to 40°C (+41 to +104 °F)
Storage temperature	-20 to +60°C (-4 to +140 °F)
Humidity	20 to 90% (relative humidity)
Mass	1.4 kg (3 lb 1 oz)
Dimensions	59 x 164 x 226 mm (2 3/8 x 6 1/2 x 9 inches)
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) Proxy Viewer Software (x1) PDZK-P1 XDCAM Transfer Software (x1) XDCAM Drive Software (x1)



PDW-U1 Drive Unit



Front



Rear



XDCAM Application Software

All XDCAM HD422 products come with a variety of free application software packages that maximise 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. PDZ-1 software also provides a variety of convenient tools for disc operations such as entire or partial disc copy (dubbing), and transfer between two XDCAM devices.

Storyboarding on a PC not only allows users to preview their edited sequences instantly, it also provides other powerful benefits such as the creation of ASF files (playable on Windows Media Player) and EDL data in various EDL formats, plus the transfer of high-resolution clips selected in the edited sequence.

(1) USB interface is only for PDW-U1.

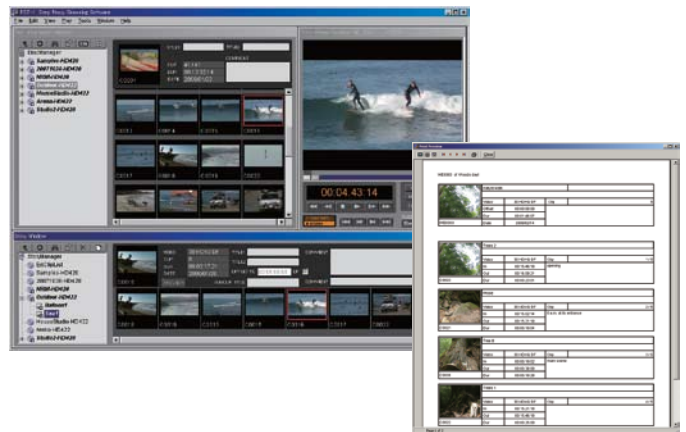
PDZ-1 Features

- ▶ 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 the XDCAM systems (including those recorded by the SD version of the XDCAM system)
- ▶ Simple and quick cuts-only editing (storyboarding)⁽¹⁾ with the following functions:
 - Preview a result 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
- ▶ 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 such as “title”, “creator”, or “comments” for a disc or clip
- ▶ 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.

System Requirements

OS: Windows XP (SP2 or later), Windows Vista Business 32-bit/Ultimate 32-bit
CPU: Pentium M processor or higher
NOTE: When using Live Logging mode, recommended CPU is Pentium4 2 GHz or higher
RAM: 512 MB or more
Other: Internet Explorer 6.0 (SP1 or later), DirectX 8.1b or later



Detailed interoperability between **XDCAM** and products from other companies can be found in the XDCAM Interoperability Guide



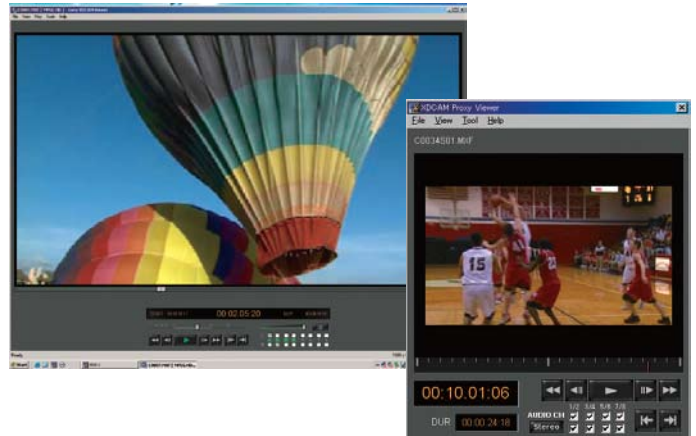
PDZ-VX10 Sony XDCAM Viewer

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

System Requirements

OS: Windows XP (SP2 or later), Windows Vista Business 32-bit/Ultimate 32-bit
 CPU: Intel Core Duo processor 1.83 GHz or higher or Intel Pentium4 3 GHz or higher
 RAM: 1 GB or more
 Other: Internet Explorer 6.0 (SP1 or later), DirectX 9.0c or later

The video playback performance will vary depending on the video format, file size and the performance of the computer used. For more details on system requirements, please contact your nearest Sony office.



Proxy Viewer

The Proxy Viewer of the PDZ-VX10 software is a simple application to play back Proxy Data on a PC.

System Requirements

OS: Windows XP (SP2 or later), Windows Vista Business 32-bit/Ultimate 32-bit
 CPU: Pentium M processor or higher
 RAM: 512 MB or more
 Other: Internet Explorer 6.0 (SP1 or later), DirectX 8.1b or later



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 non-linear 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

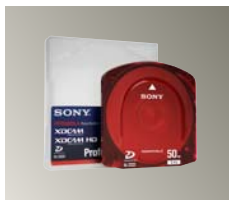
OS: Mac OS X version Tiger 10.4.11 or later
 Mac OS X version Leopard 10.5 or later
 CPU: PowerPC G5 2GHz, Intel Core2Duo 2GHz, Intel Xeon 2GHz or higher
 Other: QuickTime version Ver7.3.1 or later
 Final Cut Pro version 6.0.3 or later

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



Optional Accesories

PDW-700 Camcorder



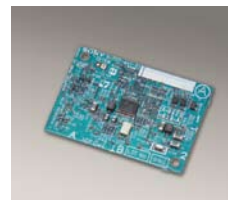
PFD50DLA
Professional Disc



PFD23A
Professional Disc



CBK-HD01
HD/SD-SDI Input Board



CBK-SC02
Analogue Composite
Input Board



CBKZ-MD01
SD Record and Playback
Software



CBKZ-FC02*
24P Record and Playback Key
(software)



HDVF-C35W
3.5-inch⁽²⁾ LCD Colour
Viewfinder



HDVF-20A
2.0-inch CRT B/W
Viewfinder



HDVF-200
2.0-inch CRT B/W
Viewfinder



BP-GL95/GL65
Lithium-ion Battery Pack



BP-L80S/L60S
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)



RM-B150
Remote Control Unit



RM-B750
Remote Control Unit



RCP⁽²⁾-920/921/750/751
Remote Control Unit
(Photo shows RCP-920)



MSU⁽²⁾-900/950
Master Setup Unit
(Photo shows MSU-900)



DWR-S01D⁽³⁾
Wireless Microphone
Receiver

(1) Viewable area measured diagonally.

(2) Requires a software upgrade planned to be available in autumn 2008.

(3) This product may not be available in some areas.



WRR-855S
Wireless
Microphone Receiver



ECM-680S
Shotgun-type Electret
Condenser Microphone



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



HDCA-702
MPEG TS Adaptor



VCT-14
Tripod Adaptor



BKW-401
Viewfinder Rotation Bracket



CRC-12
Mic Holder



LC-777
Carrying Case (Hard)



LC-DS300SFT
Carrying Case (Soft)



PDW-HD1500 Deck

PFD50DLA
Professional Disc

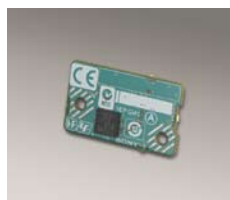
PDW-HD1500 Deck



PFD23A
Professional Disc



PDBK-201
MPEG TS IN/OUT Board



PDBK-S1500
SD Recording
& Playback Software



PDBK-F1500*
24P Recording &
Playback Key



BKP-L551
Lithium-ion Battery Adaptor



BP-GL95
Lithium-ion Battery Pack



BP-L80S
Lithium-ion Battery Pack



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



RM-280
Editing Controller
(Ver 2.03 or later)



RCC-5G
Remote Control Cable (5 m)

XDCAM HD422

Camcorder Specifications

		PDW-700	
General	Mass	Approx. 4.3 kg (9 lb 8 oz) (w/o options), Approx. 6.0 kg (w/VF, Mic, Disc, BP-GL95 battery) (13 lb 4 oz)	
	Power requirements	DC 12 V +5.0 V/-1.0 V	
	Power consumption	Approx. 40 W (while recording, w/o options, colour LCD On) Approx. 44 W (while recording, w/viewfinder, colour LCD On, manual lens, microphone)	
	Operating temperature	-5 to +40 (+23 to 104 °F)	
	Storage temperature	-20 to +60 °C (-4 to 140 °F)	
	Humidity	10 to 90% (relative humidity)	
	Continuous operating time	Approx. 120 min. w/BP-GL95 battery	
	Recording format	Video	MPEG HD422 (CBR: 50 Mb/s) MPEG HD HQ mode (VBR, maximum bit rate: 35 Mb/s) SP mode (CBR, 25 Mb/s) LP mode (VBR, maximum bit rate: 18 Mb/s) (Playback only)
		Proxy Video	MPEG IMX ⁽¹⁾ (CBR, 50/40/30 Mb/s) DVCAM ⁽³⁾ (CBR, 25 Mb/s)
	Recording/Playback time	Audio	MPEG HD422: 4 ch/24 bits/48 kHz MPEG HD: 4 ch/16 bits/48 kHz MPEG IMX ⁽³⁾ : 4 ch/24 bits/48 kHz or 4 ch/16 bits/48 kHz DVCAM ⁽³⁾ : 4 ch/16 bits/48 kHz
Proxy Audio		A-low (4 ch/8 bits/8 kHz)	
		MPEG HD422 mode: Approx. 95 min. with PFD50DLA. Approx. 43 min. with PFD23A. For details, please refer to "XDCAM HD422 Recording/Playback Specifications"	
Inputs/outputs	SDI IN	BNC x 1 ⁽²⁾ (switchable) HD-SDI: SMPTE 292M (w/embedded audio) SD-SDI: SMPTE 259M (w/embedded audio)	
	GENLOCK IN	BNC x 1, 1.0 Vp-p, 75Ω, unbalanced (Composite input ⁽⁵⁾ shares the same connector)	
	AUDIO IN	CH-1/CH-2: XLR 3-pin (female) x 2, Line / Mic / Mic+48V / AES/EBU selectable	
	MIC IN	XLR 5-pin (female, stereo) x 1	
	TC IN	BNC x 1, 0.5 to 18 Vp-p, 10 Ω	
	SDI OUT	BNC x 2 1 2 (character On/Off) HD-SDI: SMPTE 292M (w/embedded audio) SD-SDI: SMPTE 259M (w/embedded audio)	
	TEST OUT	BNC x 1 (switchable) HD Y SD Composite (character On/Off)	
	AUDIO OUT	XLR 5-pin (male, stereo) x 1	
	TC OUT	BNC x 1, 1.0 Vp-p, 75Ω	
	EARPHONE	Mini-jack x 2 (front: manual, rear: stereo/monoral)	
	CAMERA ADAPTOR	50-pin x 1	
	AUDIO OUT	XLR 5-pin (male, stereo) x 1	
	TC OUT	BNC x 1, 1.0 Vp-p, 75Ω	
	EARPHONE	Mini-jack x 2 (front: manual, rear: stereo/monoral)	
	CAMERA ADAPTOR	50-pin x 1	
	i.LINK	6-pin x 1 ⁽⁴⁾ , File Access Mode	
	ETHERNET	RJ-45 x 1, 100Base-TX: IEEE802.3u, 10Base-T: IEEE802.3	
	LENS	12-pin	
	REMOTE	8-pin	
	LIGHT	2-pin, DC 12 V, max. 50 W	
DC IN	XLR 4-pin (male) x 1, 11 to 17 V		
DC OUT	4-pin x 1, 11 to 17 V, 0.5 A max (for wireless microphone receiver)		
Memory Stick	x 1 (for camera setup files ⁽⁵⁾)		
USB	x 1		
Audio performance	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	-12/-16/-18/-20 dB (selectable)	
	Pickup device	3-chip 2/3-inch type HD Power HAD FX CCDs	
Effective picture elements	1920 x 1080		
Optical system	F1.4 prism		
Built-in optical filters	1: Clear, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND		
Camera section	Shutter speed	59.94i 50i 25P 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS, SLS 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS, SLS 1/33, 1/50, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS, SLS	
	Lens mount	2/3-inch-type 48 bayonet mount	
	Sensitivity	F11	
	(2000 lx, 89.9% reflectance)	50i F12	
	Minimum illumination	Approx. 0.016 lx (F1.4 lens, +42 dB, with 16-frame accumulation)	
	Gain selection	-6 ⁽⁶⁾ , -3, 0, 3, 6, 9, 12, 18, 24, 30, 36, 42 dB	
	Smear level	-135 dB	
	S/N ratio	59 dB (54 dB w/o NS)	
	Modulation depth	45% or more at 27.5 MHz (centre of view)	
	Horizontal resolution	1000 TV lines or more (1920 x 1080i mode)	
Registration	0.02% or less for entire screen area (excluding distortion due to lens)		
Viewfinder	Option		
Built-in LCD monitor	3.5-inch type colour LCD monitor		
Supplied accessories	Shoulder belt (x 1), Operation manual (x 1), XDCAM Application Software CD-ROM (x 1) Microphone cable (for converting 3-pin to 5-pin) (x 1)		

(1) Requires optional CBKZ-MD01 software. (2) Requires an optional CBK-HD01 board.
(3) Requires an optional CBK-SC02 board. (4) AV/C (DV) interface is NOT supported.
(5) Saving camera setup parameters requires a software upgrade planned to be available in summer 2009.
(6) Dynamic range becomes half when -6 dB is selected.

XDCAM HD422 Deck Specifications

		PDW-HD1500
General	Dimensions (W x H x D)	210 x 132 x 396 mm (8 3/8 x 5 1/4 x 15 5/8 inches)
	Mass	Approx. 6.5 kg (14 lb 5 oz)
	Power requirements	100 V to 240 V AC, 50/60 Hz 12 V DC
	Power consumption	AC: 80 W, DC: 65 W, SAVEMODE(DC): 55 W
	Operating temperature	+5 to +40 °C (+41 to 104 °F)
	Storage temperature	-20 to +60 °C (-4 to +140 °F)
	Humidity	25 to 90% (relative humidity)
		MPEG HD422 (CBR: 50 Mb/s)
		MPEG HD HQ mode (VBR, maximum bit rate: 35 Mb/s) SP mode (CBR, 25 Mb/s) LP mode (VBR, maximum bit rate: 18 Mb/s) (Playback only)
		MPEG IMX ⁽¹⁾ (CBR, 50/40/30 Mb/s) DVCAM ⁽¹⁾ (CBR, 25 Mb/s)
	Recording format	Proxy video MPEG-4
		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
		Proxy Audio A-law: 8ch/8 bits/8 kHz
	Recording/playback time	MPEG HD422 mode: Approx. 95 min. with PFD50DLA. Approx. 43 min. with PFD23A. For details, please refer to 'XDCAM HD422 Recording/playback Specifications'
	Search speed (in colour)	Jog mode
Variable speed		-2 to +2 times normal speed
Shuttle mode		-20 to +20 times normal speed
F.Fwd/Rev		-35/+35 times normal speed
Inputs/outputs	HDSDI INPUT	BNC x 1 (switchable) HD-SDI: SMPTE 292M (w/embedded audio) SD-SDI: SMPTE 259M (w/embedded audio)
	REF.VIDEO INPUT	BNC x 2 (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)
	ANALOGUE AUDIO INPUT	XLR 3-pin (female) x 2, +6 dBu, Hi-Z, balanced
	DIGITAL AUDIO (AES/EBU) IN 1/2, 3/4	BNC x 2, 4 ch (2 ch each, 1/2 ch and 3/4 ch), AES-3id-1997
	TIME CODE IN	BNC x 1, SMPTE time code, 0.5 to 18 Vp-p/3.3 kΩ/unbalanced
	HDSDI OUTPUT 1	1.0 Vp-p/75 Ω/negative, SMPTE 172M
	HDSDI OUTPUT 2 (SUPER)	1.0 Vp-p/75 Ω/negative, SMPTE 172M, character On/Off
	SDSDI OUTPUT 1	BNC x 1, SMPTE 259M (w/embedded audio)
	SDSDI OUTPUT 2 (SUPER)	BNC x 1, SMPTE 259M (w/embedded audio), character On/Off
	COMPOSITE OUTPUT 1	BNC x 1, 10 Vp-p/75 Ω/negative, SMPTE 172M
	COMPOSITE OUTPUT 2 (SUPER)	BNC x 1, 10 Vp-p/75 Ω/negative, SMPTE 172M, character On/Off
	ANALOGUE AUDIO OUTPUT	XLR 3-pin (male) x 2, +4 dBu, 600Ω, Lo-Z, balanced
	AUDIO MONITOR	XLR 3-pin (male) x 2, +4 dBu, 600Ω, Lo-Z, balanced
	DIGITAL AUDIO (AES/EBU) OUT 1/2, 3/4	BNC x 2, 4 ch (2 ch each, 1/2 ch and 3/4 ch), AES-3id-1997
	TIME CODE OUT	BNC x 1, SMPTE time code, 1 Vp-p/75 Ω/unbalanced
	PHONES	Stereophone-jack x 1
	i.LINK S400	6-pin x 1 ⁽²⁾ File Access Mode HDV ⁽³⁾ 1080i/720P
	ETHERNET	RJ-45 x 1, 1000Base-T: IEEE802.3ab, 100Base-TX: IEEE802.3u, 10Base-T: IEEE802.5
	REMOTE (9P)	D-sub 9-pin (female) x 1, RS-422A
	VIDEO CONTROL	D-sub 9-pin (female) x 1, EIA RS-423
AC IN	x 1, 100 to 240 V	
DC IN 12V	XLR 4-pin (male) x 1	
Built-in Audio Speaker	x1, s monoaural	
REMOTE	4-pin (female) x 1, DC 12 V, 7.5 W	
USB	x 2	
Video performance	Sampling frequency	Y: 74.25 MHz, Pb/Pr: 37.125MHz
	Quantization	8 bit/sample
	Compression	MPEG-2 4:2:2P@HL
	Composite output	Frequency response: 0.5 to 5.75 MHz +0.5 dB/-2.0 dB S/N(Y): 53 dB or more Y/C delay: ± 20 ns or less K-factor (K2T): 1% or less
Processor adjustment range	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 to 400 ns
Audio performance	Sampling frequency	48 kHz
	Quantization	24 bit
	Frequency response	20 Hz to 20 kHz +0.5 dB/-1.0 dB
	Dynamic range	90 dB or more
	Distortion	0.05% or less
	Headroom	-12/-16/-18/-20 dB (selectable)
Supplied accessories	Operation manual (x 1), Installation manual (x 1), XDCAM Application Software CD-ROM (x 1)	

(1) Requires optional PDBK-S1500 or PDBK-F1500 hardware key.
(2) AV/C (DV) interface is NOT supported.
(3) Requires optional PDBK-201 board.

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