SONY

PDW-F1600

XDCAM HD422 Professional Disk recorder

Overview

Sony's top-of-the-line XDCAM HD422 Series is being embraced around the world for its file-based recording capability utilizing high-capacity and highly reliable Professional Disk media. Thanks to its newly developed MPEG HD422 codec, the XDCAM HD422 Series provides high-quality video and audio recording capabilities, with an image resolution of 1920 x 1080 and eight-channel 24-bit uncompressed audio.

Now, Sony is proud to announce a new addition to the series - the PDW-F1600 deck. The PDW-F1600 offers multi-format recording flexibility as standard - including SD recording and a frame rate of 23.98P in 1080 mode.

The foundation of the PDW-F1600 deck incorporates the features of the PDW-HD1500, and acts as more than just a file-based recording deck. With its insert/assemble editing capability, it can be used as a recorder in a linear editing system - just like a conventional VTR.

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 digitizing 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 PDW-F1600 XDCAM HD422 deck comes equipped with IT-friendly, computer-based interfaces. These include an i.LINK interface supporting File Access Mode as standard, and the Ethernet interface.

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.

Powerful Nonlinear Recording

The XDCAM HD products use a large-capacity nonlinear optical disc for recording, called the Professional Disk 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 disk with an overwhelming capacity of 50 GB, while the PFD23A is a single-layer, 23-GB disk. The large capacity of the PFD50DLA makes it possible to record up to approximately 95 minutes of high-quality MPEG HD422 material.

The Professional Disk 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 disk 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 Disk completely eliminates this process.

Its reliability has already been demonstrated by the huge number of XDCAM products deployed worldwide since 2003.

Highly Streamlined Workflows

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

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 can be saved, together with the AV material, on the same disk 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", "NG" or "Keep".

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 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

Handles both the dual-layer disk (PFD50DLA) and single-layer disk (PFD23A)

High-speed file transfer

RS-422 9-pin remote control interface, which 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 (typical) and 54W (in power save mode)

A large easy-to-see 4.3-inch* type color LCD display

Trigger REC function (synchronized recording with compatible camcorders)**

TBC Control, by front panel operation or remote control panel via RS-422

Easy and intuitive search operation

Clip Continuous REC function

Compatible with the HDCA-702 MPEG TS Adaptor

Thumbnail Search function

Expand function

Equipped with a Jog/Shuttle dial, providing VTR-like operation

- Jog: -1 to +1 times normal speed
- Variable: -2 to +2 times normal speed
- Shuttle: -20 to +20 times normal speed

*Viewable area measured diagonally
**PDW-700, HDW-730/750 series, HDW-790 and HDW-F900R camcorders.

Specifications

General	
Power Requirements	AC 100 V to 240 V, 50/60 Hz, DC 12 V
Power Consumption	AC: 80 W, DC: 65 W, SAVEMODE (DC): 55 W
Operating Temperature	5°C to 40°C 42°F to 104°F
Storage Temperature	-20°C to +60°C -4°F to +140°F
Humidity	25% to 90% (relative humidity)
Mass	6.5 kg 14 lb 5 oz
Dimensions (W x H x D) *1	210 x 132 x 396 mm (excluding protrusions) 8 3/8 x 5 1/4 x 15 5/8 inches (excluding protrusions)

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) *2 MPEG IMX (CBR, 50/40/30 Mbps) DVCAM (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: 4 ch/24 bits/48 kHz or 8 ch/16 bits/48 kHz DVCAM: 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)
	35 Mbps, 4-ch audio: More than 145 min (PFD50DLA), More than 65 min (PFD23A) 35 Mbps, 2-ch audio (playback

Recording/Playback Time (MPEG HD)	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: Approx. 100 min (PFD50DLA), Approx. 45 min (PFD23A) 40 Mbps: Approx. 120 min (PFD50DLA), Approx. 55 min (PFD23A) 30 Mbps: Approx. 150 min (PFD50DLA), Approx. 68 min (PFD23A)
Recording/Playback	25 Mbps: Approx. 185 min

Time (DVCAM)	(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
Search Speed Range (Jog Mode)	-1 time to +1 time normal speed
Search Speed Range (Fast Forward/Reverse)	-35/+35 times normal speed

Media Drive

Media Type	Professional Disk Drive (x1)

Input/Output

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)
	BNC (x1) (HD/SD switchable) HD-SDI: SMPTE 292M

HD-SDI Input	(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
Digital Audio Input (AES/EBU)	BNC (x2), 4 ch (2 ch each, 1/2 ch and 3/4 ch), AES-3id-1995
Timecode Input	BNC (x1), SMPTE timecode, 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
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
Analog Audio Output	XLR-type 3-pin (male) (x2) (channel selectable), +4/0/-3/-6 dBu (selectable), 600 Ω, Lo-z, balanced
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
Timecode Output	BNC (x1), SMPTE timecode, 1.0 Vp-p/75 Ω/unbalanced
Video Control	D-sub 9-pin (female) (x1), EIA RS-423
i.LINK	IEEE 1394 6-pin (x1)* File Access Mode or HDV TS* (1080i/720p) (selectable) *Optional PDBK-201 is required for HDV IN/OUT.
Ethernet	RJ-45 (x1) 1000BASE-T: IEEE 802.3ab 100BASE-TX: IEEE 802.3u 10BASE-T: IEEE 802.3

Remote Input (9-pin)	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	AC Input (x1), 100 V to 240 V, 50/60Hz

Video Performance

Sampling Frequency	Y: 74.25 MHz, Pb/Pr: 37.125MHz
Quantization	8 bits/sample
Error Correction	Reed Solomon Code

Processor Adjustment Range

Video Level	-∞ to +3 dB
Chroma Level	-∞ to +3 dB
Set Up/Black Level	-30 IRE to +30 IRE/-210 mV to +210 mV
Chroma Phase	-30° to +30°
System Sync Phase	-15 µs to +15 µs

System SC Phase	0 ns to 400 ns

Audio Performance

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)

Other Equipment

Built-in Display	4.3-inch type color LCD monitor
Built-in Speaker	Monaural (x1)

Supplied Accessories

Supplied Accessories	Operation manual (1) Installation manual (1) XDCAM Application Software CD-ROM (1)

Notes	
Note	[*1] The values for dimensions are approximate. [*2] Playback only.

Gallery