XDCAM HD Family

SONY

XDCAM HD

CINEALTA

Professional Disc™

THE NEW WAY OF BUSINESS℠

Capitalize on the Opportunities of HD and File-based Production with the XDCAM® HD System

Since the first development of HD equipment two decades ago, Sony has been continuously developing a rich range of HD production tools optimized for different operational needs in both high-end and entry-level markets. Today, the transition from standard-definition (SD) to high-definition (HD) represents one of the important issues in the entire video industry. In response to this, Sony has enhanced its HD lineup for all video professionals by introducing the XDCAM HD system. This is suitable for all types of users – including cinematographers, broadcasters, and video professionals – and complements the other products in the Sony range such as the HDCAM-SR™/HDCAM® Series for high-end video production and the affordable, entry-level HDV™ Series.

One of the major characteristics of the XDCAM HD system is its use of an optical disc as a recording medium. The SD version of the XDCAM system has been widely adopted around the world by a large number of users such as broadcasters, production facilities, corporate, government and educational facilities. These users have been enjoying the tremendous benefits of its disc-based operations, such as instant random access and network capability to name just a few. The new Sony XDCAM HD products are intended to bring these disc-based benefits to HD programming, providing much improved workflows and cost efficiencies as well as offering striking-quality HD images.

The XDCAM HD lineup includes two, 1/2-inch-type three-CCD camcorders, the PDW-F350 and the PDW-F330, plus two decks, the PDW-F70 recorder and the PDW-F30 NLE feeder/viewer. They can record up to two hours of 1080i high-definition video onto Professional Disc™ media – which is a 23-GB optical disc using blue-violet laser technology. They are also capable of recording at multiple frame rates such as 59.94i, 50i, and native 23.98P, and allow users to select the recording bit rate from 35, 25, and 18 Mb/s. The XDCAM HD system uses the "MPEG HD" codec, which is based on MPEG-2 MP@HL compression, for HD video recording, and it provides four channels of high-quality uncompressed audio. Additionally, the camcorders have the ability to record and play back video in the well-proven DVCAM format, and the decks have the capability to play back material recorded in the DVCAM™ format along with HD up-conversion output capability.

Last but not least, the XDCAM HD camcorders and decks – an extended lineup of Sony's legendary CineAlta™ family – provide native 23.98P recording capability that was previously only available on the high-end CineAlta equipment. Furthermore, the PDW-F350 offers "Slow & Quick Motion" capability, also commonly known as "over-cranking" and "under-cranking", which allows users to create unique 'looks' or special effects of slow and fast motion.

With a stunning level of HD picture quality, system flexibility, and operational conveniences, the Sony XDCAM HD products have opened the door to a world of HD production to a whole new level of video professionals.

PDW-F350 Camcorder

PDW-F330 Camcorder

XDCAM HD

Professional Disc System

PDW-F30 Viewing Deck

PDW-F70 Recording Deck

CINEALTA

XDCAM HD – Versatile, Disc-based HD Recording System

The Sony XDCAM HD system is a highly versatile production tool that offers flexible recording functionalities including a choice of video frame rates, interlace or progressive modes, recording data rates, and both HD or SD* formats.

Selectable between 16:9 and 4:3 aspect ratios.

HD 1080 Recording using the "MPEG HD" Codec

The XDCAM HD products record 1080-line high-definition video using the "MPEG HD" codec that uses the industry-standard MPEG-2 MP@HL compression. The use of this codec, which is based on common MPEG compression, allows compatibility with many other devices such as nonlinear editing systems.

Selectable Bit Rates

Users can select desired bit rates of either 35, 25, or 18 Mb/s depending on their requirements for picture quality and recording length. Choosing the highest bit rate of 35 Mb/s results in the highest-quality pictures over a recording time of 69 minutes*, while choosing the 18 Mb/s bit rate provides a longer recording time of 122 minutes*.

**Approximate time in two-channel audio recording mode.*

Wide Choice of Video Format – Interlace and Progressive Including Native "23.98P" Mode

The XDCAM HD products offer a wide choice of video formats for both frame rates and scanning mode. They include 1080/59.94i, 50i, 29.97P, 25P, and native 23.98P.

High-quality Uncompressed Audio Recording

In addition to HD video recording, high quality audio is an equally significant feature in the XDCAM HD system. The XDCAM HD products can record four-channel, 16-bit, 48-kHz uncompressed audio.

XDCAM HD Recording Specifications

HD Video Codec	Compression	MPEG-2 MP@HL	
	Sampling Rate	4:2:0	
	Bit Rate and Recording Time* (approx.)	35 Mb/s VBR	66 minutes (4-ch audio)
			69 minutes (2-ch audio)
		25 Mb/s CBR	87 minutes (4-ch audio)
			92 minutes (2-ch audio)
		18 Mb/s VBR	113 minutes (4-ch audio)
			122 minutes (2-ch audio)
	Number of Pixels	1440 x 1080	
SD Video Codec	Compression	DVCAM	
	Sampling Rate	4:1:1 (NTSC)/4:2:0 (PAL)	
	Bit Rate and Recording Time (approx.)	25 Mb/s, 85 minutes	
	Active Lines Per Frame	480 (NTSC)/576 (PAL)	
Audio	Compression	None (Linear PCM)	
	Number of Channels	2 or 4, selectable	
	Sampling Frequency	48 kHz	
	Quantization	16 bits/sample	

**When recording in 35 Mb/s or 18 Mb/s mode, recording time may be more than the above specified figures depending on the actual bit rate that is adopted during VBR encoding.*

HD/SD Switchable Recording and Up/Down Conversion Capability

The XDCAM HD camcorders provide the powerful capability to record in DVCAM format with NTSC/PAL and 16:9/4:3 switchable modes, as well as the MPEG HD format. What's more, both the XDCAM HD camcorders and decks incorporate a down-conversion capability that allows material recorded in the MPEG HD format to be converted to SD signals and output via the SD video output connectors (including SD composite and i.LINK®* connectors). This enables users to view the material on an SD monitor or transfer it to other SD-based equipment such as a VTR or editor.

The PDW-F70 and PDW-F30 decks also boast an up-conversion capability, which allows material recorded in the DVCAM format to be converted to HD signals and output via its HD-SDI** or HD analog component connector. These capabilities allow users to easily and flexibly migrate to HD-based operations at their own pace.

Another powerful capability of the decks is up-conversion recording via the optional PDBK-104 board. This allows input signals from the SD-SDI or SD analog composite connector to be recorded in the MPEG HD format, further increasing flexibility in mixed SD/HD operations.

**i.LINK is a Sony trademark used only to designate that a product is equipped with an IEEE1394 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.*

***HD-SDI output is only available on the PDW-F70.*

File-based Disc Recording

In addition to its impressive HD picture quality, what makes the XDCAM HD 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.

PFD23 Professional Disc Media

Powerful Nonlinear Recording – the Professional Disc Media

Professional Disc™

The XDCAM HD products use a large-capacity nonlinear optical disc for recording, the PFD23 Professional Disc media, which Sony has developed specifically for professional recording applications.

The Professional Disc media is a 12-cm, single-layer, reusable optical disc with a capacity of 23 GB. This large capacity makes it possible to record up to two hours* of HD material on a single disc. The Professional Disc media 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. The non-contact recording and playback also makes it an ideal media 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 media completely eliminates this process.

Its reliability has already been demonstrated by the SD version of the XDCAM products in various areas such as ENG and EFP.

**The figure is approximate. The precise recording duration will depend on the bit rate selected.*

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 any "digitizing" process required. 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 HD camcorders and decks come equipped with IT-friendly, computer-based interfaces.

These include an i.LINK interface supporting DV OUT and File Access Mode as standard, and a Gibabit Ethernet interface available on the PDW-F70 and PDW-F30 decks as an option. Connecting the XDCAM HD system to an Ethernet network offers users a new style of network-based operations that can dramatically improve the efficiency of their workflows.

No Overwriting to Footage – For Immediate Recording Start

By virtue of recording on optical disc media, the XDCAM HD system makes each new recording on an empty area of the 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 HD 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 clips is possible simply by pressing the 'Next' or 'Previous' button, as you would do on 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 even-time intervals, each with their own thumbnail identifier. This is useful if you want to quickly search for a particular scene within a lengthy clip.

Expand Function

Scene Selection Function

The Scene Selection function allows simple cuts-only editing* 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 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 nonlinear editor and/or server, or when searching for material and/or edit points in linear editing systems.

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.

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

Other Features

Power of Proxy Data – 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 disc. 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), and its format is identical to that of the SD version of the XDCAM products.

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.

Editing Solutions

The XDCAM HD products are equipped with both conventional AV and IT-based interfaces for flexible integration into a wide array of editing environments. These interfaces* include HD-SDI, HD analog component video, analog/digital audio, and RS-422A 9-pin remote control – enabling connection to a wide variety of VTRs, linear and nonlinear editors, and audio mixers.

SD interfaces*, including SD-SDI and SD analog composite, are also provided for down-converted SD outputs, allowing the XDCAM HD system to be integrated into a conventional SD-based editing environment as well.

Another interface that all XDCAM devices provide is an i.LINK interface that supports DV OUT and File Access Mode. Recordings made in both MPEG HD and DVCAM formats can be output as DV files via the i.LINK port, and then be used in many DV-based nonlinear editing system. The i.LINK (File Access Mode) allows not only SD (DVCAM) files but also HD (MPEG HD) files to be written (recorded) onto and read from the Professional Disc media. This allows you to establish an extremely compact and affordable HD nonlinear editing system, for example, using an XDCAM HD camcorder and an i.LINK-compatible laptop PC.

**The supported interfaces vary by product.*

Metadata

All XDCAM HD products are capable of recording a variety of metadata, which provides a huge advantage when searching for specific data after the 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 disc using the supplied PDZ-1 software. This makes it possible to organize and efficiently search through all recordings. 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.

EssenceMark (Shot Mark 1) Display

Easy Maintenance and High Reliability

The XDCAM HD products use the same platform as the XDCAM SD products that are in wide use around the world. Having the advantage of no mechanical contact between the equipment and recording media, both a high level of durability and long media life have been achieved. XDCAM HD products also offer the same high resistance to shock and vibrations provided by the SD version of the XDCAM products.

XDCAM HD Camcorders

PDW-F350/PDW-F330 Camcorder

The PDW-F350 and PDW-F330 are highly versatile and cost-effective HD camcorders that are equipped with three 1/2-inch-type HD CCDs, and offer HD recording in 1080/59.94i, 50i, 29.97P, 25P, and 23.98P modes – as well as DVCAM-format recording. A rich variety of features useful for creative shooting are incorporated into these camcorders such as interval recording, slow-shutter, and selectable gamma curve. Additionally, the PDW-F350 provides a “Slow & Quick Motion” function, which is also commonly known as “over-cranking” and “under-cranking”.

Disc recording provides users with a number of benefits that are specifically useful during shooting. For example, because new footage is always recorded onto an empty area of the disc, there is no need to cue-up to the next recording position before shooting. This means that operators can start shooting without the worry of accidentally recording over existing footage.

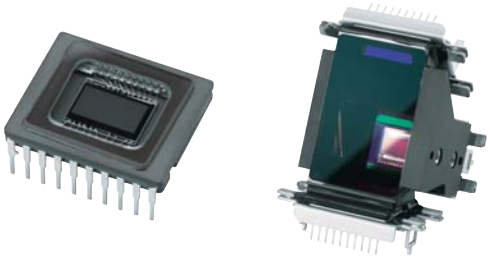
In short, the XDCAM HD camcorders are ideally suited to a broad array of shooting opportunities such as event shooting, news gathering, field productions, and indie productions.

PDW-F350

PDW-F330

Three 1/2-inch type HD Power HAD CCD

The XDCAM HD camcorders are equipped with three 1/2-inch-type HD Power HAD™ CCDs, each with a high density of approximately 1.56 megapixels (1440 x 1080). These extremely high-performance CCDs provide an outstanding sensitivity of F9 (at 2000 lx, 3200K), a remarkable signal-to-noise ratio of 54 dB, and a low vertical smear level of -120 dB.



12-bit A/D Conversion

The XDCAM HD camcorders incorporate a high-integrity 12-bit A/D conversion circuit, which allows images captured by the Power HAD CCDs to be processed with great precision. This high-resolution A/D conversion allows the contrast to be reproduced faithfully in both mid-to-dark tone and bright areas of the picture.

Advanced Digital Signal Processing (ADSP)

A key to quality in DSP cameras is how many bits are used in their nonlinear processes, such as gamma correction. The ADSP of the XDCAM HD camcorders uses more than 30 bits in nonlinear processes, minimizing round-off errors to maintain the high quality of the Power HAD CCDs. The ADSP also enables highly sophisticated image controls, such as skin tone detail control and Dynamic Contrast Controls.

Multi-format Recording – HD/SD and Interlace/Progressive

One of the big appeals of the XDCAM HD camcorders is their highly flexible multi-format recording capability. Users can select a recording format from HD (MPEG HD) or SD (DVCAM), 59.94i/50i interlace mode, or 29.97P/25P/23.98P progressive mode.

Operators can use this camcorder for multiple purposes, both today and into the future.

Creative Versatility for Movie Making

The XDCAM HD camcorders, part of Sony's proud CineAlta family, provide many creative features for producing a variety of movies. They offer the Slow & Quick Motion Function (PDW-F350 only) for stunningly impressive slow and fast motion images, and Selectable Gamma Curves that are inherited from the top-of-the-line CineAlta camcorder. The Interval Recording function is another tool to create unique ultra-fast moving images.

Slow & Quick Motion Function (PDW-F350)

The PDW-F350 offers a powerful Slow & Quick Motion Function that enables users to create elegant fast- and slow-motion footage – commonly known as over- and under-cranking in film shooting. The PDW-F350 can capture images at frame rates selectable from four fps (frame per second) to 60 fps in increments of 1 fps. For example, when viewed at 23.98P, images captured at four fps will appear six times faster than normal. Conversely, images captured at 60 fps will appear 2.5 times slower than normal. The quality of the slow- and fast-motion images created using the Sony PDW-F350 camcorder is extremely high and incomparable to those created in the editing process.

Another spectacular benefit about this feature is that users can see the results right in the camcorder's LCD screen, without using any converters or processing on nonlinear editing systems.

This great feature maximizes users' shooting creativity while achieving a high level of overall efficiency.

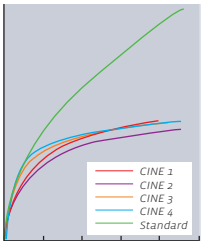
Format	Capturing
23.98P/29.97P	4P-60P in 1P increments
25P	4P-50P in 1P increments

**When capturing at 31-60 fps (in 23.98P/29.97P mode)/26-50 fps (in 25P mode), the camcorders provide lower vertical resolution than in normal capturing mode.*

Interval Recording Function For Versatility and Creativity

The XDCAM HD camcorders offer 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.

Selectable Gamma Curves



The XDCAM HD camcorders allow operators to choose from five types of gamma curves (Standard, CINE 1, 2, 3 and 4). The CINE 1-4 gamma curves provide natural tonal reproductions for scenes with wide dynamic ranges. The CINE 1 and 2 curves are inherited from HyperGamma, which is available on the top-of-the-line CineAlta camcorder.

A Wide Choice of Lenses


VCL-719BXS

Both camcorders are also capable of auto focus. When the VCL-719BXS lens is used, operators can adjust the focus during manual-focus mode simply by pushing the "PUSH AF" button. It also provides a full-time auto-focus function that automatically tracks the focus in a dynamic manner. This is especially convenient for one-man shooting situations, for example, where the camera operator is also performing other tasks and does not have the capacity to alter the focus manually.

In addition to this auto-focus lens, a variety of 1/2-inch-type HD lenses are separately available from major manufacturers to offer optimum performance of the XDCAM HD camcorder. A 2/3-inch-type lens* can also be used with the XDCAM HD camcorder via its lens connector and the optional LO-32BMT lens adaptor. This allows users to choose from a broad range of lenses, including cinema-style lenses, according to their particular shooting requirements.

**In this configuration, the resulting focal length will be 1.37 times the actual focal length of the lens.*


LO-32BMT

Low-Light Shooting With 'Slow-Shutter' and 'Turbo Gain' Functions

Sony XDCAM HD camcorders offer two convenient features – Slow Shutter function and Turbo Gain function – for shooting in low-light conditions, which can be used alone or together depending on the situation or the operator's preferences.

The Slow Shutter function 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.

The Turbo Gain function allows the camera gain to be boosted up to +48 dB.

Flexible Image Controls

The XDCAM HD camcorders offer highly advanced image control features such as Skin Tone Detail and Dynamic Contrast Control, allowing operators to create stunning images.

High-Quality Audio Recordings

Sony XDCAM HD camcorders record high-quality uncompressed four-channel audio in HD recording mode. They are also equipped with a range of audio interfaces.

Compact and Lightweight Body

XDCAM HD camcorders are designed to be very compact, lightweight, and ergonomically well balanced, providing a high level of mobility and comfort in various shooting situations. They weigh only 11 lb 14 oz (5.4 kg) including viewfinder, microphone, disc, and BP-GL95 battery pack.

Shock and Dust-resistant Disc Drive

To minimize errors caused by shock or dust entering the disc drive, XDCAM HD camcorders have 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 the shocks that would otherwise go into the disc drive.

3.5-inch* Color LCD Screen

A large, easy-to-view, color LCD screen on the 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 disc and battery time. It also enables advanced operations such as Thumbnail Search and Scene Selection.

**Viewable area measured diagonally.*

Wide Variety of Interfaces

The XDCAM HD camcorders come equipped with a wide range of interfaces as standard. The PDW-F350 and PDW-F330 provide different combinations of interfaces – each optimized for various operational needs.

	PDW-F350	PDW-F330
Input	Front stereo microphone, audio (2-ch), timecode, genlock	Front stereo microphone, audio (2-ch), timecode**, genlock
Output	HD-SDI*, SD analog composite, digital audio output, timecode, audio (XLR 5-pin)	HD analog component*/SD analog component (selectable), SD analog composite, timecode*, audio (Pin jack)
Others	i.LINK Interface	i.LINK Interface

**1080/23.98P recordings are output as 1080/59.94i signals via 2-3 pull-down conversion.*

***Timecode input and output of the PDW-F330 share the same connector.*

Easy-to-see Viewfinder

The PDW-F350 is equipped with the DXF-20W 2.0-inch monochrome viewfinder as standard. The PDW-F330 is equipped with the DXF-801 1.5-inch monochrome viewfinder as standard, although the DXF-20W is available as an option.

Other Features

- Built-in ND filter wheel: Clear, 1/4ND, 1/16ND, 1/64ND
- IR Remote Commander® unit: allows remote operations of REC start/stop, zoom, one-push auto-focus, and the addition of Shot Marks

- Down-conversion output: MPEG HD playback can be converted to SD signals and output via the SD composite, component*, or i.LINK (DV OUT) connector
- 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 operation
- Expand function
- Scene Selection function for in-camera cuts-only editing**
- Ability to write EDL (the result of the Scene Selection) back onto disc
- Proxy Data recording
- Four assignable buttons: two on the camera handle and two on the inside panel, enable operators to assign frequently used functions
- Auto Tracing White Balance for automatic adjustments in camera color temperature according to lighting changes
- Memory Stick™ media function for storage of camcorder setup files
- Metadata recording: UMID, Extended UMID, EssenceMark (Shot Mark)
- Sony WRR-855 Series Wireless Microphone Receiver can be easily attached to the camcorder via the optional CA-WRR855 adaptor
- Remote control operation via the Sony RM-B150 and RM-B750 remote control units
- Intelligent light system synchronizes strobe on/off to the REC button
- PDZ-1 Proxy Browsing Software and MXF Proxy Viewer supplied as standard

**SD component output is only available on the PDW-F330.*
***The video and audio cannot be edited independently.*

Top view

Connector Panel (PDW-F350)

Side

Rear

Connector Panel (PDW-F330)

Side

Rear

XDCAM HD Decks

PDW-F70 Recording Deck/PDW-F30 Viewing Deck

The XDCAM HD decks are highly versatile, making them useful for many different applications including HD video recording, linear/nonlinear editing, and presentations at large exhibition or conference venues.

The PDW-F70 is a powerful recording deck that is equipped with a comprehensive range of interfaces including HD-SDI input and output, HD analog component, composite outputs, and more. The PDW-F30 is an NLE feeder/viewer type deck, but also offers the capability to record MXF files (in both MPEG HD and DVCAM formats) via its i.LINK (File Access Mode) or Ethernet* interfaces. Both models also offer the capability to input and output 25 Mb/s HDV stream (MPEG-2 TS) for interfacing with HDV products or HDV-based nonlinear editor via i.LINK port.**

These decks are equipped with a VTR-like jog dial, providing familiar and fast control of the playback. In addition to the random-access capability, "Thumbnail Search", "Expand", and "Scene Selection" functions significantly increase operational efficiency.

**Requires the optional PDBK-101 board **Requires the optional PDBK-102 board*

PDW-F70

PDW-F30

PDW-F70 Features

- MPEG HD recording at 35, 25 and 18 Mb/s via HD-SDI, HD analog component and RGB input (HD analog component and RGB input requires the optional PDBK-103 board)
- Up-conversion recording (requires the optional PDBK-104 board): Input from SD-SDI or SD composite connectors can be recorded in the MPEG HD format.
- Compatible with the PDJ-A640 Cart

PDJ-A640

Common Features

- Playback of MPEG HD and DVCAM material
- Down-conversion output: MPEG HD playback can be converted to SD signals and output via the SD-SDI*, SD composite, and i.LINK (DV OUT) connectors.
- Up-conversion output: DVCAM playback can be converted to 1080i HD signals and output via the HD connectors.
- Thumbnail Search operation
- Expand function
- Scene Selection function for in-deck cuts-only editing**
- Equipped with a Jog/Shuttle dial, providing VTR-like operation – Jog/Variable: ±1 time normal speed, Shuttle: ±20 times normal speed
- 16:9, 3.5-inch*** color LCD screen for displaying playback pictures, audio monitors, timecode and setup menus
- Repeat playback function
- A simple Remote Commander unit is supplied.
- Gigabit Ethernet capability for network-based file transfer (requires the optional PDBK-101 board)
- Input and output 25 Mb/s HDV stream (MPEG-2 TS) for interfacing with HDV products or HDV-based nonlinear editor via an i.LINK port (requires the optional PDBK-102 board)
- Compact and lightweight design; can be placed either horizontally or vertically
- PDZ-1 Proxy Browsing Software and MXF Proxy Viewer supplied as standard

**SD-SDI interface is available only on the PDW-F70 deck.*
***The video and audio cannot be edited independently.*
****Viewable area measured diagonally.*

Inputs/Outputs

		PDW-F70	PDW-F30
Input	HD-SDI	●	—
	HD analog component	● w/PDBK-103	—
	RGB	● w/PDBK-103	—
	SD-SDI	● w/PDBK-104	—
	SD analog composite	● w/PDBK-104	—
	Digital audio	●	—
	Analog audio	●	—
	Timecode	●	—
	Reference	●	—
Output	HD-SDI	●	—
	HD analog component**	●*	●*
	RGB	●*	●*
	SD-SDI	●	—
	SD analog composite	●	●
	Digital audio	●	—
	Analog audio	●	●
	Audio monitor	●	●
	Timecode	●	—
Others	i.LINK (DV OUT)	●	●
	i.LINK (File Access Mode)	●	●
	i.LINK (HDV)	● w/PDBK-102	● w/PDBK-102
	Ethernet	● w/PDBK-101	● w/PDBK-101
	Remote	RS-422, RS-232C	RS-422, RS-232C

**HD analog component and RGB outputs share the same D-Sub 15-pin connector.*
***1080/23.98P recordings are output as 1080/59.94i signals via 2-3 pull-down conversion.*

Interface Options

Four types of optional boards are available for the decks:

- PDBK-101: Provides a Gigabit Ethernet interface with the PDW-F70 and PDW-F30
- PDBK-102: Allows 25 Mb/s HDV stream (MPEG-2 TS) to be input and output between the PDW-F70/F30 decks and an HDV device
- PDBK-103: Provides the HD analog component and RGB inputs with the PDW-F70 (these inputs share the same BNC connectors)
- PDBK-104: Provides the SD-SDI and SD composite input with the PDW-F70

**Only one of the PDBK-102, PDBK-103 or PDBK-104 boards can be installed at any one time.*

PDW-F70

PDW-F30

PDZ-1 Proxy Browsing Software – An Extremely Powerful Partner with the XDCAM HD System

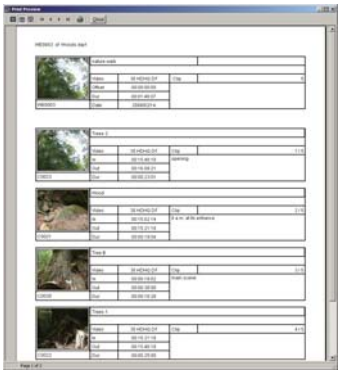
The PDZ-1 Proxy Browsing Software that is supplied with all XDCAM products is a highly convenient tool to easily browse recorded footage and even perform simple cuts-only editing right on your PC. This software also provides a variety of convenient tools for disc operation such as entire or partial disc copy (dubbing) and transfer between two XDCAM devices. It runs on a Windows-based PC, and supports two types of interfaces: i.LINK (File Access Mode) and Ethernet.

The XDCAM HD products can transfer Proxy Data to a PC running the PDZ-1 software at an extremely high speed. The software then enables simple and quick cut editing of this Proxy Data, and once the editing is complete, the edit results can be saved as a "Clip List" (or "XDCAM EDL") and written back to the original disc, allowing the disc to be played back according to the EDL. The Clip List also allows you to instantly generate a popular ASF file, which can be played back according to the EDL on Windows Media Player – a powerful feature that can streamline production workflows.

The PDZ-1 software also includes a variety of convenient functions such as "clip search by metadata", "EDL export in various formats", and "high-resolution file transfer according to a Clip List".

The MXF Proxy Viewer – application software specifically used to play back Proxy Data on a PC – is also supplied with all XDCAM HD products.

PDZ-1 Main GUI



Print Function

MXF Proxy Viewer

System requirements

Window 2000 (SP4 or later), Windows XP Professional (SP1 or later), Pentium® III Processor 1 GHz or b higher, Minimum 512 MB of RAM, Internet Explorer (SP1 or later), DirectX 8.1b or higher

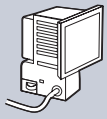
- Supported interfaces: i.LINK (File Access Mode) and Ethernet
- High-speed ingestion of Proxy Data from the XDCAM HD devices
- Browsing of Proxy Data recorded by the XDCAM HD systems (including those recorded by the SD version of the XDCAM system).
- Simple and quick cuts-only editing (storyboard) with the following functions:
  - Preview a result of the storyboard on the 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 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
- Registration of metadata such as "title", "creator", or "comments" for a disc or clip
- Setting of the "EssenceMark" metadata for instant cue-up to desired scenes. Names for the EssenceMark metadata can also be easily assigned.
- 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

Camcorder System Diagrams

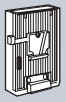
Unless specified as "supplied", all the components below are optional.

RM-F300
Remote Commander unit
(supplied)

ECM-674/678
Electoric Condenser Microphone
*Requires K-1502 3-pin to 5-pin Conversion Cable



Intelligent Light System

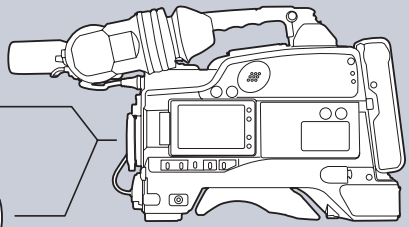


CA-WR855
Camera Adaptor

WRR-855A/855B
Wireless
Microphone Receiver*

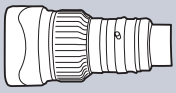
*WRR-861 or WRR-862 Series of wireless microphone receiver can also be used. (requires A-8278-057-A bracket)

MSH-64/128
Memory Stick



PDW-F350/F330

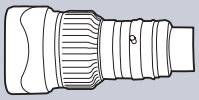
HD-SDI (PDW-F350)
HD Analog Component (PDW-F330)
SD Analog Component (PDW-F330)
SD Analog Composite (PDW-F350/F330)
i.LINK (PDW-F350/F330)



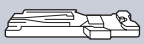
1/2-inch Type Lens

or

2/3-inch Type Lens



LO-32BNT
2/3-inch Type
Lens Mount Adaptor

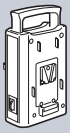


VCT-U14 Tripod Adaptor
(supplied)

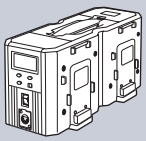
Recording Media

PFD23
(supplied, x1)

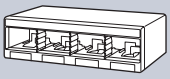
Battery Chargers



BC-L70



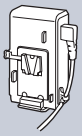
BC-M150



BC-L500

BP-GL95/GL65
Lithium Ion Battery Pack

BP-L60S
Lithium Ion Battery Pack

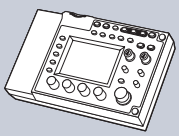


AC-DN10 AC Adaptor

8-pin

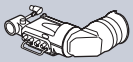
RM-B150

or

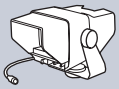


RM-B750
Remote Control Unit

View finder



or



DXF-801
(supplied with PDW-F330)

DXF-20W
(supplied with PDW-F350)

DXF-51 (optional)

Optional Accessories

For PDW-F350/F330 Camcorders

PFD23
Professional Disc Media

LO-32BMT
2/3-inch Lens Mount Adaptor

DXF-20W
2.0-inch B/W Viewfinder
**For PDW-F330 (this is included in the PDW-F350 as standard.)*

DXF-51
5-inch type B/W Viewfinder
**Requires optional accessory shoe kit (A-8274-968-B)*

BP-GL95/GL65
Lithium-ion Battery Pack

BP-L60S
Lithium-ion Battery Pack

BC-L70
Battery Charger

BC-M150
Battery Charger

BC-L500
Battery Charger

AC-DN10
AC Adaptor

RM-B150
Remote Control Unit

RM-B750
Remote Control Unit

CA-WR855
Camera Adaptor for WRR-855A/855B

WRR-855A/855B
Wireless Microphone Receiver

WRR-861A/861B
Wireless Microphone Receiver
**Requires optional mounting bracket (A-8278-057-A)*

WRR-862A/862B
Wireless Microphone Receiver
**Requires optional mounting bracket (A-8278-057-A)*

ECM-674/678
Shotgun-type Electret Condenser Microphone
**Requires K-1502 3-pin to 5-pin Conversion Cable*

LC-424
Carrying Case (Hard)

LC-DS300SFT
Carrying Case (Soft)

LCR-1
Rain Cover

MSH-64/128
Memory Stick Media

CCF-3L
i.LINK Cable
(4-pin to 6-pin with lock)

CCFD-3L
i.LINK Cable
(6-pin to 6-pin with lock)

VMC-IL4615B/IL4635B
i.LINK Cable
(4-pin to 6-pin,1.5 m/3.5 m)

VMC-IL6615B/IL6635B
i.LINK Cable
(6-pin to 6-pin,1.5 m/3.5 m)

1/2-inch Type HD Lenses

Canon
KH20x6.4 KRS

Canon
KH21ex5.7 IRSE

Canon
KH10ex3.6 IRSE

Fujinon
XS17x5.5BRM/BRD

Fujinon
XS13x3.3BRM/BRD

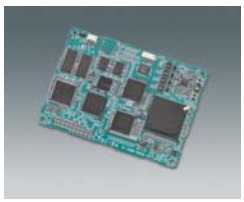
Fujinon
HS16x4.6BERM/BERD

** For details, please contact each manufacturer for current lens offerings.*

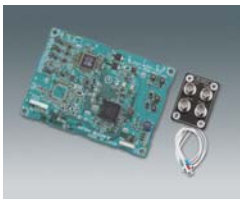
For PDW-F70/F30 Decks

PFD23
Professional Disc Media

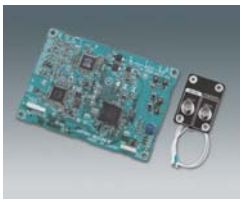
PDBK-101
Network Board



PDBK-102
MPEG-2 TS In/Out Board*



PDBK-103
HD Analog Input Board*



PDBK-104
SD Input Upconverter Board*

RM-280
Editing Controller

RCC-5G
Remote Control Cable (5 m)

VMC-IL4615B/IL4635B
i.LINK Cable
(4-pin to 6-pin,1.5 m/3.5 m)

VMC-IL6615B/IL6635B
i.LINK Cable
(6-pin to 6-pin,1.5 m/3.5 m)

**Only one of the PDBK-102, PDBK-103 or PDBK-104 boards can be installed at any one time.*

XDCAM HD Camcorders Specifications

				PDW-F350L	PDW-F330L
General	Weight			Approx. 8 lb 7 oz (body, 3.85 kg)	Approx. 8 lb 6 oz (body, 3.8 kg)
	Power requirements			DC 12 V +5.0 V/-1.0 V	
	Power consumption			Approx. 32 W (while recording, with viewfinder, color LCD ON, manual lens)	Approx. 31 W (while recording, with viewfinder, color LCD ON)
	Operating temperature			+32 to +104 °F (-5 to 40 °C)	
	Storage temperature			-4 to +140 °F (-20 to +60 °C)	
	Humidity			10 to 90% (relative humidity)	
	Continuous operating time			Approx. 160 min. w/BP-GL95 battery	
	Recording format	Video		DVCAM (25 Mb/s)	
				MPEG HD (MPEG-2 MP@HL) HQ mode (VBR, maximum bit rate : 35 Mb/s) SP mode (CBR 25 Mb/s) LP mode (VBR, maximum bit rate : 18 Mb/s)	
		Proxy Video		MPEG-4	
		Audio		MPEG HD: 4ch or 2ch, 16 bits/48 kHz	
				DVCAM: 4ch, 16 bits/48 kHz	
		Proxy Audio		A-law (4ch / 2ch, 8 bit, 8 kHz)	
	Recording/Playback time	DVCAM		Approx. 85 min.	
		MPEG HD: 35 Mb/s mode		Audio 2ch : approx. 69 min. / Audio 4ch : approx. 66 min.	
		25 Mb/s mode		Audio 2ch : approx. 92 min. / Audio 4ch : approx. 87 min.	
		18 Mb/s mode		Audio 2ch : approx. 122 min. / Audio 4ch : approx. 113 min.	
Signal inputs	Genlock video			BNC x1, 1.0 Vp-p, 75 Ω	
	Audio input			XLR-3pin (Female) x2, line / mic / mic +48 V selectable	
	Mic input			XLR-5-pin (Female, stereo) x1	
Signal outputs	HD-SDI output			BNC x1, SMPTE 292M (w/embedded audio, MPEG HD mode only)	–
	Component (HD/SD analog) video output			–	BNC x3, Y/Pb/Pr, 1.0 Vp-p, 75 Ω
	Composite video output			BNC x1, 1.0 Vp-p, 75 Ω	
	Earphone			Mini-jack x1 (stereo)	
	Audio output (CH-1/CH-2)			XLR-5-pin (Male, stereo) x1	Pin-jacks x2, -10 dBu, 47 Ω
Other inputs/outputs	Timecode input			BNC x1, 0.5 to 18 Vp-p, 10 Ω	BNC x1 (input or output, selectable), (input: 0.5 to 18 Vp-p, 10 kΩ, output: 1.0 Vp-p, 75 Ω)
	Timecode output			BNC x1, 1.0 Vp-p, 75 Ω	
	Lens			12-pin	
	Remote			8-pin	
	Light			2-pin, DC 12 V, max. 50 W	
	DC input			XLR-4-pin (Male) x1	
	DC output			4-pin (for wireless microphone receiver), DC 12 V (MAX 0.2 A)	
	i.LINK			IEEE 1394, 6-pin x1, AV/C (DV stream output) or File Access Mode	
Audio performance	Frequency response			20 Hz to 20 kHz, +0.5 dB/-1.0 dB	
	Dynamic range			More than 85 dB	
	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)	
Camera section	Pickup device			3-chip 1/2-inch type HD Power HAD CCD	
	Effective picture elements			Approx. 1.56 Mega Pixels (1,440 x 1,080)	
	Optical system			F1.4 prism	
	Built-in optical filters			1: Clear, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND	
	Shutter speed		59.94i	1/100, 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	
			23.98p	1/32, 1/48, 1/96, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS	
			50i	1/60, 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	
	Slow Shutter (SLS)			1 to 8, 16, 32, and 64 frame accumulation	
	Slow & Quick Motion function (*MPEG HD mode only)		23.9/29.97p	Selectable from 4 to 60 frame/sec as recording frame rate	–
			25p	Selectable from 4 to 50 frame/sec as recording frame rate	
	Lens mount			SONY 1/2-inch type bayonet mount	
	Sensitivity (2000 lx, 89.9% reflectance)			F9 (typical)	
	Minimum illumination			Approx. 0.004 lx (F1.4 lens, +48 dB turbo gain, with 64 frame accumulation)	
	Gain selection			-3, 0, 3, 6, 9, 12, 18, 24, 30, 36, 42, 48 dB	
	Smear level			-120 dB (typical)	
	S/N ratio			54 dB (typical, HD output)	
	Modulation depth at 21 MHz			45% (typical)	
	Geometric distortion			Below measurable level (w/o lens)	
Viewfinder	CRT			2.0-inch type monochrome	1.5-inch type monochrome
	Indicators			REC (x2), TALLY, BATT, SHUTTER, GAIN UP	
Built-in LCD monitor				3.5-inch type color LCD monitor	
Supplied accessories				DXF-20W Viewfinder (x1)	DXF-801 Viewfinder (x1)
				Electret condenser stereo microphone (x1), Wind screen (x1), Lens mount cap (x1), Shoulder belt (x1), VCT-U14 Tripod Adaptor (x1), Frange focal length adjustment test chart (x1), RM-F300 IR remote commander, Operation manual (x1), PDZ-1 Proxy Browsing Software (x1), MXF Proxy Viewer software (x1), Professional Disc (PFD23, x1)	

XDCAM HD Decks Specifications

			PDW-F70 Recorder	PDW-F30 Viewer
General	Power requirements		100 V to 240 V AC, 50/60 Hz	
	Power consumption		70 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		15 lb 6 oz (7.2 kg)	
	Dimensions (W x H x D)		12 1/8 x 4 x 16 1/2 inches (307 x 100 x 411 mm)	
	Recording format	Video	MPEG HD (MPEG-2 MP@HL) HQ mode (VBR,maximum bit rate : 35 Mb/s), SP mode (CBR, 25 Mb/s), LP mode (VBR, maximum bit rate : 18 Mb/s)	–
		Proxy Video	MPEG-4	
		Audio	MPEG HD: 4 ch or 2 ch, 16 bits/48 kHz	–
		Proxy Audio	A-law (4 ch / 2 ch, 8 bit, 8 kHz)	
	Playback format	Video	MPEG HD (MPEG-2 MP@HL): HQ mode (VBR, maximum bit rate : 35 Mb/s), SP mode (CBR, 25 Mb/s), LP mode (VBR, maximum bit rate : 18 Mb/s)	
		Proxy Video	MPEG-4	
		Audio	MPEG HD: 4 ch or 2 ch, 16 bits/48 kHz DVCAM: 4 ch, 16 bit/48 kHz	
		Proxy Audio	A-law (4 ch / 2 ch, 8 bit, 8 kHz)	
	Recording/playback time	MPEG HD 35 Mb/s mode	Audio 2ch : approx. 69 min. , Audio 4ch : approx. 66 min	
		25 Mb/s mode	Audio 2ch : approx. 92 min. , Audio 4ch : approx. 87 min.	
		18 Mb/s mode	Audio 2ch : approx. 122 min. , Audio 4ch : approx. 113 min.	
		DVCAM	Approx. 85 min. (playback only)	
	Search speed (in color)	Jog mode	±1 time normal speed	
		Variable Speed mode	±1 time normal speed	
		Shuttle mode	±20 times normal speed	
Signal inputs	Analog reference input		BNCx2(including loop through), HD Tri-level sync or SD composite sync (0.3 Vp-p/75 Ω/sync negative)	–
	Analog composite input (option: PDBK-104)		BNCx1, RS-170M	–
	Analog HD component input (option: PDBK-103)		BNC x4, Y/Pb/Pr/(Sync) or G/B/R/(Sync)	–
	HD-SDI input		BNCx1, SMPTE 292M	–
	SD-SDI input (option: PDBK-104)		BNCx1, SMPTE 259M	–
	Analog audio input		XLR x2 (channel selectable), +4/0/-3/-6 dBu (selectable),10 kΩ, balanced	–
	Digital audio input		AES/EBU, BNCx2, 4 channels	–
	Timecode input		BNCx1, SMPTE Time code	–
Signal outputs	Analog composite video output		BNCx1, (1.0 Vp-p/75 Ω/sync negative) , RCA-pinx1,(1.0 Vp-p/75 Ω/sync negative)	
	Monitor output		D-sub 15-pin (G/B/R or Y/Pb/Pr)	
	Built-in display		3.5-inch type color LCD monitor	
	HD-SDI output		BNCx2, SMPTE 292M	–
	SD-SDI output		BNCx1, SMPTE 259M	–
	Analog audio output		XLRx2 (channel selectable), +4/0/-3/-6 dBu (selectable), 600 Ω load, balanced	
	Audio monitor output		RCAx2 (L, R, Mix), -6dBu, 47 kΩ, unbalanced	
	Headphone output		Stereo phone jack, -14dBu, 8 Ω, unbalanced	
	Digital audio output		AES/EBU, BNCx2, 4 channels	–
	Timecode output		BNCx1, SMPTE Timecode	–
Other inputs/outputs	i.LINK		IEEE1394, 6-pin x1, AV/C (DV stream output) or File Access Mode	
	i.LINK(HDV 1080i) (option: PDBK-102)		IEEE1394, 6-pin x1, HDV 1080i IN/OUT	
	Ethernet (option: PDBK-101)		1000Base-T (RJ-45)	
	RS-422A		D-sub 9-pin x 1	
	RS-232C		D-sub 9-pin x 1	
	CONTROL		Mini-jack 4-pin	–
Video performance	Sampling frequency		Y: 74.25MHz, R-Y/B-Y: 37.125MHz	
	Quantization		8 bits/sample	
	Analog composite output(DV)		Frequency response : 0 to 4.2 MHz +1.0/-3.0 dB (525), 0 to 4.8 MHz +1.0/-3.0 dB (625) S/N(Y) : 53 dB or more , Y/C delay (K2T) : ±25 ns or less , K-factor(K2T) : 2% or less	
Processor adjustment range	Video level		±3 dB	±3 dB
	Chroma level		±3 dB	±3 dB
	Set up/black level		±30 IRE	±30 IRE
	Chroma phase		±30 deg	±30 deg
	System sync phase		±3 µs	–
	System sync phase (fine)		±200 ns	–
Audio performance	Sampling frequency		48 kHz	
	Quantization		16 bits/2 channels or 16 bits / 4 channels	
	Frequency response		20 Hz to 20 kHz +0.5/-1.0 dB(0 dB at 1 kHz)	
	Dynamic range		90 dB or more	
	Distortion		0.05% or less (at 1 kHz)	
	Headroom		20/18/16/12 dB (selectable)	
Supplied accessories			Operation manual (x1), Vertical installation stand (x1) , Infrared remote commander (x1) , PDZ-1 Proxy Browsing Software (x1), MXF Proxy Viewer software (x1)	

**Only one of the PDBK-102, PDBK-103 or PBDK-104 boards can be installed at any one time.*

SONY

Sony Electronics Inc.
1 Sony Drive
Park Ridge, NJ 07656
www.sony.com/XDCAM

V-2320
MK10311V2
Printed in USA (04/06)