

# SONY®

## XDCAM™ Professional Disc System

PROFESSIONAL DISC PRODUCTS



Professional Disc™

# Sony Professional Disc™ Systems

## The XDCAM™ – Changing Workflow Paradigms

In the past decade, advancements in IT technologies have served to break the traditional barriers between current AV and IT infrastructures. The advent of nonlinear editing systems, news servers, and Sony e-VTRs has clearly demonstrated the benefits of bringing the two worlds – random access, file transfers, central storage, metadata, to name just a few. While such technologies have introduced major benefits to production workflows in broadcasting, where better, faster and cost-effective are key requirements, a media solution to fulfill this transition had not yet been established – until now.

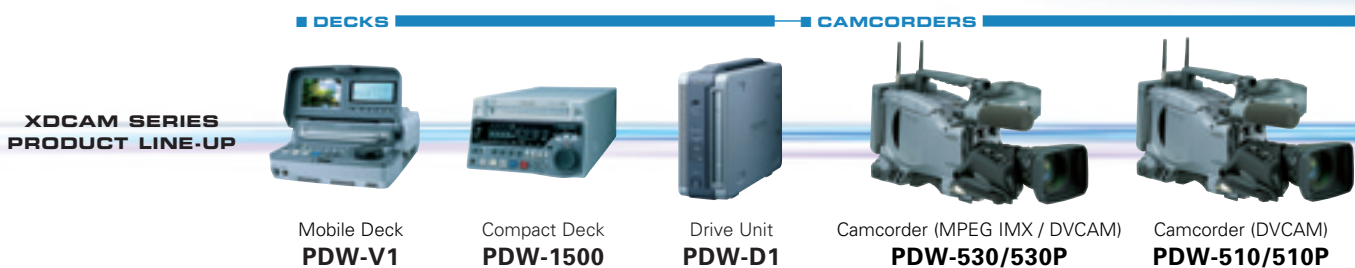
The Sony XDCAM Series of optical disc products utilizes the Professional Disc media and state-of-the-art blue-violet laser technology to achieve high data transfer rates and long recording times for practical day-to-day operations. Its file-based recording and random access capabilities not only remove the 'linear-natured' barriers common to tape media, but also merge the AV and IT worlds by featuring the functions required for both domains.

The Professional Disc media has been designed to be both highly durable and reliable, suited to even the harshest operating environments. This media is also extremely flexible, and overcomes the limitations of proprietary footprints. It allows the recording and playback of a wide assortment of data, including MPEG IMX™ and DVCAM™ streams, metadata, and low-resolution copies (Proxy AV Data) of your recordings.

Two high-performance camcorders, two unique decks and a drive unit make up the XDCAM Series, and each includes a wide array of features to take full advantage of the optical media. In addition, powerful nonlinear editors – including the XPRI™ Nonlinear Editing System, XPRI Mobile™ editor – have been designed with special consideration for their use with XDCAM Series camcorders and decks. These editors offer unique editing styles such as low-resolution field editing and off-line edit data transfers via a network, removing the geographical barriers that traditionally dictate where tasks can be performed.

The XDCAM Series is also designed with full care and attention to your all-important current infrastructure. The features and interfaces of these devices bring the flexibility of optical technology into both nonlinear and linear systems, and to asynchronous and synchronous environments, and with compatibility with third-party equipment, allowing for their smooth migration into any current system to meet your budgetary and operational needs.

With all these features and more, the XDCAM Series is, without doubt, paving the way to a new era, where the world of AV truly meets the world of IT.



\*Lens, wireless microphone receiver and battery pack are optional.





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# XDCAM

Professional Disc System

## ■ NONLINEAR EDITING SYSTEMS

### XPRI SERIES PRODUCT LINE-UP



XPRI Mobile



XPRI Nonlinear Editing System

# New “Nonlinear” Recording Medium – The Professional Disc

The Sony Professional Disc, PFD23 is a newly developed, single-sided, optical disc that uses state-of-the-art blue-violet laser technology to enable extremely large-capacity recordings. The diameter of the disc is a mere 12 cm, equal to that of other optical media such as CDs or DVDs. Yet, despite its small size, the disc provides an amazing storage capacity of 23.3 GB – a feat made possible using a 405 nm blue-violet laser, an objective lens with a 0.85 numerical aperture (NA), and a specially developed recording layer.

Sony has taken great care in selecting the Professional Disc as the next-generation professional recording medium. The choice is based on Sony experience and technical expertise in developing and marketing a wide range of professional products that have effectively served users around the world for several decades.



### Flexible Platform

The Professional Disc system is a very flexible platform on which an assortment of data in a variety of formats can reside. The use of optical disc technology eliminates the restrictions inherent in proprietary tape footprints, and allows a variety of different video formats to be recorded as 'data files', and is therefore extremely flexible as to what can be recorded to it. In addition to video and audio streams, you can record a variety of metadata, such as date/time information and comments indicating the material content. Furthermore, computer files created on Microsoft Word, PhotoShop, and other application software can also be stored on a Professional Disc media\*.

\*Up to 500 MB

### Largest-Capacity Optical Disc

The superior disc capacity of the Professional Disc enables you to make high-quality yet long-duration recordings. Its 23.3-GB data capacity translates to a recording time of 45 to 85 minutes depending on the bit rate the camera operator chooses.

### High Transfer Rate

The Professional Disc's data transfer rate is 72 Mb/s from a single optical head unit and 144 Mb/s on a dual head deck, providing stable recording and playback of high bit rate data such as a 50 Mb/s MPEG IMX stream.

### Quick Random Access

The nonlinear nature of the Professional Disc alone provides tremendous benefit when handling audio/video content. When a recording is played back from the disc, its physical location on the disc does not impact the time required to access it. Recordings can be accessed in a fraction of the equivalent time taken to access information on disc, making it much easier and faster to locate source material. This is the beauty of random access, and all Sony XDCAM products are equipped with powerful features – delivering innovation to all your programming operations.

### Highly Reliable, Durable and Re-usable Medium

Optical discs have a natural advantage since they suffer no mechanical contact during recording or playback, making the format ideal for continuous use and re-use. The Professional Disc is in specific also highly resistant to dust, shock and scratches, packaged in an extremely durable and dust-resistant cartridge. It is resistant to heat and humidity, and is X-ray resistant – factors that make the Professional Disc ideal for use in harsh field environments, and also allows for long media life and long-term storage.

### Professional Disc Media (PFD23) Specifications

Storage capacity .....	23.3 GB
Laser wavelength .....	405 nm (blue-violet)
Data transfer (writing) rate .....	72 Mb/s (per optical head)
Disc diameter .....	120 mm (4 5/8 inches)
Cartridge dimensions .....	129 x 131 x 9 mm (W x H x D) (5 1/8 x 5 1/4 x 3/8 inches)
Mass .....	90 g (3 oz)
Recording format .....	Phase change recording



PFD23



# The XDCAM Workflow Innovation

Sony XDCAM Series of products offer a variety of unique functions that have been made possible through the use of optical discs. These functions open up stunning innovations in each area of the production workflow, whether you use the products individually or as part of an integrated XDCAM system.

## Instant Random Access and Thumbnail-Based Search of Material

With all Sony XDCAM products, video and audio signals are recorded as one clip file each time a recording is started and stopped. During playback, quick cue-up to the next or previous clip is possible simply by pressing the 'Next' or 'Previous' button, as performed on a CD or DVD player.

Furthermore, thumbnails are automatically generated for each clip, as a visual reference to cue-up material in a random fashion. Simply press the thumbnail button and the XDCAM camcorders or decks instantly generate and display these thumbnails on either their LCD displays\* or a connected monitor. You can easily cue up the desired scene by guiding the cursor to the corresponding thumbnail and confirming your selection with the appropriate button. The recording associated with that thumbnail is then instantly brought up to the full screen size, and material can be played, paused, fast-forwarded or scrubbed. This feature proves extremely useful when footage must be reviewed on the camcorder, or when users are searching for material during editing.

Thumbnail-based searches were only available in nonlinear systems after digitizing the source to the editor's hard drive, however, Sony XDCAM products offer this capability straight from the optical disc.

*\*Available only on XDCAM camcorders and the mobile deck.*

## The Ultimate in Acquisition Convenience

Sony XDCAM camcorders take full advantage of the new optical media. Recordings on optical discs are automatically made on the empty area of a disc, relieving camera operators' concerns about accidentally overwriting other confirmed 'takes'. Furthermore, because acquisition is an ongoing process of shooting and reviewing, this eliminates the burden of searching for the correct position to start the next recording, meaning the camera is always ready for the next shot.

Operators can also review their latest take immediately, with a simple press of the 'Return (RET)' button. If a take is not good, it can be easily deleted from the disc before moving onto the retake. This way, you not only save disc space, but you can also prepare a disc that contains only your OK takes, boosting the efficiency of subsequent editing processes.



Thumbnail display on camcorder LCD display

## IT-friendly System – Network Convenience

In the Sony XDCAM Series of products, recordings are made as data files in the 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. This file-based recording system also allows material to be viewed directly on a PC linked to the XDCAM units via an i.LINK\* (File Access Mode\*\*) connection – just as a PC reads files on an external drive.

The XDCAM camcorders and decks come equipped with IT-friendly, computer-based interfaces. These includes the i.LINK interface supporting DV IN/OUT and file access mode, and 1000Base-T or 100Base-TX Ethernet interfaces. Together with the devices' MXF file transfer capability, this makes integrating XDCAM products into a network a quick, straightforward task.

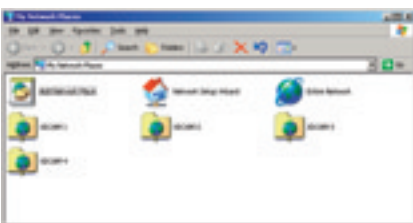
*\*i.LINK is a Sony trademark used only to designate that a product is equipped with an IEEE 1394 connector. Some products with an i.LINK connector may not communicate with each other. Please refer to the documentation that comes with any device having an i.LINK connector for information on compatibility,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



*\*\*For connection with third party products using this mode, please contact your nearest Sony office.*



XDCAM displayed as a removable storage device (i.LINK (File Access Mode))



XDCAM units connected via a network

## Scene Selection

XDCAM decks and camcorders are equipped with a powerful "Scene Selection" function, which allows cut editing\* to be accomplished only within the camcorder or deck itself. Since editing is performed using just one camcorder or deck, rough 'on-site' editing is easily achieved, with the compactness and convenience required in the field.

Two key elements make this possible - the XDCAM system's random access capability and its function to playout clips in the order designated by the operator. With an XDCAM camcorder or deck, operators can select only the necessary clips and place them on a storyboard. As required, clips can be rearranged or inserted into the storyboard sequence. In addition, deck models offer the additional ability to trim clips. The results of the storyboarding are saved as an XDCAM EDL (called "Clip List"), which can be written back to the original disc to stay with the material. This disc can then be played back according to the Clip List, on the same or different XDCAM unit, so that only the selected portions are played out in the desired order.

The material clips that were not selected for the "Clip List" still remain on the original disc, however are ignored when an XDCAM unit plays back the disc according to the Clip List\*\*.

The Scene Selection feature 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, Scene Selection can also be performed on a PC running the PDZ-1 proxy browsing software\*\*\* supplied with all XDCAM products, providing a visually comfortable working environment.

*\*The video and audio of a clip cannot be edited independently.  
\*\*Up to 99 Clip Lists can be saved. \*\*\*See page 19 for details.*



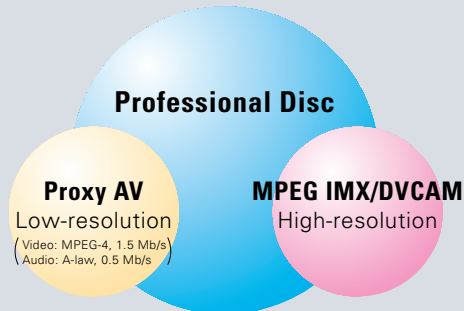
Scene Selection on a PC running supplied PDZ-1 software

## Proxy AV Data – Opening Up New Possibilities for Network-based Collaboration

### What is Proxy AV Data?

Another stunning benefit of these XDCAM products is their use of Proxy AV Data – a technique that effectively streamlines the entire production process in many different ways. In brief, Proxy AV Data is a low-resolution, MPEG-4 based version of the full-resolution MPEG IMX/DVCAM stream with a bit rate of 2.0 Mb/s (video: 1.5 Mb/s, audio: 0.5 Mb/s). When a recording is made, a Proxy AV stream that is time code synchronized with the full-resolution stream, is also recorded automatically on the disc. The Proxy AV Data, which is smaller in size, is easier to work with and can be transferred over common networks at much greater speeds.

The following are just a few of the many ways that Proxy AV Data can improve current workflows.



### 1. Remote Content Browsing

One convenient use for Proxy AV Data is content browsing from remote locations. The MPEG-4 Proxy AV Data can be replayed on standard PCs running the MXF Proxy Viewer or PDZ-1 software supplied with all XDCAM products. Since XDCAM camcorders\* and decks allow the transfer of this Proxy AV Data through their LAN ports, the Proxy AV Data of material shot in the field can be uploaded to a designated server for remote viewing from the studio. This capability allows journalists in the studio, for example, to start writing scripts before the disc even arrives.

*\*XDCAM camcorders require an optional Ethernet (100Base-TX) Adaptor (CBK-NC01).*

### 2. Extremely Quick Logging

Because Proxy AV Data is much smaller than the high-resolution video, it allows extremely fast transfer of material from XDCAM decks. With the supplied PDZ-1 software or Sony XPRI Mobile, a nonlinear editor compatible with XDCAM products, fast data transfer at amazing speeds can be accomplished. Once the data is copied to the hard drive of the PC running the PDZ-1 software or XPRI Mobile editor, all logging decisions can be made by referring to the Proxy AV Data residing on the hard drive, rather than from the original media in a linear fashion, which would be the case with a typical VTR-tape based logging system. While typical logging systems tie-up the playback device during the entire process, logging directly from the PC's hard drive means that the XDCAM deck can be used for other tasks during the logging process.

### 3. Proxy Editing

The smaller size of the Proxy AV Data allows operators to perform editing tasks using a standard laptop PC, while also enabling more hours of material to be stored on the hard drive. By installing the supplied PDZ-1 software, operators can perform simple cut editing\* of the Proxy AV Data very easily. With the XPRI Mobile editor, the more advanced Proxy Editing feature, which includes the addition of effects, voice-over recording and converting the proxy data to a high-resolution MPEG IMX/DVCAM file can be accomplished, streamlining each step in the editing process.

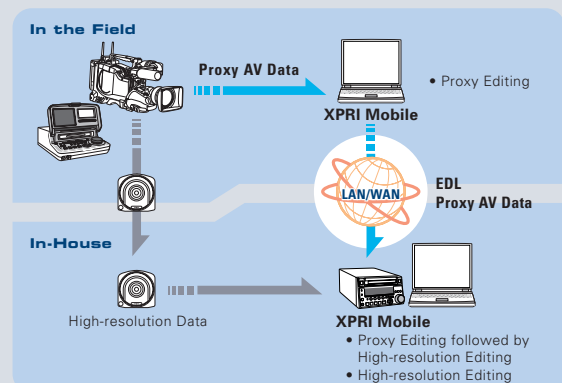
#### • Instant Off-line Editing

The Proxy AV Data copied to the hard drive of the PC running the PDZ-1 software or XPRI Mobile editor can be directly placed on the PDZ-1's storyboard or XPRI Mobile's timeline for Proxy Editing; a process similar to conventional VTR off-line editing but, without the need to create 'off-line' dubs prior to the editing. Once Proxy Editing is complete, the resultant Proxy EDL can be exported in other EDL formats such as BVE-9100, NewsBase XML and ALE (Avid Log Exchange), in addition to XDCAM's Clip List for subsequent on-line editing. The XPRI Mobile editor can also perform high-resolution editing, allowing operators to ingest from the disc, only the high-resolution material associated with the clips on the Proxy timeline, to instantly reproduce an on-line version of the timeline for final retouches. The XPRI Mobile is a cost-effective laptop-based editor and an efficient on-line/off-line switchable system, adding flexibility to the editing workflow.

#### • Effective Collaboration Between the Field and Studio

Thanks to the smaller size of the Proxy Data, operators can transfer the Proxy Data from the field to the studio over a common network, allowing staff in the studio to start 'off-line' Proxy Editing on the XPRI Mobile editor before the XDCAM disc arrives. The Proxy data is transferred at very high speed. Once the disc becomes available at the studio, the high-resolution material only used in the Proxy timeline is ingested into the XPRI Mobile editor from the disc for final retouches.

The use of Proxy Data also allows editing tasks to be effectively shared between field and studio staff. Over a common network, EDLs created in the field using the Proxy AV Data can be transferred to the studio (with the Proxy Data) and loaded to the XPRI Mobile editor. They can also be locally loaded from the original disc if the EDL has been written back to it. In either case, once the Proxy EDL is loaded to XPRI Mobile editor, an on-line version can be instantly made, simply by ingesting only the necessary portions of the high-resolution material based on the EDL. This means that from then on, only final retouches need to be applied.





## • Emergency On-Air

Although Proxy Data is available only as an asynchronous data file from the XDCAM devices, this can be made available as synchronous video/audio using the XPRI Mobile editor. Specifically, the XPRI Mobile editor can convert the Proxy Data into an MPEG IMX or DVCAM stream, which can then be written back to the Professional Disc media for playback via the XDCAM units' synchronous AV outputs.

This feature is extremely useful for going right to air with breaking news. Operators on location can transfer the Proxy AV Data of the news footage to the studio over a common Ethernet network. Immediately after this is received, studio staff can use the XPRI Mobile editor to convert this into an MPEG IMX or DVCAM file, which can be played out from the XDCAM unit for emergency on-air broadcast.

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

## 4. Archive Management System Using Proxy AV Data

The use of Proxy AV Data also brings a great number of benefits when establishing an archive system. The Professional Disc media itself is highly suitable for archiving material due to its robustness, long media life of up to 50 years based on Sony accelerated testing, and slim, small size. In addition, the Proxy AV Data — mirrored data of the original high-resolution data — can be effectively used as catalog pictures to search for and retrieve the desired archive material.

By transferring all Proxy AV Data of the discs stored in the archive system to one PC running the supplied PDZ-1 software, a cost-effective, easy to maintain archive management system can be established. Using the functions of the PDZ-1 software, operators can register detailed information associated with each recording such as clip descriptions, disc (reel) numbers and other important notes. This gives users the convenience of searching for archive material by browsing the Proxy AV Data, or by using the 'Search' function of the PDZ-1 software to locate desired clips using the registered text information as key words. Convenient archiving is just another benefit of using the XDCAM equipment and its Proxy Data.

## High-resolution File Transfer Over a Network

Another stunning feature that innovates current workflows is the capability to transfer high-resolution material over a standard network. Clips recorded on Professional Disc media can be sent and received over a standard network through a LAN port on the decks or camcorders\*, allowing seamless exchange of material among any networked devices installed all over the world.

The transfer can be performed by a simple FTP operation using Internet Explorer or common FTP client software. The supplied PDZ-1 software can also be used to perform file transfer very easily. For advanced operation, the 'Partial FTP Transfer' function allows only the clips selected in a Clip List to be transferred over the network.

This network capability makes it possible to send footage from the field to the studio immediately after the shoot, or easily share material among production staff at multiple locations, without the lead time of delivering tapes or relying on costly satellite transmissions.

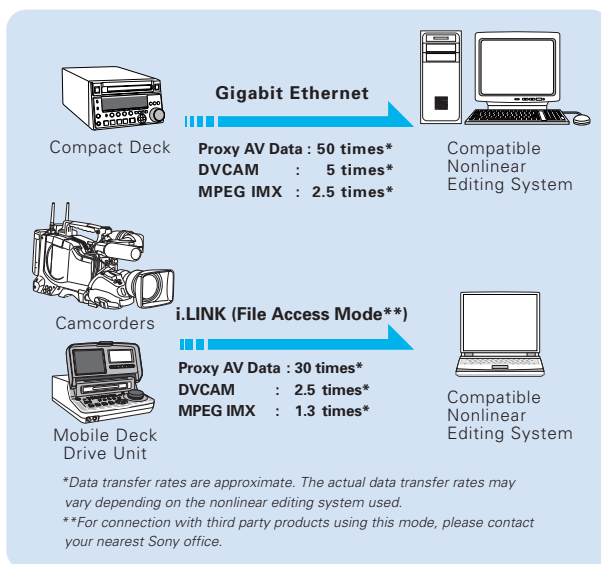
*\*XDCAM camcorders require an optional Ethernet (100Base-TX) Adaptor (CBK-NC01).*

## High-Speed Data Transfer – the Foundation of Workflow Innovation

A large part of the appeal of these Sony XDCAM products is their high-speed data transfer capability, allowing you to transfer data to other equipment at speeds several data rates faster than real time. This is possible because XDCAM products provide a range of high-speed interfaces and because, by nature, the Professional Disc offers the flexibility to read data at different speeds.

For low-resolution Proxy AV Data, a maximum transfer speed of an amazing 30 times\* for field units, and 50 times\* for studio units, faster than real time is achieved, while for high-resolution (MPEG IMX and DVCAM) material, the maximum transfer speed is at 5-times\* speed for DVCAM signals and 2.5-times\* speed for MPEG IMX signals.

*\*Data transfer rates are approximate. The actual data transfer rates may vary.*



# Features and Benefits of the XDCAM Professional Disc Systems

## Outstanding Picture Quality of MPEG IMX/DVCAM Format Recording

Sony XDCAM products offer the capability to record\* and play back both MPEG IMX and DVCAM streams\*\*. Users have the flexibility to select from these formats according to their picture-quality needs, or to match their editing-format requirements.

The DVCAM format uses 8-bit digital component recording with a 5:1 compression ratio and a sampling rate of 4:1:1 (for NTSC)/4:2:0 (for PAL). The MPEG IMX format uses 8-bit digital component recording with MPEG-2 4:2:2P@ML compression at 50, 40, 30 Mb/s, enabling users to choose the picture quality and recording time according to their needs.

The XDCAM Series of products provide approximately 85 minutes of DVCAM recording time, and 68, 55, and 45 minutes of MPEG IMX recording at 30, 40, and 50 Mb/s, respectively.

MPEG IMX recording is the ideal choice when you need higher picture quality, while DVCAM recording offers the benefit of a longer recording time.

*\*Recording on the PDW-V1 is available only through the Ethernet or i.LINK (file access mode) interface.*

*\*\*The PDW-510/510P camcorder is capable of DVCAM recording only.*

### Recording/Playback Time



**68 minutes at 30 Mb/s**  
**55 minutes at 40 Mb/s**  
**45 minutes at 50 Mb/s**



**85 minutes**

## Flexible Metadata Recording

XDCAM products are also capable of recording a variety of metadata, which provides a huge advantage when searching for data in subsequent processes. The following are examples of metadata types that Sony XDCAM Series of products can handle and record.

### Disc Metadata/Clip Metadata

From acquisition to editing and onto the archiving process, a great amount of information is associated with the recordings. For example, production dates, creator names, camera setup parameters, copyright notes, and memorandums are just a few. With the XDCAM products, such information can be saved together with the AV material on the same disc and be effectively used to improve the entire workflow chain. Using the supplied PDZ-1 software allows a variety of data to be added either on a "Disc" or "Individual Clip" basis in different forms such as "Disc Title", "Clip Title", "Disc ID Number", "Comments" or "Clip Status (to indicate OK/NG status)".

Furthermore, the PDZ-1 software has a powerful 'Search' function to easily locate desired clips by using the registered metadata as text-based keywords, providing enhanced efficiency in searching material, determining edit points or retrieving archive materials.

### Essence Mark Recording

The Essence Marks used in Sony XDCAM products are also a very useful form of metadata, and provide a most effective way of searching for recordings via thumbnail pictures. Essence Marks can be set during the shoot either manually or automatically. Thumbnails representing the Essence Mark positions are generated each time the Essence Marks are set, proving invaluable when searching for required scenes in subsequent reviewing and editing processes.

#### Manual Marking

Each time the 'return' button on the camcorder lens or the 'Shot Mark' button on the deck is pressed, an Essence Mark is set. After the shoot, operators can quickly cue to that point simply by selecting its thumbnail from a list displayed on the LCD screen of the playback device or a video monitor connected to it. When the PDZ-1 software is used, operators can define Essence Mark names using desired keywords and easily set these as user-defined Essence Marks.

#### Automatic Marking

XDCAM camcorders can also automatically set an Essence Mark when particular events are sensed by, or occur within, the camcorder. For example, the camcorder can be set up to record Essence Marks when the audio level overshoots, or when there is an abrupt change in video luminance levels. Since several different types of Essence Marks can exist on the disc, Sony XDCAM Series of products offer an easy way of searching through them by type.



### Others

All XDCAM products are also capable of recording UMID/Extended UMID (Unique Material Identifier) which consists of globally unique number or a material number. Another unique feature that XDCAM products provide is the capability to record any type of computer file format such as Word, Excel, JPEG, WAV onto the Professional Disc media, which allows operators to record all files associated with the footage onto a single disc.

## Seamless Integration into Current VTR-Based Systems

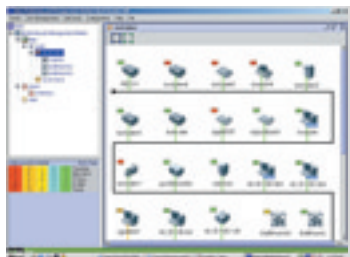
In order to achieve seamless integration into current tape-based systems, a great deal of thought has been put into the development of Sony XDCAM products. A range of conventional AV interfaces including SDI, analog composite, analog/digital audio I/Os and RS-422A 9-pin remote interface allows easy connectivity to current equipment, including a wide variety of VTRs, linear and nonlinear editors, and audio mixers. In addition, XDCAM products offer network-based interoperability with other Sony network-capable equipment, such as the MPEG IMX e-VTR, establishing a highly effective and advanced system. And, because operability is another key concern when investing in new equipment, Sony has paid special attention to this too, allowing operation that is best suited to optical media while retaining the feel of conventional VTR-based products.

## Easy and Low-cost Maintenance

From the outset, Sony XDCAM Series of products have been designed using the best concurrent engineering practices, answering maintenance issues before they even arise. Moving parts have been minimized, as have the number of parts requiring periodic replacement. This results in a drastic reduction in maintenance labor, and promotes more efficient use of your equipment.

Sony XDCAM products\* are also compatible with Sony remote maintenance and monitoring software – an SNMP-compliant application that can monitor and log the hardware's status in real time via an Ethernet network. If a malfunction is detected, this system can immediately identify the problem, allowing you to take corrective action. Not only is the system reactive, it proactively monitors your systems and identifies maintenance needs in a timely manner too.

*\* XDCAM camcorders require an optional Ethernet (100Base-TX) Adaptor (CBK-NC01).*



**Sony MMStation™ SNMP-compliant Remote Monitoring and Maintenance Software**

## High Durability and Reliability

In harsh working environments, it is of critical importance that hardware is tolerant to shock and vibration during important shoots. Sony's accumulated knowledge about the tough criteria for such environments, together with years of experience meeting these criteria, contribute greatly to the high reliability of Sony XDCAM products.

The Sony XDCAM camcorders use rubber dampers to hold the disc drive block in place thereby minimizing the effect of any shock or vibration. In addition, a powerful tracking system, based on the best Sony servo technologies, reduces the chance of the optical head recording off track. In the event a shock exceeds the servo's capacity, causing the head to be positioned incorrectly, a buffer memory is available to help prevent off-track recordings. The buffer serves in such a way that recording to the disc will not occur until the optical head returns to its correct position. After the head is properly positioned, the buffered information is recorded to the disc, thereby helping to prevent interruptions in the recording. A substantial amount of buffering has been built into the camcorder to accommodate large off-track errors.

In addition, in the event of an abnormal recording, powerful ECC (Error Correction Code) and sophisticated concealment techniques are available on all machines so that discs can be played back appropriately.



# XDCAM Camcorders

**PDW-510/510P CAMCORDER (DVCAM RECORDING)**  
**PDW-530/530P CAMCORDER (MPEG IMX/DVCAM RECORDING)**



Sony XDCAM camcorders have been designed with special consideration for heavy-duty field acquisition, providing excellent picture quality, operability and reliability inherited from the Sony BETACAM™ family of acquisition products.

In addition to these impressive capabilities, Sony XDCAM camcorders also provide numerous innovative features that take full advantage of the benefits of nonlinear disc media. These unique features offer a completely new style of field operation, adding flexibility and efficiency to those operations where quick program completion is a top priority.

The PDW-530/530P features MPEG IMX/DVCAM-switchable recording and two built-in optical filter wheels (ND and CC), while the PDW-510/510P features DVCAM recording and one built-in optical filter wheel.

*\* Lens, wireless microphone receiver and battery pack are optional.*



## Common Features on Both Camcorders

### ■ 16:9/4:3 Switchable Power HAD™ EX CCDs

XDCAM camcorders incorporate three 16:9/4:3 switchable CCDs for their image capture device. Using the best of Sony CCD technology, these allow for outstanding picture quality with a high signal-to-noise ratio of 65 dB (NTSC)/63 dB (PAL), low smear level of -140 dB (typical), and high sensitivity of F11.

### ■ 12-bit A/D Conversion

XDCAM camcorders also incorporate a high-integrity 12-bit A/D converter, so that the high-quality images captured by the Power HAD EX CCDs are processed with great precision. In particular, this high bit resolution allows contrast to be reproduced precisely in mid-tone areas of the picture.

### ■ Advanced Digital Signal Processing

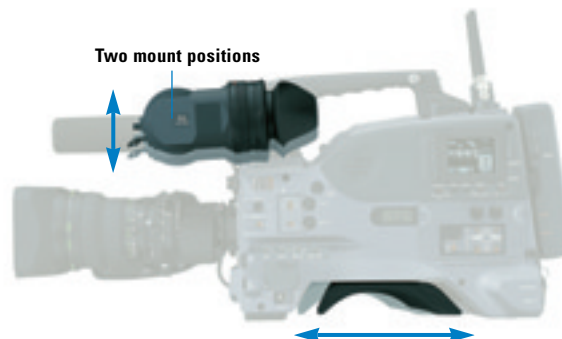
A key to quality in DSP cameras is how many bits are used in their nonlinear processes, such as gamma correction. XDCAM camcorders use more than 30 bits, minimizing round-off errors so the high quality of the CCDs is maintained. The DSP LSI of XDCAM camcorders also enables highly sophisticated image control such as Multi-Matrix function, and Triple Skin-Tone Detail control.

### ■ Compact, Lightweight Body

XDCAM camcorders are designed to be very compact and lightweight, for a high level of mobility in the field. They weigh approximately 5.7 kg (12 lb 9 oz) including viewfinder, microphone, disc and BP-GL95 battery pack.

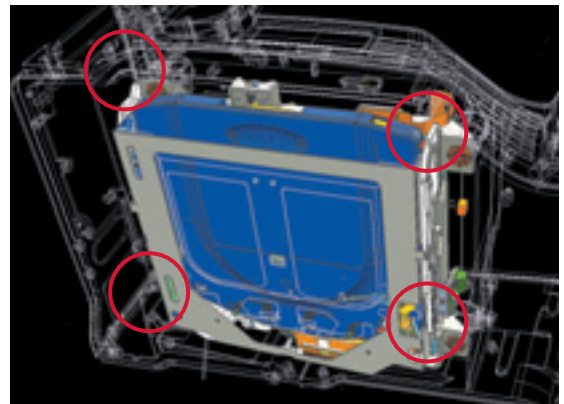
### ■ Rugged and Ergonomic Design

The design of these camcorders is based on years of Sony experience in camera ergonomics, and provides a high level of mobility and balance. The shoulder pad position is adjustable and the viewfinder height can be selected from two positions, while rear panel connectors are located well away from the battery pack, making it easy to connect cables. Operators familiar with the comfort benefits of Sony BETACAM camcorders will immediately feel at home with XDCAM camcorders, which extend this comfort even further.



### ■ Shock- and Dust-Resistant Disc Drive

To minimize errors caused by shock or dust entering the disc drive, XDCAM 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 helping to absorb the shock that would otherwise go into the disc drive.



Four Shock-Absorbing Dampers

### ■ 2.5-inch\* Type Color LCD Screen

An easy-to-view color LCD screen provided on the camcorder side panel enables advanced operations such as Thumbnail Search and Scene Selection. Status indications such as four-channel audio meters, and disc and battery remaining time can also be displayed. In addition, camera set-up menus can be displayed.

*\*Viewable area measured diagonally.*



## ■ Extensive Range of Interfaces

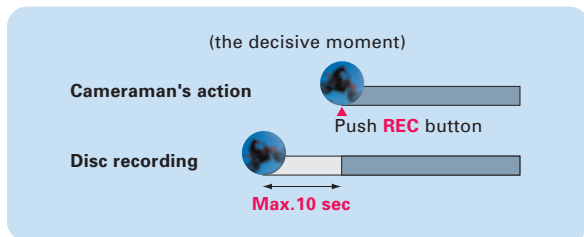
Sony XDCAM camcorders come equipped with a wide range of interfaces. In addition to an analog composite output, they also offer the i.LINK interface that supports both DV IN/OUT and File Access Mode\* protocols as standard. By adding the appropriate optional plug-in board, SDI output (CBK-SD01) and analog composite input (CBK-SC01) also become available. The ability to install these boards within the camcorder chassis eliminates the need for an external camera adaptor unit, thus maintaining the compactness and balance of the camcorder.

Furthermore, by adding the optional CBK-NC01 Ethernet (100Base-TX) Adaptor, a network interface also becomes available.

*\*For connection with third party products using this mode, please contact your nearest Sony office.*

## ■ Picture Cache Recording

Picture Cache Recording is a convenient function whereby up to 10 seconds of audio and video signals are buffered into memory before the Rec button is even pressed. This means that everything that happened 10 seconds before the Rec button was pressed, in Standby mode, will still be recorded to disc – a capability that can prevent the loss of unexpected but important events occurring before the operator even has the chance to press the Rec button.



## ■ Low-Light Shooting

Sony XDCAM camcorders offer two convenient features for shooting in low-light conditions which can be used either alone or together depending on the situation or operator preferences.

This slow shutter capability also makes it possible to intentionally blur images when shooting a moving object, increasing shooting creativity.

- Slow Shutter allows you to use shutter speeds longer than the frame rate
  - NTSC: 1/2 to 1/30 seconds (1 to 8 and 16 frame accumulation)
  - PAL: 1/2 to 1/25 seconds (1 to 8 and 16 frame accumulation)
- Turbo Gain allows the camera gain to be boosted up to +48 dB

## ■ Flexible Image Controls

Sony XDCAM camcorders also provide highly advanced image control features that were once only available on high-end studio cameras. These allow images to be recorded to a disc with maximum quality and camera-work creativity.

- Multi-Matrix function
- TruEye™ processing
- Triple Skin-Tone Detail control
- Electronic soft focus
- Selectable gamma table
- Color-temperature control

## ■ Film-like Shooting With Progressive Mode

XDCAM camcorders also provide progressive modes including 24P (optional CBK-FC01\* required) to offer a film-like shutter effect. The combined use of this mode and preset film-like gamma settings enables operators to easily create film-like images.

- NTSC: 29.97P or optional 23.976P\*\*
- PAL: 25P

*\*For NTSC only*

*\*\*Recording to disc is in 59.94i via 2-3 pull-down. Requires an optional pull-down(24P shooting) board(CBK-FC01).*

## ■ High-Quality Audio Recordings

Sony XDCAM camcorders record high-quality audio as specified by the recording format selected. These camcorders are also equipped with a range of audio interfaces: an analog 5-pin XLR connector for stereo audio output, two 3-pin XLR connectors with selectable MIC/Line level input, and the front microphone input. The two 3-pin XLR connectors can also be switched to accept four channels of AES/EBU digital audio input, establishing a full digital ENG/EPF system using the Sony DMX-P01 Digital Portable Mixer.

- DVCAM recording: 4 channels, 16 bits, 48 kHz
- MPEG IMX recording: 4 channels, 16 bits, 48 kHz, or 4 channels, 24 bits, 48 kHz



Camcorder rear connectors



DMX-P01 Digital Portable Mixer

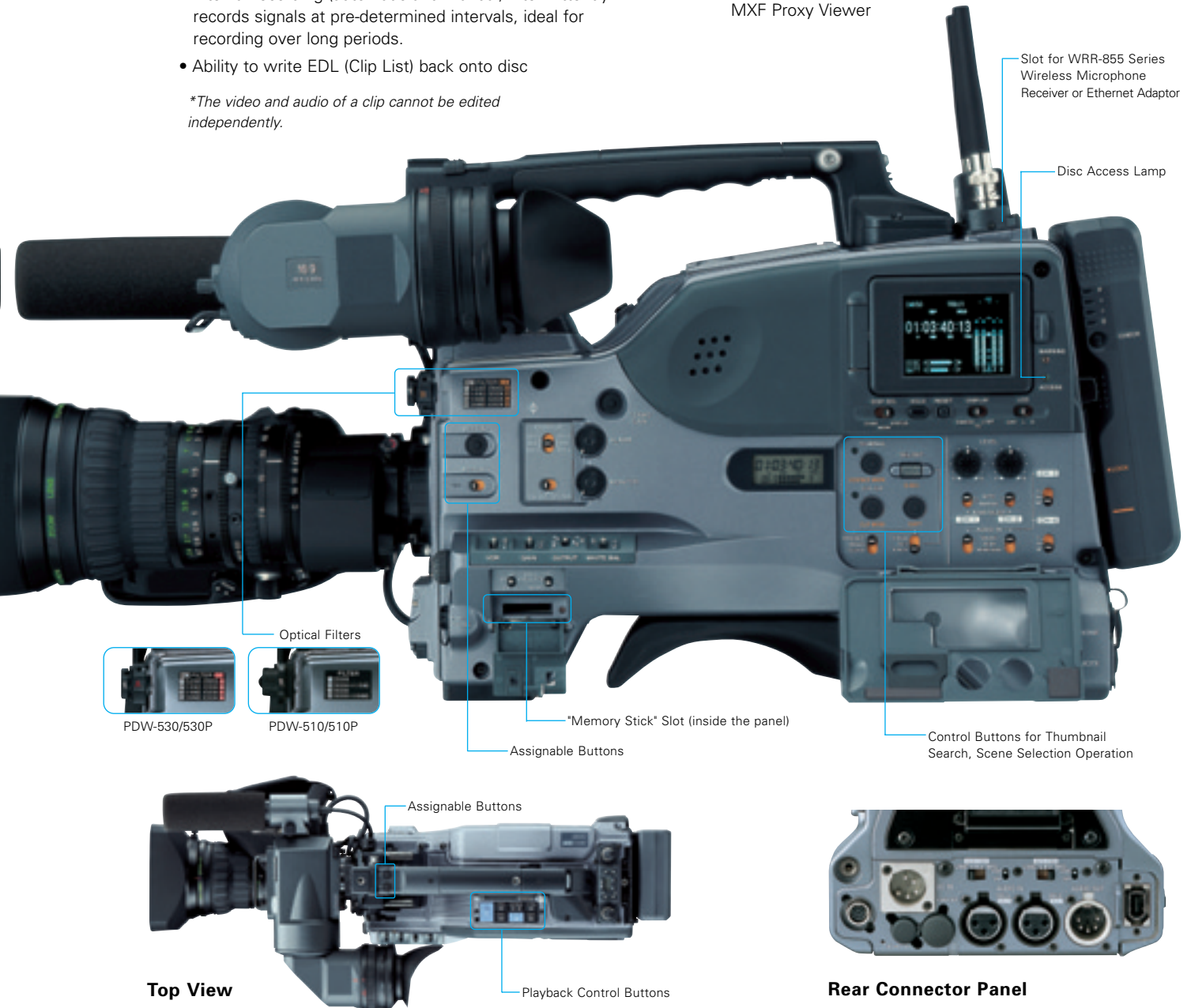


## Other Features

- Thumbnail Search operation
- Scene Selection operation for in-camera cut editing\*
- Proxy AV Data recording
- Metadata recording: UMID, Extended UMID, Essence Marks
- A second LCD screen displays time code, and remaining battery/disc capacity during power on and off.
- 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
- Interval recording (automatic and manual) intermittently records signals at pre-determined intervals, ideal for recording over long periods.
- Ability to write EDL (Clip List) back onto disc

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

- "Memory Stick"™ function for storage of camcorder setup files
- Slot to accommodate a Sony WRR-855 Series wireless microphone receiver
- Optional Ethernet (100Base-TX) Adaptor (CBK-NC01) for Ethernet connection
- Camera remote control via Sony RM-B150 and RM-B750 remote control units
- Intelligent lighting system synchronizes strobe on/off to the Rec button.
- i.LINK (DV Stream) output from MPEG IMX playback
- Supplied with the PDZ-1 Proxy Browsing Software and MXF Proxy Viewer



# XDCAM Decks

## PDW-1500 COMPACT DECK (RECORDING AND PLAYBACK) PDW-V1 MOBILE DECK (PLAYBACK AND FILE RECORDING) PDW-D1 DRIVE UNIT (PLAYBACK AND FILE RECORDING)

The Sony XDCAM products offer two types of decks and a drive unit to meet the varying operational requirements both in the field and studio. Their functions have been carefully selected to increase production efficiency by exploiting the advantages of Professional Disc media. The PDW-1500 and V1 decks provide familiar VTR-like controls that minimize the learning curve needed to get up to speed, while the PDW-D1 drive unit places emphasis on compactness and cost-efficiency.

Both decks and the drive unit come supplied with the PDZ-1 Proxy Browsing Software as standard. This software is intended for browsing Proxy AV Data recorded by XDCAM products, for easy and quick cut editing, and for metadata registration on an intuitive GUI. (For details, please refer to page 19.)



### PDW-1500 Compact Deck

The PDW-1500 Compact Deck is a half-rack size recorder suitable for both nonlinear and linear editing environments. Despite its small size, this deck offers high-speed data transfer capability between compatible nonlinear editing devices, creating a powerful editing system for video productions. Equipped with an RS-422A 9-pin interface, the PDW-1500 also fits well in linear editing systems as a feeder, bringing the added benefits of nonlinear disc recoding into a linear editing environment.



- MPEG IMX/DVCAM recording
- Proxy AV Data recording
- High-speed file transfers: 50x for Proxy, 5x for DVCAM and 2.5x for MPEG IMX (at 50 Mb/s) files
- High-speed transfer of Proxy AV Data at up to 50-times speed
- Metadata recording
- Ability to write EDL (Clip List) back onto disc
- A variety of interfaces (\*refer to the chart on page 18)
- RS-422A 9-pin remote interface
- Thumbnail Search operation
- Scene Selection operation
- Search speed (in color)  
JOG :  $\pm 1$  times normal speed  
Variable:  $\pm 2$  times normal speed  
Shuttle :  $\pm 35$  times normal speed
- Insert editing of audio tracks of a single clip (Clip audio insert editing function)
- Gigabit Ethernet connectivity
- i.LINK (DV Stream) output from MPEG IMX playback
- Equipped with two optical head
- Dimensions (W x H x D): 210 x 130 x 415 mm (8 3/8 x 5 1/8 x 16 3/8 inches)
- Mass: 7.4 kg (16 lb 5 oz)

## PDW-V1 Mobile Deck

The PDW-V1 Mobile Deck is an extremely compact and lightweight unit, offered as an affordable solution for playing back Professional Discs as well as for AV and data file recording\* through its Ethernet network interface or i.LINK (File Access Mode\*\*) interface. It is ideal for field applications, and for desktop viewing by journalists, producers, and other production staff. A unique feature of this model is its built-in 3.5-inch\*\*\* type color LCD screen, allowing users to view recordings any time, anywhere without the need for an external video monitor. What's more, the PDW-V1 is equipped with an analog RGB output capability, so users can view recordings on standard computer displays too. It also comes equipped with a built-in audio speaker.

The PDW-V1 can be AC or battery powered, a feature that proves convenient in the field. What's more, because it allows high-speed transfer of Proxy AV Data, it can also serve as a cost-effective editing solution in conjunction with the XPRI Clip/XPRI Mobile. As with other XDCAM products, the PDW-V1 offers a Scene Selection capability, to which even greater user convenience is added with its color LCD screen.



- MPEG IMX/DVCAM playback
- Recording of MPEG IMX/DVCAM files via Ethernet or i.LINK (File Access Mode\*\*) interfaces\*
- Proxy AV Data recording
- High-speed file transfers: 30x for Proxy, 2.5x for DVCAM and 1.25x for MPEG IMX (at 50 Mb/s) files
- Metadata recording
- Ability to write EDL (Clip List) back onto disc
- Compact, lightweight design
- 3.5-inch\*\*\* type color LCD screen
- Built-in audio speaker
- Thumbnail Search operation
- Scene Selection operation
- Analog RGB output capability

- AC/battery-powered operation
- Network connectivity (100Base-TX)
- i.LINK (DV Stream) output from MPEG IMX playback
- Search speed (in color)  
JOG : ±1 times normal speed  
Variable: ±1 times normal speed  
Shuttle : ±20 times normal speed
- Equipped with one optical head
- Dimensions (W x H x D): 210 x 90 x 320 mm (8 3/8 x 3 5/8 x 12 5/8 inches)
- Mass: 3.5 kg (7 lb 11oz)

*\*The PDW-V1 does not support synchronous video/audio input.*

*\*\*For connection with third party products using this mode, please contact your nearest Sony office.*

*\*\*\*Viewable area measured diagonally.*

## PDW-D1 Drive Unit

The PDW-D1\*, a new addition to the XDCAM family, is an XDCAM disc drive unit specifically designed for use in nonlinear editing systems. The drive unit supports the i.LINK interface supporting DV IN/OUT and File Access Mode\*\* protocols, allowing connection with a variety of nonlinear editing systems. Its highly compact and lightweight design allows installation in any working environment even on a busy journalist's desktop as well as awkward working areas in the field.

The PDW-D1 provides a smart, yet cost-effective option for editing tasks.

- i.LINK interface supports both DV IN/OUT and File Access Mode protocols
- High-resolution AV file (MPEG IMX/DVCAM) recording via i.LINK (File Access Mode) interface
- DVCAM playback and recording via i.LINK (DV IN/OUT) interface
- Proxy AV Data recording
- i.LINK (DV stream) output from MPEG IMX recordings
- Metadata recording
- Ability to write EDL (Clip List) back onto disc

- High-speed file transfers : 30x for Proxy, 2.5x for DVCAM and 1.25x for MPEG IMX (at 50 Mb/s) files
- Equipped with one optical head
- AC/battery-powered operation (battery-connection requires the optional BKP-L551 adaptor.)
- Highly compact and lightweight
- Dimensions (W x H x D): 182 x 257 x 78 mm (7 1/4 x 10 1/8 x 3 1/8 inches)
- Mass: 3.0 kg (6 lb 9 oz)

*\*To setup the PDW-D1, a Windows-based PC running the supplied setup utility software is required (not compatible with Macintosh OS.)*

*\*\*For connection with third party products using this mode, please contact your nearest Sony office.*



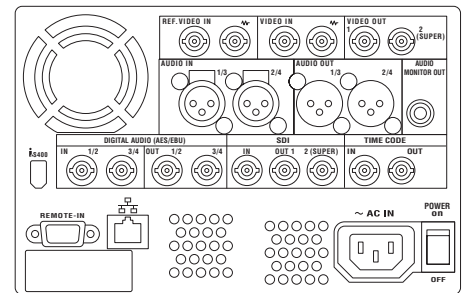
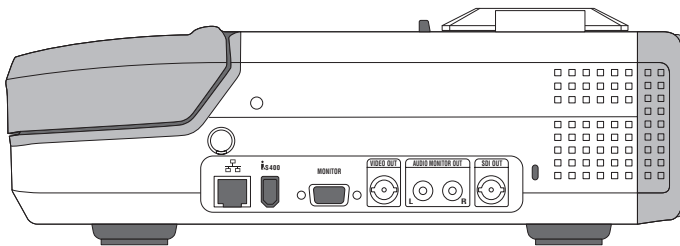


## Front Panels and Input/Output Connectors

**PDW-V1**  
Mobile Deck



**PDW-1500**  
Compact Deck



## Inputs/Outputs

		PDW-1500 Compact Deck	PDW-V1 Mobile Deck	PDW-D1 Drive Unit
Outputs	SDI	●	●	—
	Analog composite	●	●	—
	Digital audio	●	—	—
	Analog audio	●	—	—
	Audio monitor	●	●	—
	Headphone	●	●	—
	Analog RGB	—	●	—
	Time code	●	—	—
Inputs	SDI	●	—	—
	Analog composite	●	—	—
	Digital audio	●	—	—
	Analog audio	●	—	—
	Time code	●	—	—
Others	Remote(RS-422A)	●	—	—
	Ethernet	1000Base-T	100Base-TX	—
	i.LINK (DV IN/OUT)	●	●**	●
	i.LINK (File Access Mode*)	●	●	●

\*For connection with third party products using this mode, please contact your nearest Sony office.

\*\*DV OUT only

## Supplied Accessory

- Proxy Browsing Software PDZ-1
- MXF Proxy Viewer

Supplied with all XDCAM products as standard, the PDZ-1 Proxy Browsing Software is intended for browsing Proxy AV Data, simple and quick cut editing and registration of metadata on an intuitive GUI.

The PDZ-1 software runs on a Windows-based compact laptop PC, allowing you to storyboard material on location and therefore greatly improve the efficiency of editing done in the studio.

The PDZ-1 supports two types of interfaces - Ethernet and i.LINK (File Access Mode). Through both interfaces, Proxy AV Data can be ingested from an XDCAM device at up to 50 times normal speed. Furthermore, when using i.LINK File Access Mode, Proxy AV Data can be used in the PDZ-1 software without ingesting it into the local hard drive.

The PDZ-1 enables simple and quick cut editing by use of the Proxy AV Data. Once the editing is complete, the edit results can be saved as a "Clip List (XDCAM's EDL)" and written back to the original disc, allowing the disc to be played back according to the EDL.

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

The "MXF Proxy Viewer" software, which is specifically used to playback Proxy AV Data on a PC, is also supplied with all XDCAM products.



MXF Proxy Viewer

Print Function

- Supported interfaces: Ethernet and i.LINK (File Access Mode)  
The File Access Mode allows a software application to read the XDCAM disc's Proxy AV Data and metadata directly from the disc without transferring material to the PC's local hard drive beforehand.
- Browsing of Proxy AV Data recorded by XDCAM systems
- Simple and quick cut editing (storyboard)\* including rearranging and trimming clips. The storyboard can be previewed using the PDZ-1 software, and then saved as a "Clip List (XDCAM's EDL)" on the disc with the video and audio content.
- The "Clip List" can be transferred to and reproduced on XPR1 Mobile editor's timeline.
- High-speed ingestion of Proxy AV Data from XDCAM devices at up to 50 times normal speed\*\*
- Manual setting of "Essence Marks" for instant cue-up to desired scenes. Names for Essence Marks can also be easily assigned.
- Registration of metadata such as "title", "creator" or "comments" for a "disc" or "clip"

- Ability to transfer high-resolution files over a network.  
Selectable to transfer all clips on the disc, or only the clips selected in the Clip List\*\*\*.
- Clip search function using text metadata as search keyword
- Print function allows metadata such as thumbnails, creation date and comments to be printed out in an easy-to-see storyboard view
- Export of EDLs in BVE-9100, NewsBase™ XML and ALE (Avid Log Exchange) formats

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

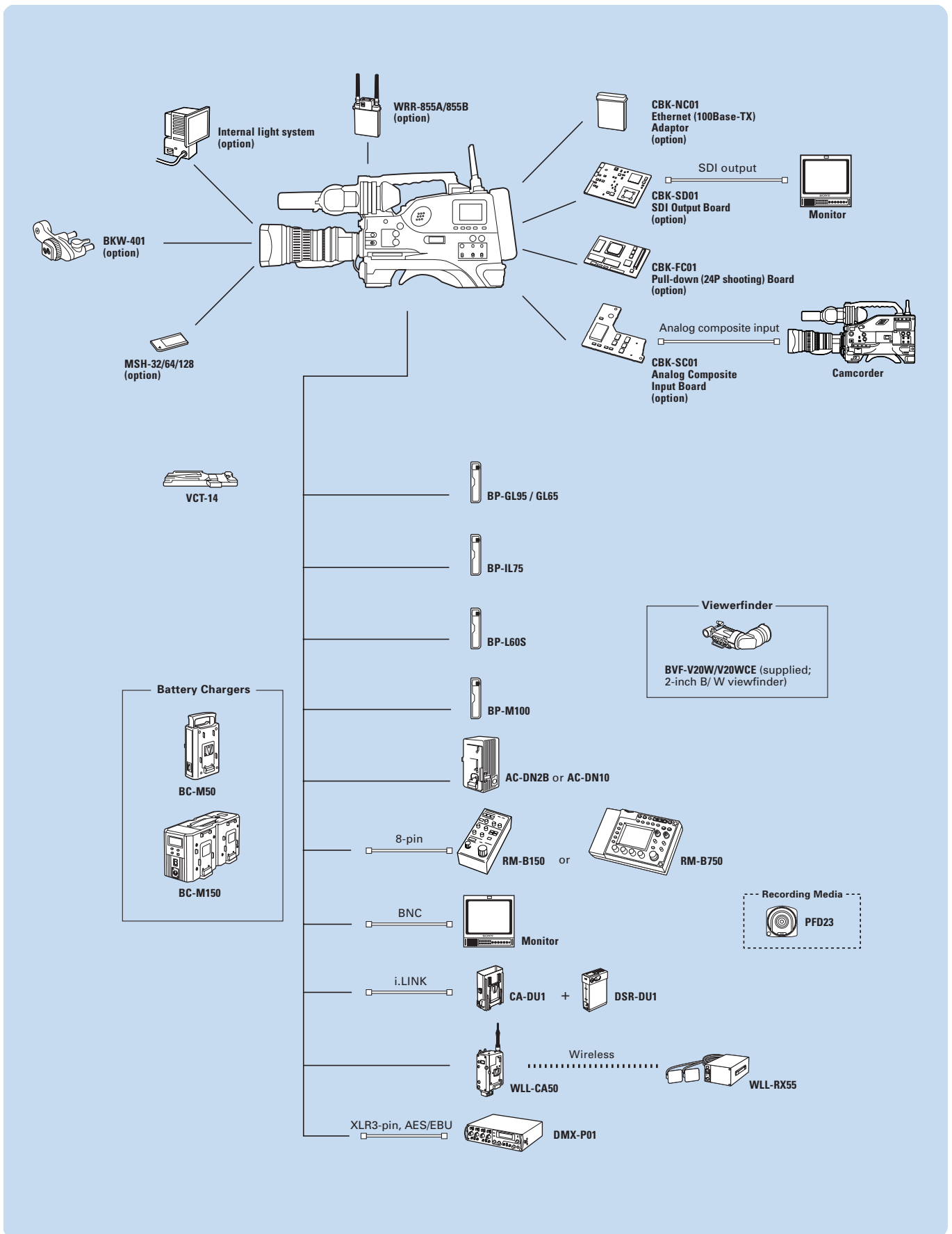
\*\*Data transfer rate is approximate. The actual data transfer rate may vary.

\*\*\*Possible only when using an Ethernet connection.

### System Requirements

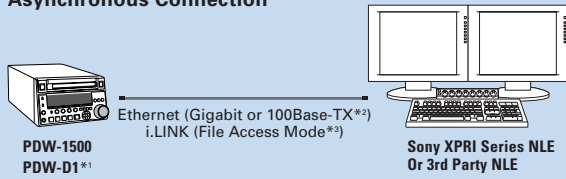
Windows 2000 (SP 4 or later), Windows XP Professional (SP 1 or later)  
Pentium III Processor 1 GHz or higher  
Minimum 512 MB of RAM  
Internet Explorer 6.0 (SP1 or later)  
DirectX 8.1b or higher

# System Diagrams

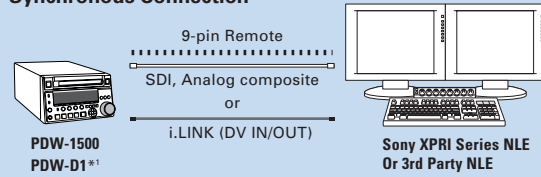


## NONLINEAR EDITING

### Asynchronous Connection

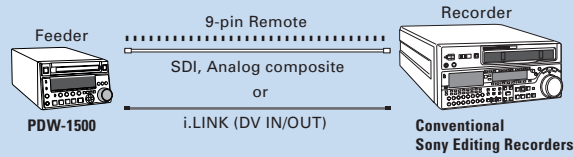


### Synchronous Connection



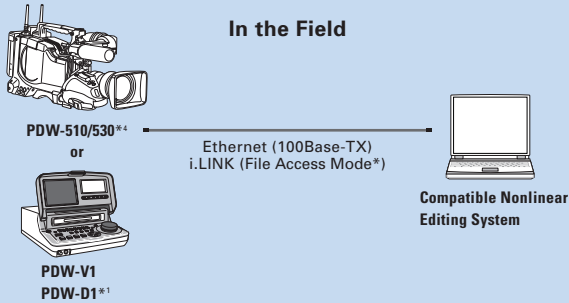
## LINEAR EDITING

### Disc-To-Tape Editing

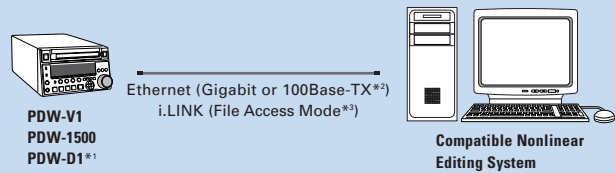


## PROXY (LOW-RESOLUTION) EDITING

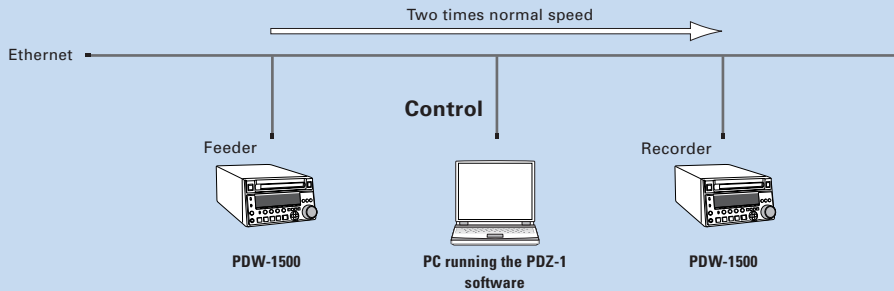
### In the Field



### In-house



## HIGH-SPEED DUBBING



\*1 The PDW-D1 supports i.LINK (DV IN/OUT and File Access Mode) only.

\*2 Ethernet interface depends on the XDCAM deck used.

\*3 For connection with third party products using this mode, please contact your nearest Sony office.

\*4 Ethernet interface on the PDW-510/530 is optional.

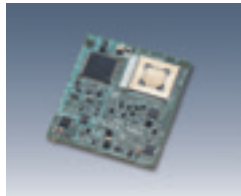


# Optional Accessories

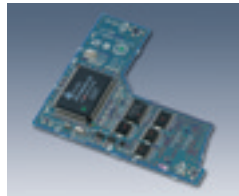
## For PDW-510/510P/530/530P Camcorders



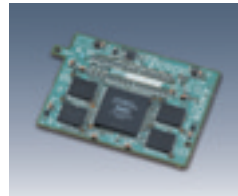
**PFD23**  
Professional Disc



**CBK-SD01**  
SDI Output Board



**CBK-SC01**  
Analog Composite Input Board



**CBK-FC01**  
Pull-down (24P shooting) Board (For PDW-530/510 NTSC models)



**CBK-NC01**  
Ethernet (100Base-TX) Adaptor



**BKW-401**  
Viewfinder Rotation Bracket



**RM-B150**  
Remote Control Unit



**RM-B750**  
Remote Control Unit



**AC-DN10**  
AC Adaptor



**AC-DN2B**  
AC Adaptor



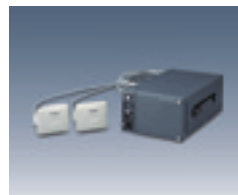
**BP-GL95/GL65**  
Lithium-ion Battery Pack



**BC-M50**  
Battery Charger



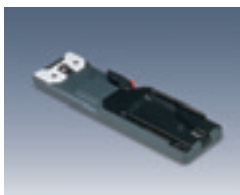
**BC-M150**  
Battery Charger



**WLL-RX55**  
Wireless Camera Receiver



**WLL-CA50**  
Wireless Camera Transmitter



**VCT-14**  
Tripod Adaptor



**LC-777**  
Carrying Case



**MSH-32/64/128**  
Memory Stick



**CCXA-53**  
Audio Cable



**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)



**WRR-855A/855B**  
Wireless Microphone Receiver (Slot-in type)



**WRR-862A/862B**  
Wireless Microphone Receiver



**DMX-P01**  
Portable Audio Mixer



**DSR-DU1**  
Video Disk Unit



**CA-DU1**  
Camera Adaptor (For DSR-DU1)

1-547-541-12, Fog-proof filter  
A-6282-537-A, Viewfinder eye-piece (High magnification)  
A-6282-538-A, Viewfinder eye-piece (Low magnification)

A-8267-737-A, Viewfinder eye-piece (Standard magnification with special compensation for aberrations)  
A-8314-798-A, Viewfinder eye-piece (High performance, x3)

X-3608-271-1, Standard viewfinder lens  
A-8278-057-A, Mounting bracket for WRR-862A/862B

## For PDW-V1/1500 Decks



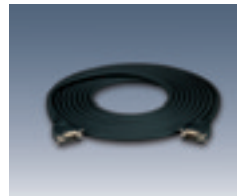
**PFD23**  
Professional Disc



**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)



**RCC-5G**  
Remote Control Cable (5 m) (PDW-1500)



**BP-GL95/GL65**  
Lithium-ion Battery Pack (PDW-V1/D1)



**BC-M50**  
Battery Charger (PDW-V1/D1)



**BC-M150**  
Battery Charger (PDW-V1/D1)



**BKP-L551**  
Battery Adaptor (PDW-D1)

# XPRI Series Nonlinear Editing Systems

## XPRI Mobile XPRI Nonlinear Editing System

Sony offers two nonlinear editing solutions to maximize workflow efficiency in systems using Sony XDCAM products.

The XPRI Mobile editor is a cost-effective yet powerful nonlinear editing software application. It runs easily on standard Microsoft Windows-based laptop PCs, making it ideal for performing tasks in the field that were once only possible in the studio. The XPRI Mobile editor features Proxy and high-resolution MPEG IMX/DVCAM editing capability, forming an efficient on-line/off-line switchable system.

For further advanced editing tasks, the XPRI Nonlinear Editing System provides the ultimate in editing power for sophisticated on-line finishing operations.



xpri

xpri  
Mobile

## XPRI Mobile

- Supported interfaces: Ethernet and i.LINK (DV IN/OUT and File Access Mode protocols)
- Proxy AV Data logging and editing
- High-speed transfer of Proxy AV Data
- High-resolution MPEG IMX and DVCAM editing
- Mixed format editing on a single timeline (MPEG IMX/DVCAM/Proxy)
- EDL import and export: XDCAM Clip List, NewsBase XML and ALE (Avid Log Exchange)
- Ability to write back edited programs onto a disc
- Ability to convert Proxy timeline to high-resolution DVCAM or MPEG IMX timeline, and write this onto a disc
- MXF file import and export
- A variety of real-time simple effects
- Voice-over recording
- Essence Mark setting
- Metadata entry and writing back onto a disc
- High-quality titling

## XPRI Nonlinear Editing System Features

- Proxy AV Data logging
- High-speed transfer of Proxy AV Data
- High-resolution MPEG IMX editing
- High-speed data transfer: MPEG IMX 2x\*
- EDL import and export
- MXF file import/export
- Metadata import
- OMF import and export with audio
- Automatic digitizing allows full-resolution AV material to be automatically uploaded using an EDL created on the XPRI Clip, XPRI Mobile or XPRI MetaStation (auto conformation).
- A wide array of high quality realtime 2D/3D effects with unlimited keyframes
- A wide choice of 3rd party plug-in software for audio/video effects and titling
- Advanced color correction tool
- Sophisticated audio and video trimming
- Voice-over recording
- Editing control panels for tactile control
- Gigabit Ethernet interface

*\*Data transfer rates are approximate. The actual data transfer rates may vary.*



# Specifications

## XDCAM Camcorders

		PDW-510/510P (DVCAM)	PDW-530/530P (DVCAM / MPEG IMX)	
<b>General</b>	Mass	Approx. 4.1 kg (9 lb) 5.8kg(with VF, Mic, Disc, BP-GL95 battery) (12 lb 12 oz)		
	Power requirements	DC 12 V +5.0 V/-1.0 V		
	Power consumption	Approx. 36 W (while recording, with viewfinder, color LCD off)		
	Operating temperature	-5 to 40 °C (+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	DVCAM (25 Mb/s)	MPEG IMX (50/40/30 Mb/s), DVCAM (25 Mb/s)
		Proxy Video	MPEG-4	
		Audio	DVCAM: 4 ch/16 bits/48 kHz	MPEG IMX: 4 ch/16 bits/48 kHz, 4 ch/24 bits/48 kHz DVCAM: 4 ch/16 bits/48 kHz
Proxy Audio		A-law (4ch, 8 bits, 8 kHz)		
Recording/Playback time	MPEG IMX	—	50 Mb/s: 45 min., 40 Mb/s: 55 min., 30 Mb/s: 68 min.	
	DVCAM	85 min.		
<b>Signal inputs</b>	Genlock video	BNC x1, 1.0 Vp-p, 75 Ω		
	Time code input	BNC x1, 0.5 to 18 Vp-p, 10 kΩ		
	Audio input	XLR-3-31 x2, line / mic / mic+48V / AES/EBU selectable		
	Mic input	XLR-3-31 x1		
<b>Signal outputs</b>	Video output	BNC x1, 1.0 Vp-p, 75 Ω		
	Video test output	BNC x1, 1.0 Vp-p, 75 Ω		
	Time code output	BNC x1, 1.0 Vp-p, 75 Ω		
	Earphone	Mini-jack x2 (front: monaural, rear: stereo/monaural)		
	Audio output (CH-1/CH-2)	XLR-5-pin male (stereo)		
<b>Other inputs/outputs</b>	Lens	12-pin		
	Remote	8-pin		
	Light	2-pin, DC 12 V, max. 50 W		
	DC input	XLR-4-pin (for the optional AC-550/550CE)		
	DC output	4-pin (for wireless microphone receiver), DC 12 V (MAX 0.2A)		
	Camcorder adapter	40-pin		
	i.LINK	IEEE 1394, DV IN/OUT or File Access Mode*, 6-pin x1		
<b>Audio performance</b>	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		
	Head room	20 dB (ex-factory setting)		
	Pickup device	3-chip 2/3-inch type 16:9 widescreen Power HAD EX CCD		
<b>Camera section</b>	Total picture elements	NTSC model: 1038(H) x 1008(V) PAL model: 1038(H) x 1188(V)		
	Effective picture elements	NTSC model: 980(H) x 494(V) PAL model: 980(H) x 582(V)		
	Optical system	F1.4 prism		
	Built-in optical filters	1 : 3200K, 2 : 5600K+1/8ND, 3 : 5600K, 4 : 5600K + 1/64ND	1 : Clear, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND A : CROSS, B: 3200K, C: 4300K, D: 6300K	
	Shutter speed	NTSC model: 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 (s) PAL model: 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 (s)		
	Slow Shutter	NTSC model: 1/2 to 1/30 (s) PAL model: 1/2 to 1/25 (s) (1 to 8 and 16 frame accumulation)		
	Lens mount	2/3" 48 bayonet mount		
	Sensitivity (2000 lx, 89.9% reflectance)	F11 (typical)		
	Minimum illumination	Approx. 0.13 lx (F1.4 lens, +48 dB turbo gain, shutter off), approx. 0.008 lx (with 16-frame accumulation)		
	Gain selection	-3, 0, 3, 6, 9, 12, 18, 24, 30, 36, 42, 48 dB		
	Smear level	-140 dB (typical)		
	S/N ratio	NTSC model: 65 dB (typical) PAL model: 63 dB (typical)		
	Vertical resolution	NTSC model: 400 TV Lines/450 TV Lines(EVS) PAL model: 480 TV Lines/530 TV Lines(EVS)		
	Registration	0.05% (all zones, w/o lens)		
	Geometric distortion	Below measurable level (w/o lens)		
Modulation depth at 5 MHz	70%(16:9, typical)/55%(4:3, typical)			
<b>Viewfinder</b>	CRT	2.0-inch type monochrome		
	Controls	BRIGHT, CONTRAST, PEAKING controls, TALLY, ZEBRA, DISPLAY switches		
	Horizontal resolution	450 TV lines (16:9)		
	Microphone	Ultra-directional (detachable)		
<b>Built-in LCD monitor</b>	2.5-inch type color LCD monitor			
<b>Supplied accessories</b>	Operation manual (x1) PDZ-1 proxy browsing software (x1) MXF proxy viewer software (x1) Viewfinder (x1) Lens cap (x1) Shoulder belt (x1) Monaural microphone (x1)			

## XDCAM Decks

		PDW-1500 Compact Deck	PDW-V1 Mobile Deck	PDW-D1 Drive Unit	
<b>General</b>	Power requirements	AC 100 to 240 V, 50/60 Hz	AC 100 to 240 V, 50/60 Hz, DC (with battery)	AC 100 to 240 V, 50/60 Hz, DC (with battery)	
	Power consumption	75 W	45 W	22 W	
	Operating temperature	+5 to 40°C (+42 to +104°F)	0 to 40°C (+32 to +104°F)	0 to 40°C (+32 to +104°F)	
	Storage temperature		-20 to +60°C (-4 to +140°F)		
	Humidity		20 to 90% (relative humidity)		
	Mass	7.4 kg (16 lb 5 oz)	3.5 kg (7 lb 11 oz)	3.0 kg (6 lb 9 oz)	
	Dimensions (W x H x D)	210 x 130 x 415 mm (8 3/8 x 5 1/8 x 16 3/8 inches)	210 x 90 x 320 mm (8 3/8 x 3 5/8 x 12 5/8 inches)	78 x 182 x 257 mm (3 1/8 x 7 1/4 x 10 1/8 inches)	
	Recording/playback format	Video	MPEG IMX (50/40/30 Mb/s), DVCAM (25 Mb/s)		
		Proxy Video	MPEG-4		
		Audio	MPEG IMX: 8 ch/16 bit/48 kHz or 4 ch/24 bit/48 kHz DVCAM: 4 ch/16 bit/48 kHz		
	Recording/playback time	Proxy Audio	A-law (8/4 ch, 8 bit, 8 kHz)		
		MPEG IMX DVCAM	50 Mb/s: 45 min., 40 Mb/s: 55 min., 30 Mb/s: 68 min. 85 min.		
Search speed (in color)	Jog mode	±1 times normal playback speed	±1 times normal playback speed	—	
	Variable mode	±2 times normal playback speed	±1 times normal playback speed	—	
	Shuttle mode	±35 times normal playback speed	±20 times normal playback speed	—	
<b>Signal inputs</b>	Analog reference input	BNC x2 (including loop through), 1.0 Vp-p, 75 Ω, sync negative	—	—	
	Analog composite input	BNC x2 (including loop through), 1.0 Vp-p, 75 Ω, sync negative	—	—	
	SDI input	BNC x1, SMPTE 259M, (ITU-R BT656-3), 270 Mb/s	—	—	
	Analog audio input	XLR x2 (channel selectable), +4/0/-3/-6 dBu (selectable from menu), 10 kΩ, balanced	—	—	
	Digital audio input	AES/EBU, BNC x2, 4 channels	—	—	
	Time code input	BNC x1	—	—	
<b>Signal outputs</b>	Analog composite video output	BNC x2 (including one character out), 1.0 Vp-p, 75 Ω, sync negative	BNC x1 (character out), 1.0 Vp-p, 75 Ω, sync negative	—	
	SDI output	BNC x2 (including one character out), SMPTE 259M (ITU-R BT656-3), 270 Mb/s	BNC x1 (character out), SMPTE 259M (ITU-R BT656-3), 270 Mb/s	—	
	Video monitor output	—	D-sub 15-pin x1, analog RGB	—	
	Built-in display	—	3.5-inch type color LCD monitor	—	
	Analog audio output	XLR x2 (ch. selectable), +4/0/-3/-6 dBu (selectable from menu), 600 Ω load, low impedance, balanced	—	—	
	Audio monitor output	RCA x1 (L, R, Mix), -11 dBu, 47 kΩ, unbalanced	RCA x2 (L/R), -11 dBu, 47 kΩ, unbalanced	—	
	Digital audio output	BNC x2, 4 channels	—	—	
	Headphone output	JM-60 Stereo phone jack x1, ∞ to -13 dBu, 8 Ω, unbalanced		—	
	Built-in audio speaker	—	x1, monaural	—	
	Time code output	BNC x1	—	—	
<b>Other inputs/ outputs</b>	i.LINK*	IEEE 1394, DV IN/OUT or File Access Mode***, 6-pin x 1	IEEE 1394, DV OUT** or File Access Mode***, 6-pin x 1	IEEE 1394, DV IN/OUT or File Access Mode***, 6-pin x 1	
	Ethernet*	1000Base-T (RJ-45 x1)	100Base-TX (RJ-45 x1)	—	
	RS-422A	D-sub 9-pin x1 (VTR protocol)	—	—	
<b>Video performance</b>	Sampling frequency	Y: 13.5 MHz, R-Y/B-Y: 6.75 MHz			
	Quantization	10 bits/sample			
	Error correction	Reed Solomon Code			
	Analog composite input to analog composite output	Bandwidth: 30 Hz to 4.5 MHz +0.5/-1.5 dB (NTSC) 25 Hz to 5.5 MHz +0.5/-1.5 dB (PAL) S/N ratio: 53 dB or more Differential gain: 2% or less Differential phase: 2° or less Y/C delay: 20 ns or less K-factor (2T pulse): 2% or less	—	—	
<b>Processor adjustment range</b>	Video level	±3 dB	—	—	
	Chroma level	±3 dB	—	—	
	Set up/black level	±30 IRE/±210 mV	—	—	
	Chroma phase/hue	±30°	—	—	
	System sync phase	±3 ms	—	—	
	System SC phase	±200 ns	—	—	
<b>Audio performance</b>	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 1kHz)	—	—	
	Head room	20/18/16/12 dB (selectable from menu)	—	—	
<b>Supplied accessories</b>	Operation manual (x1) PDZ-1 proxy browsing software (x1) MXF proxy viewer software (x1)	Operation manual (x1) PDZ-1 proxy browsing software (x1) MXF proxy viewer software (x1) Shoulder belt (x1)	Operation manual (x1) PDZ-1 proxy browsing software (x1) MXF proxy viewer (x1) Setup utility software (x1)****		

\*Note about Ethernet and i.LINK (File Access Mode):

All XDCAM products allow asynchronous recording of MPEG IMX/DVCAM files through their Ethernet or i.LINK (File Access Mode) interfaces.

Asynchronous recording is possible only when XDCAM units are connected with a PC.

\*\*The PDW-V1 does not support synchronous DVCAM recording through i.LINK interface.

\*\*\*For connection with third party products using this mode, please contact your nearest Sony office.

\*\*\*\*This setup utility software is used to setup the PDW-D1 and runs only on a Windows-based PC (not compatible with Macintosh OS.)

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