

**SONY**<sup>®</sup>

XDCAM Camcorder

**PDW-539P**

**XDCAM**<sup>™</sup>

Professional Disc System





# PDW-539P Camcorder

## (MPEG IMX/DVCAM recording)

Designed for heavy-duty field acquisition, Sony XDCAM™ camcorders provide the same excellent picture quality, operability and reliability inherited from the Sony BETACAM™ family of acquisition products. In addition to their impressive durability and capabilities, Sony XDCAM camcorders offer a wide range of innovative features that maximize the benefits of nonlinear disc media. The end result is a completely new style of field operation, adding flexibility and efficiency to operations where rapid program completion is a top priority. For unparalleled convenience, the PDW-539P also features MPEG IMX™/DVCAM™ - switchable recording and one built-in optical filter wheel.

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

## Product Features

### ■ 4:3 Power HAD™ EX CCDs

XDCAM camcorders incorporate three 4:3 CCDs for superb image capture. Using Sony's best-of-breed CCD technology, these allow for outstanding picture quality with a high signal-to-noise ratio of 63 dB, a low smear level of -140 dB (typical), and exceptional sensitivity of F11.

### ■ Modulation Depth

XDCAM camcorders deliver clearer, more powerful images with an enhanced modulation depth as high as 70% at 5 MHz.

PDW-539P (4:3 CCD → 4:3 output)



5 MHz/0.5 MHz = 387mV/541mV = 71.5%

### ■ 12-bit A/D Conversion

XDCAM camcorders incorporate a high-integrity 12-bit A/D converter, which enables high-quality images captured by the Power HAD EX CCDs to be processed with greater precision. In particular, the higher bit resolution allows contrast to be reproduced more precisely in mid-tone areas of the picture.

### ■ Rugged and Ergonomic Design

Drawing on Sony's many years of experience in camera ergonomics, XDCAM camcorders provide the highest levels of mobility and balance. The shoulder pad position is adjustable and the viewfinder height can be selected from two positions. Likewise, the rear panel connectors are located well away from the battery pack, making it easy to connect cables. Operators familiar with the comfort of Sony BETACAM camcorders will immediately feel at home with XDCAM camcorders, which take this acclaimed design to new heights.

### ■ Advanced Digital Signal Processing

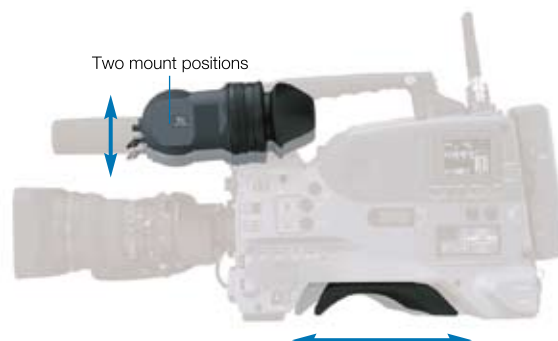
A key to assessing the quality of a DSP camera is the number of bits it uses in its nonlinear processes, such as gamma correction. XDCAM camcorders use more than 30 bits, minimizing round-off errors so that the high quality of the CCDs is maintained. The DSP LSI of XDCAM camcorders also enables highly sophisticated image control such as the Multi-Matrix function, and Triple Skin-Tone Detail control.

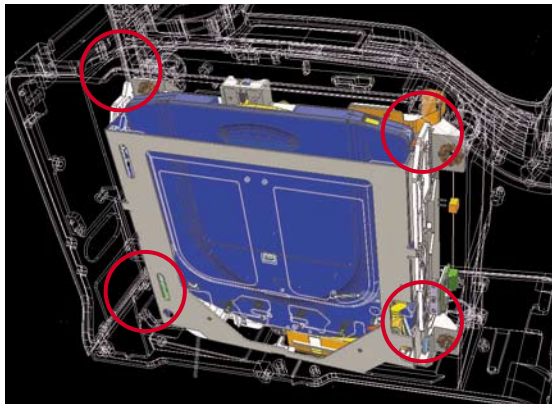
### ■ Compact, Lightweight Body

XDCAM camcorders are designed to be very compact and lightweight, thus ensuring a high level of mobility in the field. The camera features a total weight of approximately 5.7 kg (12 lb 9 oz), including viewfinder, microphone, disc and BP-GL95 battery pack.

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

XDCAM camcorders are uniquely designed to minimize the errors caused by shock or dust entering the disc drive. The disc drive entrance is concealed with two lids to help prevent any dust entering the drive. In addition, four rubber dampers are used to hold the disc drive block in place and help absorb the shock.





Four shock-absorbing dampers

### ■ Extensive Range of Interfaces

To provide the flexible support that today's field operators need, the 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 for DV input/output. By adding the appropriate optional plug-in board, SDI output (CBK-SD01) and analog composite input (CBK-SC01) also become available. Most importantly, the ability to install these boards within the camcorder chassis eliminates the need for an external camera adaptor unit, thus maintaining the small size and balance of the camcorder.

*\* For connection to third-party products using this mode, please contact the nearest Sony office.*

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

An easy-to-view color LCD screen on the camcorder side panel enables advanced operations such as Thumbnail Search and Scene Selection. Other status indications can also be displayed, such as four channel audio meters, and disc and battery remaining time.

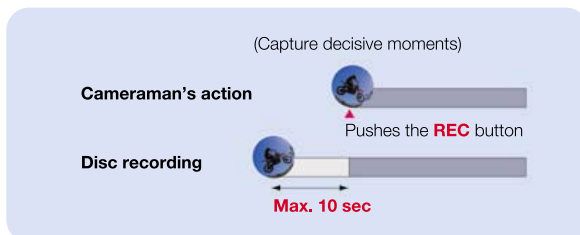
*\* Viewable area measured diagonally.*



### ■ Picture Cache Recording

Picture Cache Recording is a convenient function that buffers up to 10 seconds of audio and video signals into memory before the Rec button is pressed.

This means that everything that happened 10 seconds before the Rec button was pressed, in Standby mode, is still recorded to disc – a unique capability that can prevent the loss of any unexpected but important events that occur before the operator has the chance to press the Rec button.



### ■ Low-Light Shooting

Sony XDCAM camcorders offer two convenient features for shooting in low-light conditions, each of which can be used alone or in combination depending on the situation and the operator's preferences.

For additional creativity, XDCAM camcorders feature a Slow Shutter function that enables intentionally blurred images when shooting moving objects.

- The Slow Shutter function allows you to use shutter speeds that are longer than the frame rate
  - From 2/3 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 bring you highly advanced image control features that were once only available on high-end studio cameras. These features allow images to be recorded to a professional disc with maximum quality and camera-work creativity.

- Multi-Matrix function
- TruEye™ processing
- Triple Skin-Tone Detail control
- Electronic soft focus

### ■ Progressive Mode for Film-like Shooting

XDCAM camcorders provide 25P progressive modes to offer a film-like shutter effect.

Using this mode together with the predefined film-like gamma setting allows the operator to easily shoot film-like images.

### ■ High-Quality Audio Recordings

Sony XDCAM camcorders record high-quality audio as specified by the selected recording format. Each camcorder is further equipped with a range of audio interfaces, including 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, which enables the creation of a full digital ENG/EFP 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

### ■ Record Proxy AV Data to Memory Cards

Using the optional CBK-PC01 memory card adaptor, both Proxy AV data and original data can be simultaneously recorded to a Sony Memory Stick™ or SanDisk CompactFlash medium\*. Users can view and edit these recordings by removing the storage medium from the camcorder and simply plugging it into a computer, thus eliminating the need for time-consuming data transfers. The data size of the recorded Proxy AV data is also very small, which means that large amounts of data can be easily stored on a compact memory card. For example, a 1 GB memory card can store up to 65 minutes of data, while a 4 GB memory card can store as much as 260 minutes of data.

*\* A memory card and its compatible memory card adaptor are required.*

*\* For other compatible SanDisk products, please contact your nearest Sony office.*

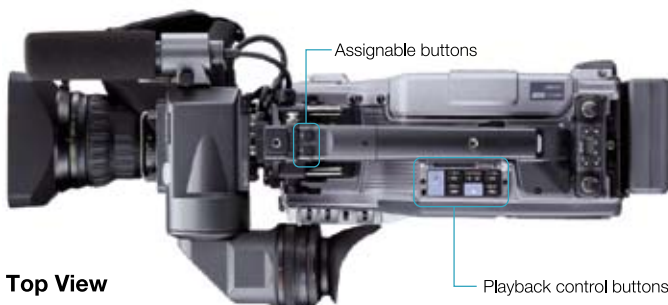
# Product Features

## Other Camcorder Features

- Thumbnail Search operation
- Scene Selection operation
- Proxy AV data recording
- Metadata recording: UMID, Extended UMID\*, EssenceMark
- 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 automatically adjusts the color temperature according to the changing light
- Interval recording (automatic and manual) intermittently records signals at predetermined intervals, ideal for recording over long periods
- EDL (Clip List) can be written back to 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
- 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 and FAM mode
- Equipped with PDZ-1 proxy browser and MXF proxy reader



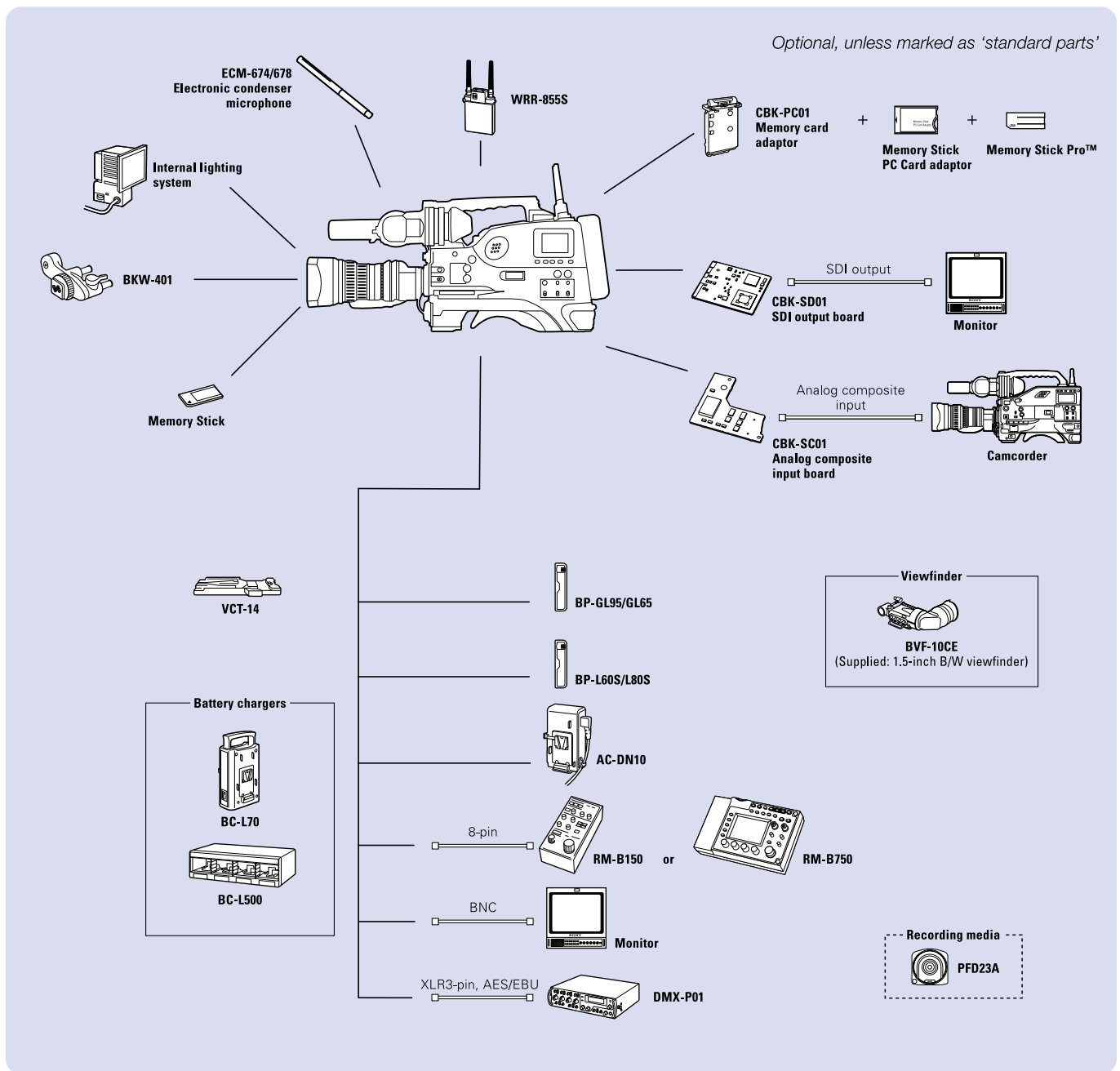
Top View



Rear Connector Panel

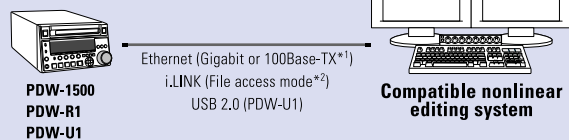
# System Diagrams

Optional, unless marked as 'standard parts'

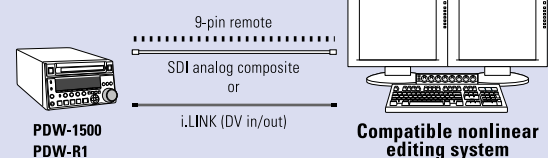


## Nonlinear editing

### Asynchronous connection



### Synchronous connection



\*1 Ethernet interface depends on the XDCAM deck used.

\*2 For connection to third-party products using this mode, please contact your nearest Sony office.

# Specifications

## XDCAM Camcorder

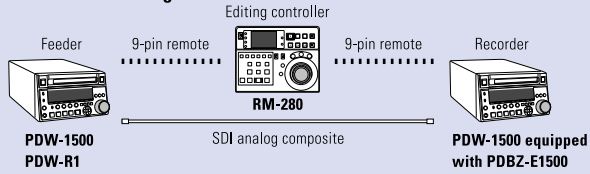
		PDW-539P (MPEG IMX/ DVCAM)	
<b>General</b>	Mass	Approx. 4.1 kg 5.7 kg (with Viewfinder, Microphone, Disc, BP-GL95 battery)	
	Power requirements	DC 12V +5.0V / -1.0V	
	Power consumption	Approx. 32W (while recording with viewfinder and color LCD off)	
	Operating temperature	-5 to +40°C (+23 to +104°F)	
	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	Video	MPEG IMX (50/40/30 Mb/s), DVCAM (25 Mb/s)
		Proxy Video	MPEG-4
		Audio	MPEG IMX: 4 ch/16 bit/48 kHz, 4 ch/24 bit/48 kHz DVCAM: 4 ch/16 bit/48 kHz
Record/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 k Ω	
	Audio input	XLR-3-31 x 2, 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 x 2 (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 12V, max. 50W	
	DC input	XLR-4 pin	
	DC output	4-pin (for wireless microphone receiver), DC12V, (max.0.2A)	
	Camcorder adaptor	40-pin	
	i.LINK	IEEE 1394, DV IN/OUT, 6-pin x1, FAM	
	Memory Stick	Memory Stick Pro (max. capacity 2 GB)	
<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)	
<b>Camera section</b>	Pickup device	3 chip 2/3-inch type 4:3 Power HAD EX CCD	
	Total picture elements	1038 (H) × 1188 (V)	
	Effective picture elements	980 (H) × 582 (V)	
	Optical system	F 1.4 prism	
	Built-in optical filters	1: 3200K, 2: 5600K+1/8ND, 3: 5600K, 4: 5600K + 1/64ND	
	Shutter speed	1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 (seconds)	
	Slow shutter	2/3 to 1/25 (seconds) (1 to 8 and 16 frame accumulation)	
	Lens mount	2/3-inch 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 (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	63 dB (typical)	
	Vertical resolution	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%	
<b>Viewfinder</b>	CRT	1.5 inch 4:3 type monochrome	
	Controls	BRIGHT, CONTRAST, PEAKING controls, TALLY, ZEBRA, DISPLAY switches	
	Horizontal resolution	450 TV lines	
	Microphone	Ultra-directional (detachable)	
<b>Built-in LCD monitor</b>		2.5-inch type color LCD monitor	
<b>Supplied accessories</b>		Operation manual (x1) Viewfinder (x1) Lens cap (x1) Shoulder belt (x1) Monaural microphone (x1)	

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

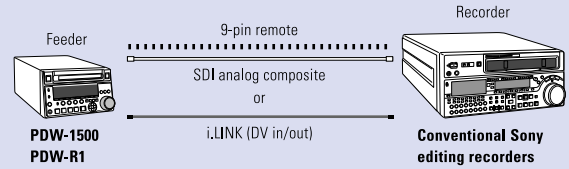
# System Diagrams

## Linear editing

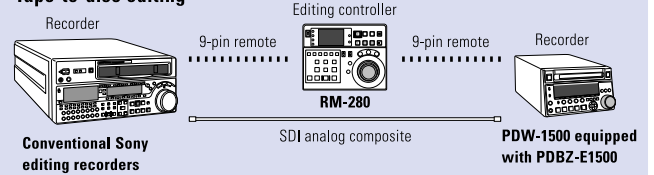
### Disc-to-disc editing



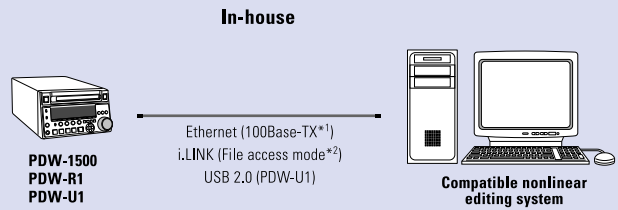
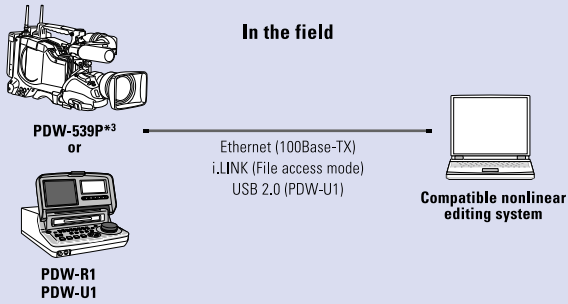
### Disc-to-tape editing



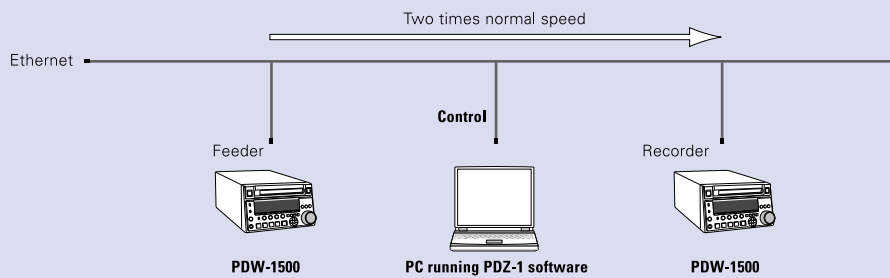
### Tape-to-disc editing



## Proxy (Low-resolution) editing



## High-speed dubbing



\*1 Ethernet interface depends on the XDCAM deck used.

\*2 For connection to third-party products using this mode, please contact your nearest Sony office.

\*3 Ethernet interface on the PDW-539P is optional and does not support file-access mode.

# Accessories

## For PDW-539P



**PFD23A**  
Professional Disc



**CBK-SD01**  
SDI Output Board



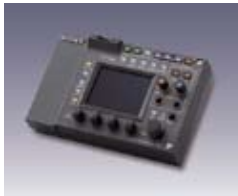
**CBK-SC01**  
Analog Composite Input Board



**BKW-401**  
Viewfinder Rotation Bracket



**RM-B150**  
Remote Control Unit



**RM-B750**  
Remote Control Unit



**AC-DN10**  
AC Adaptor



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



**BP-L60S/L80S**  
Lithium-ion Battery Pack



**BC-L70**  
Li-ion Battery Charger



**VCT-14**  
Tripod Adaptor



**Memory Stick**



**CBK-PC01**  
Memory Card Adaptor

\* Memory Card and relevant adaptor required.  
\* For other compatible SanDisk products, please contact your nearest Sony office.



**WRR-855S**  
Wireless Microphone Receiver  
(Slot-in type)



**ECM-674/678**  
Shotgun-type Electret  
Condenser Microphone



**LC-777**  
Carrying Case

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