

## PDW-850

Three 2/3-inch Power HAD FX CCD sensors XDCAM HD422 ultimate Professional Disc camcorder with best picture quality and easy-to-share and archive media



### Overview

**The reference acquisition tool for broadcast production is lighter, with less power requirements, and perfect for easy field operations and affordable live production**

The PDW-850 is equipped with the latest Power HAD FX CCD sensors and records HD and SD formats including MPEG HD 422 50 Mbps on to ready-to-archive and robust Professional Disc media with a high sensitivity of F12 at 50i and an excellent signal-to-noise ratio of 62dB. The PDW-850 features a high quality colour QHD 960 x 540 LCD side monitor, while also providing an HDVF interface to allow the latest optional colour and monochrome viewfinders to be attached. The ergonomically well balanced camcorder now fully supports the CBK-WA100 wireless adapter, enabling proxy recording and proxy/high resolution content transfer via Wi-Fi/3G/4G/LTE, as well as Planning Metadata management (with a future upgrade). Ethernet, USB interfaces and GPS are included. The camcorder weighs only 4.2 kg (body only), lighter than the PDW-700, and has lower power consumption compared to its predecessors. The PDW-850 can also be configured in a live production system by docking the CA-FB70 fibre adapter or CA-TX70 digital triax adapter CA-TX70 to the standard 50-pin interface.

## **High picture quality with three 2/3-inch-type Power HAD FX CCDs recording at MPEG HD 422 50 Mbps**

The CCDs offer the world's top-end picture quality, with high sensitivity (F12 at 50i), wider dynamic range and the elimination of motion artefacts. On top of this, the PDW-850 offers an excellent signal-to-noise ratio of 62dB. It records the most popular broadcast MXF formats: MPEG HD 422 50 Mbps, MPEG HD 420 35 Mbps and 25 Mbps, MPEG IMX 50 Mbps and DVCAM.

## **Lighter and well-balanced body with lower power consumption**

Weighs only 4.2 kg (body only) and offers lower power consumption than predecessor models PDW-680, PDW-700 and PDW-F800 of only 37W in normal operating conditions.

## **Full live production integration in HSC/HDC camera environment**

Full integration with Camera Control Units (CCUs) via the CA-FB70 optical fibre adapter and CA-TX70 digital triax adapter. The PDW-850 shares the same CCD and Digital Signal Processing as the HSC and HDC system cameras, allowing you to perfectly match the picture output.

## **Ideal for field acquisition**

Features CBK-WA100 wireless adapter support with USB connector and GPS included for synchronised proxy recording, low latency tablet/smartphone monitoring and proxy/high resolution content transfer over Wi-Fi/3G/4G/LTE, and better planning metadata management.

## **High quality LCD side monitor and optional HDVF viewfinder interface**

Large, easy-to-focus, high quality colour Quarter Full HD 960 x 540 LCD monitor, plus an HDVF interface to allow the latest optional colour and monochrome eyepiece or studio

viewfinders to be attached.

**This product contains pre-installed software and requires the purchase of licence keys to activate some functions.**

## Features

### **High sensitivity with three 2/3-inch-type PowerHAD FX CCDs**

The PDW-850 is equipped with the latest generation three 2/3-inch type PowerHAD FX CCDs with 2.2-megapixels each. These CCD sensors offer the world's top-end picture quality, with high sensitivity of F12 at 50i, a wider dynamic range and the elimination of motion artefacts. It also offers an excellent signal-to-noise ratio of 62dB with Noise Suppressor (NS) turned on.

### **Lighter and well balanced body with lower power consumption**

The PDW-850 is designed to be ergonomically well balanced, providing a high level of mobility and comfort in various shooting situations. It weighs only 4.2 kg (body only), lighter than the PDW-F800 and PDW-700. The PDW-850 also offers lower power consumption compared to its predecessors, of only 37W when recording with a viewfinder.

### **Full live production integration with CA-FB70 and CA-TX70 adapters**

The PDW-850 is fully enabled for integration in the live production environment. The standard 50-pin interface enables full integration with Camera Control Units (CCUs) via the CA-FB70 optical fibre adapter and CA-TX70 digital triax adapter. It allows for perfect integration with HSC and HDC Sony system cameras in outside broadcast or studio applications.

### **Full CBK-WA100 wireless adapter support via SDI and USB, plus GPS included**

The camcorder provides DC power, HD-SDI and USB

communication interface to the CBK-WA100 wireless adapter. The CBK-WA100 enables proxy recording on SD card, proxy and/or high resolution material transfer via 3G/4G/LTE/Wi-Fi, as well as remote control, and streaming of content to a tablet/smartphone as it is shot. These functions are provided in the free Content Browser Mobile (CBM) application available on Google Play and Apple Store. CBM also enables planning metadata and live logging metadata management (with a future upgrade). The camcorder also includes GPS functionality to help retrieve shooting locations and reduce the post-production time with a faster search in a large volume of files: the geo-tagging function allows you to conduct a simple search via a non-linear editing system, enabling better organisation for documentary and broadcast productions.

### **Improved slow shutter speeds and Slow and Quick at 1080p 50 Mbps**

The shutter speed of the PDW-850 is selectable down to a 32-frame period (in 2-, 3-, 4-, 5-, 6-, 7-, 8-, 16- and 32-frame periods). During such a long frame period, electrical charges accumulate on the CCDs, which dramatically increases sensitivity. This helps camera operators to shoot in extremely dark environments. The Slow Shutter function also allows operators to use shutter speeds longer than the frame rate and to intentionally blur images when shooting a moving object, for increased shooting creativity. The camcorder enables Slow and Quick recording at 1080p 50 Mbps.

### **HD/SD-SDI and composite inputs**

For pool-feed operations, the camcorder has built-in HD-SDI, SD-SDI and composite inputs.

### **High-quality 24-bit audio recording**

The PDW-850 records uncompressed four-channel, 24-bit audio. It is also equipped with a range of microphone, line and AES-EBU audio interfaces.

## **Supported recording formats: HD/SD and interlace/progressive**

One of the big appeals of the PDW-850 is its highly flexible multi-format recording capability. Users can select a recording format from HD to SD. The camcorder records MPEG HD 422 at 50 Mbps at 1080/59.94i/29/97p/50i/25p/23.98p and 720/59.94p/50p. It also records MPEG HD 420 at 35 Mbps and 25 Mbps at 1080/59.94i/29/97p/50i/25p/23.98p and 720/59.94p/50p. SD formats include MPEG IMX 50 Mbps and DVCAM 25 Mbps

## **Optional HDVF viewfinders**

The camcorder has an HDVF interface to allow optional colour and monochrome viewfinders to be attached, such as the HDVF-20A and HDVF-200 2.0-inch monochrome viewfinders and the HDVF-C30WR 3.5-inch colour viewfinder. HDVF-C550W and HDVF-L750 studio viewfinders are also supported.

## **Wide choice of optional microphones**

The PDW-850 is compatible with a variety of microphones. It is equipped with a 5-pin XLR input for stereo shotgun-type microphones. The camcorder can also accommodate Sony stereo digital wireless microphone receivers and a wide range of optional microphones.

## **High quality LCD side monitor**

A large, easy-to-focus, high quality colour Quarter Full HD 960 x 540 LCD panel on the PDW-850 camcorder's side panel enables operators to instantly review recorded footage, as well as access the camera's set-up menus and view status indications such as four-channel audio meters, and the remaining time available on the disc and battery. It also enables advanced operations such as Thumbnail Search and Scene Selection.

## **State-of-the-art DSP LSI**

The DSP (Digital Signal Processing) LSI is the heart of the image-processing device for the PDW-850 camcorder. In conjunction

with the 16 bit A/D converter, it produces images captured by the CCD at maximum quality. In addition, white balance, white shading, and flare are digitally corrected, allowing for stable image correction. What's more, the PDW-850 provides a NS (Noise Suppression) mode to reduce high-frequency noise elements in a video signal using Sony's advanced digital processing technology. ALAC-2 processing radically reduces both horizontal and vertical chromatic aberration.

### **Interval Recording function**

The PDW-850 offers an Interval Recording function, which intermittently records signals at pre-determined intervals. This is convenient for shooting over long periods of time, and also when creating pictures with special effects of extremely quick motion.

### **Picture Cache Recording function**

The PDW-850 offers a Picture Cache Recording function that is especially useful during ENG applications. Up to 30 seconds of audio and video signals are buffered into the camcorder's memory before the Rec button is even pressed (when in Standby mode). This means that everything that happened 30 seconds before the Rec button was pressed will still be recorded onto the disc. What's more, this function works even before the disc is inserted in the drive – thereby helping to prevent the loss of any unexpected, yet important events.

### **Smooth gain control**

A wide choice of gain and its easy-to-use control system is one remarkable feature of the PDW-850 camcorder. By setting the gain to the assignable switches, the user can easily access the desired gain. And the transition to each gain value is extremely smooth thus eliminating undesirable abrupt changes to the overall image.

### **Optical ND and CC Filters**

The PDW-850 camcorder comes equipped with dual optical filter wheels, ND (Neutral Density) and CC (Colour Correction). The optical ND filter is controlled via a built-in ND filter wheel - Clear, 1/4ND, 1/16ND/ and 1/64ND. And with the CC filter wheel, the user can easily obtain the desired colour temperature by rotation to achieve either – 3200K/4300K/5600K/6300K.

### 4x Digital Extender function

The Digital Extender function of the PDW-850 enables images to be digitally 4x increased in size. Unlike lens extenders, the Digital Extender function performs this capability without any loss of image sensitivity, which is often referred to as the F-drop phenomenon. Use of the 4x Digital Extender function reduces image resolution by four.

## Specifications

| General                  |   |
|--------------------------|---|
| Mass                     | Approx. 4.2 kg (body),<br>Approx. 9 lb 4 oz (body),<br>Approx. 6.2 kg (13 lb 7 oz) (with VF,<br>Mic, Disc, BP-L80S battery)<br>Approx. 5.9kg (13 lb 0 oz) ((with VF,<br>Mic, Disc, BP-GL95 battery) |
| Dimensions (W x H x D)*1 | 124 x 269 x 332 mm (5 x 10 5/8 x 13 1/8 inches) (excluding protrusions, body only)  |
| Power Requirements       | DC 12 V +5.0 V/-1.0 V   |
|                          | Approx. 37 W (while recording,  |

|                           |   |
|---------------------------|---|
| Power Consumption         | color LCD on)<br>Approx. 41 W (while recording, with viewfinder, color LCD on, manual lens, microphone)   |
| Operating Temperature     | -5°C to +40°C (23°F to 104°F)   |
| Storage Temperature       | -20°C to +60°C (-4°F to +140°F)   |
| Humidity                  | 10% to 90% (relative humidity)  |
| Continuous Operating Time | Approx. 115 min with BP-L80S battery<br>Approx. 135 min with BP-GL95 battery  |
| Recording Format (Video)  | MPEG HD422 (CBR, 50 Mbps)<br>MPEG HD:<br>- HQ mode (VBR, 35 Mbps max.)<br>- SP mode (CBR, 25 Mbps),<br>- LP mode (VBR, 18 Mbps max.) (playback only)<br>MPEG IMX (CBR, 50 Mbps)<br>DVCAM (CBR, 25 Mbps) |
| Recording Format (Audio)  | MPEG HD422: 4 ch/24 bits/48 kHz<br>MPEG HD: 4 ch/16 bits/48 kHz<br>MPEG IMX: 4 ch/24 bits/48 kHz or 4 ch/16 bits/48 kHz<br>DVCAM: 4 ch/16 bits/48 kHz   |



|   |  |
|---|--|
| Recording Format<br>(Proxy Video)       | MPEG-4   |
| Recording Format<br>(Proxy Audio)       | A-law (4 ch/8 bits/8 kHz)  |
| Recording/Playback<br>Time (MPEG HD422) | 50 Mbps: Approx. 95 min<br>(PFD50DLA), Approx. 43 min<br>(PFD23A)                                      |
| Recording/Playback<br>Time (MPEG HD)    | 35 Mbps, 4-ch audio: More than<br>145 min (PFD50DLA), More than 65<br>min (PFD23A)                     |
|   | 35 Mbps, 2-ch audio (playback<br>only): More than 150 min<br>(PFD50DLA), More than 68 min<br>(PFD23A)  |
|   | 25 Mbps, 4-ch audio: Approx. 190<br>min (PFD50DLA), Approx. 85 min<br>(PFD23A)                         |
|   | 25 Mbps, 2-ch audio (playback<br>only): Approx. 200 min (PFD50DLA),<br>Approx. 90 min (PFD23A)         |
|   | 18 Mbps, 4-ch audio (playback<br>only): More than 248 min<br>(PFD50DLA), More than 112 min<br>(PFD23A) |
|   | 18 Mbps, 2-ch audio (playback<br>only): More than 265 min<br>(PFD50DLA), More than 122 min             |

|                                    |   |
|------------------------------------|---|
|                                    | (PFD23A)  |
| Recording/Playback Time (MPEG IMX) | 50 Mbps: Approx. 100 min (PFD50DLA), Approx. 45 min (PFD23A)  |
|                                    | 40 Mbps (playback only): Approx. 120 min (PFD50DLA), Approx. 55 min (PFD23A)  |
|                                    | 30 Mbps (playback only): Approx. 150 min (PFD50DLA), Approx. 68 min (PFD23A)  |
| Recording/Playback Time (DVCAM)    | 25 Mbps: Approx. 185 min (PFD50DLA), Approx. 85 min (PFD23A)  |
| Recording Frame Rate               | MPEG HD422 50Mbps: 1920x1080 @59.94i, 29.97p, 50i, 25p, 23.98p<br>1280x720 @59.94p, 50p   |
|                                    | MPEG HD420 (HQ 35Mbps, SP 25Mbps): 1440x1080 @59.94i, 29.97p, 50i, 25p, 23.98p<br>1280x720 @59.94p, 50p   |
|                                    | MPEG HD420 (LP 18Mbps): (Playback only for 1440x1080 @59.94i, 29.97p, 50i, 25p, 23.98p)<br>MPEG IMX 50Mbps/DVCAM Mode: -<br>720 x 486 @59.94i/29.97p - 720 x 576 @50i/25p |

MPEG IMX 40Mbps/30Mbps:  
 (Playback only for - 720 x 486  
 @59.94i/29.97p - 720 x 576  
 @50i/25p)

## Lens

Lens Mount                      2/3-inch type 48 bayonet mount

## Input/Output

Genlock Input                    BNC (x1), 1.0 Vp-p, 75 Ω

Timecode Input                 BNC (x1), 0.5 Vp-p to 18 Vp-p, 10 kΩ

SDI Input                            BNC (x1)  
 HD/SD switchable;  
 HD-SDI: SMPTE 292M  
 (w/embedded audio)  
 SD-SDI: SMPTE 259M  
 (w/embedded audio)

Audio Input                        CH-1/CH-2: XLR-type 3-pin  
 (female) (x2), Line/Mic/Mic  
 +48V/AES/EBU selectable

Mic Input                            XLR-type 5-pin (female, stereo) (x1)

Test Output                        BNC (x1), switchable;  
 HD: Y  
 SD: composite (character on/off)

|                 |   |
|-----------------|---|
| SDI Output      | <p>BNC (x2)<br/>           1 (HD/SD switchable);<br/>           HD-SDI: SMPTE 292M (with embedded audio)<br/>           SD-SDI: SMPTE 259M (with embedded audio)<br/>           2 (HD/SD switchable, character on/off);<br/>           HD-SDI: SMPTE 292M (with embedded audio)<br/>           SD-SDI: SMPTE 259M (with embedded audio)</p> |
| Audio Output    | CH-1/CH-2: XLR-type 5-pin (male, stereo) (x1)   |
| Timecode Output | BNC (x1), 1.0 Vp-p, 75 Ω  |
| Earphone Output | Mini-jack (x2); front: monaural, rear: stereo/monaural  |
| Speaker Output  | Monaural  |
| DC Input        | XLR-type 4-pin (male) (x1), 11 V to 17 V  |
| DC Output       | 4-pin (x1) (for wireless microphone receiver); 11 V to 17 V DC (MAX 1A)   |
| Lens            | 12-pin  |

|                |   |
|----------------|---|
| Remote         | 8-pin   |
| Light          | 2-pin, DC 12 V, max. 50 W                                       |
| Camera Adaptor | 50-pin (x1)   |
| Ethernet       | RJ-45 (x1), 100BASE-TX: IEEE 802.3u, 10BASE-T: IEEE 802.3       |
| USB            | (x1) for Proxy Recording on USB Memory, and Firmware Version-up |

## Audio Performance

|                    |  |
|--------------------|--|
| Frequency Response | 20 Hz to 20 kHz, +0.5 dB/-1.0 dB             |
| Dynamic Range      | More than 93 dB                              |
| Distortion         | Less than 0.08% (at 1 kHz, reference level)  |
| Crosstalk          | Less than -70 dB (at 1 kHz, reference level) |
| Wow and Flutter    | Below measurable limit                       |
| Headroom           | 12/16/18/20 dB (selectable)                  |

## Camera Section

|        |                                |
|--------|--------------------------------|
| Imager | 3-chip 2/3-type HD PowerHAD FX |
|--------|--------------------------------|

|                          | CCDs  |
|--------------------------|---|
| Effective Resolution     | 1920 (H) x 1080 (V)   |
| Optical System           | F1.4 prism system   |
| Built-in Optical Filters | CC; A: Cross, B: 3200K, C: 4300K, D: 6300K<br>ND; 1: Clear, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND                      |
| Shutter Speed (Time)     | 1080/59.94i: 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS*2, SLS*3   |
|                          | 1080/50i: 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS*2, SLS*3   |
|                          | 1080/29.97p: 1/40, 1/60, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS*2, SLS*3                               |
|                          | 1080/25p: 1/33, 1/50, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS*2, SLS*3                                  |
|                          | 1080/23.98p: 1/32, 1/48, 1/50, 1/60, 1/96, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS*2, SLS*3                    |
|                          | 720/23.98p (Pull-down): 23.98p: 1/32, 1/48, 1/50, 1/60, 1/96, 1/125, 1/250, 1/500, 1/1000, 1/2000, ECS*2, SLS*3 |
| Shutter Speed (Slow)     | 2, 3, 4, 5, 6, 7, 8, 16 frame   |

|  |  |
|--|--|
| Shutter (SLS))                           | accumulation   |
| Slow & Quick Motion Function             | (MPEG HD422 50M@1080 mode only)<br>23.98p: Selectable from 1 to 48 frame/sec as recording frame rate<br>25p: Selectable from 1 to 50 frame/sec as recording frame rate<br>29.97p: Selectable from 1 to 59.94 frame/sec as recording frame rate |
| Sensitivity (2000 lx, 89.9% reflectance) | 1080/59.94i: F11 (typical)<br>1080/50i: F12 (typical)  |
| Minimum Illumination                     | Approx. 0.3 lx (F1.4 lens, +42 dB, with slow shutter: Off)   |
| White Balance                            | Preset (3200K), Memory A, Memory B/ATW   |
| Gain Selection                           | -6, -3, 0, 3, 6, 9, 12, 18, 24, 30, 36, 42 dB  |
| S/N Ratio                                | 62 dB (58 dB w/o Noise Suppressor)   |
| Horizontal Resolution                    | 1,000 TV lines or more (1920 x 1080i mode)   |
| Registration                             | 0.02% or less for entire screen area (excluding distortion due to lens)  |

|                  |                                   |
|------------------|-----------------------------------|
| Modulation Depth | 45% or more at 27.5 MHz (typical) |
|------------------|-----------------------------------|

|                  |            |
|------------------|------------|
| Digital Extender | x2, x3, x4 |
|------------------|------------|

## Viewfinder

|            |           |
|------------|-----------|
| Viewfinder | (Option ) |
|------------|-----------|

## Other Equipment

|                      |  |
|----------------------|--|
| Built-in LCD Monitor | 3.5-inch type color LCD monitor<br>960 x 540*4 |
|----------------------|--|

|                  |      |
|------------------|------|
| Built-in Speaker | (x1) |
|------------------|------|

## Supplied Accessories

- Shoulder strap (1)
- Microphone cable (1)
- Microphone spacer (1)
- Operation manual CD-ROM  
(Japanese, English, French,  
Germany, Italian, Spanish,  
Portuguese, Russian, Chinese) (1)
- Operation guide (Japanese,  
English, French, Spanish, Chinese,  
Russian, Kazakhstan) (1)

## Notes



Note

\*1: The values for dimensions are approximate.

\*2: ECS: Extended Clear Scan

\*3: SLS: Slow Shutter

\*4: Viewable area measured diagonally.

Related products



**CBK-WA100**

Wireless adapter for Camcorders and Decks [Mobile network 3G / 4G / LTE / Wireless LAN]



**PDW-F800**

Three 2/3-inch Power HAD FX CCD sensors top-of-the-range XDCAM HD422 camcorder recording full HD / SD



**PDW-700**

Three 2/3-inch Power HAD FX CCD sensors XDCAM HD422 camcorder recording full HD (plus SD option)



**PDW-680**

Three 2/3-inch type Exmor CMOS sensors XDCAM HD shoulder camcorder recording full HD / SD



**CA-TX70**

Digital triax adapter for HXC-D70



**CA-FB70**

Fibre adapter for HXC-D70 and PMW-320/350/400/500 camcorders



**PDW-HD1550**

XDCAM HD422 Professional Disc recorder/player recording XAVC Intra 422



**XDS-PD1000**

XDCAM Deck / IT Server with two SxS memory slots, Professional Disc drive and 1TB HDD



**PVM-741**

7.4-inch TRIMASTER EL OLED monitor with



**LMD-941W**

Full-HD 9-inch LCD monitor with 2x



**HDVF-EL20**



**HDVF-EL30**

2x 3G/HD/SD-SDI inputs and smart functions.



### LMD-B170

17-inch cost-effective, lightweight basic grade Full HD LCD monitor for versatile use

3G/HD/SD-SDI inputs and smart functions.



### LMD-B240

24-inch cost-effective, lightweight basic grade Full HD LCD monitor for versatile use

OLED 0.7-inch colour HD viewfinder



### PVM-A250 v2.0

25-inch TRIMASTER EL™ OLED high grade picture monitor

OLED 0.7-inch colour Full HD viewfinder with 3.5-inch sub-LCD



### PVM-A170 v2.0

17-inch TRIMASTER EL™ OLED high grade picture monitor



### LMD-A170

17-inch lightweight Full HD high grade LCD monitor for studio and field use



### LMD-A240

24-inch lightweight Full HD high grade LCD monitor for studio and field use



### LMD-A220

21.5-inch lightweight Full HD high grade LCD monitor for studio and field use



### PDW-U4

XDCAM Professional Disc Drive Unit

## Gallery

