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 Power HAD 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), Approx. 9 lb 4 oz (body), Approx. 6.2 kg (13 lb 7 oz) (with VF, Mic, Disc, BP-L80S battery) Approx. 5.9kg (13 lb 0 oz) ((with VF, 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
Power Consumption	Approx. 37 W (while recording, color LCD on) 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 Approx. 135 min with BP-GL95 battery
Recording Format (Video)	MPEG HD422 (CBR: 50 Mbps) MPEG HD: - HQ mode (VBR, 35 Mbps max.) - SP mode (CBR, 25 Mbps), - LP mode (VBR, 18 Mbps max.) (playback only) MPEG IMX (CBR, 50 Mbps) DVCAM (CBR, 25 Mbps)
Recording Format (Audio)	MPEG HD422: 4 ch/24 bits/48 kHz MPEG HD: 4 ch/16 bits/48 kHz MPEG IMX: 4 ch/24 bits/48 kHz or 4 ch/16 bits/48 kHz

	DVCAM: 4 ch/16 bits/48 kHz
Recording Format (Proxy Video)	MPEG-4
Recording Format (Proxy Audio)	A-law (4 ch/8 bits/8 kHz)
Recording/Playback Time (MPEG HD422)	50 Mbps: Approx. 95 min (PFD50DLA), Approx. 43 min (PFD23A)
Recording/Playback Time (MPEG HD)	35 Mbps, 4-ch audio: More than 145 min (PFD50DLA), More than 65 min (PFD23A) 35 Mbps, 2-ch audio (playback only): More than 150 min (PFD50DLA), More than 68 min (PFD23A) 25 Mbps, 4-ch audio: Approx. 190 min (PFD50DLA), Approx. 85 min (PFD23A) 25 Mbps, 2-ch audio (playback only): Approx. 200 min (PFD50DLA), Approx. 90 min (PFD23A) 18 Mbps, 4-ch audio (playback only): More than 248 min (PFD50DLA), More than 112 min (PFD23A) 18 Mbps, 2-ch audio (playback only): More than 265 min (PFD50DLA), More than 122 min (PFD23A)
Recording/Playback Time (MPEG IMX)	50 Mbps: Approx. 100 min (PFD50DLA), Approx. 45 min (PFD23A) 40 Mbps (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 1280x720 @59.94p, 50p MPEG HD420 (HQ 35Mbps, SP 25Mbps): 1440x1080 @59.94i, 29.97p, 50i, 25p, 23.98p 1280x720 @59.94p, 50p MPEG HD420 (LP 18Mbps): (Playback only for 1440x1080 @59.94i, 29.97p, 50i, 25p, 23.98p) MPEG IMX 50Mbps/DVCAM Mode: - 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	BNC (x2) 1 (HD/SD switchable); HD-SDI: SMPTE 292M (with embedded audio) SD-SDI: SMPTE 259M (with embedded audio) 2 (HD/SD switchable, character on/off); HD-SDI: SMPTE 292M (with embedded audio) SD-SDI: SMPTE 259M (with embedded audio)
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 Picture Elements	1920 (H) x 1080 (V)
Optical System	F1.4 prism system
Built-in Optical Filters	CC; A: Cross, B: 3200K, C: 4300K, D: 6300K 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 Shutter (SLS))	2, 3, 4, 5, 6, 7, 8, 16 frame accumulation
Slow & Quick Motion Function	(MPEG HD422 50M@1080 mode only) 23.98p: Selectable from 1 to 48 frame/sec as recording frame rate 25p: Selectable from 1 to 50 frame/sec as recording frame rate 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) 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 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

PVM-A250

25-inch TRIMASTER EL™ OLED high grade picture monitor

LMD-A220

22-inch cost-effective, lightweight Full HD high grade LCD monitor for studio and field use

XDS-PD1000

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

LMD-A220 v2.0

22-inch cost-effective, lightweight Full HD high grade LCD monitor for studio and field use

LMD-A240 v2.0

24-inch cost-effective, lightweight Full HD high grade LCD monitor for studio

LMD-B170

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

PDW-F800

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

LMD-A170 v2.0

17-inch cost-effective, lightweight Full HD high grade LCD monitor for studio

and field use

use

recording full HD / SD

and field use

LMD-A240

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

HDVF-EL20

OLED 0.7-inch colour HD viewfinder

PDW-700

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

PVM-A170

17-inch TRIMASTER EL™ OLED high grade picture monitor

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 and PMW-320/350/400/500 camcorders

CA-FB70

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

PVM-A250 v2.0

25-inch TRIMASTER EL™ OLED high grade picture monitor

XDS-PD2000

XDCAM Deck / IT Server with two SxS memory slots, Professional Disc drive and 500GB SSD

LMD-A170

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

PVM-741

7.4-inch TRIMASTER EL OLED monitor with 2x 3G/HD/SD-SDI inputs and smart functions.

LMD-B240

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

HDVF-EL30

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

PDW-HD1550

XDCAM HD422 Professional Disc recorder/player recording XAVC Intra 422

PVM-A170 v2.0

17-inch TRIMASTER EL™ OLED high grade picture monitor

CBK-WA100

Wireless adapter for PMW-400 and PXW-X320 [Mobile network 3G / 4G / LTE /Wireless LAN]

LMD-941W

Full-HD 9-inch LCD monitorwith 2x 3G/HD/SD-SDI inputs and smart functions.

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