SONY

PMW-320K

Three 1/2-inch type Exmor
CMOS sensors XDCAM EX
camcorder with 16x zoom HD
lens recording full HD / SD

Overview

Lightweight and affordable shoulder-mount camcorder

The powerful, affordable PMW-320 is equipped with the cutting-edge imaging technology of Exmor full-HD CMOS sensors and uses SxS memory cards as the recording media. Exceptionally low power consumption makes it environmentally friendly. The PMW-320 supports multiple frame rate recording such as 59.94i, 50i, and native 23.98P and 25P as well as being 1080i/720P switchable. There is also a choice of a 35Mb/s High Quality mode, 25Mb/s HDV 1080i compatible mode and 25Mb/s Standard Definition DVCAM recording.

Enhanced Workflow

Innovative solid state recording with SxS PRO ExpressCard memory cards.

Superior picture performance

1/2 inch Exmor CMOS sensors offer true 1080 x 1920 resolution.

Fujinon professional 1/2-inch HD lens

The adoption of three 1/2-inch imagers and standard 1/2-inch bayonet lens interface means the PMW-320K is compatible with a wide variety of broadcast standard optional lenses, as well as being supplied with a 16x (optical) zoom HD lens.

Environmentally friendly

The PMW-320 is designed to be environmentally friendly thanks to its low power consumption of just 15W (body only in recording time).

Superb ergonomics

Designed to be very compact and ergonomically well balanced, the main body weighs only 3.2 kg (7lb 1 oz) and is one of the lightest shoulder camcorders with three 1/2-inch full-HD imagers available.

Features

Selectable format and bit rates
A choice of bit rate is offered – either 35 Mbps (HQ mode) or 25 Mbps (SP mode) – depending on the desired picture quality and recording time. The camcorder records 1920 x 1080 HD images using the MPEG-2 Long GOP codec, which conforms to the MPEG-2 MP@HL compression standard.

Multiple-format recording 1080/720 and interlace/progressive switchable operation
The camcorder offers a wide array of recording formats for multiple content-creation applications. The recording mode is switchable between 1920 x 1080, 1280 x 720, and 1440 x 1080 resolution. The scanning system is also selectable from interlace and progressive, such as 59.94i, 50i, 59.94p, and 50p.

Three Exmor Full-HD CMOS sensors
The PMW-320 is equipped with three Exmor CMOS sensors, which deliver superb picture performance with full-HD resolution. The PMW-320 has a 1/2-inch-type image sensor, which provides an excellent sensitivity of F10, a remarkable signal-to-noise ratio of 54dB and high horizontal resolution of 1,000 TV lines in HD-SDI, HQ 1080 mode. This high-performance sensor results in high-quality digital signals with extremely low noise. This significantly enhances shooting in low-light environments. Additionally, the large sensor can capture images with a shallower depth of field,

giving users more freedom of creative expression.

Impressive body design

Designed to be very compact and ergonomically well balanced, the PMW-320 provides a high level of mobility and comfort in various shooting situations. The camcorder has a low centre of gravity, ensuring outstanding stability on the shoulder. The low-profile design provides a wide space between the main frame of the camera and the handle, and an unobstructed view to the right-hand side of the camera operator. The position of the shoulder pad can be adjusted to provide users with optimum weight balance even if the camera is docked with any type of lens or camera adaptor.

Low power consumption

For the PMW-320, power consumption is only 18 W* and can operate for approximately 310 minutes on a fully charged BP-GL95 battery pack.

* With supplied viewfinder, lens, and microphone while recording.

Lens package choice

The PMW-320K comes equipped with an HD lens with a standard bayonet interface. The lens is equipped with two independent focus wheel mechanisms, which can be switched between Auto Focus mode and Full Manual Focus mode by sliding the focus ring itself back and forth. The MF Assist function helps to precisely focus on the target subject when shooting in MF mode. In this mode, Auto Focus is momentarily activated when the user stops adjusting the focus ring.

ALAC (Automatic Lens Aberration Compensation)

This feature decreases any chromatic aberration caused by the lens. ALAC is activated only with the supplied lens and with certain third-party lenses that incorporate compensation data.

(Please check with other lens manufacturers for ALAC support).

23.98p native recording
The PMW-320 offers a native 23.98p* recording capability. This feature, accompanied by other creative features, makes the camcorder ideal for cinema production.

* In 1440x1080/23.98p (SP) mode, images are handled as 23.98p and recorded as 59.94i signals via 2-3 pull-down.

Slow & Quick Motion function
The PMW-320 offers a Slow & Quick Motion function that enables users to create unique 'looks' by slow- and fast-motion effects. The camcorder can capture images at frame rates selectable from 1 frame per second (fps) to 60 fps in 720p mode and from 1 fps to 30 fps in 1080p mode, in increments of 1 fps. For example, when viewed at 23.98p, images captured at 60 fps appear two-and-a-half times slower than normal. Conversely, images captured at 4 fps appear six times faster than normal. With this function, images are recorded natively with no padded frames and at full resolution.

Slow Shutter function
The maximum accumulation period is at a 64-frame shutter speed.

Selectable gamma curves
The PMW-320 offers a wide variety of gamma curves to flexibly handle contrast, and give a specific 'look' to an image. In addition to six types of standard gamma curves, there are four types of Hyper Gamma which are identical to those on high-end CineAlta™ camcorders.

Interval Recording function
The Interval Recording function intermittently records one frame at pre-determined intervals. This is convenient for shooting over long periods of time, and also when creating special effects with

extremely rapid motion.

Frame Recording function

The Frame Recording function is particularly useful for clay animation shooting.

ATW (Auto Tracing White Balance) and Hold

The Auto Tracing White Balance function automatically adjusts the camera's colour temperature according to changes in lighting conditions. If required, the user can hold auto tracing at a desired colour balance via an assignable switch.

Image Inverter

With a DOF (Depth of Field) adaptor to attach a cinema or still camera lens to the camera, the image is rotated 180 degrees. This Image Inverter function normalises the image by reverse scanning.

Turbo gain

The gain can be chosen from a wide range of preset values between -3 dB and +24 dB.

DVCAM recording and playback

To realise smooth migration from current SD operation to near-future HD operation, the PMW-320 supports DVCAM format recording and playback as the standard function.

Picture Cache Recording

With the Picture Cache Recording function, up to 15 seconds of audio and video signals are buffered into the camcorder's internal memory even before the record start button is pressed. This helps to prevent loss of any unexpected yet important events.

Freeze Mix function

The Freeze Mix function superimposes a previously recorded image on the viewfinder. This allows the operator to quickly and

easily frame or reposition a subject when a shot must be taken from the same position, or in the same framework, as a previous take.

Four-channel audio
The PMW-320 comes equipped with four channels of 16-bit, 48-kHz, linear PCM uncompressed audio recording. Each channel level can be controlled individually.

Scene File system
The Scene File feature allows camera operators to easily call up customised picture-tonal settings – such as the parameters of matrix, detail, gamma, and knee – to suit particular shooting conditions. This gives users greater operational efficiency. SxS memory cards can be used for storing and loading scene files.

Viewfinder with 3.5-inch* colour LCD
The PMW-320 has a large, easy-to-view, colour LCD with a high resolution of 1920 x 480 pixels, which simplifies focusing. The viewfinder can also be used to instantly review recorded footage, as well as access and view the camera's set-up menus, thumbnails, and status indications. The camcorder also has an interface for the DXF-20W, DXF-51, and DXF-C50W**.

* Viewable area measured diagonally.

** The supplied viewfinder and DXF viewfinder cannot be used concurrently.

HDMI connector
The PMW-320 is equipped with an HDMI connector.

50-pin interface and Digital Extender function
The CBK-CE01, a 50-pin interface option, offers a Digital Extender* function, which digitally doubles images in size. Unlike lens extenders, this function virtually does not lose image

sensitivity, often referred to as the F-drop phenomenon.

* The Digital Extender function can not operate with Slow & Quick function.

Camera adaptor for multi-camera operation

The CBK-CE01 also offers the PMW-320 connection to the XDCA-55, camera adaptor. This newly-designed camera adaptor and the XDCU-50, Camera Extension Unit enable control of the camcorders from a distance of 100 m, and expands the potential of these camcorders for multi-camera operation.

Affordable MPEG TS Option for field and satellite transmission

The HDCA-702 MPEG TS adaptor, which can be directly docked onto the PMW-320, transmits an MPEG Transport Stream (TS) of MPEG via a DVB-ASI output. This function also requires the CBK-CE01.

Specifications

General	
Mass	Approx. 3.2 kg (without lens) Approx. 7 lb 1 oz (without lens) Approx. 6.3 kg (with LCD VF, AF lens, Mic, BP-GL95 battery, one SxS PRO memory card) Approx. 13 lb 14 oz (with LCD VF, AF lens, Mic, BP-GL95 battery, one SxS PRO memory card)
Dimensions (W x H x D)	124 x 269 x 332 mm (excluding protrusions, body only)

*1	5 x 10 5/8 x 13 1/8 inches (excluding protrusions, body only)
Power Requirements	DC 12 V
Power Consumption	Approx.18 W (with LCD VF, AF lens, Mic while recording) Approx.15 W (body while recording)
Operating Temperature	0°C to 40°C 32°F to 104°F
Storage Temperature	-20°C to +60°C -4°F to +140°F
Continuous Operating Time	Approx. 310 min with BP-GL95 battery
Recording Format (Video)	MPEG-2 Long GOP: - HQ mode: VBR, 35 Mbps max., MPEG-2 MP@HL - SP mode: CBR, 25 Mbps, MPEG-2 MP@H-14 - SD mode (option): DVCAM
Recording Format (Audio)	HD mode: Linear PCM (4 ch, 16-bit, 48-kHz) SD mode: Linear PCM (2 ch, 16-bit, 48-kHz)
	HQ Mode:

Recording/Playback Time (MPEG HD)	Approx. 100 min with SBP-32 (32 GB) memory card Approx. 50 min with SBP-16 (16 GB) memory card Approx. 25 min with SBP-8 (8 GB) memory card SP/SD Mode: Approx. 140 min with SBP-32 (32 GB) memory card Approx. 70 min with SBP-16 (16 GB) memory card Approx. 35 min with SBP-8 (8 GB) memory card
Recording Frame Rate	NTSC HQ mode: - 1920 x 1080/59.94i, 29.97p, 23.98p - 1440 x 1080/59.94i, 29.97p, 23.98p - 1280 x 720/59.94p, 29.97p, 23.98p SP mode: 1440 x 1080/59.94i, 23.98p (2-3 pull down) SD mode: 720 x 480/59.94i, 29,97PsF PAL area HQ mode: - 1920 x 1080/50i, 25p - 1440 x 1080/50i, 25p - 1280 x 720/50p, 25p SP mode: 1440 x 1080/50i SD mode: 720 x 576/50i, 25PsF

Lens

Lens Mount	Sony 1/2-inch type bayonet mount
Zoom Ratio	16x (optical), servo/manual (AF lens for PMW-320K)
Focal Length	f = 5.8 mm to 93 mm (equivalent to 31.4 mm to 503 mm on 35 mm lens)
Iris	F1.9 to F16 and Close, Auto/Manual selectable
Focus	AF/MF/Full MF selectable 800 mm to ∞ (MACRO OFF) 50 mm to ∞ (MACRO ON, Wide) 782 mm to ∞ (MACRO ON, Tele)
Filter Diameter	M82 mm, pitch 0.75 mm (on lens)

Input/Output

Genlock Input	BNC (x1)
Timecode Input	BNC (x1)
Audio Input	XLR-type 3-pin (female) (x2), Line/Mic/Mic +48 V selectable
Mic Input	XLR-type 5-pin
SDI Output	BNC (x1), HD-SDI/SD-SDI

	selectable
Composite Output	BNC (x1), NTSC or PAL, COMPONENT Y
Audio Output	XLR-type 5-pin
Timecode Output	BNC (x1)
Earphone Output	Stereo mini jack (x1)
Speaker Output	Monaural
DC Input	XLR-type 4-pin
DC Output	4-pin
Lens	8-pin
Remote	8-pin
i.LINK	IEEE 1394, 4-pin (x1), HDV (HDV 1080i)/DVCAM stream input/output, S400
USB	USB device, Mini-B (x1)
HDMI	A type (x1)

Camera Section

Imager	3-chip 1/2-type "Exmor" Full HD CMOS

Effective Picture Elements	1920 (H) x 1080 (V)
Optical System	F1.6 prism system
Built-in Optical Filters	1: Clear, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND
Shutter Speed (Time)	1/60 sec to 1/2,000 sec + ECS *2
Shutter Speed (Slow Shutter (SLS))	2, 3, 4, 5, 6, 7, 8, 16, 32, 64-frame accumulation
Slow & Quick Motion Function	720p: Frame rate selectable from 1 fps to 60 fps 1080p: Frame rate selectable from 1 fps to 30 fps
Sensitivity (2000 lx, 89.9% reflectance)	F10 (typical) (1920 x 1080/59.94i mode) F11 (typical) (1920 x 1080/50i mode)
Minimum Illumination	0.05 lx (typical) (1920 x 1080/59.94i mode, F1.6, +42 dB gain, with 64-frame accumulation)
White Balance	Preset (3200K), Memory A, Memory B/ATW
Gain Selection	-3, 0, 3, 6, 9, 12, 18, 24 dB

S/N Ratio	54 dB (Y) (typical)
Horizontal Resolution	1,000 TV lines or more (1920 x 1080i mode)

Viewfinder

Viewfinder	3.5-inch *3 type color LCD monitor: approx. 921,000 effective pixels, 640 (H) x 3 (RGB) x 480 (V), 16:9, hybrid type

Other Equipment

Built-in LCD Monitor	Black & White LCD (Audio level, TC, battery and media remaining capacity)

Supplied Accessories

Supplied Accessories	Viewfinder (1) Shoulder strap (1) Stereo microphone (1) Wind-screen (1) Cold shoe kit (1) Lens mount cap (1) Flange back adjustment chart (1) CD-ROM: Utility software (1)

Operating instructions in PDF (1)
Operating instructions (English) (1)
Operating instructions (Japanese) (1)
SxS Device driver software end-user license agreement (1)
Auto focus lens (1)

Notes

Note

*1 The values for dimensions are approximate
*2 ECS: Extended Clear Scan
*3 Viewable area measured diagonally

Related products

SBAC-US20

DWR-S02D

Digital wireless receiver

ECM-678

Shotgun Electret condenser microphone

ECM-674

Affordable shotgun Electret condenser microphone

ECM-673

Short Shotgun Electret Condenser Microphone.

ECM-VG1

Shotgun Electret condenser microphone

ECM-MS2

Compact Electret condenser microphone

UWP-D11

UWP-D bodypack wireless microphone package

UWP-D12

UWP-D handheld wireless microphone package

UWP-D16

UWP-D bodypack and XLR plug-on wireless microphone package

MDR-7510

Studio professional headphones

ECM-88B

Electret condenser microphone

MDR-7506

Stereo professional headphones

PVM-741

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

LMD-941W

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

PVM-A250 v2.0

25-inch TRIMASTER EL™ OLED high grade picture monitor

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

Gallery