

SONY



PXW-FS7

Solid-State Memory Camcorder

XDCA1M

XAVC

MPEG HD422

**Exmor
CMOS Sensor**

4K

LEVI'S
NEW YORK CITY



The ideal documentary camera

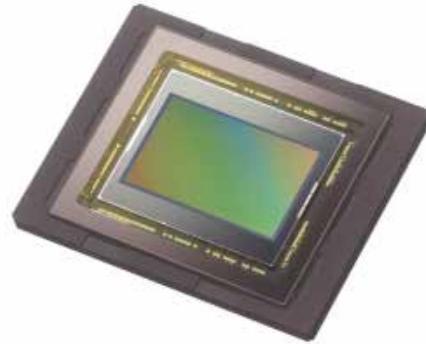
Professionals are greeting the Sony PXW-FS7 with surprise, appreciation and excitement. And for good reason. The camera reflects years of conversations we've had with documentarians on viewfinder placement, grip design, balance and ergonomics. It also reflects Sony's expertise in 4Kⁱ and HD codecs, Super 35 sensors and memory recording. The result is the ideal camcorder for cinéma vérité documentaries, magazine shows, realityTV, unscripted TV and more.

It shoots in 4Kⁱ at up to 60pⁱⁱ or Full HD XAVC Intra at a high frame rate of up to 180 fps. Selectable recording formats also include XAVC Long, which supports 1080/60p with 4:2:2 10-bit recording and the legacy MPEG-2 HD 422 format used by broadcast stations. Attach an optional Extension Unit (XDCA-FS7) to open up the possibilities of multi-camera shooting and Apple ProRes 422 HQ – 1920 x 1080, which will be available early 2015 by firmware update at no additional cost. For external 4K/2K RAW synced to internal Full HD recording, connect the XDCA-FS7 to a Sony HXR-IFR5 interface and AXS-R5 recorder or compatible third party recorder. Your hand-held long-form work deserves a camera designed precisely for your purposes. You deserve the PXW-FS7.

ⁱ QFHD 3840 x 2160 at launch. 4096 x 2160 by firmware update expected early 2015.

ⁱⁱ 59.94fps.





Exmor
CMOS Sensor

Equipped with high-sensitivity 4K Super35 "Exmor" CMOS Sensor

The FS7 is equipped with a Super 35 "Exmor" CMOS Sensor with approximately 11.6 million total pixels and 8.8 million effective pixels. The high image readout speed of the image sensor allows the FS7 to support 4K motion-picture shooting and Super Slow Motion. The sensor also realizes a high sensitivity of ISO2000 and a wide dynamic range of 14 stops. Thanks to its full-pixel readout capability without pixel binning and sophisticated camera processing, jaggies and moiré are minimized.



Full HD recording with Super Slow Motion

The FS7 offers Continuous Recording at Full HD image quality and a frame rate of up to 180fps. This makes it possible to attain up to 7.5x Super Slow Motion when played back at 23.98fps.

Furthermore, support for unlimited shooting at Super Slow Motion means no more mistimed shots leading to extra takes. It also lets you pick out footage at exactly the point that you want.

4Kⁱ internal recording at 60fpsⁱⁱ

The FS7 supports internal recording at 4Kⁱ resolution at a wide range of frame rates (59.94p, 50p, 29.97p, 25p, and 23.98p). When viewed on a 4K monitor, footage shot in 4K is reproduced so clearly down to the finest details that it gives a viewer the illusion of actually being within the scene.

Thanks to the 4K sensor, HD recordings capture detail and image texture that HD sensor cameras cannot see.

ⁱ QFHD 3840 x 2160 at launch. 4096 x 2160 by firmware update expected early 2015.

ⁱⁱ 59.94 fps.

XAVC

MPEG HD422



S-Log3 Original



S-Log3 Grading

Two XQD media slots support simultaneous and relay recording

The FS7's XQD card slots consist of two channels that enable simultaneous and relay recording. During relay recording, when one media becomes full, recording continues automatically to the other media. During simultaneous recording, not only can the same footage be recorded on both channels at the same time, but also one channel can be used for random shooting while the other is being used for continuous recording as backup.

Supports various formats

The FS7 supports two formats, XAVC and MPEG-2 HD 422, which can be selected to suit the application. Two XAVC compression systems (IntraFrame and Long GOP) are provided through an H.264/MPEG-4 AVC codec. IntraFrame supports recording with 4:2:2 10-bit sampling for 4K and Full HD, as well as a high bit rate of up to 600 Mbpsⁱ. In Long GOP, image quality and recording time are balanced to allow Full HD shooting with 4:2:2 10-bit sampling at 50, 35 or 25 Mbps, making this format suitable for longer duration shooting. Support is also provided for the MPEG2 HD 422 recording format which is mainly used at broadcast stations around the world. Supported formats and bit rates are indicated below.

ⁱ During 4K 59.94 fps recording.

Support for S-Gamut3.Cine/S-Log3, S-Gamut3/S-Log3 and other log curves

The FS7 supports such log gamma curves as S-Gamut3.Cine/S-Log3 and S-Gamut3/S-Log3. Due to the fact that 18% gray is set at a bright level, S-Log3 is noted for delivering a wider dynamic range than the 1300% achieved by S-log2 incorporated in camera such as the NEX-FS700, a difference equal to 1.5 stops. The log gamma itself is close to Cineon log, so color correction is easier to perform and it is possible to achieve the look of film.

In addition, compared to the color gamut of S-Gamut3.Cine, which is geared toward reproducing the wide color gamut of DCI-P3 color space used in digital cinema, the color gamut of S-Gamut3 is geared toward the reproduction of almost all actual colors, and is thereby suitable for archival purposes. Support for S-log2, which is popular among cinematographers and videographers, is scheduled to be provided in early 2015.

Built-in ND filter unit

ND filters for adjusting the amount of light are provided in a built-in ND filter unit. This allows shooting to be done with a shallow depth of field without having to stop down the iris, even under bright conditions. The settings are Clear, 1/4 (2eV), 1/16 (4eV) and 1/64 (6eV).



Extension Unit "XDCA-FS7" for shooting support

Extension Unit "XDCA-FS7" can be connected directly to the PXW-FS7 to enable the use of functions that support the operator's shooting style or workflow.

RAW output for external 4K/2K RAW recording

The FS7's FS RAW Interface can be connected to an HXR-IFR5 interface unit and RAW AXS-R5 recorder to enable external 4K/2K RAW recording. The interface also allows the use of compatible third-party external recorders.

Full HD footage shot with the unit is time code-synchronized to allow offline editing of the content.



XDCA-FS7

Support for multi-camera shooting

Precise timecode synchronization provided by Genlock and Timecode In/Out functions in the XDCA-FS7 enables multi-camera operations.

Support for Apple ProRes 422 recording

With the optional XDCA-FS7 extension unit, the PXW-FS7 enables Apple ProRes 422 HQ - 1920 x 1080 recording to an XQD card in the camera.

ProRes



Hand-held comfort without
rigs—or rigmarole





Flexible design supports a wide range of shooting styles

The FS7 is equipped with a shoulder pad for stable shoulder-style shooting. Users can also choose other supported shooting styles including handy style, chest style (using the curved rear part of the FS7), tripod shooting, etc. depending on conditions.



Ergonomic grip design

The FS7 grip, designed for easy handling and operability, is the result of exhaustive consultation with videographers and cinematographers, as well as the production of various prototypes. The shape supports long periods of camera use and flexibly accommodates subtle differences among various users' gripping styles.

The angle of the grip can be easily adjusted with the press of a button. In addition to a zoom button and Rec Start/Stop, the grip also has several programmable buttons that can be customized for easy access to any other functions such as the focus magnifier function.



Arm adjusts to user's physique and shooting posture

The length of the arm section of the FS7 can be adjusted just by turning a knob. Another knob at the joint makes it easy to adjust the angle of the camera. So a user can choose a comfortable style that suits his or her physique and shooting position.

Putting you in control

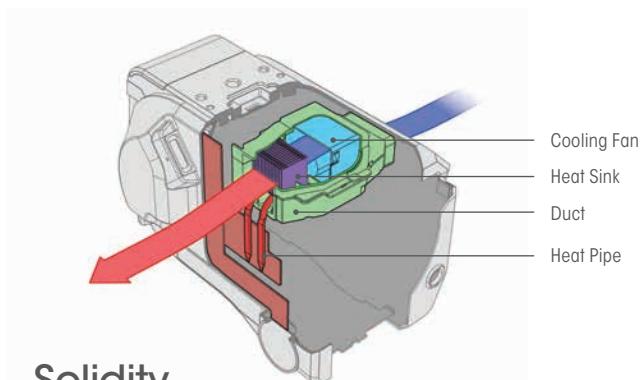
Controls are concentrated on the inside panel to make adjustments easy even during on-the-shoulder shooting.



Viewfinder

Adjustable with degrees of freedom for easy confirmation of image quality

The Peaking and Zebra function buttons and contrast knob are positioned on the side of the FS7 viewfinder for easy adjustment of focus, contrast and exposure. Also, by turning a single knob, the position of the finder can be set, allowing for degrees of freedom. The finder is designed so that people with a dominant left eye can also use it comfortably.



Solidity

Dust and moisture resistance for use even in harsh environments

The FS7 is constructed with buttons, dials and other parts specially sealed to prevent dust and water spray from entering. In addition, the cooling fan is equipped with a special duct that prevents dust and water spray from entering electric components and cool air is transmitted to the heat sink to lower accumulated temperatures. In these and other ways, the body of the FS7 is constructed to withstand tough conditions.



Built-in Multi-Interface (MI) Shoe

The FS7 is equipped with a Multi-Interface (MI) Shoe that supports connection to wireless microphone packages such as the UWP-D11 or UWP-D12 (sold separately). When connected to the shoe, the HVL-LBPC light (sold separately) can be turned on or off from the camera, and power and audio connections are provided to the UWP-D11 or UWP-D12 without cables.



α Mount System for a Wide Selection of Lenses

Adopts E-mount that is suitable for movie shooting

The FS7 incorporates the E-mount lens mount. This is especially useful for motion-picture shooting because the system supports power driven silent auto focus, iris control, power zoom and more, as well as SteadyShot image stabilization and other functions. Moreover, the E-mount system's short flange-back distance (the distance from the lens-mounting surface to the image sensor) enables use of A-mount lenses via LA-EA4 or LA-EA3 lens adapter, as well as various other lenses via third-party adapters. The E-mount system thereby makes it possible to take advantage of a wealth of lens resources suitable for creative, versatile video expression.

Zoom

Zooming is a fundamental moviemaking technique that is used for both practical framing changes as well as creative effect. "Smooth" is the key requirement here. Any tracking irregularities such as jitter or axial image shifts are unacceptable. Sony's professional camera technology combines with state-of-the-art lens design and control technologies once again to deliver exceptionally smooth tracking throughout the zoom range at any speed. And, like focus operation, zooming is quiet as well as responsive thanks to advanced mechanical and actuator design and manufacture. Lenses are individually tested to ensure that the desired level of performance is achieved in every unit.

Iris

Background bokeh (defocusing) can be just as important in movies as it is in still images. The original Sony's circular aperture design contributes to smooth, beautiful bokeh with natural highlights. Iris noise can be an issue for moviemaking too, so the quietest, most accurate and responsive control and actuator systems are used for iris operation as well.



Focus

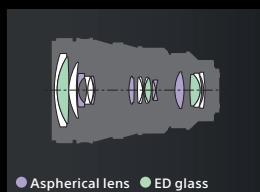
When making movies you're frequently focusing while shooting, either with autofocus or manually. A lens that has not been designed with movies in mind might exhibit "breathing," or variations in the angle of view while focusing. That can be a jarring distraction, so Sony α mount lenses feature optical designs and control technology inherited from our professional camera that ensure an absolute minimum of breathing. Noise while focusing can also be an issue, but advanced Sony's linear motor and lens control technologies achieve quiet focusing that is also extremely responsive. Part of the reason that focus control is so quiet is that original Sony linear motors are contactless, with no gears or mechanical coupling to generate noise. Internal focusing is an advantage too, since the front element of the lens does not rotate and the overall length of the lens does not change while focusing.

E mount FE PZ 28-135mm F4 G OSS SELP28135G

Full ED (IF OSS SSM SMO PZ)

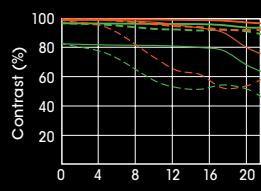


This top-quality powered zoom lens for 35mm full-frame format cameras has been created to satisfy professional moviemaking requirements, including the high resolution 4K format. Focus breathing and zoom image shift have been reduced to an absolute minimum, while aspherical elements and advanced multi-coating technology effectively suppress aberration. Quiet operation is also a priority, so an SSM (Super Sonic wave Motor) drive system has been employed for precise, quiet zooming. Independent control rings for zoom, focus, and aperture are provided for the first time in an α lens. Built-in Optical SteadyShot image stabilization adds to the extraordinary performance of this outstanding lens.

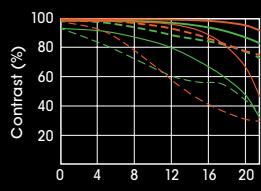


- Lens groups/elements: 12 / 18
- Minimum focus: 0.4 m (AF) / 0.95 m (MF)
- Filter diameter: 95 mm
- Size: 105 mm (diameter) x 162.5 mm (length)
- Weight: approx. 1215 g (without tripod mount)

■ 28 mm focal length



■ 135 mm focal length

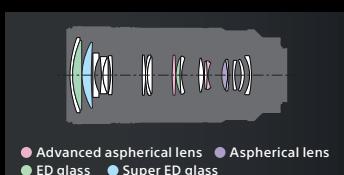


Max. aperture

- | | |
|--|--|
| — R10 line pairs/mm
--- T10 line pairs/mm | — R30 line pairs/mm
--- T30 line pairs/mm |
|--|--|
- (R: radial target, T: tangential target)

E mount FE 70-200 F4 G OSS SEL70200G

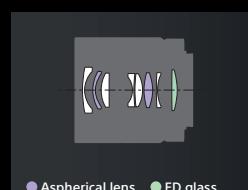
Full ED ED (Nano AR Coating) IF FRL FHB OSS



- Lens groups/elements: 15/21
- Minimum focus: 1.0 m (wide) - 1.5 m (Tele)
- Filter diameter: 72 mm
- Size: 80 mm (diameter) x 175 mm (length)
- Weight: approx. 840 g (without tripod mount)

E mount Sonnar T* E 24mm F1.8 ZA SEL24F18Z

APS-C ED (IF)

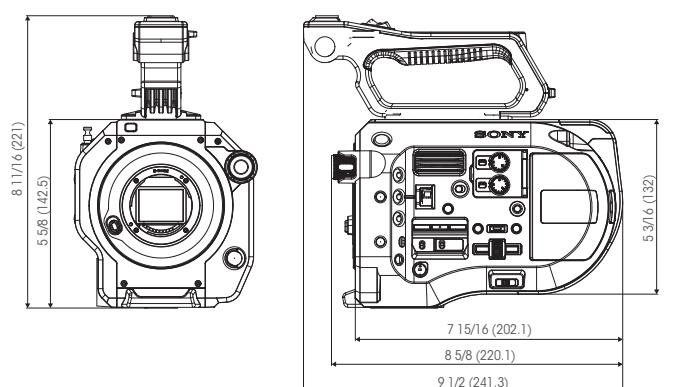


- Lens groups/elements: 7/8
- Minimum focus: 0.16 m
- Filter diameter: 49 mm
- Size: 63 mm (diameter) x 65.5 mm (length)
- Weight: approx. 225 g

Specifications

PXW-FS7	
General	
Weight	Approx. 4lbs 7oz (2.0 kg) (body only)
Dimensions (W x H x D)*	6 1/8 x 9 13/32 in. (156 x 239 x 247 mm) (body without protrusions)
Power Requirements	DC 12 V
Power Consumption	Approx. 19 W (while recording XAVC-I QFHD 59.94P SELP28135G Lens, Viewfinder ON, not using external device)
Operating Temperature	32°F to 104°F (0°C to 40°C)
Storage Temperature	-4°F to 140°F (-20°C to +60°C)
Battery Operating Time	Approx. 1 hrs with BP-U30 battery (while recording XAVC-I QFHD 59.94P SELP28135G Lens, Viewfinder ON, not using external device)
Recording Format (Video)	Approx. 2 hrs with BP-U60 battery (while recording XAVC-I QFHD 59.94P SELP28135G Lens, Viewfinder ON, not using external device)
	Approx. 3 hrs with BP-U90 battery (while recording XAVC-I QFHD 59.94P SELP28135G Lens, Viewfinder ON, not using external device)
<XAVC Intro>	XAVC-I mode:QFHD 59.94P CBG, bit rate 600Mbps, MPEG-4 H.264/AVC XAVC-I mode:QFHD 50P CBG, bit rate 500Mbps, MPEG-4 H.264/AVC
	XAVC-I mode:QFHD 29.97P CBG, bit rate 300Mbps, MPEG-4 H.264/AVC XAVC-I mode:QFHD 23.98P CBG, bit rate 240Mbps, MPEG-4 H.264/AVC
	XAVC-I mode:QFHD 25P CBG, bit rate 250Mbps, MPEG-4 H.264/AVC XAVC-I mode:HD 59.94P VBR, maximum bit rate 222Mbps, MPEG-4 H.264/AVC XAVC-I mode:HD 50P VBR, maximum bit rate 185Mbps, MPEG-4 H.264/AVC XAVC-I mode:HD 59.94i VBR, maximum bit rate 111Mbps, MPEG-4 H.264/AVC XAVC-I mode:HD 29.97P VBR, maximum bit rate 111Mbps, MPEG-4 H.264/AVC XAVC-I mode:HD 23.98P VBR, maximum bit rate 89Mbps, MPEG-4 H.264/AVC XAVC-I mode:HD 25P VBR, maximum bit rate 112Mbps, MPEG-4 H.264/AVC
<XAVC Long>	<XAVC Long> XAVC-L QFHD 59.94P/SOP mode: VBR, maximum bit rate 150Mbps, MPEG-4 H.264/AVC XAVC-L QFHD 29.97P/23.98P/SOP mode: VBR, maximum bit rate 100Mbps, MPEG-4 H.264/AVC XAVC-L HD 50 mode: VBR, maximum bit rate 50Mbps, MPEG-4 H.264/AVC XAVC-L HD 35 mode: VBR, maximum bit rate 35Mbps, MPEG-4 H.264/AVC XAVC-L HD 25 mode: VBR, maximum bit rate 25Mbps, MPEG-4 H.264/AVC
	<MPEG-2 Long GOP> MPEG HD422 mode: CBR, maximum bit rate 50Mbps, MPEG-2 422P@HL LPCM 424 bits, 48 kHz, 4 channels (Recording/Playback ONLY 2channels)
Recording Format (Audio)	<XAVC Intro> XAVC-I mode:QFHD 3840x2160/59.94P 50P 59.94i, 50, 29.97P 23.98P 25P <XAVC Long> XAVC-L QFHD mode: 3840x2160/59.94P 50P 29.97P 23.98P 25P XAVC-L HD 50 mode: 1920x1080/59.94P 50P 59.94i, 50, 29.97P 23.98P 25P XAVC-L 35 mode: 1920x1080/59.94P 50P 59.94i, 50, 29.97P 23.98P 25P XAVC-L 25 mode: 1920x1080/59.94i, 50 <MPEG-2 Long GOP> MPEG HD422 mode: 1920x1080/59.94i, 50, 29.97P 23.98P 25P 1280x720/59.94P 50P 29.97P 23.98P 25P
Recording/Playback Time	<XAVC Intro> XAVC-I mode:QFHD 59.94P When using QD-G128A (128GB): Approx. 22 minutes, When using QD-G64A (64GB): Approx. 11 minutes XAVC-I mode:QFHD 50P When using QD-G128A (128GB): Approx. 26 minutes, When using QD-G64A (64GB): Approx. 13 minutes XAVC-I mode:QFHD 29.97P When using QD-G128A (128GB): Approx. 44 minutes, When using QD-G64A (64GB): Approx. 22 minutes XAVC-I mode:QFHD 23.98P When using QD-G128A (128GB): Approx. 55 minutes, When using QD-G64A (64GB): Approx. 27 minutes XAVC-I mode:QFHD 25P When using QD-G128A (128GB): Approx. 52 minutes, When using QD-G64A (64GB): Approx. 26 minutes XAVC-I mode:HD 59.94P When using QD-G128A (128GB): Approx. 59 minutes, When using QD-G64A (64GB): Approx. 30 minutes XAVC-I mode:HD 50P When using QD-G128A (128GB): Approx. 71 minutes, When using QD-G64A (64GB): Approx. 35 minutes XAVC-I mode:HD 59.94i When using QD-G128A (128GB): Approx. 118 minutes, When using QD-G64A (64GB): Approx. 59 minutes XAVC-I mode:HD 50i When using QD-G128A (128GB): Approx. 141 minutes, When using QD-G64A (64GB): Approx. 70 minutes XAVC-I mode:HD 29.97P When using QD-G128A (128GB): Approx. 118 minutes, When using QD-G64A (64GB): Approx. 59 minutes XAVC-I mode:HD 23.98P When using QD-G128A (128GB): Approx. 147 minutes, When using QD-G64A (64GB): Approx. 74 minutes XAVC-I mode:HD 25P When using QD-G128A (128GB): Approx. 141 minutes, When using QD-G64A (64GB): Approx. 70 minutes <XAVC Long> XAVC-L mode:QFHD 59.94P/SOP When using QD-G128A (128GB): Approx. 87 minutes, When using QD-G64A (64GB): Approx. 44 minutes XAVC-L mode:QFHD 29.97P/23.98P/SOP mode: When using QD-G128A (128GB): Approx. 131 minutes, When using QD-G64A (64GB): Approx. 66 minutes XAVC-L 50 mode When using QD-G128A (128GB): Approx. 262 minutes, When using QD-G64A (64GB): Approx. 131 minutes XAVC-L 35 mode When using QD-G128A (128GB): Approx. 374 minutes, When using QD-G64A (64GB): Approx. 187 minutes XAVC-L 25 mode When using QD-G128A (128GB): Approx. 524 minutes, When using QD-G64A (64GB): Approx. 262 minutes <MPEG-2 Long GOP> MPEG HD422 mode: When using QD-G128A (128GB): Approx. 262 minutes, When using QD-G64A (64GB): Approx. 131 minutes.

Dimensions



Unit: inches (mm)

PXW-FS7	
Lens	E-mount
Lens Mount	E-mount
Camera Section	
Imaging Device (Type)	Super35 type Single-chip Exmor CMOS
Effective Picture Elements	17.9 MP (H) x 21.69 (V) 16.9 3840 (H) x 21.69 (V)
Built-in Optical Filters	OFF, Clear, 1/4ND, 1/16ND, 1/64ND
Sensitivity (2000 lx, 89.9% reflectance)	ISO 2000 (S-Log3 Gamma D55 Light source)
Minimum Illumination	0.7 lx (+1dB, 23.98P, Shutter OFF, ND Clear, F1.4)
S/N Ratio	57 dB (Y) (typical)
Shutter Speed	1/3 sec to 1/9,000 sec
Slow & Quick Motion Function	XAVC-I mode: 3840x2160: 1 to 60 frames (59.94P, 50P, 29.97P, 23.98P, 25P) XAVC-I mode: 1920x1080: 1 to 180 frames (59.94P, 50P, 29.97P, 23.98P, 25P) XAVC-L mode: 3840x2160: 1 to 60 frames (59.94P, 50P, 29.97P, 23.98P, 25P) XAVC-L mode: 1920x1080: 1 to 120 frames (59.94P, 50P, 29.97P, 23.98P, 25P)
White Balance	Preset, Memory A, Memory B (1500K-5000K)/ATW
Gain	-3, 0, 3, 6, 9, 12, 18 dB, AGC
Gamma Curve	STD, HG, User, S-Log3
Input/Output	
Audio Input	XLR-type 3-pin (female) (x2), line/mic/mic +48 V selectable, Mic Reference: -40, -50, -60dBu
SDI Output	BNC (x2), switchable with 3G-SDI/HD-SDI SMpte292M/424M/425M
USB	USB device, mini-B (x1)
Headphone Output	Stereo mini-jack (x1), -16dBu 16Ω
Speaker Output	Monaural
DC Input	DC jack
Remote	Stereo mini-minijack (ø2.5 mm)
HDMI Output	Type A (x1)
Option	4-pin, Type A for WLAN (x1)
Monitoring	
Built-in LCD Monitor	8.8 cm (3.5 type), Approx. 1.56 M dots
Built-in Microphone	Omni-directional monaural electret condenser microphone.
Media	
Type	XQD Card slot (x2) SD Card slot (x1) for saving configuration data
Supplied Accessories	
Boyd Cap (1)	
Viewfinder (1)	
Eyepiece (1)	
Grasp Remote Control (1)	
USB wireless LAN module (FU-WLM3 (1))	
Wireless remote commander (1) (RMT-B45)	
WA Adaptor Bracket (1)	
MPA-AC1 AC Adapter (1)	
BC-U1 battery charger (1)	
BP-U30 battery pack (1)	
Power cord (2)	
USB cable (1)	
Operating Guide (2)	
CD-ROM "Manuals for Solid-State Memory Camcorder" (1)	

* The values for dimensions are approximate.

Accessories



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