

**SRW-9000PL**  
**SRW-9000**  
HDCAM-SR Camcorder

**SONY**  
make.believe



**HDCAM SR**™

**CineAlta**™



# **CineAlta: Driving Digital Cinematography**

CineAlta – a name that proudly symbolizes the bond between cinematography and high-resolution digital imaging, distinguishes Sony’s family of 24P acquisition products and systems.

The emergence of Sony’s CineAlta™ products marked the beginning of a new era in movie, commercial, and television production applications. Since their introduction, CineAlta products – beginning with the groundbreaking HDW-F900, Sony’s first 24P-capable HDCAM™ camcorder – have been globally accepted as a viable creative alternative to 24-frame film origination.

Working closely with the creative community over time, Sony has created CineAlta acquisition systems designed specifically to meet the cinematographer’s needs. This collaboration has led to an array of highly sophisticated digital acquisition systems offering comprehensive feature sets and workflows specifically designed to maximize on-set efficiencies, flexibility, and creative freedom.

Consequently, the name CineAlta has come to define the industry standards for quality and flexibility in 24-frame digital cinematography.





## Quality Meets Mobility, HDCAM-SR Camcorder



In 2009, Sony took an evolutionary step with the next-generation 24P camcorder, the SRW-9000 HDCAM-SR™ camcorder. It brought together the essence of the Sony F23 digital cinematography camera and the SRW-1 HDCAM-SR recorder in a single, one-piece camcorder.

Now Sony introduces the newest member of its HDCAM-SR camcorder lineup, the SRW-9000PL, which adds a 35 mm imager and PL lens mount to the SRW-9000. The SRW-9000PL allows creative depth-of-field control identical to a Super 35 mm film camera to further increase flexibility and offer users more image creation options.

In standard configuration, both the SRW-9000PL and SRW-9000 are capable of top-quality 4:2:2 Y/Cb/Cr 10-bit recording at 1080/23.98p, 24p, 25p and 29.97p, and at 1080/50i and 59.94i. In addition, these camcorders can record 1080/50p and 59.94p\* signals making them ideal for DTV programming and transmission applications. For users who require further creative performance, a variety of option cards can be added, allowing the benefits of full-bandwidth 1080 RGB 4:4:4 capturing, SR Motion™ variable frame rate recording, S-Log Gamma, and additional signal inputs and outputs.

Providing enhanced operational flexibility and cost benefits, the SRW-9000PL and SRW-9000 are the perfect choice for anyone seeking HDCAM-SR picture quality and a high level of creative freedom. Both now and into the future, these camcorders will help ignite a passion for stunning visual productions in digital cinema, commercial programs, TV dramas, and documentaries.

\* The SRW-9000 supports both 1080/59.94p and 1080/50p recording while the SRW-9000PL supports 1080/50p recording.

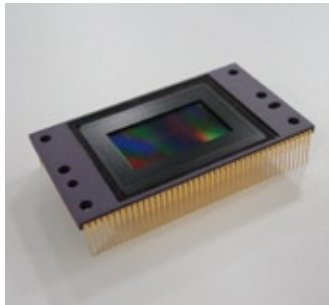
# State-of-the-art CCD Technology

## SRW-9000PL

### Super 35 mm-sized CCD

The SRW-9000PL is equipped with the same 12 megapixel Super 35 mm-sized CCD sensor as Sony's acclaimed F35 digital cinematography camera that yields a full HD resolution of 1920 x 1080 picture at frame rates up to 50 progressive frames per second.

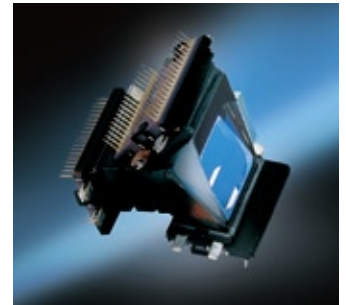
The single sensor CCD uses a RGB striped filter providing a true RGB 4:4:4 sample off the imager, and color values are never interpolated from neighboring pixels. The result is exceptional image quality, a wide dynamic range, and extremely flexible depth-of-field control.



## SRW-9000

### Three 2/3-inch Type Progressive CCDs

The SRW-9000 incorporates the same three 2/3-inch type progressive CCD sensors used on the F23 digital cinematography camera. The image sensors deliver the full HD resolution of 1920 x 1080 pixels at frame rates up to 60 progressive frames per second.



## PL Lens Mount

The SRW-9000PL employs a PL lens mount, which is standard for film cameras, allowing a number of prime and zoom lenses for 35 mm film cameras to be used. This greatly broadens the choice of lenses for a wider spectrum of creative expression.



## B4 Lens Mount

The SRW-9000 is equipped with a B4 lens-mount system, allowing the camcorder to wear widely used 2/3-inch HD lenses. This reins in a typical extra cost for most HD camera users.



## HDCAM-SR Format Recording Creates Visually Lossless Images: The MPEG-4 SStP Simple Studio Profile

The HDCAM-SR recording format – MPEG-4 SStP Simple Studio Profile – is Sony’s well-proven technology which has been widely used in high-end content creation, such as film making, and primetime TV drama. In addition, the HDCAM-SR format has been chosen as the preferred program delivery format by many broadcasters worldwide.

In order to achieve maximum compression efficiency, the HDCAM-SR format uses intra-frame compression for progressive images and intra-field compression for interlaced images with amazingly high data rates of 440 Mbps as standard and a double-data rate of 880 Mbps.

Furthermore, higher quality recordings, such as 1080/50p, 59.94p, and RGB 4:4:4 recording, can be achieved with the MPEG-4 SStP Simple Studio Profile.



## Full-bandwidth RGB 4:4:4 Digital Image Capturing

With the addition of the optional HKSR-9003 RGB 4:4:4 Processing Board, the SRW-9000PL and SRW-9000 offer full-bandwidth digital 4:4:4 high-definition Red, Green, and Blue signal processing and output capabilities. These camcorders also deliver 4:4:4 High Quality (HQ) mode and 4:4:4 Standard Quality (SQ) mode, enabling 880 Mbps 4:4:4 RGB recording and 440 Mbps 4:4:4 RGB recording respectively for highly demanding picture productions. And to enable users to adjust images flexibly in the post-production process, the SRW-9000PL and SRW-9000 also offer S-Log Gamma with the same optional board.

### SRW-9000PL & SRW-9000 Supported Recording Signal Formats

System Format		Recording Mode	Option
Signal Format	Frame Rate		
1080	4:2:2	Double-data-rate (880 Mbps)	-
		Standard (440 Mbps)	-
	4:4:4 HQ	Double-data-rate (880 Mbps)	HKSR-9003
	4:4:4 SQ	Standard (440 Mbps)	HKSR-9003

\*SRW-9000 only.

## SR Motion Variable Frame Rate Image Capturing

By adding the HKSR-9002 Picture Cache Board, the SRW-9000 is capable of recording images at a variable frame rate from 1 fps to 60 fps in 4:2:2 mode, while the SRW-9000PL can record images from 1 fps to 50 fps in 4:2:2 mode. And by combining the HKSR-9002 with the HKSR-9003, the SRW-9000PL and SRW-9000 can perform the same function even in 4:4:4 mode.

### SRW-9000PL & SRW-9000 Select FPS

Signal Format	Recording Frame Rate	Option
1080	SRW-9000: 1 to 60 fps, 1 frame increments SRW-9000PL: 1 to 50 fps, 1 frame increments	HKSR-9002
	1 to 30 fps, 1 frame increments	HKSR-9002 and HKSR-9003
	SRW-9000: 1 to 60 fps, 1 frame increments SRW-9000PL: 1 to 50 fps, 1 frame increments	HKSR-9002 and HKSR-9003



#### Shooting Example of SR Motion

These camcorders can create an intentional blur image in a quick motion.

## Long Recording Time on a Single Cassette

Utilizing the technologically advanced HDCAM-SR format’s high-density recording capability and compression technology, the SRW-9000PL and SRW-9000 are capable of recording up to 50 minutes at 1080/24PsF and up to 40 minutes at 1080/59.94i.



## Versatile Gamma Settings

### S-Log Gamma

A feature of the optional HKSR-9003 RGB 4:4:4 Processing Board, S-Log Gamma, maintains the full dynamic range of the CCD. The setting is similar to the tonal response of a film negative, so that users can retain full flexibility in color correction and a seamless workflow with post-production facilities geared toward log-encoded material.

### ISO800 Mode Gamma (SRW-9000PL)

The SRW-9000PL offers the ISO800 mode gamma curve that provides appropriate contrast and a dynamic range up to 800% while allowing the user to shoot with sensitivity comparable to ISO800.

### HyperGamma

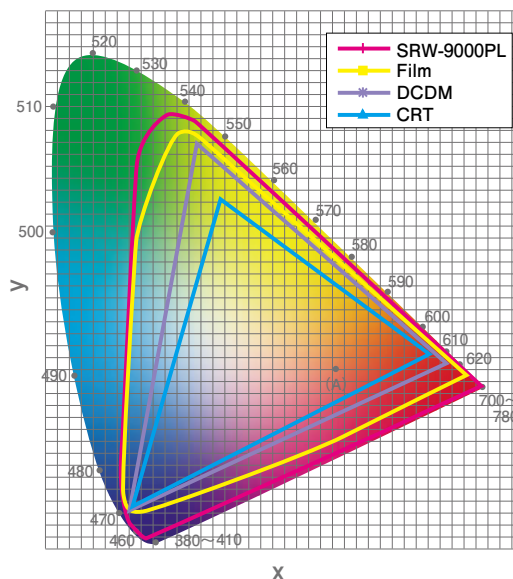
HyperGamma is another powerful gamma feature. The user can select the best-suited preset gamma curve depending on the scene and their desired 'look' for the image. The SRW-9000PL and SRW-9000 inherit these powerful HyperGamma settings from Sony's CineAlta cameras and camcorders, which are widely used in cinema and drama productions. Additionally, these camcorders can use new settings that are tailored to the advanced characteristics of the SRW-9000PL and SRW-9000.

### Customizable Gamma

The SRW-9000PL and SRW-9000 allow users to customize gamma curves with CvpFileEditor™ software for Windows PCs and Mac. An easy GUI enables users to change the shape of the gamma curve, and then users can load the curve into the camera via Memory Stick PRO™ media.

## Wide Color Space: S-Gamut (SRW-9000PL)

The SRW-9000PL incorporates the same optical head block, 3D LUT (lookup table), and proprietary color management system of the F35. This allows the camcorder to capture images with a wide color gamut called S-Gamut that exceeds that of film, providing cinematographers with greater color-correction capabilities during the post-production process.



## Wide Choice of Viewfinders

The SRW-9000PL and SRW-9000 accept three types of viewfinder, including the HDVF-20A/200, HDVF-C35W, and HDVF-C30WR. The HDVF-C30WR is especially suited for use with the SRW-9000PL and SRW-9000, offering improved focus-assist functions, a color brightness level indicator, and numerous other beneficial features.



## HD-SDI MON1 /MON2 Outputs

The SRW-9000PL and SRW-9000 are equipped with two HD-SDI monitor outputs. This offers great convenience, enabling multiple people to monitor shootings with connected HD monitors such as the PVM-740.

## On-board Battery Operation

In addition to DC power from external sources, the SRW-9000PL and SRW-9000 can be driven from Sony's optional on-board battery, which mounts directly to the camcorder.



## Optional Assistant Panel

An optional AP-1 remote controller is equipped with buttons and indicator layout that are identical to the on-camera control panel. It provides intuitive remote control of basic camera and VTR operations, including changing frame rates, shutter angle, and gain.



## Built-in 2-3 Pull-down, Down-conversion Output

The SRW-9000PL and SRW-9000 provide down-converted standard-definition (SD) analog composite signal output with 2-3 pull-down capability. This makes it possible to monitor camera or recording using a conventional SD monitor.



## SRW-9000PL & SRW-9000 Signal Output Format

System Format		HD-SDI Monitor	Test (VBS)	Dual-link HD-SDI (Requires HKSR-9001)	3G-SDI (Requires HKSR-9001)	
Signal Format	Frame Rate					
1080	4:2:2	23.98PsF	1080/4:2:2/23.98PsF	525/59.94i	1080/4:2:2/23.98PsF*1	1080/4:2:2/23.98PsF*1
		24PsF	1080/4:2:2/24PsF	625/50i	1080/4:2:2/24PsF*1	1080/4:2:2/24PsF*1
		25PsF	1080/4:2:2/25PsF	625/50i	1080/4:2:2/25PsF*1	1080/4:2:2/25PsF*1
		29.97PsF	1080/4:2:2/29.97PsF	525/59.94i	1080/4:2:2/29.97PsF*1	1080/4:2:2/29.97PsF*1
		50i	1080/4:2:2/50i	625/50i	1080/4:2:2/50i*1	1080/4:2:2/50i*1
		59.94i	1080/4:2:2/59.94i	525/59.94i	1080/4:2:2/59.94i*1	1080/4:2:2/59.94i*1
1080	4:4:4 SQ*3 4:4:4 HQ*3	50p	1080/4:2:2/50p	625/50i	1080/4:2:2/50p	1080/4:2:2/50p*1
		59.94p*2	1080/4:2:2/59.94p	525/59.94i	1080/4:2:2/59.94p	1080/4:2:2/59.94p*1
		23.98PsF	1080/4:4:4/23.98PsF	525/59.94i	1080/4:4:4/23.98PsF	1080/4:4:4/23.98PsF*1
		24PsF	1080/4:4:4/24PsF	625/50i	1080/4:4:4/24PsF	1080/4:4:4/24PsF*1
		25PsF	1080/4:4:4/25PsF	625/50i	1080/4:4:4/25PsF	1080/4:4:4/25PsF*1
		29.97PsF	1080/4:4:4/29.97PsF	525/59.94i	1080/4:4:4/29.97PsF	1080/4:4:4/29.97PsF*1
1080	4:4:4 SQ*3 4:4:4 HQ*3	50i	1080/4:2:2/50i	625/50i	1080/4:4:4/50i	1080/4:4:4/50i*1
		59.94i	1080/4:2:2/59.94i	525/59.94i	1080/4:4:4/59.94i	1080/4:4:4/59.94i*1

\*1 HD-SDI OUT A and B output the same signal.  
\*2 SRW-9000 only  
\*3 Requires optional HKSR-9003 board.

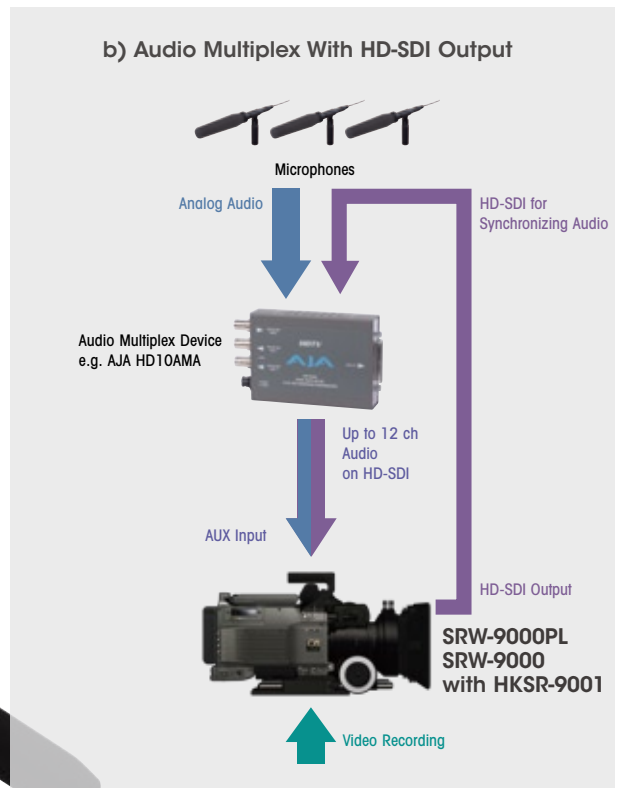
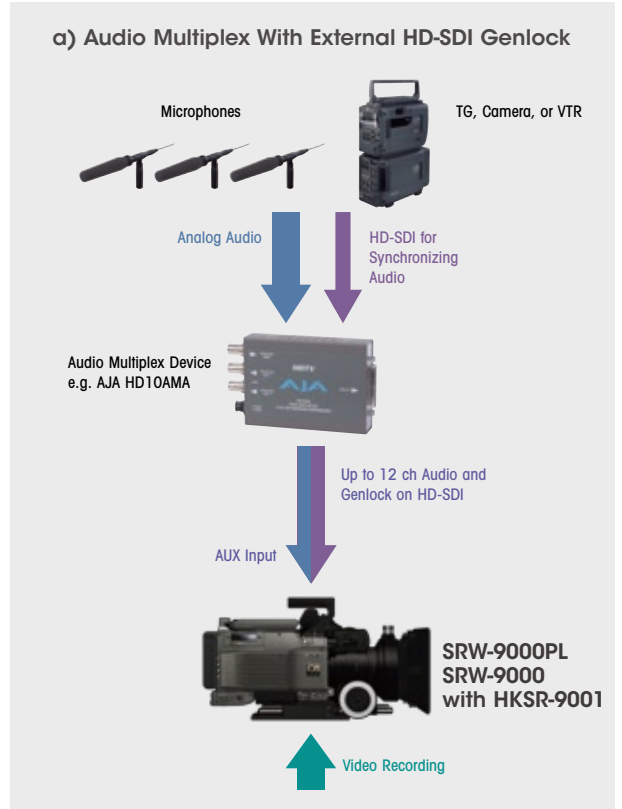


## Dual-link HD-SDI and 3G-SDI Output

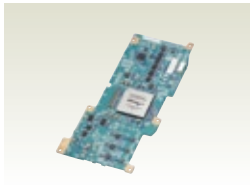
The HKSR-9001 HD-SDI Expansion Board provides dual-link HD-SDI output and 3G-SDI (2.97 Gbps) output. Dual-link HD-SDI enables these camcorders to output signals beyond the capability of 1.5G single-link HD-SDI. These signals include 1080/4:2:2/50p and 59.94p, and 1080/4:4:4. With the 3G-SDI, these signals can also be output over a single BNC cable. These camcorders' RGB 4:4:4 output capability allows users to monitor materials in RGB full resolution, instantly on site. Users can select either dual-link HD-SDI, or 3G-SDI via the menu.

## AUX Input

The HKSR-9001 HD-SDI Expansion Board adds an AUX input capability. The AUX input works as an HD-SDI audio input. This provides users with an outstanding audio multiplexing capability of up to 12 channels, in conjunction with third-party audio multiplexing devices.



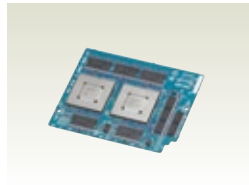
## Optional Accessories



**HKSR-9001**  
HD-SDI Expansion Board



**HKSR-9002**  
Picture Cache Board



**HKSR-9003**  
RGB4:4:4 Processor Board



**HKSR-9004**  
Filter Servo Unit  
(for SRW-9000)



**AP-1**  
Assistant Panel



**HDVF-C30WR**  
2.7-inch\*1 LCD  
Color Viewfinder



**HDVF-C35W**  
3.5-inch\*1 LCD  
Color Viewfinder



**HDVF-20A/200**  
2.0-inch\*1 CRT Viewfinder  
(Photo shows HDVF-20A)



**RM-B750**  
Remote Control Unit



**RM-B150**  
Remote Control Unit



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



**BC-L160**  
Battery Charger



**BC-L70**  
Battery Charger



**AC-DN10/DN2B**  
AC Adaptor  
(Photo shows AC-DN10)



**VCT-14**  
Tripod Adaptor



**ECM-678/674**  
Shotgun-type Electret  
Condenser Microphone  
(Photo shows ECM-678)



**CAC-12**  
Mic Holder



**WRR-861B/862B\*2**  
Wireless Microphone Receiver  
(Photo shows WRR-862B)



**PVM-740**  
7.4-inch\*1 OLED Professional  
Video Monitor



**BCT-6SR/33SR/40SR**  
HDCAM-SR Videocassette  
Tapes

\*1 Viewable area measured diagonally. \*2 Requires optional mounting bracket (A-8278-057-B).

## Optional Accessories From Other Manufacturers

### ARRI



**BP-8**  
Bridge Plate



**MB-20**  
Matte Box

### AJA



**HD10AMA**  
HD/SD 4-Ch Analog  
Embedder/Disembedder

### Convergent Design



**nanoFlash**

## Lenses for SRW-9000PL

### Carl Zeiss



Master Prime Lenses



Ultra Prime Lenses



Light Weight Zoom  
LWZ-1

### Cooke



S4/i Prime Lenses



5/i Prime Lenses

### Angenieux



Optimo 15-40 mm



Optimo 17-80 mm



Optimo 28-76 mm



Optimo 24-290 mm

### Fujinon



HK3.1x14.5



HK4.7x18



HK7.5x24



HK5.3x75

## Lenses for SRW-9000

### Carl Zeiss



DigiPrime Lenses



DigiZoom Lenses



Sharpmax

### Canon



HD-EC Prime Lens  
FJs Series



HD-EC Zoom Lens  
HJ21x7.58B KLL-SC



HD-EC Zoom Lens  
HJ11x4.7B KLL-SC



HD-EC Zoom Lens  
HJ8x5.5 KLL-SC

### Fujinon



HD CINE SUPER  
Zoom/Prime Lenses



HD CINE COMPACT C LENS  
HAc 13x4.5



HD CINE COMPACT C LENS  
HAc 15x7.3



HD CINE COMPACT C LENS  
HAc 18x7.6

For details, please contact each manufacturer.

# Specifications

	SRW-9000	SRW-9000PL
<b>General</b>		
Dimensions	148 x 211 x 330 mm (5 7/8 x 8 3/8 x 13 inches) (without handle and protruding parts)	
Mass	Approx. 6.5 kg (14 lb 5 oz)	Approx. 6.9 kg (15 lb 3 oz)
Power requirements	DC 12 V +5.0V/-1.0V	
Power consumption	Approx. 57 W (while recording, w/o options, power save mode)	Approx. 60 W (while recording, w/o options, power save mode)
Operating temperature	0 °C to +40 °C (+32 °F to +104 °F)	
Storage temperature	-20 °C to +60 °C (-4 °F to +140 °F)	
Recording format	Video: HDCAM-SR 440 Mbps, HDCAM-SR 880 Mbps Color space: 4:2:2, 4:4:4SQ (with HKSR-9003), 4:4:4HQ (with HKSR-9003) Audio: 12 ch/24 bit/48 kHz	
Recording/Playback time	HDCAM-SR 440 Mbps: 4:2:2, 4:4:4SQ: 40 min (30p), 50 min (24p) HDCAM-SR 880 Mbps: 4:4:4HQ: 20 min (30p), 25 min (24p), 4:2:2, 4:4:4SQ: 20 min (60p), 24 min (50P)	HDCAM-SR 440 Mbps: 4:2:2, 4:4:4SQ: 40 min (30p), 50 min (24p) HDCAM-SR 880 Mbps: 4:4:4HQ: 20 min (30p), 25 min (24p), 4:2:2, 4:4:4SQ: 24 min (50P)
SR Motion variable frame rate recording	Selectable from 1 to 60 frame/sec as recording frame rate (with HKSR-9002)	Selectable from 1 to 50 frame/sec as recording frame rate (with HKSR-9002)
Recommended tape	BCT-6SR, BCT-33SR, BCT-40SR	
<b>Inputs/Outputs</b>		
GENLOCK IN	BNC (x1), 0.6 Vp-p, 75 Ω	
TC IN	BNC (x1), 0.5 to 18 Vp-p, 10 Ω	
AUDIO IN	CH-1/CH-2: XLR-type 3-pin (female) (x2), Line/Mic/Mic +48 V selectable	
AUX IN (optional)	BNC (x1, with HKSR-9001), SMPTE-292M (12-channel embedded audio)	
TEST OUT	BNC (x1, switchable), HD Y/SD composite (character on/off)	
HD-SDI MON1, MON2	BNC (x2), HD-SDI: SMPTE 292M (with embedded audio, timecode, character on/off)	
HD-SDI OUT A/B (optional)	BNC (x2, with HKSR-9001) HD-SDI 1.5G Single Link: SMPTE 292M (embedded audio, timecode) HD-SDI 1.5G Dual Link: SMPTE 372M (embedded audio, timecode) HD-SDI 3G Single Link: SMPTE 424M (embedded audio, timecode)	
TC OUT	BNC (x1), 1.0 vp-p, 75 Ω	
EARPHONE	Mini-jack (stereo)	
DC IN	XLR-type 4-pin (male) (x1), 11 to 17 V DC	
DC OUT	4-pin (x1), (for wireless microphone receiver), 11 to 17 V DC (Max. 0.5 A)	
LENS	12-pin (x1)	
REMOTE	8-pin (x1)	
EXT I/O	5-pin (x1), camera control (RS-232C)	
CTRL (CAM)	(x1), for assistant panel (AP-1)	
MEMORY STICK	(x2) (x1 on the camera body and x1 on the control panel)	
<b>Audio Performance</b>		
Frequency response	20 Hz to 20 kHz, +0.5 dB/-1.0 dB	
Dynamic range	More than 100 dB	
Distortion	Less than 0.05% (at 1 kHz, reference level)	
Headroom	20 dB	
<b>Camera Section</b>		
Pickup device	3-chip 2/3-inch type Progressive CCD	1-chip Super 35-mm type Progressive CCD
Effective picture elements	1920 (H) x 1080 (V)	
Optical system	F1.4 prism	
Built-in optical filters	A: 3200K, B: 4300K, C: 5600K, D: 6300K, E: ND0.3 (1/2ND) 1: Clear, 2: ND0.6 (1/4ND), 3: ND1.2 (1/16ND), 4: ND1.8 (1/64ND), 5: CAP	
Shutter angle	360.0° to 4.3°	
Lens mount	Special made rugged 2/3-inch type Sony bayonet mount (B4)	ø54-mm PL mount
Sensitivity (2000 lx, 89.9% reflectance)	T11 ISO580 (29.97PsF)	T10 ISO450 (29.97PsF; D-RANGE: EXTEND) T9 ISO 340 (29.97PsF; D-RANGE: NORMAL)
Gain selection	-6, -3, 0, 3, 6, 9, 12 dB	
Horizontal resolution	1000 TV lines (at center of screen) 5% or higher modulation	
Registration	Within 0.02% (all zones, without lens)	-
<b>Supplied Accessories</b>		
	Operation manual (x1), Lens mount cap (x1), V-shoe plate (x1), V-shoe plate attachment screws (K4x8) (x6), Cable holder (x1), Control panel cable (L) (x1)	Operation manual (x1), Lens mount cap (x1), V-shoe plate (x1), V-shoe plate attachment screws (K4x8) (x6), Cable holder (x1), Control panel cable (L) (x1), Viewfinder shoe assembly (x1), Viewfinder holding plate (A) (x1), Viewfinder holding plate (B) (x1), Conversion screw (x1), B4x8 screws for viewfinder holding plate (B) attachment (x2), M3 hex socket head bolts for viewfinder shoe attachment (x2)

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The values for mass and dimensions are approximate.

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