

SONY®



**HDCAM**™

**HDW-790P**

HD Digital Camcorder

[www.sonybiz.net/hdcam](http://www.sonybiz.net/hdcam)





The HDW-790P is supplied without a viewfinder. The camcorders within this brochure are shown with an optional HDVF-C35W HD LCD colour viewfinder fitted.



## A WORLDWIDE STANDARD FOR DIGITAL PRODUCTION NEW-GENERATION HDCAM CAMCORDER

With the number High Definition (HD) channels in Europe continuing to increase, programme makers are rushing to embrace the business opportunities presented by better-looking, more seductive pictures. Whether you're shooting quality drama, documentaries, mainstream entertainment or commercials, High Definition is guaranteed to grab any audience's attention. Aside from its vastly improved on-screen look, High Definition increases the shelf-life and international marketability of all your productions.

Since its introduction, the HDW-750P HDCAM camcorder has become the European camcorder of choice for an extensive range of High Definition productions. It has become a firm favourite for projects requiring a prestige look through its combination of exceptional picture quality and ease of use, helping establish HDCAM as the format of choice for quality conscious professionals everywhere.

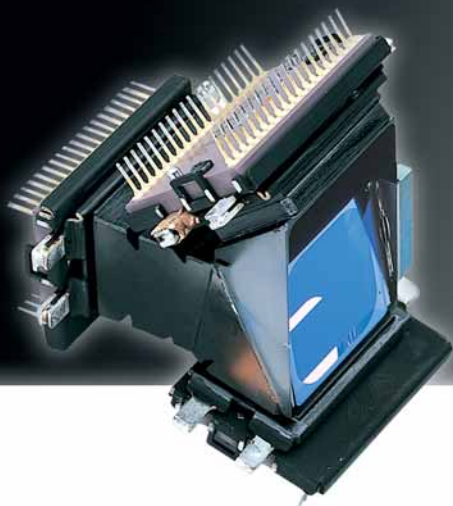
Building upon the performance and track-record of the HDW-750P, Sony has now introduced the HDW-790P HDCAM camcorder. This new camcorder has been designed with operation and performance based upon the HDW-750P, and with some powerful new features added from Sony's top-end CineAlta HDCAM camcorder, the HDW-F900R.

The HDW-790P is 1080/25PsF and 1080/50i switchable and uses three 2/3-inch Power HAD™ FIT CCD sensors each with 2.2 million pixel (1920 x 1080) resolution. Features added from the HDW-F900R include: 12-bit A/D conversion; the four selectable HyperGamma characteristics; two HD-SDI outputs; four digital audio inputs (two AES/EBU channel pairs); and image inversion\*. A choice of colour\* or monochrome\* viewfinder completes the feature set.

The benefits of HDCAM aren't limited to productions destined for distribution in HD today. Pictures shot with the HDW-790P look better when down-converted and delivered to the home in Standard Definition than pictures acquired in 625/50. Shooting in HDCAM with the HDW-790P thus ensures your content commands a premium today and tomorrow.

With HDCAM there's no need to compromise your personal vision. At a price that's firmly within reach of Standard Definition production budgets, the Sony HDW-790P is accessible to anyone who's passionate about making great-looking programmes.

\* An optional plug-in board is required for image inversion. The HDW-790P is supplied without a viewfinder. An optional HDVF-20A monochrome or HDVF-C35W colour viewfinder can be used.



## EXCEPTIONAL **PERFORMANCE**

### CHOICE OF TWO MODELS

The HDW-790\* Series of HDCAM camcorders has two versions – the HDW-790 and the HDW-790P.

The HDW-790 records in 1080/59.94i and 1080/50i interlace modes, and has been designed for users in both 60Hz and 50Hz regions.

The HDW-790P can shoot in interlace and progressive mode in 1080/50i and 1080/25PsF.

\* In the following text, HDW-790P refers to both the HDW-790P (1080/50i, 25PsF) and the HDW-790 (1080/59.94i, 50i).

### POWER HAD CCD

The HDW-790P uses Power HAD™ CCDs incorporating the latest FIT sensor and on-chip lens structure. The 2/3-inch 2.2 million pixel sensors have a dramatically improved light collecting capability, and are based upon the 1920 x 1080 CIF (Common Interchange Format). Outstanding sensitivity of F10 at 2000 Lux enables the capture of images in extremely low lighting conditions. Signal-to-noise ratio is 54dB\* and vertical smear is -135dB\*. The Power HAD™ sensors also provide a wide dynamic range of 600% in interlace mode and 460% in progressive mode\*\*, allowing users to capture high-contrast scenes.

\* Typical values

\*\* Progressive mode is only available with the HDW-790P.

### 12-BIT A/D CONVERSION AND ADVANCED DIGITAL SIGNAL PROCESSING (ADSP)

The HDW-790P incorporates high-integrity 12-bit A/D converters, which allow high-quality images captured by the Power HAD CCDs to be processed with great precision. This high-resolution A/D conversion faithfully reproduces the contrast of both mid-to-dark tones and bright areas of the image. The images are then processed by powerful, high-speed, Advanced Digital Signal Processing (ADSP) which provides sophisticated image controls such as the TruEye™ process, multi-matrix correction and adaptive highlight control (also known as knee aperture) for producing in-camera effects.

### SUPERB HDCAM PICTURE QUALITY

No other HD format has the reputation and track-record of HDCAM. The HDW-790P produces spectacular pictures through the use of intelligent HDCAM data compression. The recorded video data rate is 140Mb/s, which yields great picture quality. It is also comfortably within the recording capability of HDCAM 1/2-inch tape media, guaranteeing robustness and reliability for the most demanding shooting conditions.



## HIGH-QUALITY AUDIO RECORDINGS

The HDW-790P records and replays four channels of high quality 20bit/48kHz digital audio.

The input for each audio channel can be selected from the front microphone or additional wired or wireless microphones.

## LONG RECORDING TIME ON A SINGLE CASSETTE

Utilising the HDCAM format's high-density recording capability and compression technology, the HDW-790P provides a maximum of 40 minutes of recording in 1080/59.94i mode, 48 minutes in 1080/50i and 1080/25PsF\* mode on a single S-sized cassette.

\*1080/25PsF mode is only available with the HDW-790P.



# FAMILIAR DESIGN & OPERATION

## ERGONOMICS

### Compact and Lightweight Design

The HDW-790P camcorder is compact, lightweight and ergonomically well balanced, providing a high level of mobility and comfort in various shooting situations. It weighs approximately 5.4 kg (11 lb 14 oz) including viewfinder, microphone, BCT-40HD Tape and BP-GL95 Battery.

### Intuitive Controls

Sony has many years experience in the design of professional camcorders for use in the most demanding shooting conditions. Like previous generations of camcorders, the switches, meters and indicators of the HDW-790P are logically arranged for easy operation.

### Camera Remote Control

The HDW-790P's camera settings and basic VTR functions can be remotely controlled using an optional RM-B150 or RM-B750 Remote Control Unit via its 8-pin remote connector.

### 1 Adjustable Shoulder Pad

The position of the HDW-790P shoulder pad can be adjusted either forwards or backwards without using a screwdriver. Operators can attain a comfortable and well-balanced camcorder position, even when the camcorder is docked with a range of lenses.

### 5 Dual Optical Filters Plus Electronic Colour Correction

The HDW-790P comes equipped with dual optical filters for Colour Correction (CC) and Neutral Density (ND) for flexible colour and exposure control. In addition, the camcorder is equipped with an electronic Colour Correction function, which gives operators the choice of correcting colour temperature optically or electronically.



## WIDE VARIETY OF INTERFACES

### 2 3 Dual HD-SDI Outputs

The HDW-790P can output two HD-SDI signals simultaneously. This allows more of the production crew to monitor pictures on HD monitors, and HD outputs from the camcorder can be fed to additional HD equipment.

### 2 Down-conversion Output\*

When an optional HKDW-702 Down Converter Board is installed, down-converted Standard Definition (SD) pictures with four-channels of embedded audio can be output from the HDW-790P. Pictures can be viewed using a conventional SD monitor. SD-SDI or analogue composite output can be selected via the setup menu.

\*An optional HKDW-702 Down Converter Board is required.

### 4 Versatile Audio Interfaces

The HDW-790P is equipped with a range of audio interfaces: an analogue 5-pin XLR connector for stereo audio output, two 3-pin XLR connectors with selectable MIC/Line level input and the front microphone input. The two 3-pin XLR connectors can also be switched to accept four channels of AES/EBU digital audio input (two AES/EBU channel pairs).

## 6 Turbo Gain

The built-in Turbo Gain function can boost camera gain by up to +42 dB.

## 7 Assignable Button

Frequently used features can be assigned to these controls, allowing the operator to make rapid changes when working in the field.



## 8 Slot for WRR-855B Wireless Microphone Receiver

An optional Sony Wireless Microphone Receiver, the WRR-855B, slots directly into the camcorder body. Cable connection is not required.

## 9 Microphone Volume Protection

A protection cover, located under the volume control of the HDW-790P front microphone, helps prevent operators from accidentally changing the volume.



## 1 Adjustable Shoulder Pad



## 10 Memory Stick System for Storage of Camcorder Setup Parameters

The HDW-790P can save and recall setup parameters such as scene files, reference files and lens files via Memory Stick™ media\*. This allows users to effectively manage camera parameters for individual scenes, and to exchange preferred set-ups between camcorders.

\* The MSH-128/64/32 is the only "Memory Stick" media that has been operationally tested with this product. (The MSH-64/32 is no longer available.)



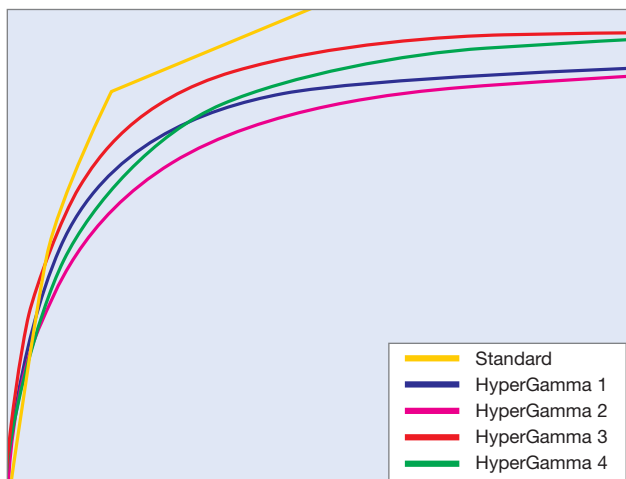


## CREATIVE **VERSATILITY**

### SELECTABLE GAMMA CURVES – HYPERGAMMA

The HDW-790P offers precise control of gamma for flexible handling of contrast, to give a specific 'look' to an image.

HyperGamma is a sophisticated gamma function that makes maximum use of the wide dynamic range of the Power HAD CCD. The HDW-790P has four types of HyperGamma curve: HyperGamma 1, 2, 3, and 4 – which are identical to those of the HDW-F900R CineAlta™ Camcorder. Operators can select the best-suited preset gamma curve, depending on the scene being shot. HyperGamma 1 and 3 enhance natural tonal reproduction in low-key areas, while HyperGamma 2 and 4 are suitable for scenes with wide dynamic range. In addition to HyperGamma, the HDW-790P also provides four types of standard gamma curves.



### LOW-LIGHT SHOOTING WITH SLOW SHUTTER FUNCTION\*

The HDW-790P offers a Slow Shutter function for capturing clear images in low-light environments. By installing an optional HKDW-905R Slow Shutter/Image Inverter Board, the shutter speed can be extended to a maximum 64 frames. This not only increases camera sensitivity but also allows the creative use of motion blur when shooting a moving object. The shutter speed is selectable from 1-, 2-, 3-, 4-, 5-, 6-, 7-, 8-, 16-, 32-, and 64-frame periods.

\*An optional HKDW-905R Slow Shutter Image Inverter Board is required. The Slow Shutter function and the Image-inversion function cannot be used simultaneously.

### STOP MOTION AND TIME-LAPSE

With an HKDW-703 Picture Cache Board installed, frame-by-frame recording is added to the HDW-790P for recording stop motion and time lapse effects in camera. This brings new and creative opportunities for both animation and model shooting.

### PICTURE CACHE RECORDING\*

Picture Cache Recording provides up to eight seconds of loop recording using solid state memory. When the camcorder is in Standby mode, and the REC start button is pressed, everything that happened up to eight seconds before that moment can be recorded to tape. Valuable shots, which would otherwise have been missed, can be captured.

\* An optional HKDW-703 Picture Cache Board is required.

# CREATIVE **VERSATILITY**

## TRUEYE™ SECTION

The TruEye processor of the HDW-790P is one of the most innovative features of Sony digital signal processing technology. This feature makes it possible to virtually eliminate hue distortion, particularly obvious in high-light conditions that result from conventional RGB analogue or digital processing. By processing the video signal data at three levels – brightness, hue and saturation – similar to how the human eye works, the TruEye feature assists in the reproduction of natural skin tones.

## MULTI-MATRIX FUNCTION

The Multi-Matrix function of the HDW-790P enables colour adjustments to be applied over a colour and/or hue range as specified by the operator. The colour spectrum is divided into 16 areas of adjustment, where the hue and/or saturation of each area can be adjusted. This provides interesting in-camera colour effects – similar to secondary colour correction.

## VARIABLE BLACK GAMMA

The Variable Black Gamma function of the HDW-790P allows for fine adjustment of tonal reproduction in the shadow area. This feature can help to bring out details from the dark parts of a picture, without affecting mid-tones, while maintaining the absolute black level. It is particularly helpful for dark scenes when the black has to stay black, but there is a requirement to pull out more detail.

## OTHER FEATURES OF THE HDW-790P

- > Image Inversion (with optional HKDW-905R Slow Shutter/Image Inverter Board): allows the use of a variety of image-inverting lenses, anamorphic lens adaptors and cinema lenses with 2/3-inch adaptors.
- > Freeze Mix (with optional HKDW-905R Slow Shutter/Image Inverter Board): superimposes a previously recorded image in the viewfinder. This allows the operator to quickly frame or reposition a subject when a shot must be taken from the same position as a previous take.
- > Auto Trace White (ATW) is a feature that automatically adjusts the white balance as lighting conditions change. This is ideal when shooting in rapidly changing lighting conditions (for example, when moving from an indoor to an outdoor location). Conventional Auto White Balance is also available.
- > Metadata recording: UMID, Extended UMID and Shot Marks allow rapid cue-up to recorded material, and efficient management of archived material.
- > Both the HDW-790P and the HDW-F900R are compatible with a wide variety of film-style accessories.



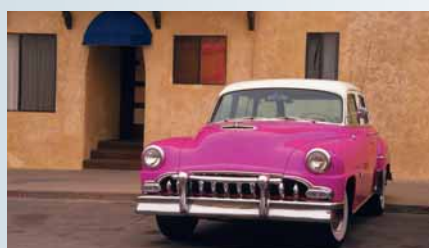
Conventional Camcorder



TruEye



Multi-Matrix OFF



Multi-Matrix ON



Standard Gamma

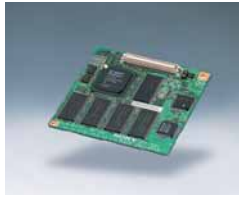


Black Gamma ON

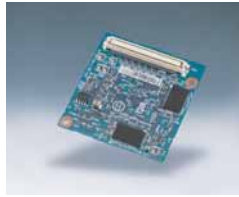
# OPTIONAL ACCESSORIES



**HKDW-702**  
Down Converter Board



**HKDW-703**  
Picture Cache Board



**HKDW-905R**  
Slow Shutter/Image Inverter Board



**HDVF-C35W**  
3.5-inch\* LCD Colour Viewfinder  
\* Viewable area measured diagonally



**HDVF-20A**  
2.0-inch\* CRT B/W Viewfinder  
\* Viewable area measured diagonally



**BKW-401**  
Viewfinder Rotation Bracket



**VCT-14**  
Tripod Adaptor



**RM-B750**  
Remote Control Unit



**RM-B150**  
Remote Control Unit



**BP-GL95/GL65**  
Lithium-ion Rechargeable Battery



**BP-L80S/L60S**  
Lithium-ion Rechargeable Battery



**BC-L500**  
Battery Charger



**BC-L70**  
Battery Charger



**BC-M150**  
Battery Charger



**AC-DN10**  
AC Adaptor



**ECM-680S**  
Stereo Shotgun-type Electret Condenser Microphone



**ECM-678/674\***  
Shotgun-type Electret Condenser Microphone  
\* Requires K-1502 3-pin to 5-pin Conversion Cable.



**CAC-12**  
Microphone Holder



**WRR-855B**  
Wireless Microphone Receiver



**WRR-862B**  
Dual Diversity Wireless Microphone Receiver  
\* Requires optional mounting bracket (A-8278-057-A).



**BCT-6HD/12HD/22HD/32HD/40HD**  
HDCAM S Cassette



**MSH-128**  
Memory Stick Media



**LC-DN7**  
Hard Carrying Case

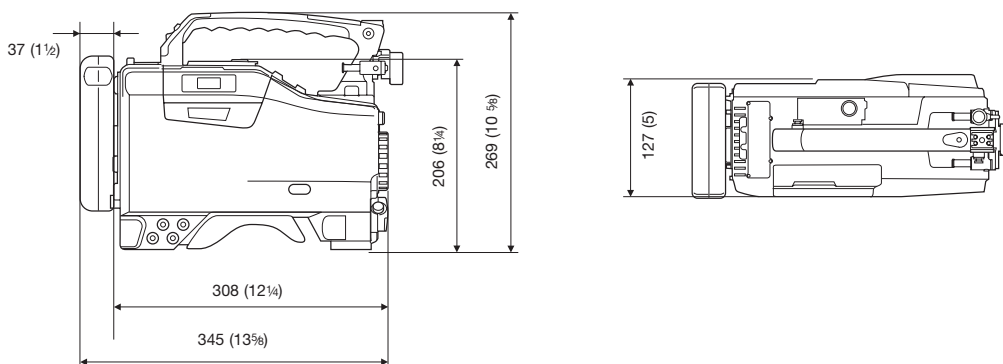


**LC-DS300SFT**  
Soft Carrying Case

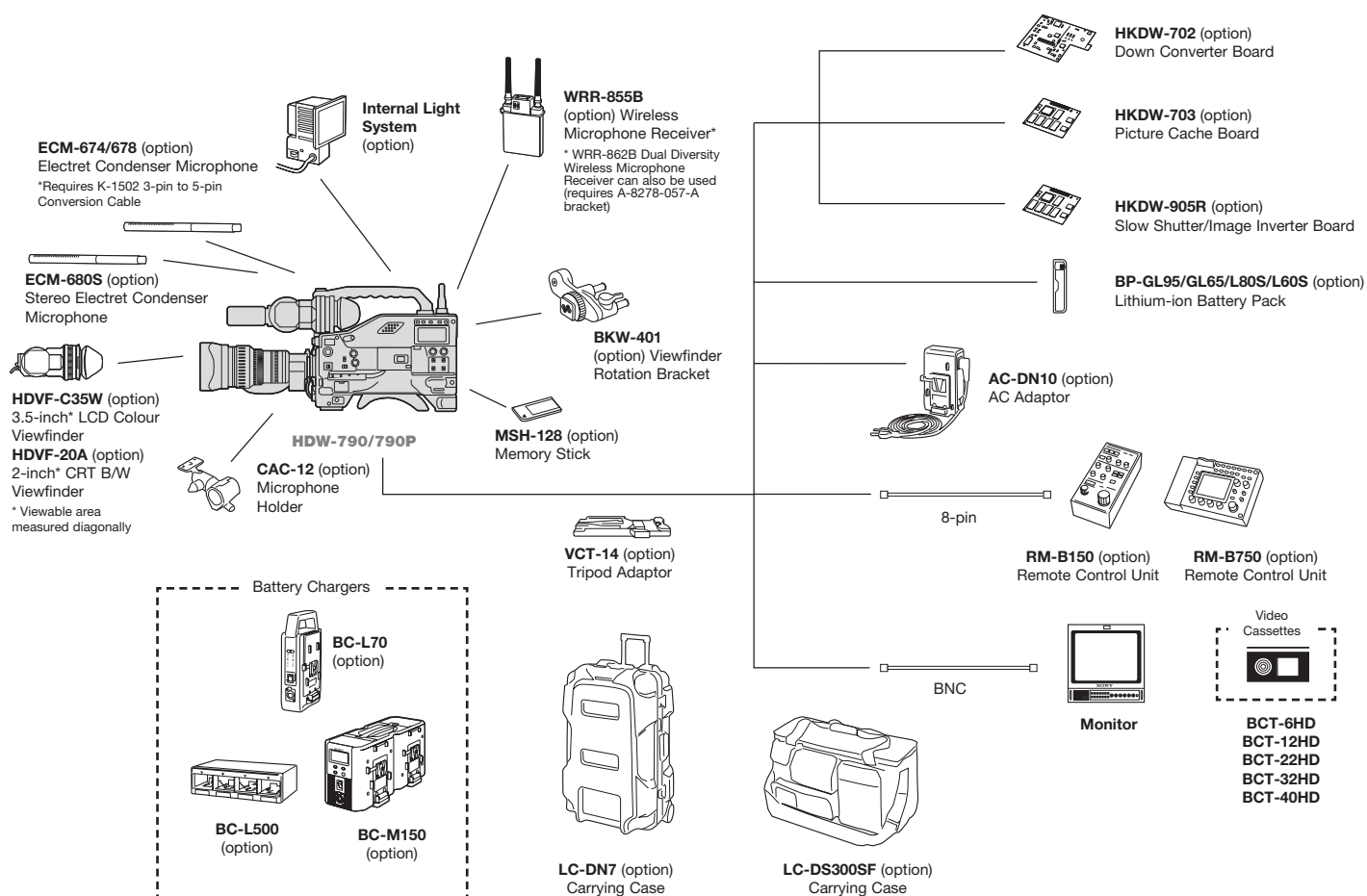
# Specifications

<b>GENERAL</b>	<b>HDW-790P</b>
Mass	5.4 kg (11 lb 14 oz) with typical ENG lens, BCT-40HD cassette, viewfinder, microphone and BP-GL95 battery
Power requirement	DC 12 V (+5.0 V/-1.0 V)
Power consumption	Approx. 34 W (With 12 V power supply, REC 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)
Operating humidity	25 % to 85 % (Relative humidity)
Continuous operating time	110 min (With BP-GL95)
<b>INPUTS/OUTPUTS</b>	
Genlock video input	BNC (1), 1.0 Vp-p 75 Ω , unbalanced
Time code input	BNC (1), 0.5 V to 18 Vp-p, 10 kΩ
Audio CH1/CH2 input	XLR-3-pin type (Female) (2), -60 dBu/-50 dBu/-40 dBu/+4 dBu/AES/EBU (0 dBu=0.775 Vrms.)
MIC input	XLR-5-pin type (Female) (1), -60 dBu/-50 dBu/-40 dBu (LPF ON)
Test output	BNC (1), 1.0 Vp-p, 75 Ω , unbalanced
HD-SDI output	BNC (2), 0.8 Vp-p, 75 Ω , unbalanced
Audio output	XLR-5-pin type (Male) (1), 0 dBm
Time code output	BNC (1), 1.0 Vp-p, 75 Ω
Earphone	Mini-jack (1), 8 Ω , -∞ to -18 dBs variable
DC input	XLR-4-pin type (Male) (1), 11 to 17 V DC
DC output	4-pin (Female) (1), 11 to 17 V DC, Max. 100 mA
Lens	12-pin
Remote	8-pin
<b>VTR SECTION</b>	
Recording format	HDCAM
Tape speed	80.7 mm/s (for 1080/50i, 25PsF)
Playback/Recording time	48 min. (for 1080/50i, 25PsF) with BCT-40HD
Fast forward/rewind time	5 min with BCT-40HD
Recommended tape	Sony BCT-6HD/12HD/22HD/32HD/40HD
Sampling frequency	Y: 74.25 MHz, P <sub>e</sub> /P <sub>r</sub> : 37.125 MHz
Quantisation	10-bit/sample of input-output signals (8-bit/sample for internal compression process)
Error correction	Reed-Solomon code
Error concealment	Adaptive three dimensional
<b>AUDIO PERFORMANCE</b> (Playback with standard HDCAM Deck)	
Frequency response	20 Hz to 20 kHz, +0.5 dB/-0.8 dB
Dynamic range	More than 85 dB (Emphasis ON)
Distortion	0.08 % Max.
Cross talk	-70 dB Max.
Wow & flutter	Below measurable limit
<b>CAMERA SECTION</b>	
Pickup device	3-chip 2/3-type CCD
Effective picture elements (H x V)	1920 x 1080
Optical system	F1.4 prism system
Sensitivity	F10.0 at 2000 lux, 89.9 % reflective
Minimum illumination	0.0024 lx (F1.4 lens, +42 dB gain, with 64-frame accumulation)
Smear level	-135 dB (typical)
Video S/N ratio	54 dB (typical)
Built-in filters	A: Cross B: 3200 K C: 4300 K D: 6300 K 1: Clear 2: 1/4 ND 3: 1/16 ND 4: 1/64 ND
Shutter speed	1080/50i mode: 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 (s) 1080/25PsF mode: 1/33, 1/50, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 (s)
Clear scan	1080/50i mode: 25.00 to 4700 Hz 1080/25PsF mode: 25.00 to 2100 Hz
Lens mount	Special bayonet mount
<b>SUPPLIED ACCESSORIES</b>	Operation manual (1), Shoulder strap (1), XLR connector cover (4), Stereo microphone (1)

## Dimensions unit: mm (inches)



# SYSTEM CONFIGURATION



## SERVICES FROM SONY

Recognising that every company and every challenge is unique, we offer a complete and comprehensive range of services all the way through consulting, planning, financing, implementation, training, servicing, maintenance and support. Choose exactly what's right for you, when and where you need it.

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- Sony Financial Services: Innovative and flexible finance solutions designed to meet budgetary and financial requirements and constraints, enabling businesses to always have the most current technology.
- Sony Training Services: A range of off-the-shelf or customised training services from basic operation through to high-level technical maintenance.
- Sony Prime Support Services: Fully integrated and customised support for products and systems throughout their operational life, combining proactive and reactive technical services.

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# SONY

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