SONY

HD Digital Videocassette Recorder

Digital HDVS

HDCAM HDW-250

Preliminary

In support of the many challenges and opportunities inherent in the transition to DTV systems, Sony has already developed a full range of HDVS® (High Definition Video Systems) products. A digital HD camcorder, system cameras, VTRs, switchers, multi-effects, etc., are among the products now in use with many major broadcast and production companies, particularly in the USA and Japan. Working in the harsh world of day-to-day operational use, these products are graphically demonstrating the leadership that Sony has earned from over 20 years of research into HD technology.

Joining this Sony HDVS family is the HDW-250, a portable digital HD VTR that is designed to be used together with the Sony HDC-750A Multipurpose Portable Camera, strengthening your field recording capability. With its outstanding portability and long recording time of 124 minutes, it is a valuable enhancement of the Sony HDCAM® product range, especially as a backup VTR for the Sony HDW-700 Digital HD Camcorder. The models in this range, which already includes the HDW-500 Digital HD Editing VTR and HDW-700 Digital HD Camcorder, are widely acknowledged for their superb picture quality and reliability —and particularly for the familiar way in which they operate.

This significant technical achievement has already been recognized by Sony receiving both an Award from the Motion Picture and Television Engineering Society of Japan, and the Award of Technical Advancement from the Institute of Image Information and Television Engineers.

The HDW-250 HD VTR inherits all the advantages of the established DVW-250 Digital BETACAM® Portable VTR, especially its excellent operability. Multiple inputs and outputs, and powerful interfacing capabilities, are major features providing the flexibility required for DTV to coexist with SDTV—which is still the major system for most users. For improved field operation in limited access situations, a new design of remote controller, the RM-B150, provides control of both VTR and camera.

The HDW-250 is the ideal digital HD portable recorder. It will support a wide range of applications in your HD production program, from highly mobile field acquisition to studio and OB vehicle use.

Features

HDCAM format—superb picture quality and 124 min recording time

The State-of-the-art HD recording technology provides 35 mm film-like picture quality and long recording times that contributes to lower running costs, 124 minutes from an L cassette and 40 minutes from an S cassette

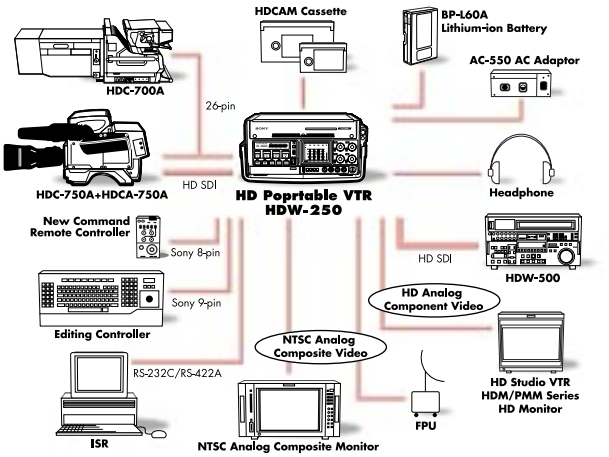
Excellent operability— familiar operation, compact and lightweight

The HDW-250, a rugged, compact digital HD VTR, has the intuitive Betacam-style of operation familiar to most operators. It shares its excellent portability, robustness and compact size with the renowned Digital BETACAM portable VTR

Built-in NTSC analog composite down-converter

To maintain an interface with SDTV equipment, still the major system for most users, a high-quality NTSC analog composite down-converter is built in as standard. It includes an NTSC image enhancer function.

System Configuration



Standard HD-SDI interface for simple connections

The built-in HD-SDI (High Definition Serial Digital Interface, to the SMPTE 292M standard)provides a convenient, HD base-band digital interface with other video equipment via a single coaxial cable.

Multiple inputs and outputs for wide-ranging applications

To provide the flexibility required for field recording, editing, and monitoring in DTV and SDTV systems, the HDW-250 the following inputs and outputs.

- HD-SDI input and output through a single coaxial cable for a smart system connection
- 26-pin camera cable interface
- Analog audio 4-channel inputs and outputs (A to D conversion at 20 bits and D to A at 18 bits)
- 1125/525 switchable Ref. Sync input and output
- NTSC analog composite output, with on/off switchable character superimposition
- HD analog Y/Pb/Pr component monitoring output, with on/off switchable character superimposition

Remote control with the RM-B150

The HDW-250 can be remotely controlled from the RM-B150, a new remote controller developed for the HDW Series. A Sony HD video camera , connected to the HDW-250 with an HDCZ-Series 26-pin camera cable, can also be controlled from the RM-B150. This unique function is useful where confirmation playback is required from the HDW-250 in limited access situations.

HDW-250 shown

100 meters, camera to recorder

The camera and HDW-250 can be separated by up to 100 meters of cable, either by using HD-SDI connections or a 26-pin HDCZ Series cable in conjunction with an HDCD-50 HD Signal Distributor.

Low power consumption for longer record time

Thanks to its sophisticated new circuitry, the HDW-250 provides a continuous record time of approximately 100 minutes from one BP-L60A battery.

External battery operation

As well as the internal battery, an external battery can be connected to provide a longer operating time. As the external battery has priority, there is no interruption when hot-swapping the internal battery, which contributes to a longer continuous record time.

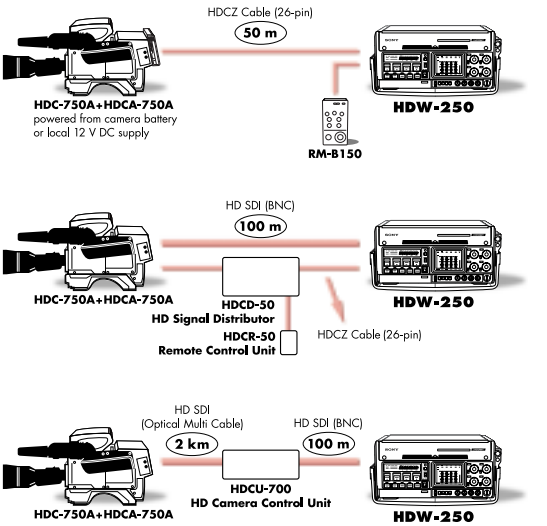
HDCAM tape

Sony has created a new metal magnetic particle tape, the HDCAM tape. This has a C/N (Carrier to Noise Ratio) of 45 dB, to ensure high-integrity digital HD recording in the field. This HDCAM tape has many new features, but is in the same price range as Digital BETACAM tape to keep running costs low.

Field frequency 60/59.94 Hz and effective scanning line 1080/1035 switchable

Thanks to its advanced design, the HDW-250 is the ideal digital HD portable VTR for DTV systems. Switchable field/line scanning frequencies make it convenient to use for international HD program exchange convenience.It can also be interfaced with the SDTV environments that still dominate the broadcast and video production industries.

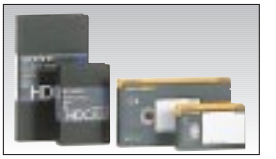
System Examples



Supplied accessories

BKDW-250, carrying case (1)
Maintenance manual part-1 (1)
Operation manual (1)

Optional accessories



HD video cassette

BCT-124HDL/64HDL/40HD/22HD

Video head cleaning cassette

BCT-HD12CL

Maintenance manual part-2

Rechargeable lithium-ion battery

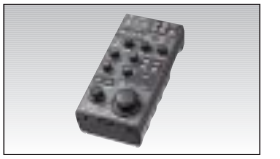
BP-L60A

Battery charger for four BP-L60A batteries

BC-L100

AC adaptor

AC-550



Remote control unit

RM-B150

Specifications

General

Dimensions (W x H x D)	317 x 154 x 349 mm
Mass	Approx. 7.8 kg
Power requirements	DC 12+5.0/-1.0 V
Power consumption	Max.52 W (Rec. mode, Confi. Off)
Operating temperature	0˚C to +40˚ C (+32˚ F to +104˚ F)
Storage temperature	-20˚ C to +60˚ C (-4˚ F to +140˚ F)
Humidity	25 % to 85 % (relative humidity)

Tape Format and Transport

Recording format	HDCAM
Tape width	12.65 mm (1/2 inches)
Tape speed	96.7 mm/s
Record/playback time	Max.124 min with large cassette (BCT-124 HDL) Max. 40 min with small cassette (BCT-40 HDL)
Fast forward/rewind time	Approx. 7 min with large cassette (BCT-124 HDL) Approx. 2.5 min with small cassette (BCT-40 HDL)
Fast forward/rewind speed	Max. 24 times
Search speed	Max. 8 times (2/5/8 selectable)
Servo lock time	4.5 s or less (from Standby On)
Load/unload time	6 s or less (with small cassette / large cassette)
Battery	BP-L60A
Recommended tapes	HDCAM cassette BCT-22 / 40 / 64 / 124 HDL

Digital Video Performance

Sampling frequency	Y: 74.25 MHz
	Pb/Pr: 37.125 MHz
Quantization I/O interface	10 bits / sample
Bit reduction	8 bits / sample
Error correction	Reed-Solomon code
Error concealment	Adaptive three dimensional
Compression	Co-efficient recording system
Channel coding	S-NRZI PR-IV

Digital Input to Analog Component Output

(Playback on standard playback machine)

Bandwidth	Y: 0.5~21.0 MHz ± 0.5 dB
	Pb/Pr: 0.5~7.00 MHz ± 0.5 dB
S/N ratio	58 dB or more
K factor (2T pulse)	1 % or less

Analog Component Input to Analog Component Output

(Playback on standard playback machine)

A/D quantization	10 bits / sample
Bandwidth	Y: 0.5~21.0 MHz ±1.0 dB
	Pb/Pr: 0.5~7.00 MHz ±1.0 dB
S/N ratio	56 dB or more
K factor (2T pulse)	2 % or less

Analog Component Input to Analog Composite Output

(Playback on standard playback machine)

A/D quantization	10 bits / sample
Band width	0~5.5 MHz ± 0.7 dB
S/N ratio	56 dB or more
Differential gain	2 % or less
Differential phase	2˚ or less
Y/C delay	15 ns or less
K factor (2T pulse)	1 % or less

HDW-250 Connector Panel

Digital Audio Performance

Sampling frequency	48 kHz (synchronized with video)
Quantization	20 bits / sample
Input A/D quantization	20 bits / sample
Output D/A quantization	18 bits / sample
Frequency response	20 Hz to 20 kHz + 0.5 dB/-1.0 dB (0 dBu 1 kHz)
Dynamic range	100 dB or more (at 1kHz, emphasis ON)
Distortion	0.03% or less (at 1 kHz, emphasis ON)
Cross talk	-80 dB or less (at 1 kHz, between D/A channels)
Wow and	Below measurable level
Headroom	20 dB (18dB)
Emphasis	T1=50µs, T2=15µs (ON / OFF selectable)

Input / output signals

SDI (Serial Digital Interface)

	HD serial digital component embed audio 4 channels (non-compressed) SMPTE 259M
HD SDI input	BNC x 1
HD SDI output	BNC x 1

Camera (26-pin x 1)

Analog component input	Y : 1.0 Vp-p, 75 Ω (sync negative)
	R-Y/B-Y : 0.7 Vp-p, 75 Ω
Analog audio input	-60/-20/+4 dBu selectable
	High impedance, balanced
Reference sync output	TRI SYNC
	0.6 Vp-p, 75 Ω (sync negative)
Return video output	Y: 1.0 Vp-p, 75 Ω (sync negative)

Video

Analog composite reference input	BNC x 1
1125/60 or 1125/59.94	TRI SYNC
	0.6 Vp-p, 75 Ω (sync negative)
525/59.94	Black burst
	0.286 Vp-p, 75 Ω (sync negative)
Analog HD component output	BNC x 3 Y/Pb/Pr : 0.1 Vp-p, 75 Ω (sync negative) Superimpose ON/OFF selectable
Analog composite output	BNC x 1
	1.0 Vp-p, 75 Ω (syncnegative)
	Superimpose ON/OFF selectable

Audio

Analog audio input	XLR x 4
	-60/-20/+4 dBu selectable
	High impedance, balanced
Analog audio output	XLR x 4 +4 dBu (0 dBu)
	Low impedance, balanced
Headphone	Stereo standard jack (x 1) -17 dBu
Earphone	Stereo mini jack (x 1) -17 dBu
Time code input	BNC x 1 0.5~18 Vp-p, impedance 10 kΩ ±10%
Time code output	BNC x 1 1.0 Vp-p (75 Ω), 2.2 Vp-p (10 kΩ)

SONY

Distributed by

MK7297V1MG99FEB

Printed in Japan