

Betacam SX  
Family



Betacam SX.

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**BETACAM SX**

**SONY**



# Betacam

## A Digital

**T**HIRTY YEARS AGO, the introduction of U-matic videocassette recording revolutionised the process of outside video production. Then in the 1980's Sony introduced Betacam and Betacam SP, two workhorse videotape formats which rapidly became the de-facto analogue component broadcast standard. The combination of picture quality, robustness and operational flexibility lead to widespread adoption for shooting, editing, playout and archive of broadcast material. Today, Betacam SP VTRs and camcorders are still in daily use worldwide for production of sports, news, drama, documentary, arts, natural history and general TV programmes.

In the 1990's, and now in the 2000's, digital technology continues to bring revolutionary changes to the broadcast industry – changes that benefit all parts of a broadcast operation. To realise these dramatic benefits, Sony introduced Betacam SX.

Betacam SX has been designed to bring the benefits of digital recording to acquisition, field editing, studio operations, playout and archive. It has been designed for production of all programmes for which Betacam SP was the natural analogue choice. Betacam SX offers superb picture quality, four channels of uncompressed digital audio, uncompromised build quality and a comprehensive line up of Camcorders, Portable Editors, Compact Players and Studio VTRs.

Betacam SX uses MPEG-2 4:2:2P@ML compliant data compression to maintain broadcast quality pictures from camcorder to on-air playout. Using a robust compression algorithm and a bit-rate optimised for mainstream production, Betacam SX surpasses the picture quality of Betacam SP through the editing process, and matches the robustness and reliability of its analogue predecessor.

The Sony Betacam SX system – designed to bring the full benefits of digital technology to all areas of the broadcasting operation, and the functionality and cost efficiency to equip today's broadcasting community in the digital world.

# SX.

## System for Mainstream Programme Production.

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## Betacam SX Format

Betacam SX represents the latest generation of Betacam technology, drawing on the long experience of Sony in serving the ever-changing real-world needs of the broadcast and production industry. It combines efficient MPEG-2 compliant data compression, the latest advances in digital processing and the proven performance of 1/2" digital technology.

### Broadcast Picture Quality with MPEG-2 4:2:2P@ML

The Betacam SX format records 8-bit, 4:2:2 component digital signals using an advanced compression algorithm. Even with the relatively low bit rate of 18Mb/s, Betacam SX recordings maintain high-quality pictures from first generation through multi-generation editing. Betacam SX picture quality exceeds that of Betacam SP, and preserves 608 active lines per frame, including vertical blanking signal information. The Betacam SX recording format yields superior picture quality, with excellent luminance detail and improved colour resolution. The 4:2:2 sampling structure maintains the chrominance information necessary for editing and special effects - and stands up to the post production needs of mainstream programme production.

### Four Channels of Digital Audio

Betacam SX records four channels of 16 bit 48kHz digital audio. Each audio track is recorded uncompressed and can be edited independently of video or any other audio track.

### Compatibility with Analogue Betacam and Betacam SP

Betacam SX equipment maintains compatibility with current analogue systems. This analogue compatibility provides a logical, cost-efficient migration path to a digital environment.

### Analogue Playback Capability

Betacam SX utilises the same width 1/2-inch tape and cassette shell as Betacam and Betacam SP. Selected Betacam SX decks can play back Betacam and Betacam SP tapes for easy replay of analogue material into your digital Betacam SX edit.

### A Choice of Recording Media

Current BCT-MA and UVW-T Series Betacam SP metal particle tapes can be used for Betacam SX recording, assuring wide availability of recording media. For superior digital performance at reduced cost, BCT-SX cassettes have been developed for Betacam SX recording.



## Reducing the costs of migration to digital

### Analogue and Digital Interfaces

Betacam SX products provide both analogue and digital interfaces, allowing easy integration into existing systems in the studio and in the field.

### The Cost Efficiencies of Betacam SX

Betacam SX delivers all the benefits of high-quality digital performance - and achieves significant long-term savings in both media and hardware costs.

### Lower Tape Running Costs

Betacam SX record-times greatly exceed those of Betacam SP. Up to 62 minutes of material can be recorded onto a small cassette, with up to 194 minutes on a large cassette. Compared to conventional Betacam SP tapes, the tape consumption of Betacam SX is reduced by almost one-half - which means that acquisition and archival costs can be significantly reduced, while superior picture quality is maintained.

### Reduced Maintenance Costs

Betacam SX equipment utilises Automatic Alignment systems that maximise the accurate tape recording and reproduction of digital data. Automatic RF equalisers optimise the gain and phase of off-tape RF signals. These automatic systems minimise the need for time-consuming manual equalisation and servo system adjustments, significantly reducing equipment down-time.

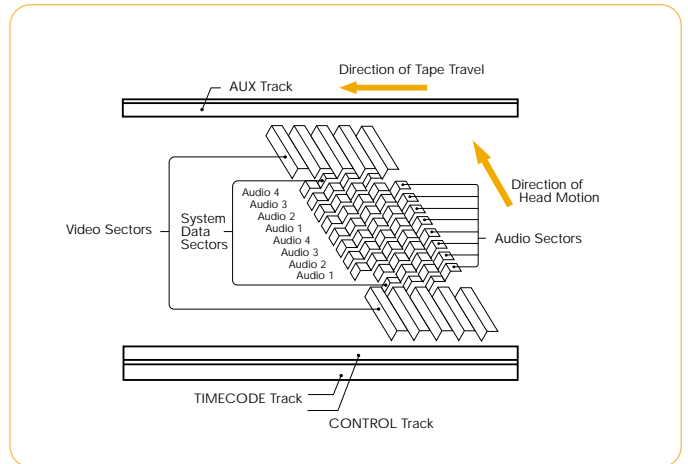


## Advantages

- MPEG-2 4:2:2P@ML Compliant
- 608 (625/50) Lines per Frame
- 194-min record duration with L-cassette
- 4 channels of digital audio
- Lower Tape Running Costs
- Low Maintenance Costs
- Efficient Data Compression
- Powerful Editing Features including Pre-Read
- Frame accurate Digital Editing
- Compatibility with Analogue Betacam and Betacam SP
- Rugged Reliable Format
- Broadcast Picture Quality
- Uncompressed Digital Audio
- Large Product Line-up



Tape Footprint



## Betacam SX Format

### General

Tape width	12.65 mm (1/2 inch)
Tape material	Metal particle tape
Recording/playing time	Max. 194 min with L-cassette Max. 62 min. with S-cassette
Tape speed	59.575 mm/s (625 mode), 59.515 mm/s (525 mode)
Track pitch	32 µm
Tracks per frame	12 (625/50), 10 (525/60)
Longitudinal tracks	Time code/Control/Aux
Video ancillary data	1 line/field
Extension data	20 byte/frame

### Video

Compression	MPEG2 4:2:2 Profile@Main Level
Bit rate	18 Mbps
Active lines per frame	608 lines (625/50), 507 lines (525/60)
Sampling frequency	Y: 13.5 MHz R-Y/B-Y: 6.75 MHz
Quantization	8 bits/sample

### Audio

Compression	None
Sampling frequency	48 kHz
Quantization	16 bits/sample
Channels	4



# The Betacam product



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# SX Line-up

The Sony Betacam SX product line-up answers all the needs of both field and studio operations. Its versatile interfaces and analogue compatibility with Betacam and Betacam SP make this digital system easy to integrate into current analogue installations. Upgrading to digital can be accomplished step-by-step, at a pace that suits the needs and budget of the user.

With the Betacam SX approach, new equipment can be added as and when required. And when the migration to digital is complete, Betacam SX will realise all the benefits of digital technology at its most advanced: broadcast-quality pictures and sound, increased production speed and significant economy in media usage for both acquisition and storage.



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## DNW-7P/ 9WSP/90P/90WSP

Camcorders



## DNV-5

Dockable VTR



The Sony Betacam SX camcorder family provides the advantages of a fully digital acquisition tool with a compact one-piece design. All of the advanced Betacam SX camcorders combine operating simplicity, rugged design and compact, lightweight portability. Smaller in size and lower in weight than analogue 1/2-inch models, these camcorders incorporate a colour video playback capability without an external adaptor. They also incorporate many useful operational features, including an optional Slot-in Wireless Microphone Receiver and Internal Light System. This all-in-one design reduces the total package weight for shooting crews in the field. Betacam SX camcorders provide another important shooting feature: the ability to record Shot Marks and REC Start Marks. Identifying these recorded segments during the edit process allows editors to get started faster - and save time by selecting only these selected scenes. The DNW-7P is equipped with 2/3-inch 470K Power HAD™ IT CCDs and the DNW-90P has 2/3-inch 620K Power HAD FIT CCDs. Camcorders switchable to widescreen aspect ratio are the DNW-90WSP and DNW-9WSP. The DNW-90WSP is equipped with 2/3-inch 620K Power HAD FIT widescreen CCD and the DNW-9WSP is the IT model. All models employ digital processing in the camera section and component digital recording in the VTR section. A wide range of camera adaptors can be connected: with the optional Sony CA-755P Camera Adaptor fitted, operation can be remotely controlled from the CCU-550P Camera Control Unit.

The Sony Betacam SX system includes a dockable VTR for Betacam SX digital recording. The DNV-5 interfaces directly to existing Sony portable analogue cameras via a conventional 50-pin connector. Setup conversion from analogue to digital format can be done easily in both ENG and EFP applications. Shot Marks and REC Start Marks can be recorded automatically on tape and an optional Sony slot-in Wireless Microphone Receiver from the WRR-855 Series can be added.

See p.17 for full specifications.

### Features

- Compact and lightweight: approximately 6kg (13 lb 3 oz) including battery, tape and lens.
- A fully charged BP-L90A Lithium-ion Battery gives the DNW-7P approximately 205 minutes of continuous operating time.
- Up to 62 minutes recording using an S-cassette.
- Variable speed electronic shutter for shooting high-speed moving objects.
- TruEye™ process.
- DynaLatitude™.
- Auto Tracing White balance (ATW).
- Optional slot-in wireless microphone receiver.
- Power connection for optional camera lighting unit, controlled by record mode.
- Viewfinder: the DNW-7P and DNW-90P are equipped with a 1.5-inch monochrome viewfinder. The DNW-9WSP and DNW-90WSP come with a wide 2-inch monochrome view-finder.

See p.16 for full specifications.

## DNW-A75P

Digital Video Cassette Recorder  
with Betacam and Betacam SP playback



The DNW-A75P is a Betacam SX editing VTR which has very similar functionality to the BVW-75P Betacam SP studio recorder. Features include Dynamic Tracking (DT)<sup>™</sup> and insert and assemble editing to zero frame accuracy. Betacam and Betacam SP recordings, which the majority of broadcasters hold in their archives, can also be played back from the DNW-A75P. It can also be used for linear operations such as in A/B roll systems controlled from the familiar Sony BVE edit controllers, or installed in the Flexicart<sup>™</sup> or Library Management Systems<sup>™</sup> (LMS) as a multi-segment VTR.

### Features

- Betacam/Betacam SP playback capability with variable speed from -1 to +3 times.
- 4:2:2 component digital VTR.
- 4-channel digital audio capability.
- ±0 frame Insert/Assemble Editing.
- Preread editing capability.
- Variable speed control from -1 time to +2 times with noiseless video and digital sound (Betacam SX).
- DMC (Dynamic Motion Control) function.
- Shot Mark handling.
- 625/50 or 525/60 versatility.
- Versatile interfaces such as composite/component/SDI in-out, optional SDTI (SX)\* or SDTI-CP\*\* (50Mb/s I-frame) outputs, analogue and AES/EBU input and output for four audio channels, output for two-channel audio monitoring.
- Long recording and playback time: 194 minutes using an L cassette and 62 minutes using an S cassette.
- Connection with the DVCAM<sup>™</sup> format via SDI.

See p.18 for full specifications.

\* SDTI (Serial Data Transport Interface) as defined by SMPTE 305M

\*\* SDTI-CP (Serial Data Transport Interface-Content Package) as defined by SMPTE 326M.

## DNW-75P

Digital Video Cassette Recorder



The DNW-75P Digital Video Cassette Recorder provides a wide range of features, including frame-accurate video/audio editing, Preread editing, 625/525 operation, variable playback, Shot Mark support, and optional SDTI (SX) or SDTI-CP (50Mb/s I-frame) outputs. It is ideally suited for many aspects of linear operation such as machine to machine editing, A/B roll editing controlled from the BVE Series edit controllers, or installed in the Flexicart or LMS multicassette systems. Dynamic Tracking playback, PAL/NTSC viewing capability and 4-channel audio playback are supported.

### Features

- Same features as the DNW-A75P but without Betacam and Betacam SP replay capability.
- 4:2:2 component digital VTR.
- 4-channel digital audio capability.
- ±0 frame Insert/Assemble Editing.
- Preread Editing capability.
- Variable Speed Control from -1 to +2 times with noiseless video jog and digital jog sound.
- DMC (Dynamic Motion Control).
- Shot Mark, Rec Start Mark and Virtual Shot Marks.
- 625/50 or 525/60 versatility.
- Versatile interfaces such as composite/component/SDI in-out, optional SDTI (SX)\* or SDTI-CP\*\* (50Mb/s I-frame) outputs, analogue and AES/EBU input and output for four audio channels, output for two-channel audio monitoring.
- High-speed Picture Search: max. ±78 times normal playback speed.
- Long recording and playback time: 194 minutes using an L cassette and 62 minutes using an S cassette.

See p.18 for full specifications.

## DNW-A65P

Digital Video Cassette Player  
with Betacam and Betacam SP playback



The Betacam SX DNW-A65P Digital Video Cassette Player is a direct replacement for current Sony BVW Series analogue studio edit players. As well as playing back digital Betacam SX recordings, the DNW-A65P has been designed to play back the analogue Betacam and Betacam SP recordings used by many broadcasters. Analogue playback features include Dynamic Tracking, AFM audio playback and a PAL/NTSC monitoring capability. Other features include DMC (Dynamic Motion Control), a Freeze function, 625/525 operation, variable speed playback, Shot Mark support, and optional SDTI (SX) or SDTI-CP (50Mb/s I-frame) outputs. The DNW-A65P is ideally suited for many linear operations and can be installed in Sony Flexicart and Library Management System (LMS) multicassette systems.

### Features

- Betacam/Betacam SP playback capability with variable speed from -1 to +3 times.
- Variable Speed Control from -1 to +2 times with noiseless video and digital sound (Betacam SX).
- DMC (Dynamic Motion Control).
- Shot Mark, Rec Start Mark and Virtual Shot Marks (Betacam SX).
- 525/60 or 625/50 versatility.
- Versatile interfaces such as composite/component/SDI outputs, optional SDTI (SX)\* or SDTI-CP\*\* (50Mb/s I-frame) outputs, analogue and AES/EBU output for four audio channels, output for two-channel audio monitoring.
- High-speed Picture Search: max.  $\pm 78$  times normal playback speed. (Betacam SX).
- Long Playback Time: 194 minutes using an L cassette and 62 minutes using an S cassette.

See p.20 for full specifications.

\* SDTI (Serial Data Transport Interface) as defined by SMPTE 305M

\*\* SDTI-CP (Serial Data Transport Interface-Content Package) as defined by SMPTE 326M.

## DNW-65P

Digital Video Cassette Player



The DNW-65P Digital Video Cassette Player provides a wide range of features, including DMC (Dynamic Motion Control), Freeze function, 625/525 operation, variable playback, Shot Mark support, and optional SDTI (SX) or SDTI-CP (50Mb/s I-frame) outputs. The DNW-65P can be installed in the Flexicart or Library Management System (LMS) multicassette systems. Dynamic Tracking playback, PAL/NTSC viewing capability and 4-channel audio playback are supported.

### Features

- Same features as the DNW-A65P but without Betacam and Betacam SP replay capability.
- Variable Speed Control from -1 to +2 times with noiseless video jog and digital jog sound.
- DMC (Dynamic Motion Control).
- Shot Mark, Rec Start Mark and Virtual Shot Marks.
- 625/50 or 525/60 versatility.
- Versatile interfaces such as composite/component/SDI outputs, optional SDTI (SX)\* or SDTI-CP\*\* (50Mb/s I-frame) outputs, analogue and AES/EBU output for four audio channels, output for two-channel audio monitoring.
- High-speed Picture Search: max.  $\pm 78$  times normal playback speed.
- Long Playback Time: 194 minutes using an L cassette and 62 minutes using an S cassette.

See p.20 for full specifications.



# BKNW-119

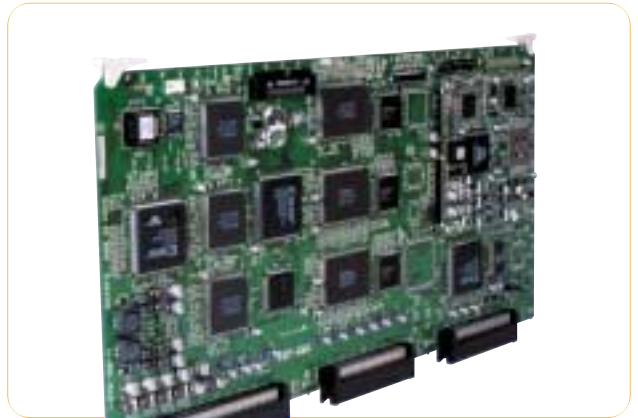
Control Panel



This optional control panel is designed for remote control of the DNW-A75P/75P/A65P/65P Betacam SX Studio Recorders and Players to improve operational convenience. The BKNW-119 is fitted into a BKNW-121 Control Panel Case and a BKNW-122 Control Panel Extension Kit is also required. The BKNW-122 also includes a blanking panel for the front of the VTR. This can be used if the standard front panel on the VTR is removed for remote operation. The BKNW-119 is supplied with a 10-metre remote control cable.

# BKNW-124

SDTI-CP Output Option



Users of Betacam SX Studio VTRs now have a powerful choice: perform the entire edit within the 18Mb/s Betacam SX environment, or replay material into the 50Mb/s MPEG IMX I-frame system for subsequent post production.

The BKNW-124 can be fitted into the DNW-A75P/75P/A65P/65P to provide a high quality MPEG-2 4:2:2P@ML I-frame output via the SDTI-CP (Serial Data Transport Interface – Content Package).

Material from Betacam SX cassettes can be transcoded to 50Mb/s and output at up to x2 normal replay speed into the growing number of Sony MPEG IMX and third party non-linear devices that operate using Intra-frame recording. Material from Betacam and Betacam SP tapes (in DNW-A75P and DNW-A65P VTRs) can also be encoded to 50Mb/s MPEG-2 4:2:2P@ML I-frame data and output at normal replay speed.





## DNW-A28P

Digital Video Cassette Recorder



The DNW-A28P Digital Video Cassette Recorder is designed to be compact and lightweight. Its small size enables it to be installed in a very limited space, such as an OB van. Features of the DNW-A28P include Sliding Key Panel, Recording and Playback Volume Priority Switching function, Manual Editing function, 625/525 operation, Analogue Betacam/Betacam SP playback capability, Sequential Recording with two DNW-A28Ps, Shot Mark support, and Reading Shot Data function. The DNW-A28P can also record 4-channel audio inputs.

### Features

- Compact design for use in a limited space such as an OB van.
- Sliding Key Panel.
- Small Jog Dial.
- Manual Editing Function.
- Shot Mark, Rec Start Mark and Virtual Shot Marks.
- Reading Shot Data function.
- 625/525 versatility.
- Analogue Betacam/Betacam SP playback capability.
- SDI/analogue composite video input/output.
- Provides recording and playback time of 62 minutes using an S cassette.
- Continuous recording with two DNW-A28Ps.
- Sony 9-pin remote control interface.

See p.19 for full specifications.

## DNW-A25P

Digital Portable Editing Recorder



The DNW-A25P Digital Portable Editing Recorder has a single VTR deck, equipped with editing functions and providing Betacam and Betacam SP tape playback. The DNW-A25P can be used as a feeder or as the third VTR for A/B roll with a DNW-A220P or DNW-A225P. It is small and light enough to be hand carried.

See p.21 for full specifications.

## Common Features of the Digital Portable Editors

- Compact design and lightweight.
- Battery Operation (attaching a Sony BP-L90A/L60A Lithium-ion Battery) and also AC powered operation with an AC-DN2B AC Power Unit.
- Shot Mark and Shot Data handling.
- 4 channels of 16-bit/48 kHz digital audio for each deck.
- Uses the same 1/2-inch tape as Betacam/Betacam SP and maintains playback compatibility with the current analogue Betacam/Betacam SP format (DNW-A225P, DNW-A25P and the left side deck of DNW-A220P).
- 625/50, 525/60 switchable in the digital component environment.
- Variable speed search with VTRs:  $\pm 24$  times normal play speed.
- SDI input/output.
- Analogue composite video input and two outputs, analogue 2-channel audio input/output and 2-channel monitor outputs for each deck.
- Sony 9-pin remote control interface.

NOTICE: Liquid Crystal Display Panel. The liquid crystal display fitted to this unit is manufactured with high precision technology, giving a functioning pixel ratio of at least 99.99%. Thus a very small proportion of pixels (at most 0.01%) may be "stuck", constantly on or constantly off. In addition, over a long period of use, because of the physical characteristics of the liquid crystal display, such "stuck" pixels may appear spontaneously. These problems have been kept to the absolute minimum, but are an unavoidable characteristic of liquid crystal technology.

### DNW-A225P

Digital Portable Editing System



The DNW-A225P has the highest editing functionality in the range of Sony portable editors. It consists of two DNW-A25P, both decks provide Betacam and Betacam SP tape playback. In addition, the DNW-A225P can be divided and used separately as two DNW-A25P VTRs, increasing the flexibility and mobility of editing crews in the field.

See p.21 for full specifications.

### DNW-A220P

Digital Portable Editing System



The DNW-A220P Editing System has two Betacam SX decks, a player and a recorder. The left side deck of the DNW-A220P has Betacam and Betacam SP playback capability. The DNW-A220P provides cut and insert/ assemble editing, covering many field editing applications. It includes the Shot Marker system, one of the many useful features of Betacam SX editing.

See p.21 for full specifications.

# J-1/A and J-1/SDI

## Compact Players



The J-1/A and J-1/SDI are the smallest ever players of Betacam-family cassettes. The design concept of the J-Series was for affordable, compact office viewers to be used by producers, journalists and production staff. The J-1/A and J-1/SDI can replay Betacam, Betacam SP and Betacam SX S-cassettes and L-cassettes. At the same time, they also have all the features required for viewing and logging, and - although not designed for editing applications, or on-air use - are ideal for source feeding to servers or non-linear editing systems. The J-1/A provides composite and component analogue video outputs, while the J-1/SDI provides a composite analogue and SDI output. The J-1/A and J-1/SDI have a Jog/Shuttle dial, 525/625 versatility, simple remote control capability via RS-422A and audio meters - all packed into their compact size.

### Features

- Extremely Compact: 307 x 100 x 397mm (12 1/8 x 4 x 15 3/4 inches) in size and just 7kg.
- J-1/A has composite analogue and component analogue video outputs
- J-1/SDI has composite analogue and SDI video outputs
- Playback of Betacam, Betacam SP and Betacam SX cassettes
- Playback of S-cassettes and L-cassettes
- Jog/Shuttle dial with x35 maximum search speed for Betacam SX cassettes
- 525/625 switchable for international operation
- Monitor output of 2 audio channels (selectable on front panel)
- Audio Meters for display of the selected 2 channels of audio
- Equipped with industry-standard RS-422A control interface for remote feeding into servers and non-linear edit systems
- 4 channels of digital output via SDI output on J-1/SDI
- Shot mark handling when used with Betacam SX cassettes

See p.22 for full specifications.



# Specifications

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# DNW-7P/9WSP/90P/90WSP Camcorders

		DNW-7P		DNW-9WSP		DNW-90P		DNW-90WSP			
		16:9 MODE		4:3 MODE		16:9 MODE		4:3 MODE			
<b>General</b>											
Mass		Approx. 4.0 kg (8 lb 13 oz)									
Operating weight		Approx. 6.0 kg (13 lb 3 oz)									
Power requirements		DC 12 V +5.0 V/-1.0 V									
Power consumption		29 W	31.5 W	31 W	32 W						
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)									
Continuous operating time		Approx. 135 min (with BP-L60A) Approx. 205 min (with BP-L90A)	Approx. 125 min (with BP-L60A) Approx. 180 min (with BP-L90A)	Approx. 125 min (with BP-L60A) Approx. 190 min (with BP-L90A)	Approx. 120 min (with BP-L60A) Approx. 185 min (with BP-L90A)						
Signal inputs		Genlock video Time code input Audio(CH-1/2) Mic input									
		BNC (x1), 1.0 Vp-p, 75 Ω BNC (x1), 0.5 to 18 Vp-p, 10 kΩ XLR-3-31 type (x2), -60 dBu/+4 dBu selectable, high impedance, balanced XLR-3-31 type (x2), -60 dBu/+4 dBu selectable, high impedance, balanced									
Signal outputs		Video output Video test output Time code output Earphone Audio output									
		BNC (x1), 1.0 Vp-p, 75 Ω, sync negative BNC (x1), 1.0 Vp-p, 75 Ω, sync negative BNC (x1), 1.0 Vp-p, 75 Ω Mini-jack XLR 5-pin male (stereo)									
Others		Lens Remote Light DC input DC output									
		12-pin 6-pin 2-pin, DC 12 V, max. 30 W XLR 4-pin (for the optional AC-550CE) 4-pin (for wireless microphone receiver), DC12 V									
<b>VTR section</b>											
General		Recording format Tape speed Playback/recording time Fast forward time Rewind time Recommended tape									
		Betacam SX 59.575 mm/s Max.62 min with BCT-62SXA cassette Approx. 5.5 min with BCT-62SXA Approx. 5 min with BCT-62SXA Sony Betacam SX cassette (BCT-60SX series) Sony Betacam SP cassette ( BCT-30MA series/UVWT-30MA series)									
		Sampling frequency Quantization Error correction									
		Y: 13.5 MHz R-Y/B-Y: 6.75 MHz 8 bits/sample Reed-Solomon code									
Video performance		K-factor (2T pulse) Y/R-Y/B-Y delay									
		1 % or less 15 ns or less									
Digital audio performance		Sampling frequency Quantization Frequency response Dynamic range (emphasis ON) Distortion (at 1kHz, emphasis ON, reference level) Cross talk (at 1kHz, reference level) Wow & flutter Head room Emphasis (ON/OFF selectable)									
		48 kHz (synchronized with video) 16 bits/sample 20 Hz to 20 kHz +0.5 dB/-1.0 dB More than 85 dB Less than 0.08 % Less than -70 dB Below measurable limit 20 dB T1=50 μs, T2=15 μs									
The specifications given above were measured via CA-701 Camera Adaptor											
<b>Camera section</b>											
Camera		Pickup device		3-chip 2/3-inch Power HAD 1000 IT CCD		3-chip 2/3-inch Power HAD 1000 16:9/4:3 Widescreen IT CCD		3-chip 2/3-inch Power HAD 1000 FIT CCD		3-chip 2/3-inch Power HAD 1000 16:9/4:3 Widescreen FIT CCD	
		Picture elements		795 (H) x 596(V)		1038 (H) x 594 (V)					
		Optical system		F1.4 prism system							
		Built-in filters		1: CLEAR 2: 5600K+1/8 ND 3: 5600K 4: 5600K+1/64 ND							
		Shutter speed		1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 (s)							
		Gain		-3, 0, +3, +6, +9, +12, +18, +24, +30, +36, +42 dB (select in camera set up menu for L/M/H/TURBO)							
		Clear scan		CLS: 50.3 to 10101 Hz (310 steps)		CLS: 50.2 to 9000 Hz (310 steps)		CLS: 50.2 to 9000 Hz (310 steps) ECS: 25.4 to 48.7 Hz (295 steps)			
		Lens mount		Special bayonet mount							
		Sensitivity (2000 lx, 89.9 % reflective)		F10		F9					
		Minimum illumination		Approx. 0.3 lx (F1.4 lens, +42 dB Turbo Gain)		Approx. 0.35 lx (F1.4 lens, +42 dB Turbo Gain)					
		Video S/N ratio (typical)		61 dB							
		Vertical resolution		(without EVS) 480 TV lines (with EVS) 530 TV lines							
		Registration		0.05 % (all zones, without lens)							
		Geometric distortion		Below measurable level (without lens)							
		Warm-up time		2 sec.							
		Modulation depth at 5 MHz		60 % (Typical)	70 % (Typical)	55 % (Typical)	70 % (Typical)	70 % (Typical)	5 % (Typical)		
Viewfinder		CRT		1.5-inch monochrome		2-inch monochrome		1.5-inch monochrome		2-inch monochrome	
		Controls		BRIGHT control, CONTRAST control, PEAKING control, TALLY, ZEBRA, DISPLAY switches							
		Horizontal resolution		600 TV lines		450 TV lines		600 TV lines		450 TV lines   600 TV lines	
		Microphone		Ultra-directional (detachable)							
Shoulder belt (x1), Microphone (x1), XLR cap (x4), Maintenance Manual Part 1 (x1), Operation Manual (x1)											

**DNV-5** Dockable VTR

<b>General</b>		
Power requirements	DC 12 V +5.0 V/-1.0 V	
Power consumption	20 W	
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)	
Mass	Approx. 2.9 kg (6 lb 6 oz)	
Recording format	Betacam SX	
Tape speed	59.575 mm/s	
Playback/recording time	Max. 62 min. with BCT-62SXA cassette	
Fast forward time	Approx. 5.5 min. with BCT-62SXA	
Rewind time	Approx. 5 min. with BCT-62SXA	
Continuous operating time	Approx. 105 min. with BP-L60A (BVP-90P and DNV-5)	
<b>Inputs/outputs</b>		
Signal inputs	Video (from the camera head)	50-pin Luminance: 1.0 Vp-p, 1 kΩ Chrominance B-Y/R-Y: 0.7 Vp-p, 1 kΩ
	Genlock video input	BNC (x1), 1.0 Vp-p, 75 Ω
	Time code input	BNC (x1), 0.5 to 18 Vp-p, 10 kΩ
	Audio (CH-1/2) input	XLR-3-31 type (x2), -60 dBu/+4 dBu selectable, high impedance, balanced
Signal outputs	Video output	BNC (x1), 1.0 Vp-p, 75 Ω, sync negative
	Test output	BNC (x1), 1.0 Vp-p, 75 Ω, sync negative
	Time code output	BNC (x1), 1.0 Vp-p, 75 Ω
	Earphone	Mini-jack
	Audio output	XLR 5-pin male (stereo)
<b>Others</b>		
Remote	6-pin	
Light	2-pin, DC 12 V, max. 30 W	
DC input	XLR 4-pin (for the optional AC-550CE)	
DC output	4-pin (for wireless microphone receiver), DC 12 V	
<b>Video performance</b>		
Sampling frequency	Y: 13.5 MHz, R-Y/B-Y: 6.75 MHz	
Quantization	8 bits/sample	
K-factor (2T pulse)	1% or less	
Y/R-Y/B-Y delay	15 ns or less	
<b>Digital audio performance</b>		
Sampling frequency	48 kHz	
Quantization	16 bits/sample	
Frequency response	20 Hz to 20 kHz +0.5 dB/-1.0 dB	
Dynamic range	More than 85 dB	
Distortion T.H.D.	Less than 0.08 %	
Cross talk	Less than -70 dB	
Wow and flutter	Below measurable level	
Head room	20 dB	
Emphasis (ON/OFF selectable)	T1 = 50 μs, T2 = 15 μs	
<b>Supplied accessories</b>		
	50-pin connector cap (x1), BNC cap (x5), Shoulder belt (x1), XLR cap 1 (x2), XLR cap 2 (x2), Maintenance manual (x1), Operation manual (x1)	

# DNW-A75P/75P Digital Video Cassette Recorder

	DNW-A75P	DNW-75P
<b>General</b>		
Power requirement	AC 100 V to 240 V, 50/60 Hz	
Power consumption	215 VA (205 W)/AC 240 V	184 VA (175 W)/AC 240 V
Operating temperature	+5°C to +40°C (+41°F to +104 °F)	
Storage temperature	20°C to +60°C (-4°F to +140°F)	
Humidity	25 % to 80 % (relative humidity)	
Mass (Approx.)	28.5 kg (62 lb. 13 oz)	26.7 kg (58 lb. 13 oz)
Dimensions (W x H x D)	427 x 237 x 524 mm (16 7/8 x 9 3/8 x 20 3/4 inches)	
Tape speed	59.575 mm/s (625 mode), 59.515 mm/s (525 mode)	
	Betacam SX Betacam/Betacam SP	—
Digital Playback/recording time	Max. 194 min with BCT-194SXLA cassette	
Fast forward/rewind time	Approx. 3 min with BCT-194SXLA cassette	
Search speed range	±78 times normal playback speed (Betacam SX) ±42 times normal playback speed (Betacam/Betacam SP)	±78 times normal playback speed (Betacam SX only)
Servo lock time	0.5 s or less (from standby on)	
Load/unload time	6 s or less	
<b>Input/output signal</b>		
Analogue composite input	BNC (x2), 1.0 Vp-p, 75 Ω, sync negative	
Analogue composite output	BNC (x3, including one character out), 1.0 Vp-p, 75 Ω, sync negative	
Analogue component input	BNC (x3, for 1 set, Y/R-Y/B-Y), Y:1.0 Vp-p, 75 Ω, sync negative, R-Y/B-Y:0.7 Vp-p, 75 Ω	
Analogue component output	BNC (x3, for 1 set, Y/R-Y/B-Y), Y:1.0 Vp-p, 75 Ω, sync negative, R-Y/B-Y:0.7 Vp-p, 75 Ω	
SDI input	BNC (x2, including one active through out), ITU-R BT.656-3, 270 Mbps	
SDI output	BNC (x3, including one active through out), ITU-R BT.656-3, 270 Mbps	
SDTI output (option) (18Mb/s output)	BNC (x2), Max. x2 speed SMPTE 305M	
SDTI-CP output (option) (50Mb/s output)	BNC (x2), Max. x2 speed SMPTE 326M	
Analogue audio input	XLR (x4, CH1/2/3/4)	
Analogue audio output	XLR (x4, CH1/2/3/4)	
Headphone output	Standard jack (x1), stereo	
Digital audio input (CH1/2, 3/4)	BNC (x2), AES/EBU	
Digital audio output (CH1/2, 3/4)	BNC (x2), AES/EBU	
Remote control	D-sub 9-pin (x2), Sony 9-pin remote interface	
	Remote RS-232C	D-sub 9-pin (x1), RS-232C interface
	Processor Control	D-sub 15-pin (x1)
	Connector for Control Panel	Mini D-sub 29-pin (x1)
	Parallel Remote	50-pin (x1)
	Aux	—
Reference input	BNC (x1), 0.3 Vp-p, 75 Ω, sync negative (with loop through out)	
Time code input	XLR (x1)	
Time code output	XLR (x1)	
Analogue monitor output (L/R)	XLR (x2)	
<b>Processor adjustment range</b>		
Video level	±3 dB/-∞ to +3 dB selectable	
Chroma level	±3 dB/-∞ to +3 dB selectable	
Setup/Black level	±30 IRE/±210 mV	
Chroma phase/hue	±30 °	
System sync phase	±15 μs	
System SC phase	±200 ns	
Y/C delay	±100 ns (Betacam/Betacam SP playback only)	—
Composite input level	±3 dB	
<b>Digital video performance</b>		
Sampling frequency	Y: 13.5 MHz, R-Y/B-Y: 6.75 MHz	
Quantization	8 bits/sample	
Error correction	Reed-Solomon code	
Digital input to analogue component output	K-factor (2T pulse): 1 % or less	
Analogue component recording playback	Input A/D quantization: 8 bits/sample K-factor (2T pulse): 1 % or less LF non-linearity: 3.0 % or less	
Analogue composite recording playback	Differential gain: 2 % or less Differential phase: 2° or less YC delay: 20 ns or less K-factor (2T pulse): 1 % or less	
<b>Digital audio performance</b>		
Sampling frequency	48 kHz (synchronized with video)	
Quantization	16 bits/sample	
Frequency response (0 dB at 1 kHz)	20 Hz to 20 kHz +0.5 dB/-1.0 dB	
Dynamic range (at 1 kHz, emphasis ON)	More than 90 dB	
Distortion (at 1 kHz, emphasis ON, reference level)	Less than 0.05 %	
Cross talk (at 1 kHz, between any two channels)	Less than -80 dB	
Wow & flutter	Below measurable level	
Head room	20 dB (18 dB selectable)	
Emphasis (ON/OFF selectable in REC mode)	T1=50 μs, T2=15 μs	
<b>Supplied accessories</b>		
	Remote cable (RCC-5G x1) PSW 4 x 16 Rack Mount Screw (x4) Operation manual (x1) Maintenance manual (part 1) (x1)	Remote cable (RCC-5G x1) PSW 4 x 16 Rack Mount Screw (x4) Operation manual (x1) Installation manual (x1)

# DNW-A28P Digital Video Cassette Recorder

		DNW-A28P
<b>General</b>		
Power requirement		DC 12 V, +5.0 V/-1.0 V
Power consumption		58 W
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 80 % (relative humidity)
Mass (Approx.)		5.5 kg (12 lb.3 oz)
Dimensions (W x H x D)		210 x 132 x 425 mm (8 3/8 x 5 1/4 x 16 3/4 inches)
Tape speed	Betacam SX	59.575 mm/s (625 mode), 59.515 mm/s (525 mode)
	Betacam/Betacam SP	101.5 mm/s
Digital Playback/recording time		Max. 62 min with BCT-62SXA cassette
Fast forward/rewind time		Approx. 3 min with BCT-62SXA cassette
Search speed range		±24 times normal playback speed (Betacam SX)
		±10 times normal playback speed (Betacam/Betacam SP)
Servo lock time		0.5 s or less (from standby on)
Load/unload time		6 s or less
<b>Input/output signal</b>		
Analogue composite input		BNC (x1), 1.0 Vp-p, 75 Ω, sync negative
Analogue composite output		BNC (x2, including one character out), 1.0 Vp-p, 75 Ω, sync negative
Analogue component input		BNC (x3, for 1 set, Y/R-Y/B-Y), Y:1.0 Vp-p, 75 Ω, sync negative, R-Y/B-Y:0.7 Vp-p, 75 Ω
Analogue component output		BNC (x3, for 1 set, Y/R-Y/B-Y), Y:1.0 Vp-p, 75 Ω, sync negative, R-Y/B-Y:0.7 Vp-p, 75 Ω
SDI input		BNC (x1), ITU-R BT.656-3, 270 Mbps
SDI output		BNC (x2), ITU-R BT.656-3, 270 Mbps
Analogue audio input		XLR (x2, CH1/2)
Analogue audio output		XLR (x2, CH1/2)
Headphone output		Standard jack (x1), stereo
Remote control	Remote	D-sub 9-pin (x1), Sony 9-pin remote interface
	RS-232C	—
	Processor Control	—
	Connector for Control Panel	—
	Parallel Remote	—
Aux		6-pin (x1, for maintenance)
Reference input		BNC (x1), 0.3 Vp-p, 75 Ω, sync negative (with loop through out)
Time code input		BNC (x1)
Time code output		BNC (x1)
Analogue monitor output (L/R)		XLR (x2)
<b>Processor adjustment range</b>		
Video level		±3 dB/-∞ to +3 dB selectable
Chroma level		±3 dB/-∞ to +3 dB selectable
Setup/Black level		±30 IRE/±210 mV
Chroma phase/hue		±30 °
System sync phase		±15 μs
System SC phase		±200 ns
Y/C delay		±100 ns (Betacam/Betacam SP playback only)
Composite input level		—
<b>Digital video performance</b>		
Sampling frequency		Y: 13.5 MHz, R-Y/B-Y: 6.75 MHz
Quantization		8 bits/sample
Error correction		Reed-Solomon code
Digital input to analogue component output		—
Analogue component recording playback		—
Analogue composite recording playback		Differential gain: 2 % or less Differential phase: 2° or less YC delay: 15 ns or less K-factor (2T pulse): 1.5 % or less
<b>Digital audio performance</b>		
Sampling frequency		48 kHz (synchronized with video)
Quantization		16 bits/sample
Frequency response (0 dB at 1 kHz)		20 Hz to 20 kHz +0.5 dB/-1.0 dB
Dynamic range (at 1 kHz, emphasis ON)		More than 88 dB
Distortion (at 1 kHz, emphasis ON, reference level)		Less than 0.05 %
Cross talk (at 1 kHz, between any two channels)		Less than -80 dB
Wow & flutter		Below measurable level
Head room		20 dB (18 dB selectable)
Emphasis (ON/OFF selectable in REC mode)		T1=50 μs, T2=15 μs
<b>Supplied accessories</b>		
		Operation manual (x1) Maintenance manual (part 1) (x1)

# DNW-A65P/65P Digital Video Cassette players

	DNW-A65P	DNW-65P
<b>General</b>		
Power requirements	AC 100 V to 240 V, 50/60 Hz	
Power consumption	195 VA (190 W)/AC 240 V	165 VA (156 W)/AC 240 V
Operating temperature	+ 5 °C to +40 °C (+41 °F to +104 °F)	
Storage temperature	-20 °C to +60 °C (-4 °F to +140 °F)	
Humidity	25 % to 80 % (relative humidity)	
Mass (Approx.)	28 kg (61 lb 10 oz)	26 kg (57 lb. 5 oz)
Dimensions (W x H x D)	427 x 237 x 524 mm (16 7/8 x 9 3/8 x 20 3/4 inches)	
Tape speed	59.575 mm/s (625 mode), 59.515 mm/s (525 mode)	
	Betacam SX	—
	Betacam/Betacam SP	101.5 mm/s
Digital playback time	Max. 194 min with BCT-194SXLA cassette	
Fast forward/rewind time	Approx. 3 min with BCT-194SXLA cassette	
Servo lock time	0.5 s or less (from standby on)	
Load/unload time	6 s or less	
Search speed range	±78 times normal playback speed (Betacam SX) ±42 times normal playback speed (Betacam/Betacam SP)	±78 times normal playback speed (Betacam SX only)
<b>Outputs signal</b>		
SDI output	BNC (x3, including one character out), ITU-R BT.656-3, 270 Mbps	
Analogue component output	BNC (x3, for 1 set, Y/R-Y/B-Y), Y: 1.0 Vp-p, 75 Ω, sync negative, R-Y/B-Y: 0.7 Vp-p, 75 Ω	
Analogue composite output	BNC (x3, including one character out), 1.0 Vp-p, 75 Ω, sync negative	
SDTI output (option) (18Mb/s output)	BNC (x2), Max. x2 speed, SMPTE 305M	
SDTI-CP output (option) (50Mb/s output)	BNC (x2), Max. x2 speed, SMPTE 326M	
Analogue audio output	XLR (x4, CH1/2/3/4)	
Digital audio output	BNC (x2, CH1/2, 3/4), AES/EBU	
Headphone output	Standard jack (x1), stereo	
Audio monitor output (L/R)	XLR (x2)	
Time code output	XLR (x1)	
Remote control	D-sub 9-pin (x2), Sony 9-pin remote interface	
	Remote	
	RS-232C	D-sub 9-pin (x1), RS-232C interface
	Processor control	D-sub 15-pin (x1)
	Connector for Control Panel	Mini D-sub 29-pin (x1)
	Parallel remote	50-pin (x1)
	Aux	Mini D-sub 15-pin (x1)
<b>Processor adjustment range</b>		
Video level	±3 dB/-∞ to +3 dB selectable	
Chroma level	±3 dB/-∞ to +3 dB selectable	
Setup/Black level	±30 IRE/±210 mV	
Chroma phase/hue	±30 °	
System sync phase	±15 μs	
System SC phase	±200 ns	
Y/C delay	±100 ns (Betacam/Betacam SP playback only)	—
<b>Digital video performance</b>		
Sampling frequency	Y: 13.5 MHz, R-Y/B-Y: 6.75 MHz	
Quantization	8 bits/sample	
Error correction	Reed-Solomon code	
Analogue component recording playback	Input A/D quantization: 8 bits/sample	
	K-factor (2T pulse): 1 % or less	
	LF non-linearity: 3.0 % or less	
Analogue component recording playback	Differential gain: 2 % or less	
	Differential phase: 2 ° or less	
	YC delay: 20 ns or less	
	K-factor (2T pulse): 1 % or less	
<b>Digital audio performance</b>		
Sampling frequency	48 kHz (synchronized with video)	
Quatization	16 bits/sample	
Frequency response (0 dB at 1 kHz)	20 Hz to 20 kHz +0.5 dB/-1.0 dB	
Dynamic range (at 1 kHz, emphasis ON)	More than 90 dB	
Distortion (at 1 kHz, emphasis ON, reference level)	Less than 0.05 %	
Cross talk (at 1 kHz, between any two channels)	Less than -80 dB	
Wow & flutter	Below measurable level	
Head room	20 dB (18 dB selectable)	
Emphasis (ON/OFF selectable in REC mode)	T1=50 μs, T2=15 μs	
<b>Supplied accessories</b>		
	PSW 4 x 16 Rack Mount Screw (x4) Operation manual (x1) Maintenance manual (part 1) (x1)	PSW 4 x 16 Rack Mount Screw (x4) Operation manual (x1) Installation manual (x1)

# DNW-A225P/A220P/A25P Digital Portable Editors

	DNW-A225P	DNW-A220P	DNW-A25P
<b>General</b>			
Power requirements	DC 12 V		
Power consumption	130 W (65 W x 2)	120 W (60 W x 2)	65 W
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 80 % (relative humidity)		
Mass	13 kg (6.5 kg x 2, 28 lb 10 oz)		6.5 kg (14 lb 5 oz)
Dimensions (W x H x D)	422 (211 x 2) x 149 x 467 mm (16 5/8 x 5 7/8 x 18 1/2 inches)		211 x 149 x 467 mm (8 3/8 x 5 7/8 x 18 1/2 inches)
Tape speed	Betacam SX: 59.575 mm/s (625 mode), 59.515 mm/s (525 mode), Betacam/Betacam SP: 101.5 mm/s		
Digital playback/recording time	Max. 62 min with BCT-62SXA cassette		
Fast forward/rewind time	Less than 3 min with BCT-62SXA cassette		
Search speed range	Betacam SX: ±24 times normal playback speed, Betacam/Betacam SP: ±10 times normal playback speed		
Servo lock time	0.5 s or less (from standby on)		
Load/unload time	6 s or less		
<b>Input/output signals</b>			
Analogue composite input	BNC (x1), 1.0 Vp-p, 75 Ω, sync negative		
Analogue composite output	BNC (x2, including one character out), 1.0 Vp-p, 75 Ω, sync negative		
SDI input	BNC (x1), ITU-R BT.656-3, 270 Mbit/s		
SDI output	BNC (x2), ITU-R BT.656-3, 270 Mbit/s		
Analogue audio input (CH1,2)	XLR (x2)		
Analogue audio output (CH1/3, 2/4)	XLR (x2)		
Analogue monitor output (L, R)	XLR (x2)		
Headphones output	Standard jack (x1), stereo		
Remote control	D-sub 9-pin (x1), Sony 9-pin remote interface		
Reference input	BNC (x1), 0.3 Vp-p, 75 Ω, sync negative (with loop through out)		
Test	Aux 6-pin (x1) (for maintenance)		
Time code input	BNC (x1)		
Time code output	BNC (x1)		
<b>Processor adjustment range</b>			
Video level	±3 dB/ -∞ to +3 dB selectable		
Chroma level	±3 dB/ -∞ to +3 dB selectable		
Set up/Black level	±30 IRE/±210 mV		
Y/C delay	±100 ns (in Betacam/SP playback)		
Chroma Phase	±30 °		
System phase	Sync: ±15 μs (SC step), SC: ±200 ns		
<b>Digital video signal system</b>			
Sampling frequency	Y: 13.5 MHz, R-Y/B-Y: 6.75 MHz		
Quantization	8 bits/sample		
Compression	MPEG-2 4:2:2 Profile@Main Level		
<b>Analogue composite recording playback</b>			
Bandwidth (Y)	0 to 4.5 MHz + 0.5 dB/-3.0 dB (525 mode), 0 to 5.5 MHz + 0.5 dB/-3.0 dB (625 mode)		
S/N	53 dB or more		
Differential gain	2 % or less		
Differential phase	2 ° or less		
Y/C delay	15 ns or less		
K factor (2T pulse)	1.5 % or less		
Output SCH phase	Based upon RS-170A/ITU-R BT.624-3		
<b>Digital audio signal system</b>			
Sampling frequency	48 kHz (synchronized with video)		
Quantization	16 bits/sample		
Headroom	+20 dB (or +18 dB, selectable)		
Emphasis (ON/OFF selectable in REC mode)	T1=50 μs, T2=15 μs		
<b>Analogue output</b>			
A/D, D/A quantization	16 bits/sample		
Frequency response	20 Hz to 20 kHz +0.5 dB/-1.0 dB (0 dB at 1 kHz)		
Dynamic range	88 dB or more (at 1 kHz, emphasis on, 30 kHz LPF ON)		
Distortion	0.05 % or less (at 1kHz, emphasis on, reference level (+4 dBm), 30 kHz LPF ON)		
Crosstalk	-80 dB or less (at 1 kHz, between any two channels, 1 kHz BPF ON)		
<b>Others</b>			
Channel coding	S-I-NRZI PR-IV		
Error correction	Reed-Solomon code		
LCD Monitor	Active matrix transmission		
Display method			
Size	6.4 inches x 2		6.4 inches
Picture elements	640 x 480 x 3 pixels		
Luminance/brightness	Adjustable by knob		
<b>Speaker</b>			
Built-in speakers	x 2, monaural		x 1, monaural
<b>Display</b>			
Audio level meter	Counter, Servo Lock, Tape Remain, Battery Remain, etc.		
Supplied accessories	Ch1, Ch2 ( indication of Ch3, 4 is also available by switch )		
		9-pin remote control cable x 1 75 Ω coaxial cable with BNC plugs x 1 (for SDI connection) Shoulder belt x 1 Operation manual x 1 Coin screws x 12 Maintenance manual (part 1) x 1	Shoulder belt x 1 Operation manual x 1 Maintenance manual (part 1) x 1

J-1/A, J-1/SDI Compact players

General		J-1/A, J-1/SDI
Power requirements		AC 100 V to 240 V, 50/60 Hz
Power consumption		50 W
Operating temperature		+5 °C to +40 °C (+41 °F to +104 °F)
Storage temperature		-20 °C to +60 °C (-4 °F to +140 °F)
Humidity		25% to 80% (relative humidity)
Mass		7 kg (15 lb 7 oz)
Dimensions (W x H x D)		307 x 100 x 397 mm (12 1/8 x 4 x 15 3/4 inches)
Tape speed	Betacam SX	59.515 mm/s (525 mode), 59.575 mm/s (625 mode)
	Betacam/Betacam SP	118.6 mm/s (525 mode), 101.5 mm/s (625 mode)
Playback time	Betacam SX	Max. 194 min with BCT-194SXLA cassette
	Betacam/Betacam SP	Max. 90 (525 mode)/105 (625 mode) min with BCT-90MLA cassette
Fast forward/rewind time	Betacam SX	Approx. 5 min with BCT-194SXLA cassette
	Betacam/Betacam SP	Approx. 5 min with BCT-90MLA cassette
Search speed range	Betacam SX	±35 times normal playback speed
	Betacam/Betacam SP	±18 times normal playback speed
Servo lock time		0.5 s or less (from standby on)
Load/unload time		6 s or less
<b>Input signals</b>		
Ext. sync		BNC (x1), Frame lock
<b>Output signals</b>		
Analogue composite output		BNC (x1), Pin Jack (x1), 1.0 Vp-p, 75 Ω
S-video output		Mini DIN 4-pin (x1): Y: 1.0 Vp-p, C: 0.286 Vp-p burst, 75 Ω
Analogue component output		BNC (x3), Y: 1.0 Vp-p, R-Y/B-Y: 0.7 Vp-p, 75 Ω
SDI output		BNC (x1), SMPTE 259M, 270 Mb/s, 0.8 Vp-p, 75 Ω
Remote control	RS-422A	D-sub 9-pin (female) (x1), Sony 9-pin remote interface
	RS-232C	D-sub 9-pin (female) (x1)
Monitor output L/R		Pin Jack (x1): -10 dBu at 47 kΩ load, unbalanced, XLR (male x2): +4 dBm, 600 Ω load, low impedance, balanced
Headphone output		JM-60 Stereo Phone Jack, ∞ to -12 dBu at 8 Ω load, unbalanced
<b>Supplied accessories</b>		
		Operation manual (CD-ROM) (x1) Vertical stand (x2) Quick Operation Guide (x1)

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