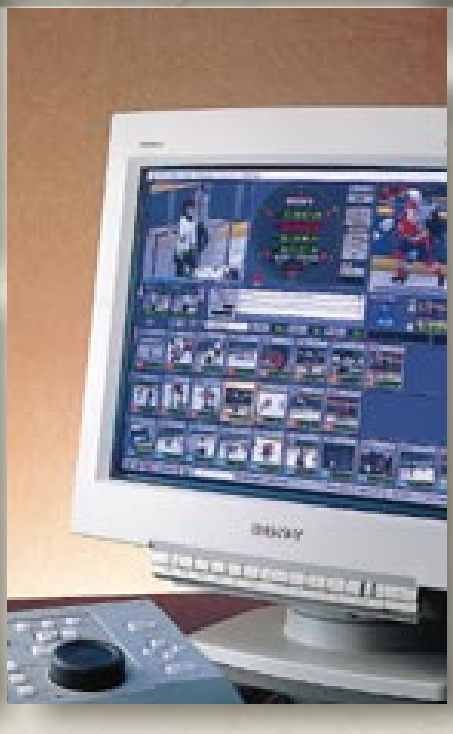
SONY

NTSC

BETACAM SX™

Betacam SX™ System



Betacam SX™ System —a New Generation of ENG and EFP Format

When Sony introduced U-maticTM video cassette recording in 1972, the age of electronic news gathering was launched. In the 1980's, Sony gave the world BetacamTM and then Betacam SP TM formats — workhorse formats that introduced such radical improvements in picture quality that they were quickly adopted throughout the broadcast community. Developed to take full advantage of the Betacam and Betacam SP formats, the BVW range of Sony VTRs has, for over a decade, set the standard for reliability and performance in the demanding worlds of ENG and EFP.

Now, in the 1990's, digital technology is bringing revolutionary changes to the broadcast industry — changes that are accompanied by benefits and advantages that can be applied throughout the entire broadcast operations.

To realize these dramatic benefits, Sony introduces the Betacam SX system: the total solution for optimized digital acquisition and production.

The Betacam SX format is designed to achieve superior picture quality, faster editing, increasing system flexibility, and greater productivity in every aspect of news gathering and production. The Betacam SX system combines extraordinary advantages: an advanced compression algorithm, dramatic reductions in equipment size and operating costs, the speed and creativity of non-linear disk-based editing, and the power of a total digital network.

The Betacam SX format complies with MPEG2 4:2:2 Profile at Main Level (MPEG2 4:2:2P@ML) to maintain broadcast-quality pictures from camera through post production. Using the robust compression algorithm that achieves higher picture quality at a reduced bit-rate, the Betacam SX format is the key to superior digital acquisition, high-speed transmission from the field to the broadcast station, high-speed material upload to server, non-linear editing, cost-effective archival storage, and server-based playout.

The Sony Betacam SX System — the first system that brings news broadcasting operations the full benefit of digital technology, while maintaining the functionality and cost efficiency that will carry today's broadcasting community into tomorrow's digital world.

Betacam SX Format

The Betacam SX format represents the next generation Betacam technology, drawing on the long experience of Sony in serving the ever-changing, real-world needs of the broadcast industry. It combines the proven performance of 1/2-inch analog Betacam SP format with the digital technology leadership of the D-1, D-2, and Digital BETACAM TM formats.

Broadcast Picture Quality with MPEG2 4:2:2P@ML

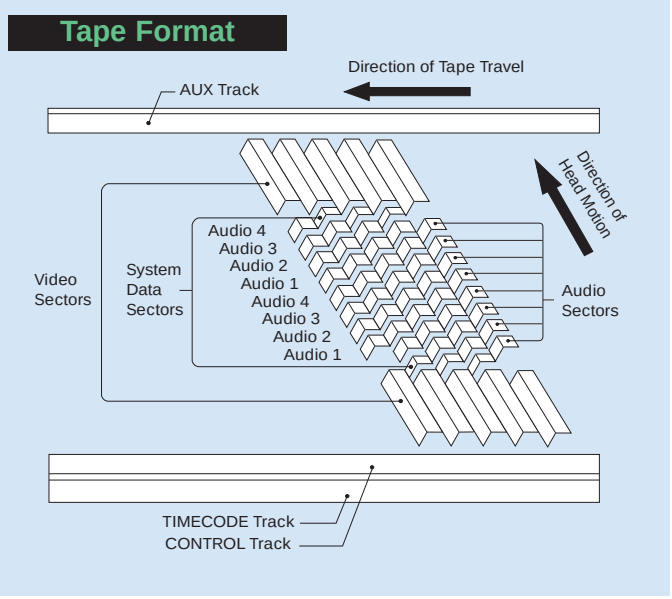
The Betacam SX format records 8-bit, 4:2:2 component digital signals using an advanced compression algorithm.
Betacam SX recordings maintain high-quality pictures without visible artifacts, while keeping the bit-rate low to allow high-speed transmission, cost-effective digital non-linear editing, and archival storage.
Betacam SX picture quality exceeds that of Betacam SP. The Betacam SX format also preserves 507 active lines per frame including vertical blanking signal information. The Betacam SX recording format yields superior picture quality, with excellent luminance detail and improved color 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 news program production.

<Betacam SX Format>

General		
	Tape Width	12.65 mm (1/2 inch)
	Tape material	Metal particle tape
	Recording/playing time	Max. 62 min. with S-cassette Max.194 min. with L-cassette
	Tape speed	59.515 mm/s (525 mode) 59.575 mm/s (625 mode)
	Track pitch	32 mm
	Tracks per frame	10 (525/60), 12 (625/50)
	Longitudinal tracks	Time code/Control/Aux
	Video ancillary data	1 line/field
	Extension data	20 byte/frame
Video		
	Compression	MPEG2 4:2:2Profile@Main Level
	Bit rate	18 Mbps
	Active lines per frame	507 lines (525/60), 608 lines (625/50)
	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

Betacam SX Achieves Efficient Bit Rate Reduction

The robust compression algorithm of the Betacam SX format results in a reduced bit rate of 18 Mbps for the video signal, achieving greater effeciency both in transmitting the signal from the field to the station and in storage onto disk, while maintaining high-picture quality. Reducing the bit rate enables non-linear editing systems to handle real-time video and audio signals at lower cost. The reduced bit rate allows either high-speed transmission or simultaneouse 2-channel transmission of different video source signals within a limited bandwidth, which can result in reduced transmission fees and facilitate the use of contribution links.
The reduced bit rate of Betacam SX recordings also yields overall cost saving in strage requirements and transmission time, making more effective use of the hardware capacity and channel bandwidth of a disk and server-based studio network system.



Compatibility with Analog Betacam and Betacam SP Formats

The Betacam SX format is designed to maintain compatibility with current analog systems. This analog compatibility provides a logical, cost-efficient migration path towards a totally digital environment.

Analog Playback Capability

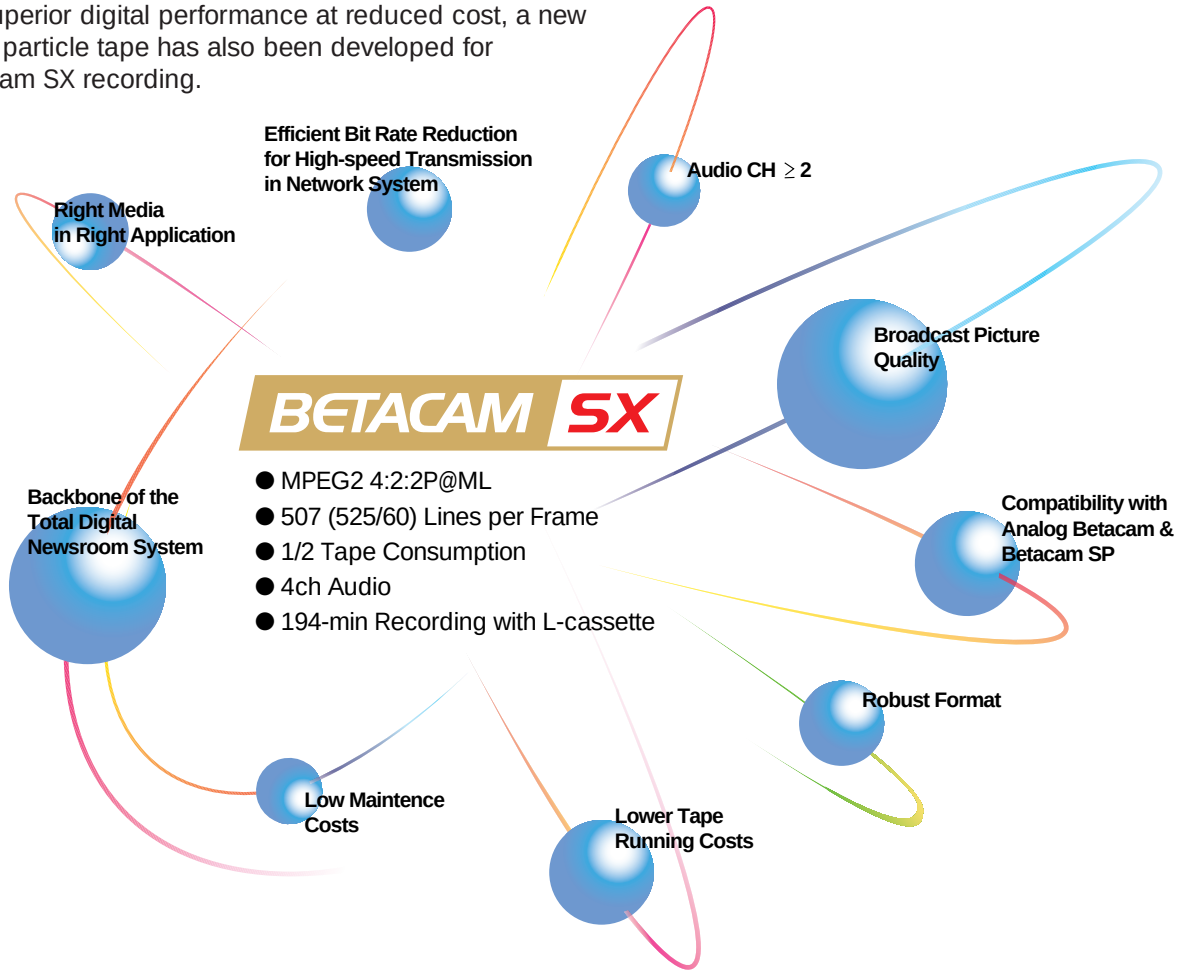
The 1/2-inch tape size used by Betacam SX format is the same size 1/2 cassette as current Betacam and Betacam SP equipment, giving Betacam SX playback capability of analog Betacam and Betacam SP recordings made on oxide or metal particle tape. Using advanced Hybrid Recorders that combine video tape transport and hard disk drive, the Betacam SX system allows existing analog Betacam and Betacam SP archive material to be accessed and digitized for non-linear editing.

Wide Range of Recording Media

Current BCT-MA and UVWT Series Betacam SP metal particle tape cassettes can be used for Betacam SX recording, assuring wide availability of recording media. For superior digital performance at reduced cost, a new metal particle tape has also been developed for Betacam SX recording.

Analog and Digital Interfaces

Betacam SX products provide both analog and digital interfaces, allowing these new digital products to coexist with all the existing analog systems in the studio and in the field.



Betacam SX in Action:
The Robust Tape Format

The robust tape format of Betacam SX records 8-bit, 4:2:2 component digital video signals and supports four channels of 16-bit/48 kHz digital audio. Its powerful ECC (Error Correction Code) automatically corrects off-tape data errors caused by burst errors during recording and playback. This ensures virtually dropout-free recording of important news program material.

The Cost Efficiencies
of Betacam SX Products

The Betacam SX format is designed to deliver all the benefits of high-quality digital performance — and also to achieve significant long-term saving in both media and hardware costs as well as reducing operational expenses.

Lower Tape Running Costs

The advanced signal compression technology of the Betacam SX format has brought the important advantage of longer tape recording times: up to 62 minutes on a single S-cassette, and up to 194 minutes on a single L-cassette.
The “multiple head tracking” technology used in the Betacam SX format ensures reliable playback by performing powerful error correction on adjacent tracks. This technology enables the Betacam SX format to handle a high bit-rate signal within narrow tracks, allowing the development of low-cost, high-quality Betacam SX tape.
Compared to conventional Betacam SP tapes, tape consumption can actually be reduced by one-half — which means that ENG acquisition and studio archival tape costs can be greatly reduced, while superior picture quality is maintained.

Reduced Maintenance Costs

Betacam SX equipment also incorporates an Automatic Alignment System that maximizes accurate tape recording and reproduction of digital data. An Automatic RF Equalizer optimizes the gain and phase of off-tape RF signals.

These automatic systems minimize the need for time-consuming manual equalization and servo system adjustments, which can lower maintenance costs.

Innovative Hardware Designs

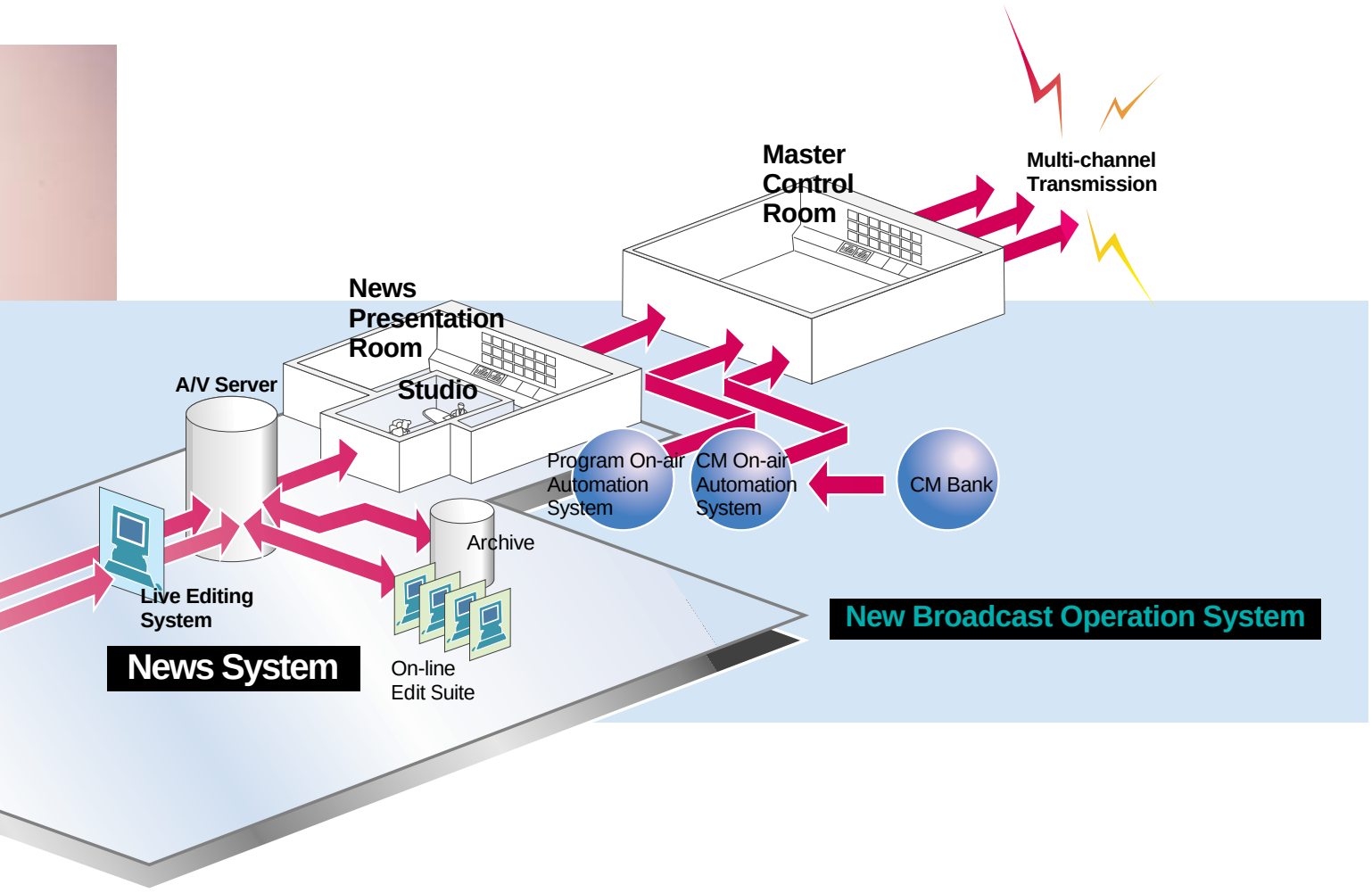
Another significant economy results from the reduced bit-rate of the Betacam SX format: the ability to develop new hardware designs that reduce cost by combining multiple functions. A dramatic example of this design efficiency is the unique Sony Digital Video Hybrid Recorder, which combines VTR and hard disk drive in a single integrated unit.

Betacam SX:
The Key to the Digital Newsroom

Betacam SX format is the key to the Sony approach to the digital newsroom — bringing the multiple advantages of high-quality pictures and sound, high-speed transmission, and low-cost operation.
The compression has been carefully designed to maintain high picture quality during every phase of broadcast news operations. The compression algorithm of MPEG2 4:2:2P@ML is universally employed within the full Betacam SX product range, as well as by the digital, disk-based A/V Servers in the Sony system. This means that, throughout the total newsroom system, no encoding and decoding is needed, so picture quality is not compromised.

The Right Media in the Right Application

Sony expertise in every aspect of video technology has led to a careful evaluation of the running costs, recording times, mobility factors, and industry-wide compatibility of both tape and disk media.
Sony employs tape media for applications requiring low running costs, longer recording time, and higher mobility — and uses disk media when high-speed random access and non-linear operations are required. Best of all, both tape and disk media utilize the same sampling structure and compression algorithm, allowing both to work together seamlessly and efficiently in a powerful hybrid storage system — that is the beauty of the Sony Betacam SX System.



The Betacam SX Product Line-up

The Sony Betacam SX product line-up answers all the needs of both field and studio newsroom operations. Its versatile interfaces and analog compatibility with Betacam and Betacam SP formats make this new digital system easy to integrate into current analog installations.

Upgrading to digital can be accomplished step by step, at a pace that suits the needs and budgets of ENG organizations and EFP producers.

With the Betacam SX approach, new equipment can be added as required without compromising overall system functionality.

And when the migration to digital is complete, Sony Betacam SX system will realize all the benefits of digital technology at its most advanced: broadcast picture and sound quality, non-linear editing productivity, increased transmission speed, and significant economy in media usage for both acquisition and storage.

DNW-7/9WS/90/90WS
Camcorders

The Sony Betacam SX camcorder family provides the advantages of a fully digital acquisition tool with compact one-piece design. All of the advanced Betacam SX camcorders combine operating simplicity, rugged design, and compact, lightweight portability.

Smaller in size and weight than analog 1/2-inch models, these new camcorders incorporate color video playback capability without an external adaptor. They also incorporates many useful new features, including an optional Slot-in Wireless Microphone Receiver and an 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 Good Shot Marks and REC Start Marks. Identifying these recorded segments on the GUI of the Non-linear Editors allow editors to get started faster - and save both time and valuable hard disk storage capacity by transferring only these selected scenes.

The DNW-7 is equipped with the 2/3-inch 400K Power HAD™ IT CCDs and the DNW-90 has the 2/3-inch 520K Power HAD FIT CCDs. Camcorders switchable to widescreen aspect ratio are the DNW-90WS and DNW-9WS. The DNW-90WS is equipped with the 2/3-inch 520K Power HAD FIT widescreen CCDs and the DNW-9WS 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: when used with the CA-755 Camera Adaptor, operation can be remotely controlled from a CCU (Camera Control Unit).

Features

- A fully charged BP-L90A Lithium-ion Battery gives the DNW-7 approximately 180 minutes of continuous operating time.
- Up to 62 minutes recording using the S-cassette.
- Good Shot Marker Recording.
- Variable speed electronic shutter for shooting high-speed moving objects.
- TruEye™ process.
- DynaLatitude™.
- Auto Tracing White balance (ATW).
- Slot-in wireless microphone receiver.
- Internal light system.
- Viewfinder: the DNW-7 and 90 are equipped with a 1.5-inch monochrome viewfinder. The DNW-9WS and 90WS comes with a wide 2-inch monochrome viewfinder.

DNV-5
Dockable VTR

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

DNW-A75
Digital Video Cassette Recorder

The DNW-A75 includes a wide range of features, including frame-accurate video/audio insert editing, Preread editing, 525/625 operation, variable playback, Good Shot Marker support, and optional SDTI* (Serial Data Transport Interface) input and output. 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. The Betacam SP materials used by most broadcasters can be played back on the DNW-A75; analog Betacam playback features include Dynamic Tracking™ playback, NTSC/PAL viewing capability and 4-channel audio playback.

Features

- ±0 frame Insert/Assemble Editing
- Preread Editing Capability
- Variable Speed Control from -1 time to +2 times
- DMC (Dynamic Motion Control) function
- Good Shot Mark handling
- Versatile Interfaces such as analog composite and component video I/O, component SDI I/O and 4 channels of analog audio I/O, AES/EBU I/O, and 2 audio monitor outputs as standard.
- Long Recording and Playback time for 194 minutes using the L cassette and 62 minutes using the S cassette.
- Connection with the DVCAM™ format via SDI

Note: *SDTI is defined as SMPTE 305M.

DNW-75
Digital Video Cassette Recorder

The DNW-75 Digital Video Cassette Recorder includes a wide range of features, including frame-accurate video/audio editing, Preread editing, 525/625 operation, variable playback, Good Shot Mark support, and optional SDTI (Serial Data Transport Interface) output. 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, NTSC/PAL viewing capability and 4-channel audio playback are supported.

Features

- ±0 frame Insert/Assemble Editing
- Preread Editing capability
- Variable Speed Control from -1 to +2 times with noiseless video jog and digital jog sound (Betacam SX playback only)
- DMC (Dynamic Motion Control)
- Good Shot Mark, Record Start Mark and Virtual Shot Marks
- 525/60 or 625/50 versatility
- Versatile interfaces includes composite/component/SDI and optional SDTI* outputs, analogue and AES/EBU outputs for four audio channels, outputs for two-channel audio monitoring
- High-speed Picture Search: ±50 times normal playback speed. (Betacam SX mode)
- Provides Long Playback Time. 194 minutes using an L cassette and 62 minutes using an S cassette.

*Note: SDTI is defined as SMPTE 305M.

Betacam SX Recorders

DNW-A28
Digital Video Cassette Recorder

The DNW-A28 Digital Video Cassette Recorder is designed to be compact and light weight. Its small size enables it to be installed in a very limited space, such as an OB van. Features of the DNW-A28 includes, Sliding Key Panel, Recording and Playback Volume Priority Switching function, Manual Editing function, 525/625 operation, Analog Betacam/Betacam SP playback capability, Sequential Recording with two DNW-A28s, Good Shot Mark support, and Reading Shot Data function. Also, the DNW-A28 can 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
- Good Shot Mark, Record Start Mark and Virtual Shot Marks
- Reading Shot Data function
- 525/625 versatility
- Analog Betacam/Betacam SP playback capability
- SDI/analog composite video input/output
- Provides recording and playback time of 62 minutes using an S cassette.
- Continuous recording with two DNW-A28s
- Sony 9-pin remote control interface

Hybrid Recorders

DNW-A100
Digital Video Hybrid Recorder

The DNW-A100 is a unique innovation that combines tape and disk in a single unit. Betacam SX recordings can be transferred to the hard disk of the DNW-A100 at up to four times normal play speed for non-linear editing. The DNW-A100 also maintains analog playback capability — analog Betacam SP recordings can be transferred and digitized on the hard disk of the Hybrid Recorder at normal play speed. Once on disk, non-linear editing can begin with editing functionality.

Combining tape and disk in a single unit offers significant advantages of productivity and creativity — the Hybrid Recorder acts as a player/recorder as though there were two VTRs in one unit.

A Digital Video Hybrid Recorder can be added to an existing system and realize the benefits of non-linear editing, fast access to material on disk drive, and high-speed playback from disk.

Features

- Equipped with SDTI outputs for high-speed transfer of audio/video material at up to four times normal play speed.
- Equipped with SDI I/O for simple connection with other SDI-equipped devices.
- Analog Betacam/Betacam SP playback capability.
- 4-channel, 16-bit/48kHz digital audio.
- Same dimensions as those of a Betacam SP VTR allow easy integration into existing systems.
- 90-minute recording on the built-in hard disk drive.
- High-speed picture search with VTR: ±50 times normal play speed.
- High-speed picture search with HDD: ±100 times normal play speed.
- Jog speed control over a range of -1 to +1 times normal play speed.
- Two editing modes: full edit and simple edit modes.
- 525/60, 625/50 switchable.

Hybrid Recorders

DNW-A50
Digital Video Hybrid Recorder

The DNW-A50 is a cost-effective Digital Video Hybrid Recorder without SDTI interfacing and high-speed tape/disk operation, which can be utilized in the applications not requiring high-speed capability.
The DNW-A50 is equipped with a hard disk drive capable of 90-minute recording.

Betacam SX Players

DNW-A65
Digital Video Cassette Player

The DNW-A65 Digital Video Cassette Player includes a wide range of features, including DMC (Dynamic Motion Control), Freeze function, 525/625 operation, variable playback, Good Shot Mark support, and optional SDTI (Serial Data Transport Interface) output. It is ideally suited to enhance and migrate to digital while maintaining current analog linear operations. The DNW-A65 can be installed in the Flexicart or Library Management System™ (LMS) multicassette systems. The Betacam SP materials used by many broadcasters can be played back on the DNW-A65; like the BVW-65 industry standard Betacam SP VTR, Betacam/Betacam SP playback features for the DNW-A65 include Dynamic Tracking playback, NTSC/PAL viewing capability and 4-channel audio playback.

Features

- Variable Speed Control from -1 to +2 times with noiseless video jog and digital jog sound (Betacam SX playback only)
- DMC (Dynamic Motion Control)
- Good Shot Mark, Record Start Mark and Virtual Shot Marks
- 525/60 or 625/50 versatility
- Betacam/Betacam SP playback capability
- Versatile interfaces includes composite/component/SDI and optional SDTI* outputs, analog and AES/EBU outputs for four audio channels, outputs for two-channel audio monitoring
- High-speed Picture Search: ±50 times normal playback speed. (Betacam SX mode)
- Provides Long Playback Time. 194 minutes using an L cassette and 62 minutes using an S cassette.

* Note: SDTI is defined as SMPTE 305M.

DNW-65
Digital Video Cassette Player

The DNW-65 Digital Video Cassette Player includes a wide range of features, including DMC (Dynamic Motion Control), Freeze function, 525/625 operation, variable playback, Good Shot Mark support, and optional SDTI (Serial Data Transport Interface) output. It is ideally suited to enhance digital environment. The DNW-65 can be installed in the Flexicart or Library Management System (LMS) multicassette systems. Dynamic Tracking playback, NTSC/PAL viewing capability and 4-channel audio playback are supported.

Features

- Variable Speed Control from -1 to +2 times with noiseless video jog and digital jog sound (Betacam SX playback only)
- DMC (Dynamic Motion Control)
- Good Shot Mark, Record Start Mark and Virtual Shot Marks
- 525/60 or 625/50 versatility
- Versatile interfaces includes composite/component/SDI and optional SDTI* outputs, analogue and AES/EBU outputs for four audio channels, outputs for two-channel audio monitoring
- High-speed Picture Search: ±50 times normal playback speed. (Betacam SX mode)
- Provides Long Playback Time. 194 minutes using an L cassette and 62 minutes using an S cassette.

* Note: SDTI is defined as SMPTE 305M.

DNW-A22
Digital Video Cassette Player

The DNW-A22 is a simple player for viewing recorded and edited tapes. The DNW-A22 delivers the superb picture quality and cost-efficiency of the Betacam SX format.

Features

- Analog Betacam/Betacam SP playback capability.
- Using the optional RF adaptor, pictures and audio can be monitored using a conventional television receiver.
- High-speed picture search: ±50 times normal play speed.
- LTC, VITC, CTL, and User-bit information may be superimposed on the playback picture.
- 525/60, 625/50 switchable.

BKNW-119 & BKNW-120
Control Panels

BKNW-119 with BKNW-121

BKNW-120 with BKNW-121

These optional control panels are designed for remote control of the following Betacam SX recorders and players to improve operational convenience. These machines need to be fitted with a BKNW-121 Control Panel Case, BKNW-122 Control Panel Extension Kit and BKNW-123 Modification Kit (required for the DNW-A100/A50/A45/A30/30/A22) for operation with the BKNW-119 and BKNW-120.

BKNW-119
For use with the DNW-A75 Betacam SX Studio VTR and DNW-A65 Player

BKNW-120
For use with DNW-A100/A50/A45 Betacam SX Hybrid Recorders and DNW-A30/30/A22 Betacam SX Players

Both control panels are supplied with a 10-meter remote control cable.

DNE-700
Digital Editing System

The DNE-700 is designed to complement the digital advantages of Digital Video Hybrid Recorders. Its simple GUI-based editing capabilities provide a simple, cost effective editing system for the station operation with DEP-100 Digital Effects Processor. It realises simple news editing as a stand alone, desktop style editing system, and can be expanded to Cut Plus (A/A Roll effects) editing. The DNE-700 also offers the familiar user interface of dedicated control panel which includes audio/video level adjustment capability, together with the well accepted GUI for news editing.

Features

- Familiar GUI specifically designed for news editing.
- Easy, simple and familiar operation from the dedicated control panel equipped with the jog/shuttle dial.
- Functions as an editing controller for Sony Hybrid Recorders during on-line use providing picture-based non-linear editing.
- Using “Good Shot Marks” to locate edit points.
- Auto and manual capturing “Good Shot Marks” during recording to the hard disk of the DNW-A100.
- Audio level control, split editing and level control.
- Voice-over recording.

DLE-110
Live Editing System

The DLE-110 is an innovative GUI-based, non-linear editing system specifically designed for live program production. It provides rapid replay, slow motion playback, and quick editing of highlight scenes for live applications such as sports programs and outside broadcast events. Taking full advantage of the hard disk of the Hybrid Recorder, the DLE-110 provides simultaneous playback and recording — and quick assembly and playout of highlight scenes from the hard drive take place while the system continues to record a live source and while new edit points are marked.

Features

- Broadcast-quality video and audio, employing DNW-A100/A50/A45 Digital Video Hybrid Recorder as storage component.
- Live-oriented GUI, dedicated control panel.
- Long recording time using the hard drive of the Hybrid Recorder as well as extended storage devices.
- Endless recording function.
- Backup recording and archiving on tape simultaneously.

BKNW-116
Sony Disk Unit

Features

- External disk storage unit to extend the recording time of the Hybrid Recorder's built-in hard drive.
- Records up to 6 hours of video and audio signals.
- Single SCSI cable is needed to connect between Hybrid Recorder and BKNW-116.
- Warm-up function to pre-heat the disk mechanism.
- Split disk operation to realize various application.
- High speed transfer up to four times normal play speed between Hybrid Recorder's built-in hard drive and the disk unit.

DEP-100
Digital Effects Processor

The DEP-100 is a compact digital video effects unit offering a 1 mix/effects switcher/DME and a Downstream Keyer (DSK). The DEP-100 can enhance cut editing by performing A/A roll effects from a single source video and also add titles, captions, and logos with the DSK.
The DNE-700 and DLE-110 systems interface to the DEP-100.

Features

- Perform A/A roll effects by freezing the last frame of a scene to the internal frame memory and transitioning to the next scene with an effect.
- Perform split screen and picture-in-picture with two video inputs.
- Over 100 wipe patterns and more than 150 2D effects.
- 32 internal background patterns and an internal matte generator for border effects.
- SDI interface (Main/Sub/DSK Fill/DSK Key Source).
- Audio delay handling.
- Equipped with a floppy disk drive to recall graphics and/or still titles stored on a floppy disk.
- 525/60, 625/50 operation.

DNW-A225
Digital Portable Editor

The DNW-A225 consists of two detachable DNW-A25 units, connected into a single editing package. Both side of the DNW-A225 are capable of frame-accurate editing, as well as support of Betacam and Betacam SP playback.

DNW-A25
Digital Portable Editing Recorder

The DNW-A25 is a half in weigh and width of DNW-A225 and DNW-A220, making it small enough to be hand-carried. It features frame-accurate insert editing functions, as well as Betacam and Betacam SP tape playback. The DNW-A25 can also be used as a feeder, or as a third VTR for A/B roll with DNW-A220 orDNW-A225.

DNW-A220
Digital Portable Editor

DNW-A220 is a cost effective portable editor and the first Betacam SX Digital Portable Editor to offer editing in a small and compact package. The DNW-A220 offers Betacam SX record/playback and Betacam SP playback (left side) and video/audio insert and assemble editing (right side). Support of the Good Shot Marker system is included.

Common features of the Digital Portable Editors

- Compact design for field use and lightweight
- Battery Operation (attaching a Sony BP-L90A/L60A) and also AC powered operation
- Good Shot Mark and Shot Data handling
- 4 channels of 16-bit/48kHz digital audio for each deck
- Current S-size tape cassettes can be used for recording
- Uses same 1/2-inch tape as Betacam/Betacam SP and maintains playback compatibility with current analog Betacam/Betacam SP format (DNW-A225, DNW-A25 and the left side deck of DNW-A220)
- 525/60, 625/50 switchable in the digital component environment
- Speed search with VTRs: ±24 times normal play speed
- SDI input/output
- Analog composite Video Input and two outputs, Analog 2-ch audio input/output and 2-ch 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.

How Good Shot Mark Functions

Data on Tape to Enhance the Edit Search Process

Betacam SX camcorders allow automatic or manual recording of shooting data on tape. Data such as Date, Time, Shot ID, Cassette Number and Shot Number can all be recorded during the shooting process. Shot Data can be used to retrieve material during editing.

Good Shot Mark and REC. Start Mark

Betacam SX camcorders provide an innovative function to speed the editing process which increases the ability to identify good takes while shooting in the field. A REC. Start Mark is automatically placed on the tape each time the VTR Start button is pressed while the VTR is in standby mode. A Good Shot Mark can be added at any time by pressing the RETURN button on the side of the lens while in recording mode.

When tapes are played back with DNW-A220/A225, these Digital Portable Editors can scan through the tape and detect all the REC. Start Marks and Good Shot Marks recorded on the tape. After detecting the marks, a list of all the marks is displayed on the LCD screen, allowing easy cueing to any mark.
During the Play, Shuttle, Jog and Still, these portable editors can memorize additional marks called Virtual Shot Marks, entered by the operators. Using this list of marks, tedious searching process will be completely eliminated from tape-to-tape news editing.

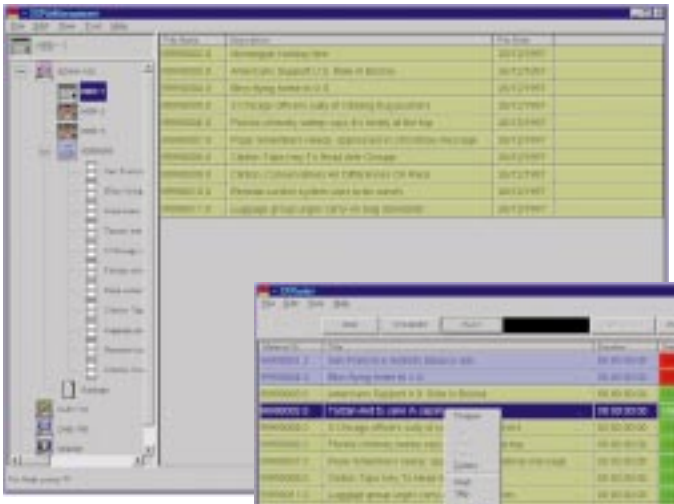
Shot Mark List

Shot Mark Log

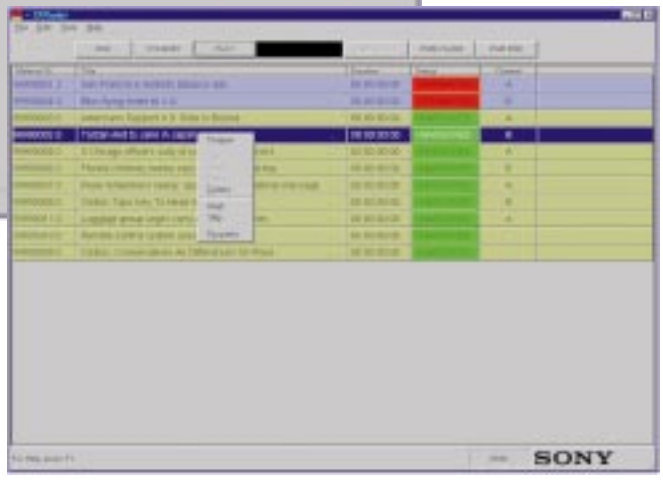
When tapes are copied onto DNW-A100/A50 Digital Video Hybrid Recorders' built-in hard drive, these marks will appear highlighted as picture stamps on the GUI of the DNE-700 Digital News Editing System. Using picture stamps also helps to eliminate tedious searching from nonlinear news editing and saves hard disk space by downloading only the scenes selected by editors. This Shot Mark Handling functions of the Betacam SX helps to speed-up the newsroom operation.

SXnet™

BZNW-100
SXnet Operating Program



File Manager GUI



The BZNW-100, which uses widely available standard PCs, Ethernet™ and serial digital infrastructure, makes it easy to transfer the material from the feeds room to edit bays, or from editing suite to play-out. As an example, incoming material recorded on a Hybrid Recorder's disk drive can be quickly transferred to an editing workstation for editing. The edited package can then be sent to a playout Hybrid Recorder and compiled into a playlist with other packages. SXnet executes this playlist for final transmission. Changing a playlist is a simple drag-and-drop operation with a user-friendly GUI. With SXnet, 'Sneaker-Net' is a thing of the past.

Features

A. Function for File Management and Transfer

- File Handling and Management: Transfer, Delete, and Naming.
- Transfer operation: Select source device and EDL/or "one file on program line", then transfer to selected target device.
- Simultaneous copy for Hybrid Recorder(HBR) and back-up tape on the play-out Hybrid Recorder.
- Transfer-job queuing function when HBR was busy for recording.
- Specifying Title, Start of Message (SOM) and End of Message (EOM) for each material.
- HTML Page creation with file list for browsing the file description.

B. Functions for Playout Operation

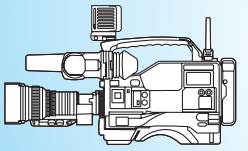
- File open with SOM, and EOM or Duration.
- Drag-and-drop operation for creation/re-order of playlist.
- Play-out start by GPI pulse trigger and report of play status to GPI level.

Specifications

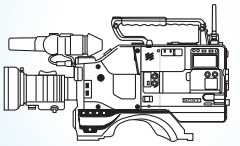
- Program transfer during play-out and editing playlist
- As Run Log of playout.
- Quick operation for last minutes change: Event insertion as "next event" is available by one key action.
- Up to ten clients (DNE-700 and DLE-110) can be connected to the system via TCP/IP.
- Two Hybrid Recorders can be used as playout devices.
- One Hybrid Recorder can be used as a back-up device.
- Recommended routing switchers for this system include: DVS-V1201, DVS-V1616, DVS-V3232 or DVS-V6464.
- GPIs support three actions; 'Play', 'Change' and 'Stand-by'.
- Transfer signal format: SDI.

System Configurations

Field



DNW-7/9WS/90/90WS

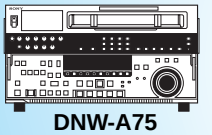


DNV-5 + Portable camera

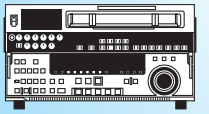
DNW-A225/A220

DNW-A25

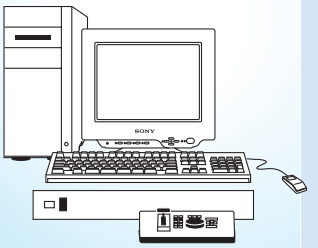
Live



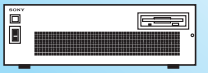
DNW-A75



DNW-A100/A50



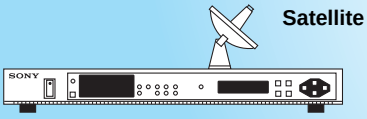
DLE-110



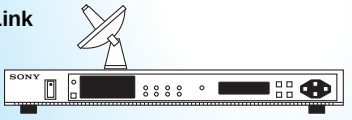
DEP-100

Transmission

Satellite Link



DSM-T1

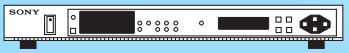


DSM-R1

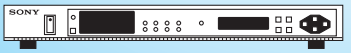
DNW-A28

Microwave Link

Telco Link



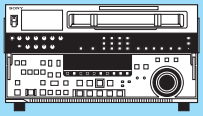
DSM-M1



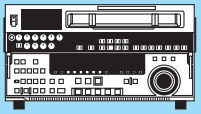
DSM-D1

Tape

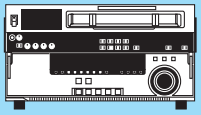
In-house



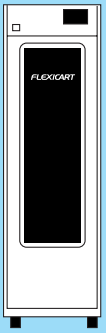
DNW-A75/75



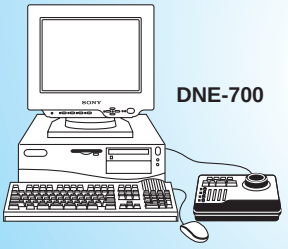
DNW-A100/A50



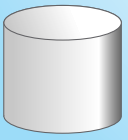
DNW-A65/65/A22



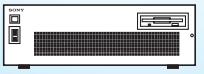
Flexicart



DNE-700



MPEG Server System



DEP-100

Specifications

DNW-7/9WS/90/90WS Camcorders

		DNW-7	DNW-9WS		DNW-90	DNW-90WS	
			(16:9 MODE)	(4:3 MODE)		(16:9 MODE)	(4:3 MODE)
General							
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.120 min (with BP-L60A) Approx. 165 min (with BP-L90A)	Approx.110 min (with BP-L60A) Approx. 165 min (with BP-L90A)		Approx.110 min (with BP-L60A) Approx. 165 min (with BP-L90A)	Approx.105 min (with BP-L60A) Approx. 160 min (with BP-L90A)	
Signal inputs	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)/Mic 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)					
Others	Lens	12-pin					
	Remote	6-pin					
	Light	2-pin, DC 12 V, max. 30 W					
	DC input	XLR 4-pin (for the optional AC-550)					
	DC output	4-pin (for wireless microphone receiver), DC12 V					
VTR section							
General	Recording format	Betacam SX					
	Tape speed	59.515 mm/s					
	Playback/Recording time	Max. 62 min with BCT-62SXA cassette					
	Fast forward time	Approx. 5 min with BCT-62SXA					
	Rewind time	Approx. 5 min with BCT-62SXA					
	Recommended tape	Sony Betacam SX cassette (BCT-60SX series) Sony Betacam SP cassette (BCT-30MA series/UVWT-30MA series)					
	Sampling frequency	Y: 13.5 MHz R-Y/B-Y: 6.75 MHz					
	Quantization	8 bits/sample					
	Error correction	Reed-Solomon code					
Video performance	K-factor (2T pulse)	1 % or less					
	Y/R-Y/B-Y delay	15 ns or less					
Digital audio performance	Sampling frequency	48 kHz (synchronized with video)					
	Quantization	16 bits/sample					
	Frequency response	20 Hz to 20 kHz +0.5 dB/-1.0 dB					
	Dynamic range (emphasis ON)	More than 85dB					
	Distortion (at 1kHz, emphasis ON, reference level)	Less than 0.08 %					
	Cross talk (at 1kHz, reference level)	Less than -70 dB					
	Wow & flutter	Below measurable limit					
	Head room	20 dB					
	Emphasis (ON/OFF selectable)	T1 = 50 µs, T2 =15 µs					
		* The specifications given above were measured by CA-701.					
Camera section							
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	811(H) x 508(V)	1038 (H) x 504 (V)				
	Optical system	F1.4 prism system					
	Built-in filters	1: CLEAR 2:5600 K+1/8 ND 3:5600 K 4:5600 K+1/64 ND					
	Shutter speed	1/100, 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:60.3 to 10156 Hz (260steps)	CLS:60.1 to 7000 Hz (260 step)		CLS: 60.1 to 7000 Hz (260 steps) ECS: 30.4 to 58.3 Hz (248 steps)		
	Lens mount	Special bayonet mount					
	Sensitivity (2000 lx,89.9 %reflectitive)	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)	63 dB					
	Vertical resolution	(without EVS) 400 TV lines (with EVS)450 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)	55% (Typical)
Viewfinder	CRT	1.5-inch monochrome	2-inch monochrome		1.5-inch monochr	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	600 TV lines	450 TV lines	600 TV lines
	Microphone	Ultra-directional (detachable)					
Suplied Accessories							
		Shoulder belt (1),Microphone (1),XLR cap (4),Maintenance Manual Part 1 (1),Operation Manual (1)					

Specifications

DNV-5 Dockable VTR

General		
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		59.515 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-L60 (BVP-90 and DNV-5)
Inputs/outputs		
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)/ mic 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)
Others		
Remote		6-pin
Light		2-pin, DC 12 V, max. 30 W
DC input		XLR 4-pin (for the optional AC-550/550CE)
DC output		4-pin (for wireless microphone receiver), DC 12 V
Video performance		
Sampling frequency		Y: 13.5 MHz, R-Y/B-Y: 6.75 MHz
Quantization		8 bits/sample
K-factor (2T pulse)		Less than 2 %
Y/R-Y/B-Y delay		Less than 20 ns
Digital audio performance		
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
Suplied Accessories		
		50-pin connector cap (1), BNC cap (5), Shoulder belt (1), XLR cap 1 (2), XLR cap 2 (2), Maintenance manual (1), Operation manual (1)

DNW-A75/75/A28 Digital Video Cassette Recorder

		DNW-A75	DNW-75	DNW-A28
General				
Power requirements		AC 100 V to 240 V, 50/60 Hz		DC 12 V, +5.0 V/-1.0 V
Power consumption		205 W (215 VA)/AC 240 V	176 W	55 W
Operating temperature		+5°C to +40°C (+41°F to +104°F)		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.)		28.5 kg (62 lb. 12 oz)	27 kg (59 lb. 8 oz)	5.5 kg (12 lb.3 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)		210 x 132 x 455 mm (8 3/8 x 5 1/4 x 18 inches)
Tape speed	Betacam SX	59.515 mm/s (525 mode), 59.575 mm/s (625 mode)		
	Betacam/Betacam SP	118.6 mm/s	—	118.6 mm/s
Digital Playback/recording time		Max. 194 min with BCT-194SXLA cassette		Max. 62 min with BCT-62SXA cassette
Fast forward/rewind time		Approx. 3 min with BCT-194SXLA cassette		Approx. 3 min with BCT-62SXA cassette
Search speed range		±50 times normal playback speed (Betacam SX) ±35 times normal playback speed (Betacam/Betacam SP)	±50 times normal playback speed (Betacam SX only)	±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		
Input/output signal				
Analog composite input		BNC (x2), 1.0 Vp-p, 75Ω, sync negative		BNC (x1), 1.0 Vp-p, 75Ω, sync negative
Analog composite output		BNC (x3, including one character out), 1.0 Vp-p, 75Ω, sync negative		BNC (x2, including one character out), 1.0 Vp-p, 75Ω, sync negative
Analog component input		BNC (x3, for 1 set, Y/R-Y/B-Y), Y:1.0 Vp-p, 75Ω, sync negative, R-Y/B-Y:0.7 Vp-p, 75Ω		
Analog component output		BNC (x3, for 1 set, Y/R-Y/B-Y), Y:1.0 Vp-p, 75Ω, sync negative, R-Y/B-Y:0.7 Vp-p, 75Ω		
SDI input		BNC (x2, including one active through out), SMPTE 259M (ITU-R.BT.656-3), 270 Mbps		BNC (x1), SMPTE 259M (ITU-R.BT.656-3) 270 Mbps
SDI output		BNC (x3, including one active through out), SMPTE 259M (ITU-R.BT.656-3), 270 Mbps		BNC (x2), SMPTE 259M (ITU-R.BT.656-3) 270 Mbps
SDTI input (option)		BNC (x1), SMPTE 305M		—
SDTI output (option)		BNC (x2), Max. x2 speed SMPTE 305M		—
Analog audio input		XLR (x4, CH1/2/3/4)		XLR (x2, CH1/2)
Analog audio output		XLR (x4, CH1/2/3/4)		XLR (x2, CH1/2)
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	Remote	D-sub 9-pin (x2), Sony 9-pin remote interface		D-sub 9-pin (x1), Sony 9-pin remote interface
	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)		6-pin (x1, for maintenance)
Reference input		BNC (x1), 0.3 Vp-p, 75Ω, sync negative (with loop through out)		
Time code input		XLR (x1)		BNC (x1)
Time code output		XLR (x1)		BNC (x1)
Analog monitor output (L/R)		XLR (x2)		
Processor adjustment range				
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		±15µs		
System SC phase		±200µs		
Y/C delay		±100µs (Betacam/Betacam SP playback only)	—	±100µs (Betacam/Betacam SP playback only)
Digital video performance				
Composite input level		±3 dB		—
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 analog component output		K-factor (2T pulse): 1 % or less		—
Analog component recording playback		Input A/D quantization: 8 bits/sample K-factor (2T pulse): 1 % or less LF non-linearity: 2.5 % or less		—
Analog composite recording playback		Differential gain: 2 % or less Differential phase: 2° or less YC delay: 15 ns or less K-factor (2T pulse): 1 % or less		Differential gain: 2 % or less Differential phase: 2° or less YC delay: 15 ns or less K-factor (2T pulse): 1.5 % or less
Digital audio performance				
Sampling frequency		48 kHz (synchronized with video)		
Quantization		16 bits/sample		
Frequency response (0 dB at 1 kHz)		20 Hz to 20 kHz +5.0 dB/-1.0 dB		
Dynamic range (at 1 kHz, emphasis ON)		More than 90 dB		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=50µs, T2=15µs		
Supplied accessories				
		Remote cable (RCC-5G x1) PSW 4 x 16 Rack Mount Screw (x4) Operation manual (x1) Maintenance manual (x1)		Operation manual (x1) Maintenance manual part 1 (x1)

Specifications

DNW-A100/A50 Digital Video Hybrid Recorder

			DNW-A100	DNW-A50
General				
Power requirements			AC 100 V to 240 V, 50/60 Hz	
Power consumption			320 W	300 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 (Approx.)			35 kg (77 lb. 3 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)	
VTR				
Tape transport system	Recording format		Betacam SX	
	Tape speed	Betacam SX	59.515 mm/s (525 mode), 59.575 mm/s (625 mode)	
		Betacam/Betacam SP	118.6 mm/s	
	Digital record/playback time		Max. 194 min with BCT-194SXLA cassette	
	Fast forward/rewind time		Approx. 3 min with BCT-194SXLA cassette	
	Smooth JOG speed range(shuttle mode)		-1 to +1 times normal playback speed	
	Search speed range		±50 times normal playback speed (Betacam SX) ±35 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	
Disk system	Record/playback time		90 min	
	Smooth JOG speed range		-1 to +1 times normal playback speed	
	Search speed range		±100 times normal playback speed (Betacam/Betacam SP)	
	Minimum duration of Edit event		0.5 s	
	Maximum record/feed speed		4 times normal playback speed	1 times normal playback speed
Inputs/outputs signal				
Video input	SDI		BNC (x1) with active through out, SMPTE 259M (ITU.R.BT656-3), 270 Mbps	
	SDTI (optional BKNW-103 required)		BNC (x1), SMPTE 305M	—
	Analog component*(optional BKNW-104 required)		BNC (x3, for 1 set, Y/R-Y/B-Y), Y: 1.0 Vp-p, 75Ω, sync negative, R-Y/B-Y: 0.7 Vp-p, 75Ω	
	Analog composite* (optional BKDW-505 required)		BNC (x2, with loop through), 1.0 Vp-p, 75Ω, sync negative	
	Reference		BNC (x2, with loop through), 0.3 Vp-p, 75Ω, sync negative	
Video output	SDI		BNC (x2) SMPTE 259M (ITU.R.BT656-3), 270 Mbps	
	SDTI		BNC (x2)	—
	Analog component		BNC (x3, for 1 set, Y/R-Y/B-Y), Y: 1.0 Vp-p, 75Ω, sync negative, R-Y/B-Y: 0.7 Vp-p, 75Ω	
	Analog composite		BNC (x2, including one character out), 1.0 Vp-p, 75Ω, sync negative	
Audio input	Digital (CH1/2, 3/4) SDI embedded		BNC (x1, video & audio) SMPTE 259M (ITU.R.BT656-3), 270 Mbps	
	AES/EBU**(Optional BKNW-105 required)		BNC (x2) stereo mode	
	Analog (CH1/2/3/4)**		XLR-3-31 type (x4) LOW OFF: -60 dBu, high impedance, balanced HIGH OFF: +4 dBu, high impedance, balanced HIGH ON: +4 dBu, 600Ω termination, balanced	
Audio output	Digital (CH1/2, 3/4) SDI-embedded		BNC (x1, video & audio) SMPTE 259M (ITU.R.BT656-3), 270 Mbps	
	AES/EBU**(Optional BKNW-105 required)		BNC (x2) stereo mode	
	Analog (CH1/2/3/4)**		XLR-3-32 type (x4), +4 dBu at 600Ω load, low impedance, balanced	
	Headphones		Standard jack (x1), stereo	
	Monitor L/R		XLR-3-32 type (x2), +4 dBu at 600Ω load, low impedance, balanced	
Time code	Input		XLR-3-31 type (x1), 0.5 to 18 Vp-p, 10 kΩ, balanced	
	Output		XLR-3-32 type (x1), 2.2 Vp-p, low impedance, balanced	
Remote	Remote 1 (In/Out)		D-sub 9-pin, Sony 9-pin remote interface	
	RS-232C		D-sub 25-pin, RS-232C interface	
	SCSI		68-pin, female	
	Video control		D-sub 15-pin, for optional BVR-50 remote controller	
Processor adjustment range				
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	
Syetm SC phase			±200 ns	
Y/C delay			±100 ns (Betacam/Betacam SP playback only)	
Composite input			±3 dB	
Digital video performance				
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 analog component output			K-factor (2T pulse): 1 % or less	
Analog component input (option) to analog component output		Input A/D quantization	8 bits/sample	
		K-factor (2T pulse)	1 % or less	
		LF non-linearity	3 % or less	
Analog component input (option) to analog composite output		Differential gain	2 % or less	
		Differential phase	2° or less	
		Y/C delay	15 ns or less	
		K-factor (2T pulse)	1 % or less	
Digital audio performance				
Sampling frequency			48 kHz (synchronized with video)	
Quantization			16 bits/sample	
Analog input to output A/D and D/A quantization			16 bits/sample	
Frequency response			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=50µs, T2=15µs	
Supplied accessories				
			AC power code (x1) Remote cable (RCC-5G x1) PSW 4 x 16 Rack Mount Screw (x4) Operation manual (x1) Maintenance manual part 1 (x1)	

*Either analog component or composite input can be selected as an option.
**AES/EBU audio input can be selected as an option to replace analog audio.

DNW-A65/65/A22 Digital Video Cassette Player

		DNW-A65	DNW-65	DNW-A22
General				
Power requirements		AC 100 V to 240 V, 50/60 Hz		
Power consumption		190 W	161 W	190 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 (Approx.)		28 kg (61 lb. 10 oz)	26 kg (57 lb. 5 oz)	32 kg (70 lb. 8 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	Betacam SX	59.515 mm/s (525 mode), 59.575 mm/s (625 mode)		
	Betacam/Betacam SP	118.6 mm/s	—	118.6 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		±50 times normal playback speed (Betacam SX) ±35 times normal playback speed (Betacam/Betacam SP)	±50 times normal playback speed (Betacam SX only)	±50 times normal playback speed (Betacam SX) ±35 times normal playback speed (Betacam/Betacam SP)
Outputs signal				
SDI output		BNC (x3, including one character out), SMPTE 259M (ITU-R.BT.656-3), 270 Mbps		—
Analog component output		BNC (x3, for 1 set, Y/R-Y/B-Y), Y: 1.0 Vp-p, 75Ω, sync negative, R-Y/B-Y: 0.7 Vp-p, 75Ω		—
Analog composite output		BNC (x3, including one character out), 1.0 Vp-p, 75Ω, sync negative		BNC (x2, including one character out), 1.0 Vp-p, 75Ω, sync negative
SDTI output (option)		BNC (x2), Max. x2 speed, SMPTE 305M		—
Analog 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	Remote control	D-sub 9-pin (x2), Sony 9-pin remote interface		—
	RS-232C	D-sub 9-pin (x1), RS-232C interface		D-sub 25-pin (x1), RS-232C interface
	Processor control	D-sub 15-pin (x1)		—
	Connrctor for Control Panel	Mini D-sub 15-pin (x1)		—
	Parallel remote	50-pin (x1)		—
	Aux	Mini D-sub 15-pin (x1)		—
Others	RFU video output	—		Pin jack (x1), 1.0 Vp-p, 75Ω, sync negative
	RFU audio output	—		Pin jack (x1), -10 dBu at 47 kΩ, unbalanced
	RFU DC output	—		Ø2.5 mm jack, +5 V DC/GND
Processor adjustment range				
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		±30 µ s		—
System SC phase		±200 µ s		—
Y/C delay		±100 µ s (Betacam/Betacam SP playback only)	—	
Digital video performance				
Sampling frequency		Y: 13.5 MHz, R-Y/B-Y: 6.75 MHz		
Quantization		8 bits/sample		
Error correction		Reed-Solomon code		
Analog component recording playback		Input A/D quantization: 8 bits/sample K-factor (2T pulse): 1 % or less LF non-linearity: 2.5 % or less		
Analog component recording playback		Differential gain: 2 % or less Differential phase: 2˚ or less YC delay: 15 ns or less K-factor (2T pulse): 1 % or less		
Digital audio performance				
Sampling frequency		48 kHz (synchronized with video)		
Quatization		16 bits/sample		
Frequency response (0 dB at 1 kHz)		20 Hz to 20 kHz +5.0 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 µ s, T2=15 µ s		
Supplied accessories				
		Remote cable (RCC-5G x1) PSW 4 x 16 Rack Mount Screw (x4) Operation manual (x1) Maintenance manual (x1)	PSW 4 x 16 Rack Mount Screw (x4) Operation manual (x1)	PSW 4 x 16 Rack Mount Screw (x4) Operation manual (x1) Maintenance manual (x1)

Specifications

DNE-700 Digital Editing System

General	
Mass (Approx.)	1.4 kg (3 lb. 1 oz)
Dimensions (W x H x D)	237 x 84 x 202 mm (9 3/8 x 3 3/8 x 8 inches)
Power requirements	Supplied from PC
Operating temperature	+ 5°C to +40°C (+41°F to +104°F)
Connector Panel	
Mass (Approx.)	60 g (2 oz)
Dimensions (W x H)	40 x 101 mm (1 5/8 x 4 inches)
Power requirements	Supplied from PC
Operating temperature	+ 5°C to +40°C (+41°F to +104°F)
Processor board	
Mass (Approx.)	280 g (10 oz)
Dimensions (W x H)	120 x 305 mm (4 3/4 x 12 1/8 inches)
Power requirements	Supplied from PC
Operating temperature	+ 5°C to +40°C (+41°F to +104°F)
Recommended SCSI adapter	Adaptec™ AHA-2904AU

DLE-110 Live Editing System

General		
Power Requirements		AC 100 V to 120 V ±10 % AC 220 V to 240 V ±10 %
Power Consumption		BKLE-101PCI: 10 VA BKLE-102: 10 VA
Weight		BKLE-101PCI: 4.5 kg (9 lb 15 oz) BKLE-102: 2.8 kg (6 lb 3 oz)
Dimensions		BKLE-101PCI: 482(w) x 44(h) x 350(d) mm (19 x 1 3/4 x 13 7/8 inches) BKLE-102: 265(w) x 85(h) x 222(d) mm (10 1/2 x 3 3/8 x 8 3/4 inches)
Connectors		BKLE-101PCI: REF. IN (BNC, loop-through) CONTROLLER (15-pin D-sub) REMOTE (9-pin D-sub x 5) PARALLEL (36-pin) Ext. TIME CODE (XLR) BKLE-102 REMOTE (15-pin D-Sub, 2 m)

DEP-100 Digital Effects Processor

General		
Power requirements		AC 85 V to 132 V, 170 V to 265 V
Power consumption		60 W
Operating temperature		+5 °C to +40 °C (+41 °F to +104 °F)
Storage temperature		-20 °C to +55 °C (-4 °F to +131 °F)
Humidity		25 % to 80 % (relative humidity)
Mass		11 kg (24 lb 4 oz)
Dimensions (W x H x D) (including feet)		424 x 132 x 450 mm (16 3/4 x 5 1/4 x 17 3/4 inches)
Video inputs/outputs		
Digital input	MAIN IN	SDI, BNC (x1), 75 Ω
	SUB IN	SDI, BNC (x1), 75 Ω
	DSK FILL IN	SDI, BNC (x1), 75 Ω
	DSK KEY IN	SDI, BNC (x1), 75 Ω
Digital output	PGM OUT	SDI, BNC (x4), 75 Ω
Analog input	REF VIDEO	Composite video, BNC (x2, loop through), high-impedance
Analog output	MONITOR	Composite video, BNC (x1), 75 Ω
Video effects		
Effect	1-Mix/Effect + 1 DSK	Cut, Mix, Wipe/DME
Effect pattern	Wipe	108 patterns
	2D DME	150+ patterns
DSK	Key type	Linear
	Key adjust	Clip, Gain
Internal video		Matte Generators for Color Background, Border, DSK Fill, etc. and Pattern Generators for brick, block, etc.
Remote inputs/outputs		
REMOTE-1 (IN/OUT)		D-sub 9-pin (female x2), Sony 9-pin interface
REMOTE-2		D-sub 25-pin (female), RS-232C interface
MOUSE		D-sub 9-pin (female), RS-232C interface
GPI IN		BNC (x3, EFFECT/DISK ON/DISK OFF), TTL Level, 10 kΩ
Supplied accessories		
		Rack mount, Installation/maintenance manual

DNW-A225/A220/A25 Digital Portable Editor

	DNW-A225 <VTR1/VTR2>	DNW-A220 <VTR1/VTR2>	DNW-A25
General			
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 %		
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	59.515 mm/s (525 mode), 59.575 mm/s (625 mode)		
Betacam/Betacam SP	118.6 mm/s		
Digital playback/recording	Max. 62 minutes 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		
Input/output signals			
Analog composite input	BNC (x1), 1.0 Vp-p, 75 Ω, sync negative		
Analog composite output	BNC (x2, including one character out), 1.0 Vp-p, 75 Ω, sync negative		
SDI input	BNC (x1), SMPTE 259M (ITU. R. BT. 656-3), 270 Mbit/s		
SDI output	BNC (x2), SMPTE 259M (ITU. R. BT. 656-3), 270 Mbit/s		
Analog audio input (CH1,2)	XLR (x2)		
Analog audio output (CH1,2)	XLR (x2)		
Analog 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)		
Processor adjustment range			
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/Betacam SP playback)		
Chroma Phase	±30 °		
System phase	Sync: ±15 µs (SC step), SC: ±200 ns		
Digital video signal system			
Sampling frequency	Y: 13.5 MHz, R-Y/B-Y: 6.75 MHz		
Quantization	8 bits/sample		
Compression	MPEG2 4:2:2 Profile@Main Level		
Analog composite recording playback			
Bandwidth (Y)	0 to 4.5 MHz+0.5 dB/-3.0 (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		
Digital audio signal system			
Sampling frequency	48 kHz (synchronized with video)		
Quantization	16 bits/sample		
Headroom	20 dB (or 18 dB selectable)		
Emphasis	T1=50 µs, T2=15 µs (on/off selectable in recording mode)		
Analog output			
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 1 kHz, 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)		
Others			
Channel coding	S-I-NRZI PR-IV		
Error correction	Read-Solomon code		
LCD Monitor			
Display method	Active matrix transmission		
Size	6.4 inches x 2		6.4 inches x 1
Picture elements	640 x 480 x 3 pixels		
Luminance/brightness	Adjustable by knob		
Speaker			
Built-in speakers	x 2, monaural		x 1, monaural
Display			
	Counter, Servo Lock, Tape Remain, Battery Remain, etc.		
Audio level meter			
	Ch 1,Ch 2 (indication of Ch 3,4 is also available by switch)		
Supplied accessories			
		9-pin remote control cable x 1 75 Ω coaxial cable with BNC plug x 1 (for SDI connection) Shoulder belt x 1 Operation manual x 1 Coin screws x 12	Carrying belt x 1 Operation manual x 1 Maintenance manual (part 1) x 1

SONY

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