SONY

NTSC

BETACAM SX™

Digital Video Cassette Recorder

DNW-A75

The Digital Video Cassette Recorder—DNW-A75

In 1996, Sony developed the Betacam SX™ system as the next generation digital video format, ideally suited for electronic news gathering. Adopting MPEG-2 4:2:2 Profile@Main Level compression technology, Betacam SX equipment delivers exceptional video quality at very low data rates. Taking advantage of inherent opportunities provided by digital technologies, the Betacam SX products are designed to streamline news operations with equipment such as nonlinear editing systems and Hybrid Recorders. Sony also realizes the necessity to support and upgrade more conventional linear operations of news gathering and production, and includes more traditional products in the SX family. The DNW-A75 Digital Video Cassette Recorder includes a wide range of features, including frame-accurate video/audio insert 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. The Betacam SP™ materials used by most broadcasters can be played back on the DNW-A75; analog Betacam™ playbackfeatures include Dynamic Tracking™ playback, NTSC/PAL viewing capability and 4-channel audio playback.

Note: SDTI is defined as SMPTE 305M.

DNW-A75

High Quality Digital Video and Audio Recording

The DNW-A75 delivers the exceptional video quality of the Betacam SX format, recording 8-bit, 4:2:2 component digital signals using MPEG-2 4:2:2 Profile@Main Level compression technology. The system also includes four 16-bit, uncompressed audio channels.

±0 frame Insert/Assemble Editing

The DNW-A75 enables insert and assemble editing with the ±0 frame accuracy. This enables precise editing on Betacam SX tape in machine-to-machine or A/B roll configurations.

Preread Editing Capability

The DNW-A75 is equipped with Preread technology, which has proven invaluable in the Digital Betacam series VTRs. Preread heads are located ahead of the record heads on the drum scanner, and previously recorded video and audio signals are read by these Preread heads. This signal can be processed by external equipment and recorded back onto the same track. This capability is ideal for titling, color correction and layering for video, and mixing or sweetening for audio.

Variable Speed Control

The range of the Variable Speed Control is from -1 to +2 times normal play speed for Betacam SX and -1 to +3 times for Betacam and Betacam SP.

DMC (Dynamic Motion Control)

Equipped with the Dynamic Motion Control functions, the DNW-A75 provides slow-motion playback from the control panel or from external controllers such as the BVE series editors or DTR-3000 slow motion controller.

Good Shot Mark

One of the most useful features of the Betacam SX series is the Good Shot Mark system, providing a method for qualitative decisions made in the camcorder to be utilized during the editing process. The DNW-A75 can scan the tapes and automatically detect shot marks recorded on the tape. After scanning for marks, a list of all the marks is displayed on the monitor, allowing easy cueing to any mark.
In addition, the DNW-A75 has two types of the additional marks. One can only be memorized during the Play, Shuttle, Jog and Still, called “Virtual Shot Marks”, and another can be recorded on the tape. These features can speed up the edit search process dramatically.

525/60 or 625/50 Versatility

The DNW-A75 can easily be switched from 525/60 to 625/50 modes. In addition, Analog Betacam/SP monitoring is available for both 525/60 and 625/50 mode. This enables the DNW-A75 to work in international environments.

Betacam/Betacam SP Playback Capability

As with many of the Betacam SX products, the DNW-A75 has the capability to play back analog Betacam and Betacam SP recordings on oxide or metal particle tape. This enables the existing Betacam SP camcorders to be used for news acquisition, and easy integration of the analog Betacam and Betacam SP tapes that most broadcasting stations already own. Playback of AFM (Audio FM) channels 3 and 4 is also available. Moreover, the DNW-A75 is capable of analog DT playback from -1 to +3 speed.

Betacam SP Tape

Betacam Tape

Versatile Interfaces

The DNW-A75 is equipped with 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. In addition, RS-422A control, RS-232C control, Parallel 50-pin remote control interface, video processor control interface (Parallel 15-pin), and Time Code I/O are also included.
SDTI (SX) output is an optional interface. It enables to transfer the material to an A/V Server at a maximum of 2 times normal speed and will speed up the editing time.

Multi-segment Recorder in the Flexicart and LMS Systems

The DNW-A75 can be used as a multi-segment recorder in the Flexicart or LMS, giving these multicassette systems the advantage of long playing times and lower maintenance costs associated with the Betacam SX format.

LMS

FLEXICART

DNW-A75 Front Panel

High-speed Picture Search

Shuttle Search Speed Betacam SX mode : ±78 times normal play speed.
Shuttle Search Speed Betacam SP mode : ±35 times normal play speed.

Long Recording & Playback Time

The DNW-A75 provides long time Recording and Playback time for 194 minutes using the L cassette and 62 minutes using the S cassette.

Betacam SX Tape

Flexible Usage of the Control Panel

The remote control panel of the DNW-A75 can be extended. Also, since the DNW-A75 is equipped with another connector on the rear panel, it can be controlled from two control panels, adding greater operational flexibility.

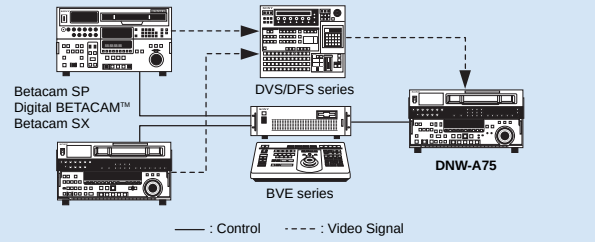
BKNW-119 with BKNW-121

DNW-A75 Front Sub-panel

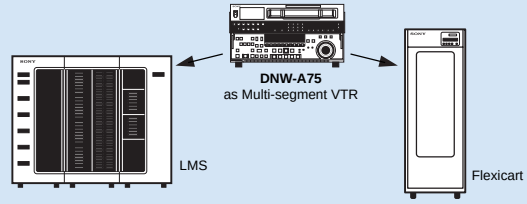
DNW-A75 Rear Panel

System Configuration

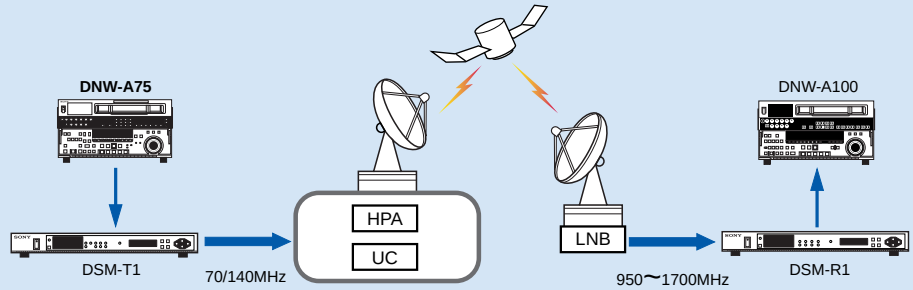
Linear A/B roll System



DNW-A75 in Flexicart & LMS



Digital Satellite Link System



Optional Accessories

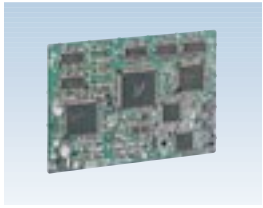
Video Processor Controller
BVR-50

DV Interface Box
BKNW-25

Dynamic Motion Controller
DTR-3000

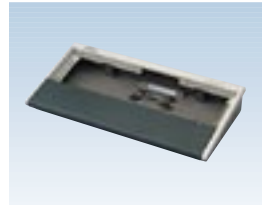
Digital Satellite Modulator/Demodulator
DSM-T1/R1

SDTI Multiplexer/Demultiplexer
DSM-M1/D1

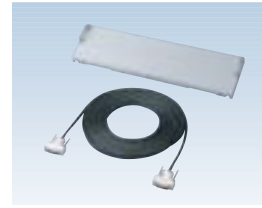


SDTI (SX) Output Board
BKNW-118

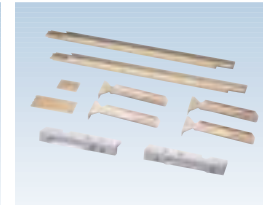
Control Panel
BKNW-119



Control Panel Case
BKNW-121



Control Panel Extension Kit
BKNW-122



Rack Mount Kit
RMM-111

Betacam SX Video Cassette
BCT-12SX/22SX/32SX/60SX/62SX (Small)
BCT-64SXL/94SXL/124SXL/184SXL/194SXL (Large)

Cleaning Cassette
BCT-D12CL

Cleaning Cassette
BCT-5CLN

Maintenance Manual (Part-2)

Specifications

DNW-A75

General

Power requirements		AC 100 V to 240 V, 50/60 Hz
Power consumption		215 VA (205 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		28.5 kg (62 lb 12 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
Digital playback/recording time		Max. 194 min with BCT-194SXL cassette
Fast forward/rewind time		Approx. 3 min with BCT-194SXL cassette
Search speed range		±78 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

Inputs/outputs signal

Analog composite input		BNC (x2), 1.0 Vp-p, 75 Ω, sync negative
Analog composite output		BNC (x3, including one character out), 1.0 Vp-p, 75 Ω, sync negative
Analog 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
Analog 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), SMPTE 259M, (ITU-R BT.656-3), 270 Mbit/s
SDI output		BNC (x3, including one character out), SMPTE 259M, (ITU-R BT.656-3), 270 Mbit/s
SDTI (SX) output (option)		BNC (x2), Maximum x2 speed, SMPTE 305M
Analog audio input (CH1, 2, 3, 4)		XLR (x4)
Analog audio output (CH1, 2, 3, 4)		XLR (x4)
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
	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
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)
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
Set up/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

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 to analog component output	Input A/D quantization: 8 bits/sample K-factor (2T pulse): 1 % or less LF non-linearity: 2.5 % or less
Analog composite input 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

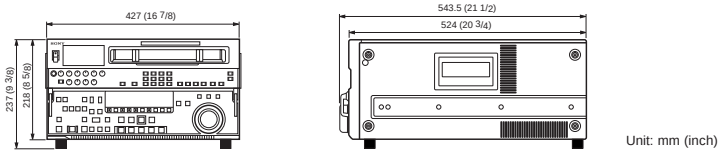
Digital audio performance

Sampling frequency	48 kHz (synchronized with video)
Quantization	16 bits/sample
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

Supplied accessories

Remote Cable (RCC-5G)	x 1
PSW 4 x16 Rack Mount Screw	x 4
Operation manual	x 1
Maintenance manual (part 1)	x 1

Dimensions



Unit: mm (inch)

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