

SONY®

NTSC/PAL

BETACAM **SX**™

Digital Portable Recorder

DNW-A25WS/A25WSP



The Latest Addition to the Betacam SX Line-up —DNW-A25WS, Digital Portable Recorder with Wide-screen Monitoring Capability

Since its launch in 1996, Sony has continually enhanced the Betacam SX system and format, delivering a unique combination of reliability, operational performance and cost efficiency. It is now in widespread use for ENG, documentary and general TV production. As essential components in the Betacam SX line-up, Sony developed the DNW-A25 Digital Portable Recorder and the DNW-A220 and DNW-A225 Digital Portable Editors to bring new solutions to field editing operations.

In response to the growing requirement for 16:9 wide-screen content creation in current and future TV operations, these models have been consolidated into the Sony DNW-A25WS* Digital Portable Recorder. This model adds the capability of displaying a 16:9 wide-screen picture on its LCD screen without picture squeeze (maintaining a 16:9 aspect ratio). A bright VFD (Vacuum Fluorescent Device) screen is used to enhance the visibility of the sub-menus. By using the optional docking kit, the BKNW-225, two DNW-A25WS recorders can be easily docked together to form a dual-deck laptop editor. A single DNW-A25WS can also be used as a feeder or editing recorder in an editing system.

The DNW-A25WS recorder is equipped with a set of versatile features inherited from its predecessors including frame-accurate editing, and Betacam®/Betacam SP® format playback. It brings enhanced productivity and flexibility to production crews in the field, enabling them to record and edit both 16:9 and 4:3 program content.

*In the following text, "DNW-A25WS" refers to both the DNW-A25WS (525/60 model) and the DNW-A25WSP (625/50 model).

Betacam SX—the Robust Format Ideal for a Wide Range of Production Applications

Superb Picture Quality

The DNW-A25WS Portable Recorder delivers superb digital picture quality, recording 8-bit, 4:2:2 component digital signals using the advanced MPEG-2 4:2:2P@ML compression algorithm.

Analog Playback Capability

The DNW-A25WS can play back analog Betacam and Betacam SP recordings made on oxide or metal particle tapes. This analog playback capability allows existing Betacam SP camcorders to be used for acquisition, and allows playback of the large volume of analog Betacam and Betacam SP tapes held by many broadcasting stations worldwide.



High Mobility and Portability—Ideal for Field Use

Compact, Lightweight Design

The DNW-A25WS recorder uses a robust tape transport, an LCD screen and a built-in audio speaker in its compact body that weighs just 15 lb (under 6.5 kg) and is only 8.4 x 17.5 x 5.9 inches (211 x 443 x 149 mm) overall. It is small enough to be hand-carried and used in any space-limited environment.

Double Deck Editor

A portable editing system can be easily created by docking two DNW-A25WS recorders together*. This configuration provides VTR-to-VTR editing with a Jog/Shuttle dial operation and all editing controls. This package not only provides Betacam SX-to-Betacam SX format editing, but the analog playback capability of the DNW-A25WS also allows Betacam/Betacam SP-to-Betacam SX format editing.

The DNW-A25WS can also be combined with a DVCAM™ portable editor*, the Sony DSR-70A/70AP. Since the DSR-70A/70AP has the playback capability of both DVCAM and consumer DV format recordings, this configuration allows both consumer DV and DVCAM-to-Betacam SX format editing to broaden the choice of acquisition tools.

*An optional docking kit, the BKNW-225 is required. A DNW-A25WS can also be docked to a DNW-A25.

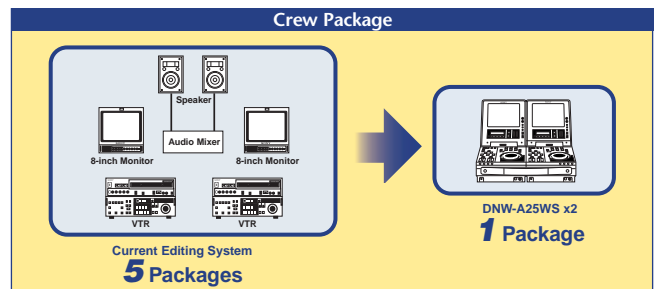


Long Recording Time

The DNW-A25WS uses S-size cassettes for recording and playback. For Betacam SX format recording, a single S-cassette records up to 62 minutes of audio/video signals. When two DNW-A25WS are docked together, a sequential recording function is available that uses each deck alternately. This feature increases the recording time by synchronizing the recording process across both decks.

Minimum Crew Package

The portable editing system described above is so compact and lightweight that it can bring a significant reduction in the amount of field editing equipment carried by production crews. With bright, built-in LCD screens in a compact, modular package, the system is ideal for portable editing applications. During editing, pictures can be monitored on these screens and audio monitored via headphones or the built-in speakers.



Battery or AC-powered Operation

The DNW-A25WS recorder operates on battery power from Sony BP-L60A/L90A lithium-ion batteries or BP-M50/M100 nickel metal hydride batteries, via the V-shoe attachment. The BP-M100 nickel metal hydride battery provides high capacity in a small and compact size, and offers approximately 90 minutes of operating time in a fully charged condition. Alternatively, two DNW-A25WS units can be powered from an AC source by connecting the output of an AC-DN2B AC Adaptor via the V-shoe attachment of the first unit and via the 4-pin connector of the second unit.



AC-DN2B on DNW-A25WS



BP-L60A on DNW-A25WS

Excellent Editing Performance

Frame-accurate Assemble/Insert Editing

The DNW-A25WS performs frame-accurate assemble and insert editing for both video and audio. Time code insert editing is also available.

Four-channel Audio Recording

The capability to mix or swap any two channels of audio from the available four digital audio channels or two analog audio channels is provided. The line output and monitor output have two output channels (L and R). Each of the two monitor outputs can output mixed audio from any of the four recorded channels.

High-speed Color Picture Search

Digital picture search is available in shuttle mode at up to 24 times normal play speed in both forward and reverse directions. Betacam SP format recordings can be searched at up to 10 times speed in either direction.

Noiseless Slow Playback

Variable speed playback is available over the range of -1 to +1 times normal play speed. The DNW-A25WS also includes Dynamic Motion Control (DMC) Editing with Betacam SX media.

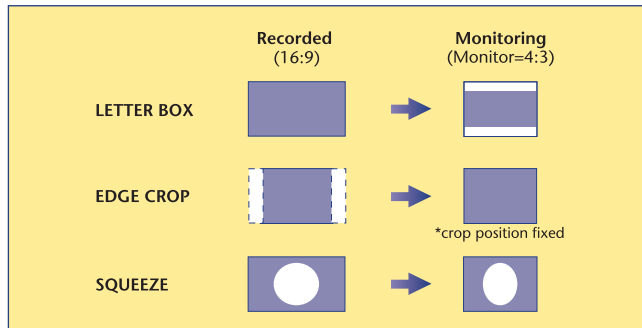


DNW-A25WS Control Panel

Convenient Operational Features

16:9/4:3 Selectable Display Mode

The DNW-A25WS recorder is capable of displaying both 16:9 wide-screen and 4:3 standard pictures on its built-in LCD screen. In the 16:9 mode, the following three modes are available.



16:9 Upgrade Option: BKNW-26

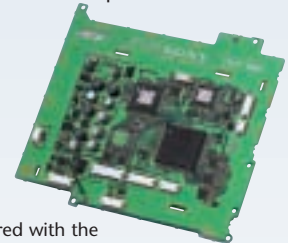
Designed For the Existing DNW-A25/A220/A225 Models

The BKNW-26 Upgrade Kit is available to add the 16:9 wide-screen monitoring capability to existing Betacam SX DNW-A25 portable recorders and DNW-A220/A225 portable editors. This upgrade allows current models to fulfill the requirements of both 16:9 and 4:3 production.

*Two BKNW-26 kits are required to upgrade DNW-A220 and DNW-A225 models.

*'EDGE CROP' mode is not a provided.

*A software upgrade by an authorized Sony service center may also be required with the installation of this kit, depending on the existing software version of the unit involved. Please contact your local authorized service center for information and labor charges.



Convenient Operational Features

525/60 or 625/50 Operation

The recorder is easily switched between 525/60 and 625/50 operation when used in a component digital signal environment. In addition, analog Betacam/Betacam SP format monitoring is available for both 525/60 and 625/50 standards. This flexibility enables the DNW-A25WS to work in international environments.

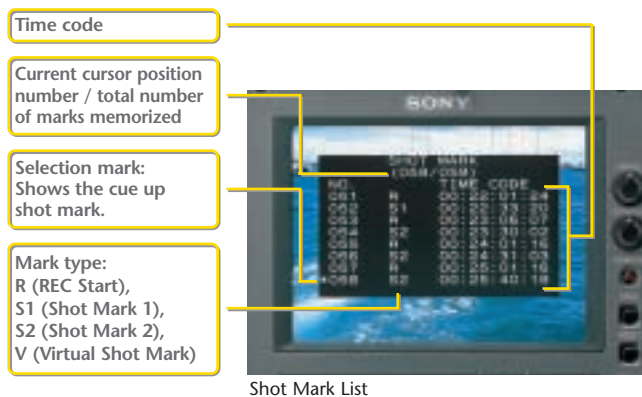
Remote Control Interface

Using the Sony 9-pin RS-422A interface, the DNW-A25WS can be operated from a Sony BVR-3* Remote Controller or from other controllers that support this interface.

*Pause mode is not available.

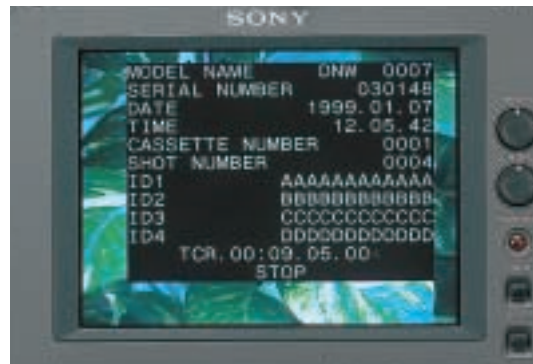
Shot Mark Handling

A useful feature of the DNW-A25WS is its support of the Shot Marks generated by Betacam SX camcorders. During playback, it is able to scan a tape and automatically detect all the recorded Shot Marks and REC Start Marks. The location of each mark is then displayed as a list on the LCD screen, allowing easy cueing to any mark. In addition, when in Play, Shuttle, Jog and Still modes, the system can memorize additional marks, called "Virtual Shot Marks", entered by the operators. This feature speeds up the edit search process dramatically. The Shot Mark Operation menu is used to specify whether REC Start marks are recorded. You can write additional shot marks at any position on the tape and delete individual marks that are no longer needed.



Reading Shot Data

Shot data is recorded continuously on the tape during shooting. To display shot data, the PLAY and ENTRY/SHIFT buttons are simultaneously pressed. The tape is played back, and the display shown below appears. The content of the display changes as the shooting condition changes (for example, the date and time or the shooting device change).



Speedy and Simple Operation

The Digital Portable Recorder adopts a control layout similar to that of Betacam/Betacam SP VTRs to provide simple and familiar operation. The controls include a specially designed Sony Jog/Shuttle dial, and the familiar audio slide faders on the control panel give the operator speedy and precise control with a "hands-on" feel.

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.

Optional Accessories



Docking Kit
BKNW-225



Rechargeable Lithium-ion Battery
BP-L60A/L90A



Rechargeable Nickel Metal Hydride Battery
BP-M50/M100



Battery Charger for BP-L60A/90A and
BP-M50/M100 Battery Packs
BC-M50



AC Adaptor
AC-550/550CE



AC Adaptor
AC-DN2B



Remote Controller
BVR-3



Betacam SX Video Cassette
**BCT-12SXA/22SXA/32SXA/
62SXA**



Cleaning Cassette
BCT-5CLN



Carrying Case (Hard)
LC-DN220

DNW-A25WS Rear Panel



Specifications

General

Power requirements	DC 12 V
Power consumption	65 W
Operating temperature	+32 °F to +104 °F (0 °C to +40 °C)
Storage temperature	-4 °F to +140 °F (-20 °C to +60 °C)
Humidity	25 to 80% (relative humidity)
Weight	14 lb 5 oz (6.5 kg)
Tape speed	Betacam SX: 59.515 mm/s (525 mode), 59.575mm/s (625 mode) Betacam/Betacam SP: 118.6 mm/s (NTSC), 101.5 mm/s (PAL)
Digital playback/recording	Max. 62 minutes with BCT-62SXA cassette
Fast forward/rewind time	Less than 3 minutes 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 signal

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, 270 Mb/s
SDI output	BNC (x2), SMPTE 259M, 270 Mb/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 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

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	Reed-Solomon code
LCD Monitor	
Display method	Active matrix transmission
Size	6.4 inches x 1
Picture elements	640 x 360 x 3 pixels (16:9)/640 x 480 x 3 pixels (4:3)
Luminance / brightness	Adjustable by knob

Speaker

Built-in speakers	x 1, monaural
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Display

Counter, Servo Lock, Tape Remain, Battery Remain, etc.	
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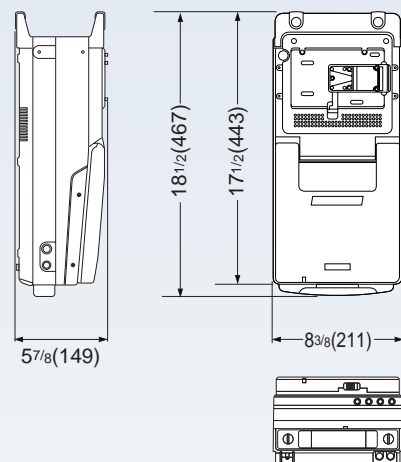
Audio level meter

Ch 1, Ch 2 (indication of Ch 3,4 is also available by switch)	
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Supplied accessories

Shoulder belt x 1, Operation manual x 1, Maintenance manual (part 1) x 1	
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Dimensions



unit: inches (mm)

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