

## DVW-A500

### Digital Betacam Editing Recorder with Analog Betacam SP Playback Capability

- Superb picture quality—Component digital recording provides superb picture quality and multi-generation capability, overcoming the limitations of analog recording. Digital BETACAM adopts newly developed coefficient recording technology within the signal process which has made possible the recording of component digital signals within a BETACAM size VTR and cassette tape
- High quality digital audio—Provides the capability to record four channels of 20-bit digital audio signals which can be independently editable
- Long recording time—new metal particle cassette tapes for Digital BETACAM VTRs have the same dimensions as current BETACAM cassettes. A large cassette provides a maximum recording time of 124 minutes, a small cassette supports up to 40 minutes of recording
- BETACAM SP playback capability—This compatibility is highly beneficial for users to utilize existing tape archives while realizing many advantages of digital technology
- Compact and lightweight—The same dimensions as current BETACAM SP studio VTRs
- Library Management System™ (LMS), Betacart® and Flexicart™ Multicassette applications—Because the dimensions are the same as current BETACAM SP VTRs and cassette tape, Digital BETACAM VTRs and tape can easily be installed in the BVC Series LMS and Flexicart Multi-cassette systems
- Serial Digital Interface—Conforms to the SMPTE 259M
- Digital Jog Sound—Complete reproduction of four channels of digital audio is achieved within the range of -1 to +1 times normal playback speed even in the Jog mode
- High speed picture search—Recognizable color pictures up to approx ±50 times normal playback speed
- Dual dial operation—To select Jog and Shuttle modes
- Dynamic Tracking™ playback—Provides broadcast quality pictures over the range of -1 to +3 times normal playback speed. Equipped with dedicated analog DT heads, the DVW-A500 can also provide DT playback of analog signals from BETACAM tapes within the same range
- Program Play—Allows video recordings to be reproduced within the range of ±15% normal speed in increments of 0.1%
- Read before Write; pre-read editing capability
- Digital Audio Crossfade
- Automatic Equalizer
- Auto Edit Tracking—For accurate tracking during editing
- Easy maintenance—Most of the circuits are arranged on plug-in boards which allow quick and easy maintenance. Additionally, the DVW-A500 is equipped with a sophisticated diagnostic function. It also employs an automatic alignment system to adjust the RF equalizer and Servo system after rotary scanner replacement



#### Digital I/O

- Serial digital video and audio—The DVW-A500 is equipped with SDI (Serial Digital Interface) which conforms to the SMPTE 259M
- Serial digital audio—The DVW-A500 is equipped with digital audio input and output ports conforming to AES/EBU format synchronizing video

#### Analog I/O

- Analog component video, four channels of analog audio, cue audio I/O ports and analog composite video output ports. Additionally, with the BKDW-505 optional Decoder Board, an analog composite video NTSC signal can be directly input

#### Remote

- RS-422A—Serial communication ports
- RS-232C—A serial communication port
- Parallel I/F
- Video Control—15-pin video control port
- Control Panel—The control panel can be completely detached from the DVW-A500 and remote operation can be extended up to 10m with an optional BKDW-510/511 Control Panel Extension Kit

**DVW-A500 (CONTINUED)**

**Specifications**

**General**

Power Requirements:	AC-90V to 265V 48Hz - 64Hz
Power Consumption:	260W
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% - 80% (relative humidity)
Weight:	75 lbs (34kg)
Dimensions (WHD):	427 x 237 x 520mm (16 1/2" x 9 3/8" x 20 1/2") (including feet)
Recording Format:	Digital BETACAM
Tape Speed:	Digital BETACAM: 96.7mm/sec BETACAM playback: 118.6mm/sec
Digital Record	
Playback Time:	max 124 min with large cassette
Analog Playback Time:	max 90 min with large cassette
Recommended Tape:	Sony BCT-D6/D12/D22/D32/D40 BCT-D34L/D64L/D94L/D124L BETACAM SP cassette
Fast Forward/Rewind Time:	< 3 min with large cassette
Search Speed:	Still to approx ±50 times normal playback speed (Shuttle Mode)
Dynamic Tracking Range:	-1 to +3 times normal playback speed (Variable Mode)
Sevo Lock Time:	0.5 sec or less (from standby on with color frame servo)
Load/Unload Time:	5 sec or less with large cassette 4 sec or less with small cassette

**Input/Output Signal**  
**Video Input**

Serial Digital Interface:	BNC (x1) with active through out, SMPTE 259M, 270Mbits/sec
Analog Component:	BNC (x1, Y/R-Y/B-Y) Y: 1.0Vp-p, 75Ω R-Y/B-Y: 0.7Vp-p, 75Ω
Analog Composite (option):	BNC (x1) with loop through 1.0Vp-p, 75Ω (with use of optional BKDW-505)
Reference:	BNC (x1) with loop through 0.3Vp-p, 75Ω

**Output**

Serial Digital Interface:	BNC (x4), SMPTE 259M 270 Mbits/sec (including 1 character out)
Analog Component:	BNC (x1, Y/R-Y/B-Y) Y: 1.0Vp-p, 75Ω R-Y/B-Y: 0.7VP-P, 75Ω
Analog Composite:	BNC (x3) 1.0Vp-p, 75Ω (including 1 character out)

**Audio Input**

Digital:	XLR 3-pin (CH 1/2, 3/4) AES/EBU format stereo mode, balanced BNC (SDI, video & audio) SMPTE 259M, 270Mbits/sec
Analog:	XLR 3-pin (CH 1, 2, 3, 4, Cue) LOW OFF: -60dBu, high impedance, balanced HIGH OFF: +4dBu, high impedance, balanced HIGH ON: +4dBm 600Ω termination, balanced

**Output**

Digital:	XLR 3-pin (CH1/2, 3/4) AES/EBU format stereo mode, balanced BNC (SDI, video & audio) SMPTE 259M, 270Mbits/sec
Analog:	XLR 3-pin (CH 1, 2, 3, 4, Cue) +4dBm at 600Ω load low impedance, balanced
Monitor L/R:	XLR 3-pin, +4dBm at 600Ω load, low impedance, balanced
Headphones:	JM-60 stereo phone jack, ∞ to -12dBu at 8Ω load, unbalanced

**Time Code**

Input:	XLR 3-pin, 0.5Vp-p to 18Vp-p, 10kΩ, balanced
Output:	XLR 3-pin, 2.2Vp-p, low impedance, balanced

**Remote**

Remote 1 in:	D-sub 9-pin, RS-422A interface
Remote 1 out:	D-sub 9-pin, RS-422A interface
RS-232C:	D-sub 25-pin, RS-232C interface
Parallel I/O	
(Remote 2) (option):	D-sub 50-pin, (with BKDW-509 Parallel (50P) Interface Kit)
Video Control:	D-sub 15-pin, (for BVR-50 Remote Controller)
Control Panel:	15-pin, (for optional BKDW-510/511 Control Panel Extension Kit)

**Processor Adjustment Range**

Video Level:	±3dB/-∞ to +3dB selectable
Chroma Level:	±3dB/-∞ to +3dB selectable
Setup/Level:	±30 IRE
Hue:	±30°
System Sync Phase:	±15 μs
System SC Phase:	±200 ns
Y/C Delay:	±100 ns (analog BETACAM playback only)

**Video/Audio Performance**

**Digital Video**

Sampling Frequency:	Y: 13.5MHz R-Y/B-Y: 6.75MHz
Quantization:	10 bits/sample
Error Correction:	Reed-Solomon code
Error Concealment:	Adaptive three dimensional

**Digital In/Analog Component Out**

Bandwidth:	Y: 0 to 5.75MHz ±0.5dB R-Y/B-Y: 0 to 2.75MHz ±0.5dB
S/N Ratio:	62dB or more
K-Factor (2T pulse):	1% or less

**Digital In/Analog Composite Out**

Bandwidth:	Y: 0 to 5.5MHz +0.5dB/-3dB
Differential Gain:	2% or less
Differential Phase:	2° or less
Y/C Delay:	20 ns or less
K-Factor (2T Pulse):	1% or less

**DVW-A500 (CONTINUED)****Analog Component In/Analog Component Out**

Input A/D Quantization:	8 bits/sample
Bandwidth:	Y: 0 to 5.75MHz $\pm$ 0.7dB R-Y/B-Y: 0 to 2.75MHz $\pm$ 0.7dB
S/N Ratio:	56dB or more
K-Factor (2T Pulse):	1% or less
Non-Linearity:	2.5% or less

**Digital Audio (DA 1 to DA 4 channels)**

Sampling Frequency:	48kHz (synchronized with video)
Quantization:	20 bits/sample
Analog Input to Output A/D and D/A quantization:	18 bits/sample
Frequency Response:	20Hz to 20kHz +0.5dB/-1.0dB (0dB at 1kHz)
Dynamic Range:	> 95dB (at 1kHz, emphasis ON)
Distortion:	< 0.05% at 1kHz, emphasis ON, reference level)
Cross Talk:	< -80dB (at 1kHz, between any two channels)
Wow & Flutter:	Below measurable level
Head Room:	20dB
Emphasis:	T1 = 50 $\mu$ s, T2 = 15 $\mu$ s (ON/OFF selectable)

**Analog Audio (Cue track)**

Frequency Response:	100Hz to 12kHz $\pm$ 3dB
S/N Ratio:	> 45dB (at 3% distortion level)
Distortion:	< 2% (T.H.D at 1kHz reference level)
Wow & Flutter:	< 0.2% rms

*Reference level: +4dBn*

**Supplied Accessories**

AC Power Cord  
RCC-5G 9-Pin Remote Control Cable  
PSW 4 X 16 Screws for Rack Mounting  
Operation Manual  
Installation Manual  
Maintenance Manual

**Optional Accessories**

<b>BKDW-505</b> Analog Composite Decoder Board
<b>BKDW-507</b> Audio Program Play Board
<b>BKDW-509</b> Parallel (50P) Interface Kit (for Component Digital VTRs)
<b>BKDW-510</b> Control Panel Expansion Kit (cable and blank panel)
<b>BKDW-511</b> Control Panel Case
<b>BKDW-514</b> Standard Control Panel
<b>BKDW-515</b> Advanced Control Panel
<b>BVR-50</b> Video Processor Controller (for Component Digital VTRs)
<b>RMM-110</b> Rack Mount Kit
<b>DFX-2101</b> Digital Rate Converter
<b>DFX-1201</b> Digital Rate Converter
<b>DDU-2100</b> Digital Audio Delay Unit
<b>BVX-D10</b> Digital Color Corrector
<b>DAF-200</b> Audio Converter Unit
<b>DFX-2400</b> Digital Audio Sampling Rate Converter
<b>BKM-2085</b> Digital 4:2:2 Input Kit (for BVM-1910/1912/1915/1310/1315 Series)
<b>DMIF-1000</b> Digital Monitor Interface (for PVM-1344Q/1444QM/1944Q/2044QM)
<b>ECD-3C/10C/30C</b> Digital Audio Cable (3m, 10m, 30m)
<b>RCC-5G/10G/30G</b> Remote Control Cable D-sub 9-pin (5m, 10m, 30m)
<b>BCT-D6/D12/D22/D32/D40</b> Small Digital Video Cassette
<b>BCT-D34L/D64L/D94L/D124L</b> Large Digital Video Cassette
<b>BCT-D12CL</b> Cleaning Cassette

# DIGITAL BETACAM

## DVW-A500 (CONTINUED)

### Video/Audio Performance for BETACAM SP Playback

Video	Metal	Oxide
R-Y/B-Y	30 Hz to 4.5 MHz +0.5dB/-3.0dB 30Hz to 1.5MHz +0.5dB/-3.0dB	30Hz to 4.1MHz +0.5dB/-6.0dB 30Hz to 1.5MHz +0.5dB/-3.0dB
S/N Ratio		
Y	51dB or more	48dB or more
R-Y/B-Y	48dB or more	45dB or more
		3% or less 4% or less
Y/C Delay		20 ns or less
Audio	Metal	Oxide
AFM		
Frequency Response (at reference level)	20 Hz to 20 kHz +0.5dB/-2.0dB	
S/N Ratio (at 3% distortion level)	> 85dB	
Distortion (T.H.D at 1 kHz reference level)	< 0.5%	
Stereo Phase (at 20 kHz)	< 10°	
Cross Talk (at 1 kHz reference level)	< -70dB	
Longitudinal		
Frequency Response (at 10dB below reference level)	50 Hz to 15 kHz +1.0dB/-2.0dB	50 Hz to 15 kHz ±3.0dB
S/N Ratio (at 3% distortion level)	> 72dB	> 50dB (Dolby NR OFF)
Distortion (T.H.D at 1 kHz reference level)	< 1%	< 2%
Cross Talk (at 1 kHz reference level)	< -65dB	
Stereo Phase (at 15 kHz)	< 20°	
		< 0.1% rms

\*Reference level: +4dBm