DVW-A510

Digital Betacam and Betacam SP Player

■ 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 playback four channels of 20-bit digital audio signals which can be independently editable

■ BETACAM SP playback capability—To play back tapes which are recorded in the current BETACAM SP (Metal/Oxide tape) format. 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-A510 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%

■ Automatic Equalizer

■ Easy maintenance—Most of the circuits are arranged on plug-in boards which allow quick and easy maintenance. Additionally, the DVW-A510 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-A510 is equipped with SDI (Serial Digital Interface) which conforms to the SMPTE 259M

■ Serial digital audio—The DVW-A510 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

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-A510 and remote operation can be extended up to 10m with an optional BKDW-510/511 Control Panel Extension Kit

DVW-A510 (CONTINUED)

Specifications

General

Power Requirements:	AC-90V to 265V 48Hz-64Hz
Power Consumption:	220W
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:	70 lbs 8 oz (32kg)
Dimensions (WHD):	427 x 237 x 520mm (16⅞" x 9⅜" x 20½") (including feet)
Tape Speed:	Digital BETACAM: 96.7mm/sec BETACAM playback: 118.6mm/sec
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)
Servo 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, 270 Mbits/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

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, 270 Mbits/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

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

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Analog Component In/Analog Component Out

Input A/D Quantization:	8 bits/sample
Bandwidth:	Y: 0 to 5.75MHz ±0.7dB R-Y/B-Y: 0 to 2.75MHz ±0.7dB
S/N Ratio:	56dB or more
K-Factor (2T Pulse):	1% or less
LF 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 1 kHz, emphasis ON)
Distortion:	< 0.05% (at 1kHz, emphasis ON, reference level)
Cross Talk:	< -80dB (at 1 kHz, between any two channels)
Wow & Flutter:	Below measurable level
Head Room:	20dB
Emphasis:	T1 = 50 µs, T2 = 15 µs (ON/OFF selectable)

Analog Audio (Cue track)

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

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

BKDW-507
Audio Program Play Board

BKDW-509
Parallel (50P) Interface Kit (for Component Digital VTRs)

BKDW-510
Control Panel Expansion Kit (cable and blank panel)

BKDW-511
Control Panel Case

BVR-50
Video Processor Controller (for Component Digital VTRs)

RMM-110
Rack Mount Kit

DFX-2101
Digital Rate Converter

DFX-1201
Digital Rate Converter

DDU-2100
Digital Audio Delay Unit

BVX-D10
Digital Color Corrector

DAF-200
Audio Converter Unit

DFX-2400
Digital Audio Sampling Rate Converter

BKM-2085
Digital 4:2:2 Input Kit (for BVM-1910/1912/1915/1310/1315 Series)

DMIF-1000
Digital Monitor Interface (for PVM-1344Q/1444QM/1944Q/2044QM)

ECD-3C/10C/30C
Digital Audio Cable (3m, 10m, 30m)

RCC-5G/10G/30G
Remote Control Cable D-sub 9-pin (5m, 10m, 30m)

BCT-D6/D12/D22/D32/D40
Small Digital Video Cassette

BCT-D34L/D64L/D94L/D124L
Large Digital Video Cassette

BCT-D12CL
Cleaning Cassette

DVW-A510 (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 1.5 MHz +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	

	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	