

SONY®

NTSC/PAL

Digital Videocassette Recorder/Player

DVCAM™

Digital Videocassette Recorder

DSR-1800A/1800AP

Digital Videocassette Player

DSR-1600A/1600AP



Master
Series

F o r
P r o f e s s i o n a l
R e s u l t s

New, Powerful Partners for Professional Editing

Video production styles continue to evolve in response to the rapid and tremendous growth in visual communication. In this fast-changing environment, the need is for equipment that meets the crucial demands for both higher productivity and greater creativity in professional video production.

Since its launch in 1996, Sony DVCAM™ has been satisfying these demands. It has brought many notable benefits: excellent picture and sound quality, high-performance editing capabilities, system versatility and professional reliability to mention a few. Based on the DVCAM format, the DSR range of VTRs and Camcorders covers a wide range of applications from field acquisition through editing to transmission.

Now, two new models join the DSR family, the DSR-1800A* Editing Recorder and the DSR-1600A** Editing Player. These VTRs provide excellent performance in an editing environment. They have a full range of analog and digital interfaces, a responsive search dial function, and many other powerful features. A key advantage is their playback compatibility with DV (25 Mb/s) family formats, including consumer DV (SP mode) and DVCPRO.

Filled with professional features and offering great flexibility, the DSR-1800A and the DSR-1600A are the perfect choice for today's demanding video production applications.

* In the following text, 'DSR-1800A' refers to both the DSR-1800A (NTSC model) and the DSR-1800AP (PAL model).

** In the following text, 'DSR-1600A' refers to both the DSR-1600A (NTSC model) and the DSR-1600AP (PAL model).



Digital Videocassette Recorder

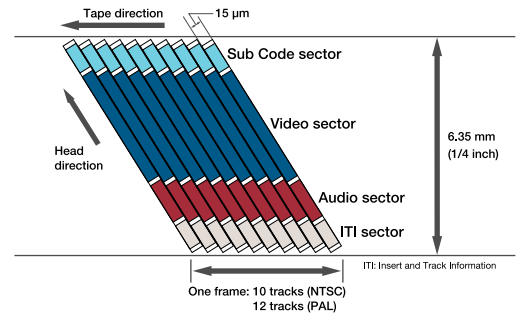
DSR-1800A

Main Features

The DVCAM Format for Professional Performance

The DSR-1800A and the DSR-1600A employ the DVCAM format, the professional extension of the worldwide standard DV format. The DVCAM format uses 8-bit digital component recording with a 5:1 compression ratio and a sampling rate of 4:1:1 (for NTSC) / 4:2:0 (for PAL). The unique compression algorithm provides excellent picture quality and superb multi-generation performance. The DVCAM format has a wider track pitch of 15 μm (compared with 10 μm for the DV format) which gives higher reliability for professional editing.

It also offers superior digital audio performance, providing a wide dynamic range and excellent signal-to-noise ratio, comparable to CD quality. Alternative audio channel modes can be selected: a two-channel mode with 48 kHz/16-bit recording or a four-channel mode with 32 kHz/12-bit recording. DVCAM cassette tapes are available in two sizes: standard and mini. The standard-size cassette provides a recording time of up to 184 minutes while the mini-size cassette provides up to 40 minutes.



Mini-size cassette Standard-size cassette

Playback Compatibility with DV (25 Mb/s) Family Formats

For maximum versatility, the DSR-1800A and the DSR-1600A are designed to playback DV (25 Mb/s) format recorded tapes without a mechanical adaptor – and without requiring menu switching of playback modes before use. This playback versatility includes consumer DV recorded tapes (SP mode) and even DVCPRO* recorded tapes. Moreover, it is possible to use these tapes directly as editing source material with ± 0 frame accuracy.

* Playback signal of a DVCPRO recorded tape is not available via the SDTI (QSDI™) or i.LINK™ (DV In/Out) interface.



Digital Videocassette Player

DSR-1600A



Main Features

Excellent Editing Performance

Outstanding Audio Editing Capabilities

Thanks to newly developed digital processing, the DSR-1800A offers excellent four-channel audio editing capabilities. An audio cross-fade function is available for clean audio transitions at editing points. Audio mix/swap and over dubbing are provided without any delay between the video and audio signals. In addition, the four audio channels can be edited independently, which makes the DSR-1800A ideal for creating or editing video material with multi languages or a variety of audio sources.

Excellent Digital Slow Motion and Jog Sound

The DSR-1800A and the DSR-1600A offer a variable speed playback function with a range of -0.5 to +0.5 times normal play speed. Within this range, they play back noiseless, digital slow-motion pictures as well as clear jog sound, making it easy to locate editing points quickly and accurately. Moreover, this feature is available even for other DV (25 Mb/s) format recorded tapes like consumer DV (SP mode) and DVCPRO.

DMC (Dynamic Motion Control)

Equipped with the DMC function, the DSR-1800A and the DSR-1600A allow the playback speed of a specific section of tape to be varied over the range of -0.5 to +0.5 times normal speed. These speed variations and the start and end points of the tape section are stored for later playback. This feature can also be used with other DV (25 Mb/s) format recorded tapes like consumer DV (SP mode) and DVCPRO.

Frame Accurate Editing Capability

The DSR-1800A and the DSR-1600A can be connected with Sony VTRs and editing controllers through their RS-422A interface. In addition, i.LINK-based control is available. Both interfaces ensure frame accurate editing.

Versatile Interfaces

Analog Interfaces

Incorporating a comprehensive range of interfaces for both video and audio, the DSR-1800A and the DSR-1600A can be connected to current analog equipment, ensuring a smooth upgrade to digital systems. Composite, component, and S-Video (Y/C) interfaces for video are provided and audio interfaces, via XLR connectors are also available.

Digital Interfaces

The DSR-1800A and the DSR-1600A also have an i.LINK™ interface as standard. In addition, both units can be upgraded to include SDI digital interfaces and AES/EBU digital audio interfaces with the use of an optional board. The DSBK-1801 is used for the DSR-1800A and the DSBK-1601 for the DSR-1600A.

By taking advantage of these digital interfaces, the DSR-1800A and the DSR-1600A offer full access to a wide variety of digital editing systems. These include SDI-based editing systems using either Betacam SX™ or Digital Betacam™ VTRs or i.LINK-equipped nonlinear editing systems.

• i.LINK stands for IEEE 1394-1395 standards and their revisions.

 is the logo for products that implement i.LINK.



— Front View of DSR-1800A

Comprehensive, Convenient Functions

16:9 Aspect Ratio Capability

By receiving a wide aspect ID signal, the DSR-1800A and the DSR-1600A record (DSR-1800A only) and play back 16:9 aspect ratio pictures captured with the Sony DSR-450WS/450WSP and DSR-PDX10/PDX10P DVCAM Camcorders.

VITC (Vertical Interval Time Code)

In addition to time code conforming to the SMPTE (for NTSC)/EBU (for PAL) format, the DSR-1800A and the DSR-1600A support VITC. This time code is recorded on the video tracks and inserted in the vertical blanking interval. The time code can also be read at low speeds and during still playback.

Video Process Control

The DSR-1800A and the DSR-1600A are both equipped with the Video Process Control function, enabling greater control of both analog and digital outputs.

Channel Condition Monitoring

The DSR-1800A and the DSR-1600A have a three-color channel condition indicator, with each color representing a particular error rate threshold level. This function enables operators to quickly recognize the condition of the VTR and tape.

Built-in Signal Generator

Equipped with a built-in signal generator, the DSR-1800A can generate color bars or black burst for video, and 1 kHz tone or silent signal for audio.

Flexible Input Selection

The DSR-1800A allows flexible combinations* of video and audio signals to be input. It is possible to simultaneously select the digital interface for video and the analog interface for audio.

* i.LINK interface cannot be combined with other signal interfaces.

Sophisticated Mechanisms

Quick, Responsive Mechanism

Quick mechanical response is an essential requirement for professional video production. The DSR-1800A and the DSR-1600A provide this through the use of a reliable direct reel and drum motor mechanism. In switching from Still mode to Play mode, the response is exceptionally quick. Fast forward and rewind speeds are an impressive 85 times play speed, with a maximum search speed of 60 times during color playback. In editing environments, where speed is of vital importance, this mechanism frees editors from the frustration of slow operation and speeds the editing process.

Three-size Cassette Compartment

The triple-size cassette compartment ensures compatibility with DV (25 Mb/s) format recorded tapes of all sizes. This innovative feature makes it possible to use standard- and mini-size consumer DV (SP mode) and DVCAM cassettes as well as medium DVCPRO cassettes without a mechanical adaptor. The cassette compartment is also designed for high durability, providing optimum performance in demanding editing environments.



— Rear View of DSR-1800A (with an optional DVBK-1801)

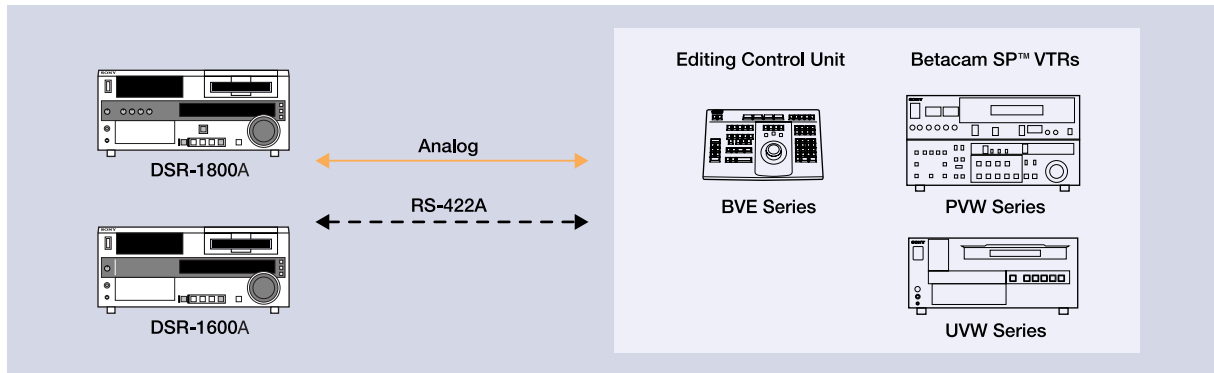
Other Features...

- ClipLink™ Operation
- Full Tape Dubbing with ClipLink Log Data
- Auto Repeat/Power-on Playback Function
- Closed Caption Function (NTSC models only)
- Time Code Input/Output
- Record Inhibit Function (DSR-1800A only)
- Built-in Character Generator
- Universal Powering System: AC 100 V to 240 V

Application Examples

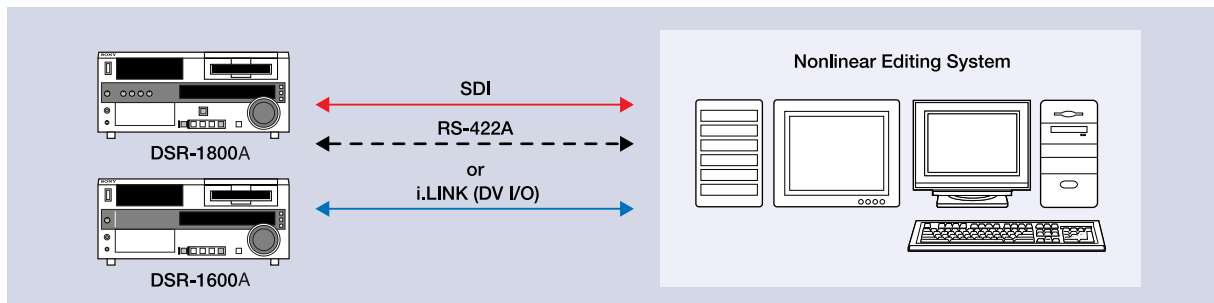
Feeder/Editor for Linear Editing Systems

- Easy to integrate into a current analog editing system through the use of analog interfaces
- Ideal first unit for smooth migration into a digital production system



Feeder/Editor for Nonlinear Editing Systems

- Superior multi-generation picture and sound quality by use of SDI and i.LINK interfacing through the entire production process
- Ideal as a feeder/editor machine in a nonlinear editing system



Peripheral Equipment & Optional Accessories



DSR-450WS
Digital Camcorder



DSR-400
Digital Camcorder



DSBK-1801
SDI/AES/EBU Input/Output Board
(for DSR-1800A)



DSBK-1601
SDI/AES/EBU Output Board
(for DSR-1600A)



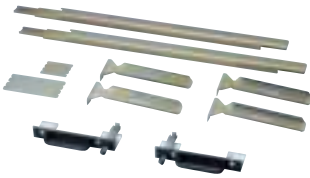
BVE-2000
Editing Control Unit



MFS-2000 Series
Multi-Format Switchers



DFS-700A
DME Switcher



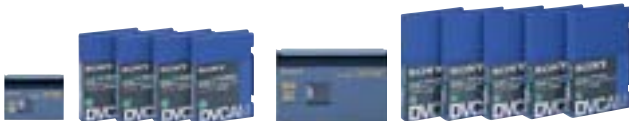
RMM-131
Rack Mount Kit



RCC-5G
9-pin Remote Control Cable



CCF-3L/CCFD-3L
DV Cable (6-pin to 6-pin/6-pin to 4-pin)



PDVM-12ME/22ME/32ME/40ME
Digital Videocassette (Mini size)
PDV-34ME/64ME/94ME/124ME/184ME
Digital Videocassette (Standard size)

PDVM-32N/40N
Digital Videocassette (Non-IC type/Mini size)
PDV-64N/124N/184N
Digital Videocassette (Non-IC type/Standard size)

PDVM-32MEM/40MEM
Digital Videocassette (Master tape/Mini size)
PDV-64MEM/124MEM/184MEM
Digital Videocassette (Master tape/Standard size)

PDVM-12CL
Cleaning Cassette Tape (Mini size)
PDV-12CL
Cleaning Cassette Tape (Standard size)

Specifications

	DSR-1800A	DSR-1800AP	DSR-1600A	DSR-1600AP
● GENERAL				
Power requirements	AC 100 V to 240 V, 50/60 Hz			
Power consumption	100 W (with all options)		70 W (with all options)	
Operating temperature	5 °C to 40 °C (41 °F to 104 °F)			
Storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)			
Operating humidity	Less than 80%			
Storage humidity	Less than 90%			
Weight	13 kg (28 lb 10 oz)			
Dimensions (W x H x D)	427 x 174 x 400 mm (16 7/8 x 6 7/8 x 15 3/4 inches)			
Tape speed	28.193 mm/s	28.221 mm/s	28.193 mm/s	28.221 mm/s
Recording/Playback time	Standard size Mini size		184 min. with PDV-184ME/184N/184MEM 40 min. with PDVM-40ME/40N/40MEM	
Fast forward/Rewind time	Less than 3 min. with PDV-184ME/184N/184MEM Less than 1 min. with PDVM-40ME/40N/40MEM			
Search speed	Shuttle mode Digital slow mode			
	Still to ± 60 times normal speed ± 0.5 times normal speed			
● VIDEO PERFORMANCE				
Bandwidth (via analog component I/O)	30 Hz to 5.0 MHz ± 1.0 dB 30 Hz to 1.5 MHz $+1.0/-5.0$ dB		25 Hz to 5.0 MHz ± 1.0 dB 25 Hz to 2.0 MHz $+1.0/-2.0$ dB	
S/N ratio (via analog component I/O)	More than 55 dB			
K-factor (K2T, KPB)	Less than 2.0%			
Y/C delay	Less than 30 ns			
● AUDIO PERFORMANCE				
Frequency response	2CH mode (48 kHz/16-bit) 4CH mode (32 kHz/12-bit)		20 Hz to 20 kHz $+0.5/-1.0$ dB 20 Hz to 14.5 kHz $+0.5/-1.0$ dB	
Dynamic range	More than 90 dB			
Distortion (THD + N)	Less than 0.05%			
● INPUT SIGNALS				
VIDEO (ANALOG)				
REF. Video (BNC x 2, loop-through connection)	0.286 Vp-p, 75 Ω , sync negative	0.3 Vp-p, 75 Ω , sync negative	0.286 Vp-p, 75 Ω , sync negative	0.3 Vp-p, 75 Ω , sync negative
Video (BNC x 2, loop-through connection)	Composite, 1.0 Vp-p, 75 Ω , sync negative			
Component (BNC x 3)	Y: 1.0 Vp-p, 75 Ω , sync negative R-Y: 0.7 Vp-p, 75 Ω (75%) B-Y: 0.7 Vp-p, 75 Ω (75%)	Y: 1.0 Vp-p, 75 Ω , sync negative R-Y: 0.7 Vp-p, 75 Ω (100%) B-Y: 0.7 Vp-p, 75 Ω (100%)	-	-
S-Video (DIN 4-pin x 1)	Y: 1.0 Vp-p, 75 Ω , sync negative C: 0.286 Vp-p, 75 Ω (at burst level)	Y: 1.0 Vp-p, 75 Ω , sync negative C: 0.3 Vp-p, 75 Ω (at burst level)	-	-
VIDEO (DIGITAL)				
SDI (BNC x 2, active-through connection) * using optional DSBK-1801 for DSR-1800A/1800AP	Conforms to Serial Digital Interface (270 Mb/s), SMPTE 259M	Conforms to Serial Digital Interface (270 Mb/s), ITU-R BT.656	-	-
i.LINK (DV In/Out) (6-pin x 1)	IEEE 1394-based			
AUDIO (ANALOG)				
Audio (XLR 3-pin female x 4)	-6/0/+4 dBu (selectable by menu), -60 dBu (high impedance)/600 Ω OFF/ON	-6/-3/0/+4 dBu (selectable by menu), -60 dBu (high impedance)/600 Ω OFF/ON	-	-
AUDIO (DIGITAL)				
AES/EBU (BNC x 2) * using optional DSBK-1801 for DSR-1800A/1800AP	75 Ω , unbalanced			
TIME CODE				
Time Code In (BNC x 1)	0.5 Vp-p to 18 Vp-p, 3 k Ω unbalanced			
● OUTPUT SIGNALS				
VIDEO (ANALOG)				
REF. Video (BNC x 1)	0.286 Vp-p, 75 Ω , sync negative	0.3 Vp-p, 75 Ω , sync negative	0.286 Vp-p, 75 Ω , sync negative	0.3 Vp-p, 75 Ω , sync negative
Video 1/2(SUPER) (BNC x 2)	Composite, 1.0 Vp-p, 75 Ω , sync negative			
Component (BNC x 3)	Y: 1.0 Vp-p, 75 Ω , sync negative R-Y: 0.7 Vp-p, 75 Ω (75%) B-Y: 0.7 Vp-p, 75 Ω (75%)	Y: 1.0 Vp-p, 75 Ω , sync negative R-Y: 0.7 Vp-p, 75 Ω (100%) B-Y: 0.7 Vp-p, 75 Ω (100%)	Y: 1.0 Vp-p, 75 Ω , sync negative R-Y: 0.7 Vp-p, 75 Ω (75%) B-Y: 0.7 Vp-p, 75 Ω (75%)	Y: 1.0 Vp-p, 75 Ω , sync negative R-Y: 0.7 Vp-p, 75 Ω (100%) B-Y: 0.7 Vp-p, 75 Ω (100%)
S-Video (DIN 4-pin x 1)	Y: 1.0 Vp-p, 75 Ω , sync negative C: 0.286 Vp-p, 75 Ω (at burst level)	Y: 1.0 Vp-p, 75 Ω , sync negative C: 0.3 Vp-p, 75 Ω (at burst level)	Y: 1.0 Vp-p, 75 Ω , sync negative C: 0.286 Vp-p, 75 Ω (at burst level)	Y: 1.0 Vp-p, 75 Ω , sync negative C: 0.3 Vp-p, 75 Ω (at burst level)
VIDEO (DIGITAL)				
SDI (BNC x 2) * using optional DSBK-1801 for DSR-1800A/1800AP and DSBK-1601 for DSR-1600A/1600AP	Conforms to Serial Digital Interface (270 Mb/s), SMPTE 259M	Conforms to Serial Digital Interface (270 Mb/s), ITU-R BT.656	Conforms to Serial Digital Interface (270 Mb/s), SMPTE 259M	Conforms to Serial Digital Interface (270 Mb/s), ITU-R BT.656
i.LINK (DV In/Out) (6-pin x 1) * using optional DSBK-1803	IEEE 1394-based			
AUDIO (ANALOG)				
Audio (XLR 3-pin male x 4)	-6/0/+4 dBu (selectable by menu)	-6/-3/0/+4 dBu (selectable by menu)	-6/0/+4 dBu (selectable by menu)	-6/-3/0/+4 dBu (selectable by menu)
Monitor (RCA x 1)	-11 dBu, 47 k Ω , unbalanced (-20 dBFS)	-9 dBu, 47 k Ω , unbalanced (-18 dBFS)	-11 dBu, 47 k Ω , unbalanced (-20 dBFS)	-9 dBu, 47 k Ω , unbalanced (-18 dBFS)
Headphone (JM-60 headphone jack x 1)	∞ to -13 dBu, 8 Ω , unbalanced (-20 dBFS)	∞ to -11 dBu, 8 Ω , unbalanced (-18 dBFS)	∞ to -13 dBu, 8 Ω , unbalanced (-20 dBFS)	∞ to -11 dBu, 8 Ω , unbalanced (-18 dBFS)
AUDIO (DIGITAL)				
AES/EBU (BNC x 2) * using optional DSBK-1801 for DSR-1800A/1800AP and DSBK-1601 for DSR-1600A/1600AP	75 Ω , unbalanced			
TIME CODE				
Time Code Out (BNC x 1)	2.2 Vp-p, 75 Ω , unbalanced			
● REMOTE				
RS-422A	D-sub 9-pin (female) x 1			
Video Control	D-sub 15-pin (male) x 1			
CONTROL S (SIRCS)	Stereo mini jack x 1			
● SUPPLIED ACCESSORIES				
AC power cord x 1				
Operating instructions x 1				

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