Video Disk Recorder

SONY

DVCAM™

DSR-DR1000

For

Professional

Results

A hard-disk based addition to the DVCAM™ family, offering a high level of operational convenience and extensive creative opportunities

The DSR-DR1000*1 is a DVCAM format stream based, hard disk recorder that brings new production opportunities to the DVCAM family. This half-rack unit uses a large capacity hard-disk drive to provide up to six hours of DVCAM format stream recording. Primarily designed for straight recording and edit-feeding applications, the DSR-DR1000 takes full advantage of the benefits of disk-based recording, while maintaining the same operational feel as a VTR. Its simultaneous recording and playback capability enables the immediate availability of recordings for play out and other feeding applications - without interruption. The DSR-DR1000 also offers the convenience of high-quality digital jog sound and slow-motion playback over a wide speed range. Also included is the i.LINK™*2 connector, which supports both the SBP2 protocol for high-speed DV file transfer to other compatible equipment, and the conventional i.LINK (DV) protocol (AV/C protocol).

Providing unique disk-based features at an affordable price, the DSR-DR1000 is an excellent choice for implementing disk-based technology into production applications.

Photo shows the DSR-DR1000.

SONY Video Disk Recorder

DSR-DR1000

*1 In this brochure, "DSR-DR1000" refers to both the DSR-DR1000 for NTSC and the DSR-DR1000P for PAL.

*2 i.LINK is a trademark of Sony used only to designate that a product contains an IEEE 1394 connector. Not all products with an i.LINK connector may communicate with each other. Please refer to the documentation included with any device that has an i.LINK connector for information on compatibility, operating conditions and proper connection. i is the logo for products implementing i.LINK.

Features

Product overview

Extensive DVCAM-stream recording time

The DSR-DR1000 incorporates a large-capacity hard drive, which can record up to six hours of 25 Mb/s DVCAM/DV video and audio. The video and audio signals are stored together on the hard drive as clips.

Compact and lightweight - ideal for desktop-style operation

With its compact, half-rack width, 3U design, the DSR-DR1000 is ideal for desktop non-linear editing systems or for installation in space-constrained environments such as OB vehicles.

Useful Hard-Disk Features

Simultaneous recording and playback

A key advantage of the DSR-DR1000 over a VTR is its ability to record video and audio while at the same time playing back video and audio. This is especially useful for live or sports events, as it allows the operator to replay program highlights while the program continues to be recorded. What's more, the playback speed* can be altered even during recording - allowing replays to be shown in slow motion. The DSR-DR1000 also allows cue points to be marked within the recording for immediate cue up and replay of desired scenes - a further benefit when using it for live events or sports programming. Cue points can be marked during recording using either the DSR-DR1000 control panel or the supplied remote controller (RM-LG2).

* The playback speed range during simultaneous recording/playback is ±1 times normal speed.

RM-LG2

The DSR-DR1000 shown with a slow-motion controller.

Clip Segment Playback

The DSR-DR1000 offers a Clip Segment Playback feature, which allows continuous playback of designated video segments. By simply marking the In and Out points (Trimming Points) of the desired segments, the DSR-DR1000 will automatically create and store a play list. It can then play back this list - from one segment to the next - without a break between segments. Up to four lists can be stored on the hard drive, and they can be displayed on a video monitor.

Random access to files

With the DSR-DR1000, a clip is created for each recording made between Record Start and Record Stop. These clips are stored on the DSR-DR1000 as files, allowing users to quickly locate the desired material.

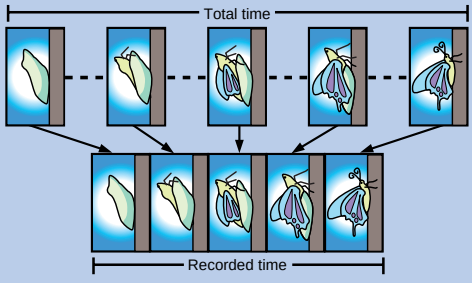
Continuous Loop Recording

With Continuous Loop Recording, the DSR-DR1000 will continue to record until it is stopped by the operator. This is achieved by overwriting earlier recordings in the order they were made, and is especially effective in applications where recording cannot be interrupted for tape exchange, such as astronomical observation or animal and plant study.

Interval Recording

The Interval Recording function enables the DSR-DR1000 to produce recordings over extended periods. When activated, the recorder will automatically toggle between Record mode and Record Standby mode at predetermined intervals. The record duration can be selected from 0.5, 1, 1.5 or 2 seconds and the standby time can be selected from 0.5, 1, 5 or 10 minutes. This feature is especially effective in scientific applications such as botanical observation.

Interval Recording



Front Panel

Pre-Alarm Recording

The Pre-Alarm Recording function automatically triggers the DSR-DR1000 to start recording when an external alarm signal is detected. Because there is a continual 30-second buffer period of recording, the DSR-DR1000 will also record the content that happens 30 seconds prior to the alarm. This is a useful feature for observing events in which it is critical to know what happened before the event occurred.

Familiar Functionality and Operability

Variable speed playback and smooth-jog sound

The DSR-DR1000 offers variable-speed playback within a wide range of -2 to +2 times normal speed. This wide slow-motion range helps you to create unique and sophisticated content. The playback speed can be controlled in 1% increments from an appropriate editor or external remote controller. The DSR-DR1000 also provides noiseless digital slow images with smooth jog sound, making it easy to designate editing points.

VTR-like control panel with Jog/Shuttle dial

To maintain a familiar VTR-like feel, the DSR-DR1000 provides front-panel controls for functions such as Play, Stop, Next, Previous and Record. The Next and Previous buttons allow you to locate the top of the following and previous clips respectively, and the Jog/Shuttle dial provides convenient search operability.

Synchronous playback

The DSR-DR1000 is equipped with two RS-422A terminals, making it possible to cascade up to multiple units for simultaneous playout. This is particularly effective in multi-screen display applications where the playback signal needs to be synchronized.

Versatile interfaces

The DSR-DR1000 is equipped with the following connectors as standard - providing easy integration into various system layouts.

Inputs:	component, composite, i.LINK, SDI, S-Video, analog audio (2 ch., XLR x2), AES/EBU (4 ch., BNC x2)
Outputs:	component, composite, i.LINK, SDI, S-Video, monitor output, analog audio (two selected channels, XLR x2), AES/EBU (4 ch., BNC x2)
Control:	RS-422A, (contact switch)
Others:	time code I/O, reference video, Ethernet

Dual i.LINK Protocols for Greater Efficiency

i.LINK interface (6-pin) with AV/C and SBP2 protocols

The i.LINK connector provided on the DSR-DR1000 supports two protocols - AV/C and SBP2. The AV/C protocol is used for A/V transfer of DVCAM/DV streams, as used in conventional VTR-to-VTR dubbing. This protocol allows the DSR-DR1000 to be connected to VTRs and non-linear editors that are compatible with the Sony i.LINK(DV) interface. Similarly, the SBP2 protocol allows file transfer of DVCAM/DV streams to non-linear systems that are SBP2 compatible.

High speed file transfer

With the SBP2 protocol, clips stored on the DSR-DR1000 can be selected on a file basis from the GUI of the compatible non-linear editor and then transferred to the editor's hard drive at a high speed*. This effectively reduces the time required for material transfer.

Another time consuming process common to non-linear editing systems is logging. The DSR-DR1000 streamlines the process by storing the time-code values generated during recording and transferring them to the non-linear editor together with the material files.

* The time required to transfer clips from the DSR-DR1000 may vary depending on the non-linear editor used. In the case of downloading clips from a non-linear editor to the DSR-DR1000, only the AV/C protocol can be used and therefore only real-time speed is supported.

Network Function

File transfer using FTP

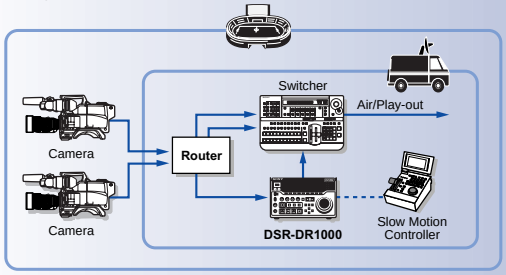
The DSR-DR1000 comes equipped with a standard 10Base-T/100Base-T Ethernet connector. This enables file transfer across a network using the File Transfer Protocol. Moreover, the DSR-DR1000 allows easy and quick selection of the segment to be transferred, thus optimizing transfer efficiency.

Rear Panel

Application Examples

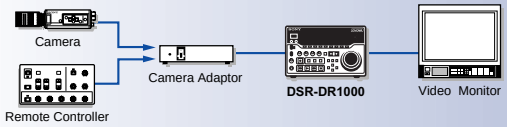
Sports/Small OB-van Application

- Variable speed playback over the range of ±2 times normal speed
- Simultaneous recording and playback
- Compact half-rack size



Continuous Monitoring Application

- Six-hour recording time
- Continuous Loop recording
- Pre-Alarm recording

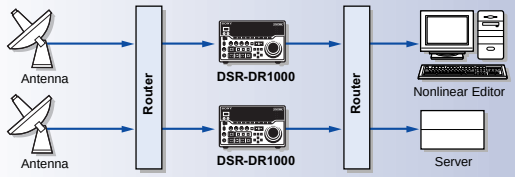


■ **Observation**
Weather, flower blooming, scientific research etc.

■ **Other Recording Purposes**
Class, Sports, Training etc.

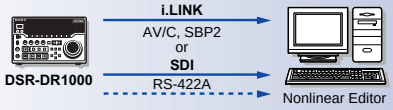
Feed Receiving at Small Broadcast Stations

- Simultaneous recording and playback
- Continuous Loop recording



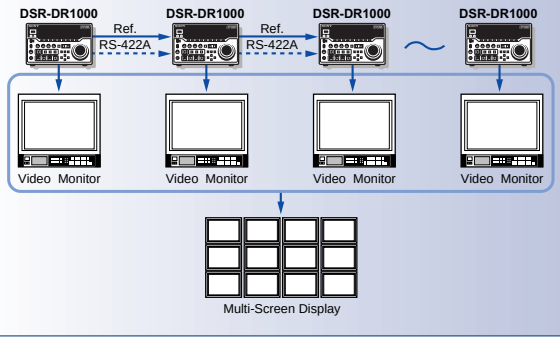
Source Feeding to a Nonlinear Editing System

- i.LINK interface with AV/C or SBP2 protocol
- SDI interface



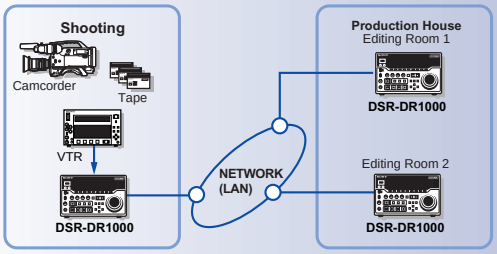
Multi-screen Display Application

- Synchronous playback



Material Transfer Through a Network to Remote Locations

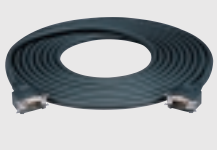
- File transfer capability



Peripheral Equipment and Optional Accessories

BVE-2000
Editing Control Unit

DFS-700A
DME Switcher



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

CCF-3L
DV Cable
(6-pin with lock to 6-pin)

CCFD-3L
DV Cable
(6-pin with lock to 4-pin)

Specifications

	DSR-DR1000	DSR-DR1000P
● General		
Power requirements	AC 100 V to 240 V, 50/60 Hz	
Power consumption	60W	
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%	
Mass	7.5 kg (16 lb 10 oz)	
Dimensions (W x H x D)	210 x 130 x 422 mm (8 3/8 x 5 1/8 x 16 5/8 inches, without projection)	
● Video Performance		
Bandwidth (via analog component I/O)		
Luminance	30 Hz to 5.0 MHz ±1.0	25 Hz to 5.0 MHz ±1.0
Chrominance	30 Hz to 1.5 MHz +1.0/-5.0 dB	25 Hz to 2.0 MHz +1.0/-2.0 dB
S/N ratio (via analog component I/O)	More than 54 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)	20 Hz to 20 kHz ±1.0 dB	
4CH mode (32 kHz/12-bit)	20 Hz to 14.5 kHz ±1.0 dB	
Dynamic range	More than 87 dB	
Distortion (THD + N)	Less than 0.07% (48 kHz)	
● Input Signals		
Video (Analog)		
REF. Video (BNC x 2)	0.286 Vp-p, 75 Ω, sync negative	0.3 Vp-p, 75 Ω, sync negative
Composite Video (BNC x 2), loop-through connection*1	1.0 Vp-p, 75 Ω, sync negative	
Component (BNC x 3)*1	Y: 1.0 Vp-p, 75 Ω, sync negative R-Y: 0.7 Vp-p, 75 Ω (75% color bar) B-Y: 0.7 Vp-p, 75 Ω (75% color bar)	Y: 1.0 Vp-p, 75 Ω, sync negative R-Y: 0.7 Vp-p, 75 Ω (100% color bar) B-Y: 0.7 Vp-p, 75 Ω (100% color bar)
S-Video (BNC x 2)*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 1)	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) (6-pin x 1)	IEEE 1394-based	
Audio (Analog)		
Audio (XLR 3-pin female x 2)	-6/0/+4 dBu (selectable by menu), high impedance	-6/-3/+4 dBu (selectable by menu), high impedance
Audio (Digital)		
AES/EBU (BNC x 2)	75 Ω, unbalanced	
Time Code		
Time Code In (BNC x 1)	0.5 Vp-p to 18.0 Vp-p, 3 kΩ, unbalanced	
● Output Signals		
Video (Analog)		
Composite 1/2 (SUPER) (BNC x 2)*2	1.0 Vp-p, 75 Ω, sync negative	
Component (BNC x 3)*2	Y: 1.0 Vp-p, 75 Ω, sync negative	Y: 1.0 Vp-p, 75 Ω, sync negative
R-Y:	R-Y: 0.7 Vp-p, 75 Ω (75% color bar)	R-Y: 0.7 Vp-p, 75 Ω (100% color bar)
B-Y:	B-Y: 0.7 Vp-p, 75 Ω (75% color bar)	B-Y: 0.7 Vp-p, 75 Ω (100% color bar)
S-Video (BNC x 2)*2	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)	Conforms to Serial Digital Interface (270 Mb/s), SMPTE259M	Conforms to Serial Digital Interface (270 Mb/s), ITU-R BT.656
i.LINK (DV) (6-pin x 1)	IEEE 1394-based	
Audio (Analog)		
Audio (XLR 3-pin male x 2)	-6/0/+4 dBu (selectable by menu)	-6/0/+4 dBu (selectable by menu)
Monitor (RCA x 1)*3	- ∞ to -11 dBu, 47kΩ, unbalanced (-20 dBFS)	- ∞ to -9 dBu, 47kΩ, unbalanced (-18 dBFS)
Headphone (JM-60 headphone jack x 1)	- ∞ to -13 dBu, 8Ω, unbalanced (-20 dBFS)	- ∞ to -11 dBu, 8Ω, unbalanced (-18 dBFS)
Audio (Digital)		
AES/EBU (BNC x 2)	75 Ω, unbalanced	
Time Code		
Time Code Out (BNC x 1)	2.2 Vp-p, 600 Ω, unbalanced	
● Remote		
RS-422A	D-sub 9-pin, female x 2	
Control	Mini jack x 1	
● Network		
Ethernet x 1	10/100 Base-T Ethernet, RJ-45 modular jack	
● Supplied Accessories		
	AC power cord x 1, RM-LG2 (Remote Control Unit) x 1, Operation manual (CD-ROM) x 1, Warranty card x 1	

*1: Composite, Component and S-video inputs share the same BNC connectors. *2: Composite, Component and S-video outputs share the same BNC connectors.
*3: The volume of monitor can be controlled by the PHONE LEVEL control knob.

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