

SONY®

PAL

Digital Videocassette Recorder

DSR-1P

DVCAM™



DVCAM—Digital Innovation

Digitization is opening up new avenues to success in many business areas. Nowhere is this more true than in professional video production, where evolving digital technology is bringing proven advances in image quality and equipment versatility as well as reducing operating costs.

DVCAM was born in 1996 as an extension of the consumer DV format, with which it is compatible. With its superb picture quality, excellent editing capabilities and multigeneration performance, DVCAM is the perfect choice of format in the highly competitive world of professional video.

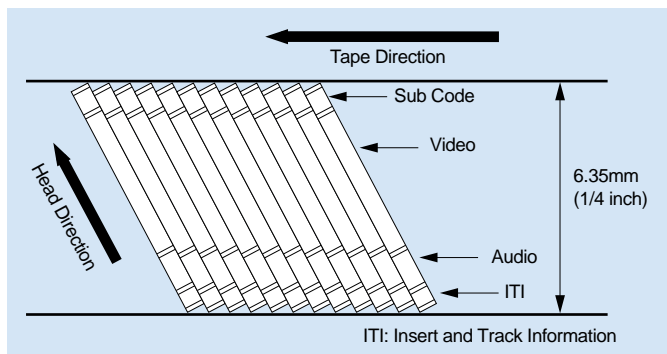
The DSR-1P is a dockable recorder for a camcorder, offering outstanding performance in the acquisition process. When the DSR-1P is combined with a Sony DXC-D30P or DXC-D30WSP Digital Camera, it becomes the DSR-130P Digital Camcorder, providing a totally digital signal path and perfect ClipLink™ operation. For complete versatility, the DSR-1P incorporates both a Pro 50-pin analogue and a Pro 76-pin digital interface, this dual interface enabling connection to both analogue and digital cameras. The DSR-1P features a dual-size cassette mechanism that accepts both mini and standard size cassette tapes without any special adaptor - a first in the history of dockable recorders. With its superb performance and operating flexibility, the DSR-1P meets all the requirements of video professionals.



Features

DVCAM Recording Format For the Next Generation

The DSR-1P provides superb picture quality, multi-generation capability and production flexibility from its use of the new DVCAM digital recording format - specifically developed by Sony for professionals in the digital era.



Playback Compatibility with the Consumer "DV" Format

The DVCAM format has been developed as an extended digital recording format for video professionals and is based on the DV format. However, it maintains playback compatibility with the consumer DV recording format and has the unprecedented advantage that both standard and mini cassettes can be used in the same machine. By using an increased track pitch, the DVCAM format gives higher reliability for professional editing.

The DVCAM Component Digital Recording Format

The DVCAM format uses 8-bit component recording with a 5:1 compression ratio and sampling at the rate of 4:2:0 to provide superior picture quality and multi-generation capability.

The DVCAM employs an intra frame compression scheme which is ideal for editing applications. Based on DCT (Discrete Cosine Transform) techniques, each frame consists of 12 tracks. Each track has ITI (Insert and Track

Information), Audio, Video, and sub code areas. The ITI, which is a reference signal for a precise tracking, and time codes on the Sub Code area assure highly accurate editing performance.

This technique provides much greater operational flexibility, for example by minimizing dubbing limitations to allow more efficient and complex multi-layering.

High Quality Digital Audio and Audio Mode Selection

The DSR-1P provides two selectable audio channel modes, 48kHz mode and 32kHz mode.

In order to ensure superb audio performance with a wide dynamic range and an excellent signal-to-noise ratio, PCM (Pulse Code Modulation) digital stereo recording is used for both modes; 16-bit quantization and a 48kHz sampling frequency in the two-channel mode, 12-bit and 32kHz sampling in the four channel mode (only CH-1/CH-2).

Excellent Performance from Professional DVCAM Tapes

To gain the maximum performance from high density digital recording, new Advanced Metal Evaporated cassette tapes are used for DVCAM. These give superior quality to DVCAM recording by achieving an RF video output which is +4.5dB higher compared to that of Hi-8 metal evaporated tape. Higher durability is also ensured for professional editing applications by enhancing protection with a DLC (Diamond Like Carbon) coating. Each cassette has a built-in 16kbit IC memory which stores data to enhance editing efficiency. DVCAM cassettes are available in two sizes; the DVCAM Standard cassette provides a maximum recording time of 184 minutes and a DVCAM Mini cassette up to 40 minutes.



<Cassette memory>



User-Convenient Operation as a Dockable Camcorder

The ClipLink System

ClipLink is a comprehensive supervisory system which logs all the shooting data necessary for the whole of the digital production process - from acquisition to editing.

When the DSR-1P is combined with the DXC-D30P Digital Camera to form the DSR-130P DVCAM Digital Camcorder, two kinds of useful information are automatically generated during shooting - information which dramatically reduces the work required for later editing. The first is Index Picture which is a digitally miniaturized picture of the video image at each MARK IN point. These Index Pictures are recorded on the DVCAM tape. Up to 198 Index Pictures can be recorded onto a cassette tape when using a professional DVCAM tape or up to 45 Index Pictures can be recorded in the case of a consumer DV cassette. The second type of information is ClipLink Log Data, which is a reference data for editing, such as reel numbers, scene numbers, take numbers, time code of MARK IN/MARK OUT and Cue points. This ClipLink Log Data is stored in the cassette by a memory IC incorporated into all Sony DVCAM and DV cassettes.



Both kinds of information, Index Picture and ClipLink Log Data, are very effectively utilized in the ClipLink system. The ClipLink Log Data can be instantly uploaded to the Sony EditStations from the DVCAM VTRs, so that a selection of usable video clips can be easily made by just glancing at the GUI (Graphical User Interface) screen of the EditStation.

The ClipLink system, in combination with Sony's new digital products such as the DXC-D30P Digital Camera, DSR-85P Digital Videocassette Recorder, and the ES-7 EditStation, provide a remarkable improvement in productivity and operating efficiency throughout the programme production process.

The ClipLink system functions even when the DSR-1P is combined with analogue component cameras, allowing storage of the Index Pictures at REC IN points onto the tape and the time codes into the cassette memory. Even when the cassette tape loaded into another DSR-1P, continuous recording is still available.

DSR-130P Digital Camcorder



Scene No.	Index Picture	Time Code (IN)	Time Code (OUT)
1		00:01:01	00:05:22
2		00:05:23	00:18:20
3		00:18:21	00:24:13

DVCAM or DV
Cassette Tape



Camera Setup Data File System (Camera Data Recording)

When a DSR-1P is connected to a DXC-D30P Digital Camera, the camera setup file data set for a specific shooting condition can be recorded directly onto the video auxiliary area of the DVCAM tape via the Pro 76-pin Digital connector. The stored set-up data can then be copied onto other DVCAM tapes so that a specific camera set-up can be copied to many other cameras.

This system makes it easy to set up several cameras to a uniform condition simply by using duplicated tapes.

Dual Interface Mechanism Gives Choice of Dockable Cameras

The DSR-1P has both Pro 76-pin Digital and Pro 50-pin connectors which allow direct connection with several alternative Sony digital and analogue cameras: DXC-D30P, DXC-637P, DXC-537AP, DXC-327AP and DXC-327BP. This excellent flexibility, which allows a camcorder to be configured for a variety of different applications, is achieved by a newly developed dual interface mechanism, which incorporates both analogue Pro 50-pin and Pro 76-pin Digital interfaces with a unique seesaw construction. The Pro 76-pin Digital interface gives closer communication between a digital camera and the VTR in operations such



<Pro 76-pin Digital>

<Pro 50-pin>

as the ClipLink system, Camera setup data recording on tapes and time code display on the viewfinder in playback mode. In addition, the new design of the connectors offers enhanced interface reliability.

Perfect Camcorder Operation with the DSR-130P

When connected to a DXC-D30P Digital Camera to form a DSR-130P DVCAM camcorder, the DSR-1P operates at its optimum performance. Since both video and audio signals are printed in the digital domain, working with the DSR-130P Digital Camcorder has the great advantage that the video and audio quality of the programme material can be maintained right through the production process - from acquisition to programme distribution.



Unique Design

Compact and Lightweight Construction

Sony innovation in mechanical and electronic design, such as the use of a magnesium diecast body and the development of a very compact drum mechanism, makes the DSR-1P remarkably small and lightweight yet durable in use; Weighing in at just 2.85kg (6 lb 4 oz) complete with NP-1B Battery, it means that when the DSR-1P is configured with a DXC-D30P camera, it forms a camcorder of remarkable ergonomic design that has an operating weight of only around 7.3kg (16 lb 1 oz).



Low Power Consumption

With a low power consumption totaling only 24.8W, one fully charged Sony NP-1B battery gives continuous operation for approximately 60 minutes when operating in the DSR-130P configuration.

Dual Cassette Mechanism

The DSR-1P accepts both DVCAM Mini cassette tapes and DVCAM Standard cassette tapes without any adaptor. This is a Sony first in the history of the dockable recorder or camcorder, and it enables the DSR-1P to have a maximum recording time of 184 minutes. It also means that the DSR-1P can accommodate a wide selection of cassette tapes, either the DVCAM Mini cassettes or the DVCAM Standard.



Versatile Comprehensive Built-in Features

Record Review Function

By simply pressing the Rec Review button while in the Rec pause mode or in the Stop mode, the DSR-1P plays back two seconds of the last scene and stops at the end of the previous recording. The Rec Review time can also be extended up to a maximum of approximately 10 seconds, if the Rec Review button is pressed for longer than two seconds.

Frame Accurate Back Space Editing

Automatic back space editing with instant start provides sequential recording, without picture breakup at the transition points. The time code regeneration function, when used with the Rec Review function, enables the DSR-1P to record continuous time code at any editing point.

Viewfinder Playback Capability

The DSR-1P provides the viewfinder playback function for field verification. In playback or Rec Review mode, the recorded luminance signal can be monitored on the viewfinder, while audio playback is available via an earphone or the built-in loudspeaker.

Built-in EBU Time Code Generator and Reader

The DSR-1P includes a built-in time code generator and reader which conforms to the EBU standard. Users bits are also available. Both the time code and the users bits are recorded in the sub code area which can be read at any playback speed. Time code lock to either external time code or another DSR-1P is available for multi-camera operation. Furthermore, the DSR-1P has both time code preset and regeneration capabilities.

Time Base Stabilizer

The DSR-1P is equipped with a built-in time base stabilizer which provides stable pictures without any additional equipment.

Easy, Full Colour Picture Playback in the Field

The DSR-1P provides a full colour picture playback capability without any playback adaptor, which is a great advantage for field verification of the recording and permits direct microwave transmission.



Interchangeable Battery Cases

In addition to the supplied battery case for one NP-1B, the DSR-1P can accept various batteries to extend its operating time. The DC-520, when attached to the supplied battery case, allows the DSR-1P to house two NP-1B batteries. BP-L60A Lithium Battery can be also attached to the back of the DSR-1P.

Others

- Easy Integration with Anton/Bauer® Equipment
- Versatile Signal Interfaces

The DSR-1P is equipped with versatile signal interfaces such as S-video and composite outputs. For audio interfaces, an earphone output, unbalanced phono output and balanced XLR-type audio inputs are provided.

- DC Out Connector for Wireless Microphone Powering
- +48V Powering for External Microphone
- Built-in Loudspeaker



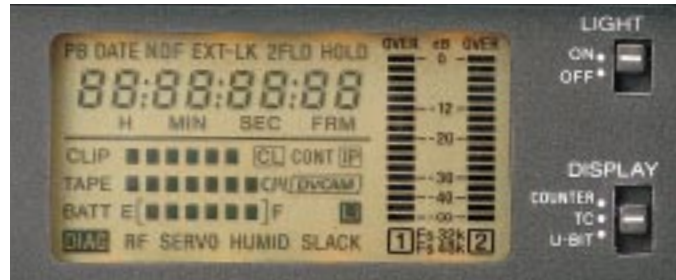
User Friendly Operation

VTR Full Function Control

Eject, Rewind, Play, Fast Forward, and Stop function buttons are located on the top of the unit and are covered with a lid to prevent accidental access. During Rec mode, all function buttons are automatically inhibited. The Rec mode can also be activated with the trigger buttons on the front of the camera or on the zoom lens grip.

Comprehensive LCD Display

An 8-digit LCD display provides an extensive range of critical information about the VTR operation. In addition to time data (including Time Code, counter and User Bit data), remaining tape quantity and battery capacity, the ClipLink operation status is also displayed. A digital audio meter allows precise adjustment of the audio recording level.



Menu Selection

Various VTR menus such as cumulative hours (head drum operating hours, tape transport operation hours, total operation hours), ClipLink On/Off mode, selection of audio mode, Anton/Bauer Logic Series® Digital battery capacity indication settings and stand-by period setting can be shown on the LCD display for easy access to the various menus.

Reliable and Serviceable

Built-In Self-Diagnostics and Hours Meter

Should an error be detected, an error message will be displayed which will identify the problem area. In this way, down-time can be minimized. Furthermore, an hours meter is provided to indicate the elapsed time of time-critical operations such as accumulated drum rotation time. It can easily be displayed on the LCD display via menu selection.

Peripheral Equipment



DXC-D30WSP
Digital Video Camera



DXC-637P
Colour Video Camera



NP-1B
Rechargeable NiCd Battery



BP-L60A/BP-L90A
Rechargeable Lithium-Ion Battery



BKW-L601
Battery Adaptor for BP-L60A/L90A



DC-520
Battery Case for NP-1B



BC-1WDCE
Battery Charger for four NP-1B batteries



BC-410CE
Battery Charger for four BP-L90A and four NP-1B batteries



WRR-855A/810A
Wireless Microphone Receiver
* WRR-855A/810A can not be used in some areas.

*Camera adaptor is optional.
DSR-1P is directly connected to the cameras.

DSR-130P DVCAM Digital Camcorder



Main Features

Excellent Design

- Directly connected via the Pro 76-pin Digital connector
- Compact and lightweight
- Low power consumption

Innovative Digital Signal Processing

- TruEye™ processing for faithful colour reproduction with a wide dynamic range
- Superb picture quality (850TV line horizontal resolution)
- Skin Detail with auto skin tone detection
- 'Black Halo' free Clean Detail
- Real Time Self Diagnostics
- High stability and uniformity

Power HAD™ CCD

- Low smear level of -125dB, equivalent to FIT CCDs
- High sensitivity of F11.0 (at 2000 lx, 3200K)
- High signal-to-noise ratio of 61dB

ClipLink System for Efficient Video Production

Sophisticated Camera Setup Management

- Convenient Viewfinder menu
- Camera Setup File System to manage setup files
- SetupNavi™ to store and transplant a camera setup file using a DVCAM cassette tape.
- SetupLog™ system to store operational condition of camera onto a DVCAM tape.

Operational Convenience

- Time code superimposed in playback
- Freeze Mix Function to frame the subject in the same position as in the previous shot, which is superimposed on the viewfinder screen as a still image.
- Edit Search button and Audio CH-1 Level Control are located on the DXC-D30 for easy access by the operator.
- Total Level Control System (TLCS) for automatic light control
- Intelligent Auto Iris which detects the lighting condition to adjust the lens iris for optimum exposure
- EZ Focus and EZ mode allow quick camera setup for instant shooting
- Auto Tracing White Balance (ATW) function
- MONITOR OUT (BNC) function
- Three position auto iris mode - STD (Standard), BACK L (Back Light), SPOT L (Spot Light)

Other Features

- REMOTE 10-pin (RS-232C) to allow control from external personal computers
- Black stretch and compress function to adjust the contrast in the black area
- Dual Zebra function
- Programmable Gain from a wide selection; Master Gain, DPR (Dual Pixel Readout) and Hyper Gain
- Date and time superimposition
- Built-in 1kHz audio reference oscillator
- Adjustable shoulder pad
- Quick start, refined 600 TV line 1.5-inch CRT viewfinder
- Enriched Selectable colour bars - EBU100%, EBU75%, SPLIT, SNG



CMA-8ACE
AC Adaptor (used with the optional CCQX-3 cable)



CCQX-3
Power Supply Cable for CMA-8ACE



AC-550CE
AC Adaptor



DXF-701CE
1.5-inch Monochrome Electric Viewfinder



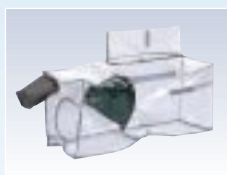
VCT-U14
Tripod Adaptor



WRT-810A/830A
UHF Wireless Microphone



LC-421
Carrying Case for DSR-130P



LCR-1
Rain Cover



CA-514
Camera Adaptor for BVP Series Broadcast Cameras



PDVM-12ME/22ME/32ME/40ME
Digital Video Cassette Tape (Mini size)



PDV-34ME/64ME/94ME/124ME/184ME
Digital Video Cassette Tape (Standard size)



PDVM-32N/40N (Mini size)
PDV-64N/124N/184N
Digital Video Cassette Tape (Non IC tape)

Specifications

GENERAL

Power requirements	DC 12V +5/-1V
Power consumption	12W
Operating temperature	0 ~ +40 °C (32 to 104 °F)
Storage temperature	-20 ~ +60 °C (-4 to +140 °F)
Operating humidity	Less than 85%
Storage humidity	Less than 90%
Mass	2.85Kg (6 lb 4 oz) (including Battery NP-1B)
Dimensions	118(W) x 185(H) x 210(D) mm (4 3/4 x 7 3/8 x 8 3/8 inches)
Tape speed	28.221mm/s
Recording/Playback time	Standard size : 184min. w/PDV-184ME Mini size : 40min. w/PDVM-40ME
Fast forward/Rewind time	Standard size : Approx. 12min. w/PDV-184ME Mini size : Approx. 3min. w/PDVM-40ME
Continuous recording time	Approx. 60min. w/NP-1B (DSR-1P + DXC-D30P)

VIDEO PERFORMANCE**

Band width	
Luminance	25Hz~5.5MHz + 1.0/-2.0dB 5.75MHz + 0/-3.0dB (Typical measurement)
Chrominance	25Hz~2.0MHz + 1.0/-2.0dB
S/N ratio	More than 55dB
K-factor (K2T, KPB)	Less than 2.0%
Y/C delay	0 ± 30nsec.

AUDIO PERFORMANCE**

Frequency response	
2CH mode (48kHz/16bit)	20Hz ~ 20kHz +0.5/-1.0 dB
4CH mode (32kHz/12bit)	20Hz ~ 14.5kHz +0.5/-1.0 dB
Dynamic range	More than 80dB
Distortion (THD + N)	Less than 0.08%

SIGNAL INPUTS

GEN LOCK VIDEO IN (BNC)	1.0Vp-p, 75Ω
EXT AUDIO IN CH-1/2 (XLR 3-pin female)	-60dBu, 3kΩ/+4dBu, 10kΩ
TIME CODE IN (BNC)	0.5Vp-p ~ 18Vp-p, 10kΩ

SIGNAL OUTPUTS

VIDEO OUT (BNC)	1.0Vp-p, 75Ω
S-VIDEO (4-pin)	
Y	1.0Vp-p, 75Ω, sync negative
C	0.3Vp-p, 75Ω
AUDIO OUT CH-1/2 (RCA PIN)	-10dBu, 47kΩ
TIME CODE OUT (BNC)	1.0Vp-p, 75Ω

OTHERS

ANALOGUE I/F	Pro 50P
DIGITAL I/F	Pro 76P Digital
DC 12V (rear)	XLR 4-pin male
DC OUT	4-pin
EARPHONE OUT	Stereo Mini Jack

SUPPLIED ACCESSORIES

Shoulder strap (x1)
Connector cap (x1)
Lithium battery (type CR2032) (x1)
M4 x 6 screws (x2)
M4 x 12 screws (x2)
Operating instructions (x1)
ClipLink guide (x1)

- * 0dBu = 0.775Vrms
- * Design and specifications subject to change without notice.
- * "Sony" and "Hyper HAD" are registered trademarks of Sony Corporation.
- * "DVCAM", "EditStation", "TruEye", "SetupNavi", "SetupLog" and "ClipLink" are trademarks of Sony Corporation.
- * "Anton/Bauer" and "Logic Series" are registered trademarks of the Anton/Bauer Corporation.
- ** The specifications of "Video/Audio performance" were measured by playing back material on a DSR-85P (via analogue component out) that had been recorded on the DSR-1P.

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