

SONY®

NTSC/PAL

Portable Editing Recorder

DVCAM™

DSR-70A

DSR-70AP



Master
Series

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

DSR-70A

— An Innovation in Portable Editing

Ever since its introduction in 1996, the DVCAM format has been used in a variety of applications because of its excellent picture and sound quality, high editing performance and system versatility packaged into a compact but reliable design. Sony's on-going design enhancements further resulted in the addition of the 'DVCAM Master Series' models, now known as the professional DV workhorse solution for both broadcast and post-production environments. Represented by the DSR-2000, DSR-1800, DSR-1600 and DSR-1500, the Master Series showcases new professional features including playback compatibility with other DV formats, enhanced editing performance and top-quality jog audio - features especially vital for ENG applications.

Sony now introduces another addition to the Master Series, the DSR-70A Portable Editing Recorder. With an all-in-one package design that includes an editing VTR and 6.4-inch LCD monitor, the DSR-70A combines high mobility and portability with the excellent editing performance of the Master Series. The DSR-70A is designed so it can be easily docked to a second DSR-70A or to the DNW-A25 Betacam SX™ Portable Editing Recorder, forming a dual deck laptop editor for use in the field.

A variety of other convenient features are also available, making the DSR-70A equally suited for applications ranging from video journalism, event videography, corporate video production and general station use.

The DSR-70A is the ideal choice when quality, portability and reliability are priorities.

* In the following text, 'DSR-70A' refers to both the DSR-70A (NTSC model) and the DSR-70AP (PAL model).



Main Features

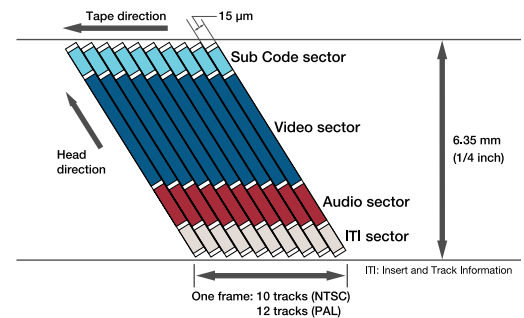
The DVCAM Format for Professional Performance

The DSR-70A employs 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.



Mini-size cassette Standard-size cassette

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.



Playback Compatibility with DV Family Format

For maximum versatility, the DSR-70A is designed to playback other DV (25 Mb/s) format recorded tapes without the need for a mechanical adaptor or menu adjustments. This playback compatibility includes consumer DV recorded tapes (SP mode) and also DVCPRO* recorded tapes. Moreover, it is possible to use these tapes directly as editing source material with ± 0 frame accuracy.

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



High-Mobility & Portability for Field Use

Compact, All-in-one package

The DSR-70A is a highly portable and mobile editing recorder which is ideal for field applications. The compact body of the DSR-70A incorporates a 6.4-inch VGA LCD monitor, a full cut-editing controller with a Jog/Shuttle dial and an audio speaker. Easy to carry anywhere by hand, the DSR-70A plays an important role in field acquisition and editing where quick operation and high mobility are priorities.

Flexible power supply

The DSR-70A operates on 12 V battery power using BP-L40A/L60A/L90A lithium-ion batteries which provide high capacity in a compact size. For example, with a fully charged BP-L90A, the DSR-70A records for approximately 120 minutes with its LCD monitor fully functioning (without options). AC power operation is also available. There is a choice of three types of AC adaptors, the AC-DN2B via the V-shoe attachment or alternatively the AC-550 or CMA-8A via the 4-pin XLR connector. The AC-DN2B has the important advantage of being able to supply the power for two DSR-70As or a DSR-70A and DNW-A25 docked together.



DSR-70A
with BP-L90A

DSR-70A \times 2
with AC-DN2B

Double Deck Editor

By docking two DSR-70A units together*, a fully featured cuts only editing system for mobile applications is created. This configuration provides VTR-to-VTR editing with Jog/Shuttle dial operation. The DSR-70A can also be combined with a DNW-A25 Betacam SX™ portable editing recorder, allowing DVCAM-to-Betacam SX format editing and vice versa. Not only Betacam SX to DVCAM format editing, but Betacam SP® -to- DVCAM format editing is also available because of the analog playback capability of the DNW-A25. This gives you the flexibility to use the ideal format for your application.

* The optional BKNW-225 Docking Kit is required.

The optional DSBK-140, DSBK150 or DSBK-160A is required.



DSR-70A + DNW-A25

Main Features

Excellent Editing Performance

Enhanced Digital Slow Motion and Jog Sound

Digital Slow Motion: Noiseless playback of digital slow-motion pictures is available within the range of ± 0.5 times normal play speed.

Jog Sound: Jog sound can be reproduced over the range of 1/30 to 1 times normal playback speed, in forward and reverse. The jog sound quality and jog response are especially enhanced within the ± 0.5 times normal playback range. This is a particularly important feature for ENG applications that require audio-based editing.

Moreover, this function is also available when using consumer DV (SP mode) and DVCPRO (25 Mb/s) tapes.

ClipLink™ Operation

The DSR-70A supports the ClipLink system, which generates shot log data for use in the digital production process. During acquisition with the Sony DSR-1/DXC-D35, DSR-135P, DSR-300A or DSR-500WS DVCAM camcorder, the time code data of the in/out-points of each shot and OK/NG status are recorded in the cassette memory of the DVCAM tape. Immediately after the tape is inserted into the DSR-70A, this data is automatically loaded into the deck allowing quick and easy cue up to the designated points (Mark In points/Cue address) through a log list displayed on the LCD screen. Moreover, you can edit the original in/out-points or even add new ones from the key panel on the DSR-70A and store them back onto the tape's cassette memory. As a result, a rough EDL (Edit Decision List) is stored in the cassette with the source material, making this an extremely useful function for making final edit decisions in the studio.

* This function is available only when a tape that has no Index Pictures is used.

Sophisticated Mechanism

Quick Response Mechanism

The DSR-70A combines quick response with high reliability through the use of direct reel drive and electronic tension servo. The FF/REW speeds are an impressive 85 times, while maximum search speed is 32 times with color playback. All these factors are significant in raising the efficiency of editing operations.

Three-size Cassette Compartment (New)

The three-size cassette compartment ensures compatibility with DV (25Mb/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 harsh editing environments.

DMC (Dynamic Motion Control)

Equipped with the DMC function, the DSR-70A allows 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

The DSR-70A has an industry standard RS-422A remote control interface which is used for professional editing. In addition, with its sophisticated servo control and built-in time code generator/reader, frame accurate editing is available in both assemble and insert modes. The time code conforms to the SMPTE/EBU standards.

High-speed Color Picture Search

The DSR-70A features high-speed color picture search. This provides recognizable pictures over a range of up to 32 times normal speed, in both forward and reverse. This function is also available using RS-422A-equipped editing controllers.

Audio MIX/SWAP Recording

The DSR-70A shows its excellent functionality in audio editing. The DSR-70A can mix*/swap input signals from the SDTI(QSDI), SDI, i.LINK*** or two analog audio** interfaces.

* Max. two channels

** Two input connectors and two output connectors are provided.

In four-channel selectable mode, only two pairs of audio channels

***i.LINK is a trademark of Sony used only to designate that a product contains an IEEE 1394 connector. All products with an i.LINK connector may not communicate with each other.

Please confirm interoperability with third party manufacturers. For more information contact Sony at 1-800-686-7669.



— Control Panel

Comprehensive, Convenient Functions

Full Tape Dubbing with ClipLink Log Data

The DSR-70A has a full tape dubbing function which dubs recorded DVCAM tape information (video/audio/sub code) along with the ClipLink log data held in the cassette memory. This is achieved via the i.LINK interface or by a combination of SDTI (QSDI) and RS-422A interfaces. It is therefore easy to make duplicate tapes with the same ClipLink log data as the original tape.

VITC

In addition to TC, the DSR-70A supports VITC. VITC is recorded on the video tracks and inserted in the vertical blanking interval. This time code can also be read at slow tape speeds and during still playback.

Process Control

The DSR-70A is equipped with a built-in processor for both analog and digital outputs, giving highly stable video signals. This processor provides control of video level, chroma level, set up (black) for the composite/component/S-Video/SDI outputs.

* Sync and SC (Sub Carrier) phase adjustment is not available.

Two-camera Switching Recording

The DSR-70A introduces a unique feature to field recording. With the optional DSBK-180 Dual Video Input Board, two cameras can be connected and the output of either one selected for the recording. The DSR-70A displays both camera images on its LCD screen using a picture-in-picture mode. The TRIM buttons on the key panel of the DSR-70A are used to select which camera output is recorded.

The DSR-70A is also capable of displaying the chroma phase and sync phase of the two cameras on the screen for adjustment, which requires no measurement equipment such as a waveform monitor. This feature greatly contributes to event and wedding videography, video journalism etc. with a minimum system and smaller crew.

Versatile Interfaces (Options)

A range of versatile optional interface boards are available, allowing flexible analog and digital system configurations. Users can choose from this range of interfaces to configure the DSR-70A to their individual requirements. Thanks to these options, the DSR-70A can function as a compact, high-performance professional editing VTR.

* The SDTI (Serial Data Transport Interface) is defined as SMPTE 305M.

* The SDTI (QSDI) is the DV compressed signal interface which is defined as SMPTE 322M.

* i.LINK stands for IEEE 1394-1995 standards and their revisions.

* **i** is the logo for products that implement i.LINK.



— Rear View (with DSBK-160A optional board)

Note: Optional interface boards (DSBK-140/150/160A/170) cannot be used in combination with each other. However, these boards can be used together with the optional DSBK-180.

16:9 Aspect Ratio Capability

The DSR-70A can record and playback 16:9 aspect ratio pictures shot with a DXC-D35WS Digital Video Camera or the DSR-500WS Camcorder. This capability is available both through analog and digital interfaces. 4:3 mode to 16:9 wide screen mode or vice versa is switched using the menu operation.

Built-in Signal Generator

Equipped with a built-in signal generator, the DSR-70A can generate color bars or black burst for video, and a 1 kHz tone or silence for audio.

Sequential Recording

In the double deck configuration (DSR-70A/DSR-70A or DSR-70A/DNW-A25), sequential recording without a break is available by using each deck alternately. When the tape remaining time of the recorder reaches two minutes, the player automatically starts recording to achieve sequential recording. With two DSR-70A VTRs, up to six hours of recording can be obtained. This is very convenient for those applications which require a recording time of over three hours such as concerts, ceremonies or medical operations for example.

Parallel-Run Recording

The DSR-70A has a unique parallel-run recording function, which is extremely useful when two video signals must be recorded simultaneously to two decks with their time codes synchronized. Through a simple time code In/Out and RS-422A connection, parallel control (Rec, Play, Stop, Shuttle, etc) of two combined DSR-70A's is possible. Either DSR-70A can be designated as the controller. The time code connection ensures synchronized time code between the two DSR-70A's, making this function ideal for multi-camera recording and sync roll editing.

- SDI and i.LINK: DSBK-160A (New) — SDI and i.LINK interfaces are provided on this single board
- i.LINK: DSBK-140
- SDTI (QSDI): DSBK-150
- Analog Component: DSBK-170



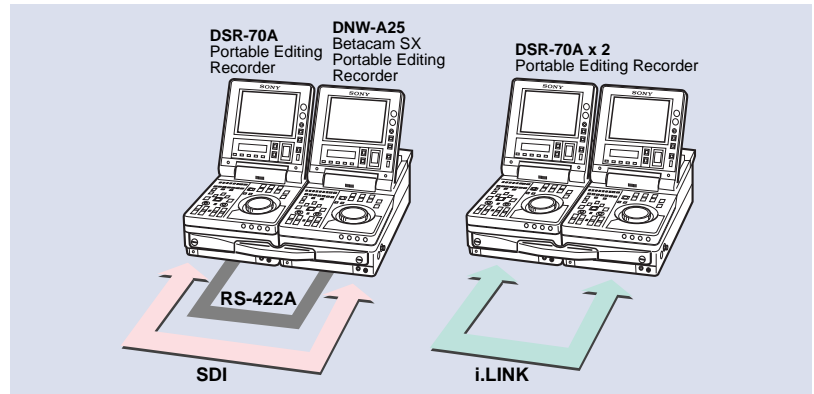
Other Features

- Closed Caption Function
- Built-in Character Generator
- Edit List Memory Function(New) — With this function, the last 10 editing points are memorized in the DSR-70A.
- Self-Diagnostics and Error Log
- Hours Meter

Application Examples

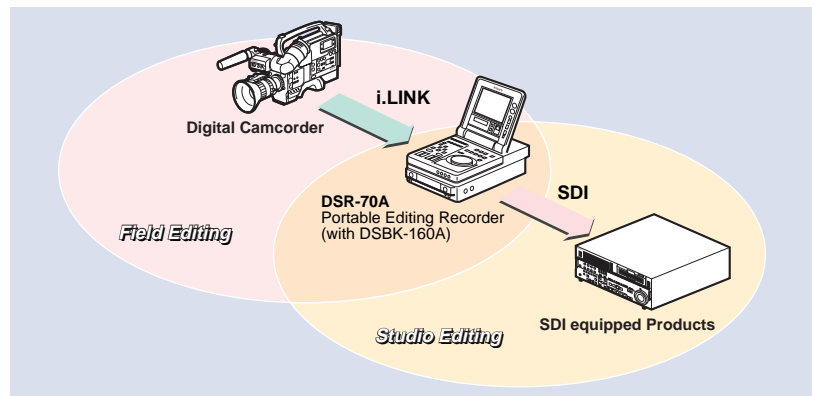
Lap-Top Editing

- Portable and compact cut-editing system package
- Simple cable connection with virtually no deterioration of picture and sound quality
- DV/DVCAM to Betacam SX format editing



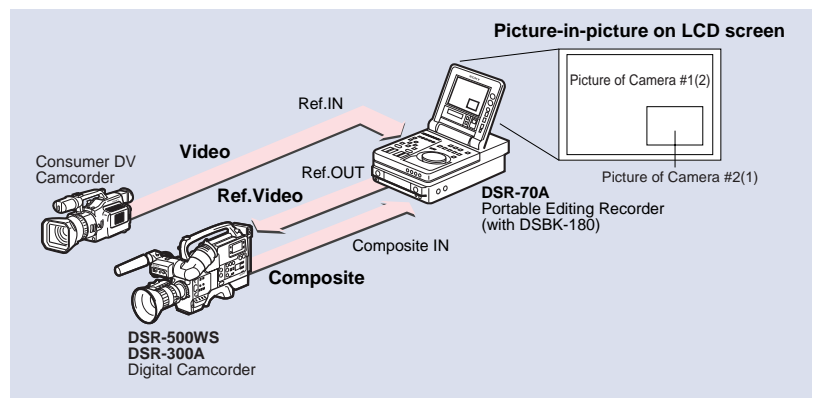
SDI and i.LINK interfaces

- SDI and i.LINK interfaces are provided by a single DSBK-160A optional board
- Convenient for both off-line editing in the field and on-line editing in the studio



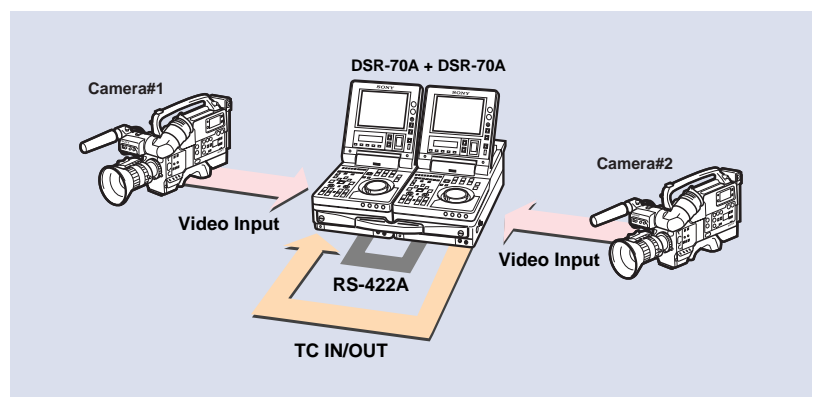
Two-camera Switching Recording Systems

- Flexible recording by alternately switching between two camcorders
- Ideal for field/event recording with a minimum system and smaller crew



Parallel Run Recording Systems

- Synchronized recording with the same time code
- Ideal for multi-camera recording and sync roll editing



Peripheral Equipment & Optional Accessories



DXC-D35 + DSR-1/DSR-135P
Digital Camcorder



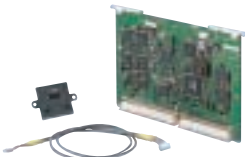
DSR-500WS/500WSP
Digital Camcorder



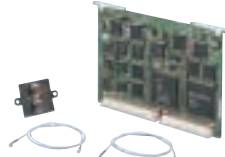
DSR-300A/300AP
Digital Camcorder



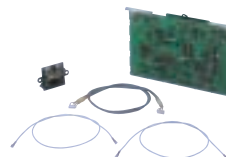
DSR-250/250P
Digital Camcorder



DSBK-140
i.LINK/DV Input/Output Board



DSBK-150
SDTI (QSDI) Input/Output Board



DSBK-160A
SDI/LINK Input/Output Board



DSBK-170
Analog Component Input/Output Board



DSBK-180
Dual Video Input Board



BP-L40A/L60A/L90A
Rechargeable Lithium-ion Battery



BC-L50
Battery Charger for BP-L40A/L60A/L90A



BC-L120/120CE
Battery Charger for BP-L40A/L60A/L90A



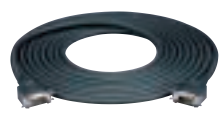
AC-DN2B
AC Adaptor



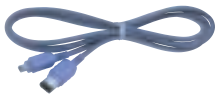
AC-550/550CE
AC Adaptor



CMA-8A/8ACE
AC Adaptor



RGC-5G/10G/30G
Remote Control Cable (5 m/10 m/30 m)



VMC-IL4615/4635
i.LINK Cable (4-pin to 6-pin, 1.5 m/3.5 m)



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



BKNW-225
Docking Kit



JZ-1
Videocassette Logging Software



LC-DN220
Carrying Case



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



PDV-34ME/64ME/94ME/124ME/184ME
Digital Videocassette Tape (Standard Size)



PDVM-32N/40N (Mini Size)
PDV-34N/64N/94N/124N/184N (Standard Size)
Digital Videocassette Tape (Non IC type)

Specifications

	DSR-70A	DSR-70AP
● GENERAL		
Power requirements	DC 12 V	
Power consumption	46 W (without options)	
Operating temperature	0 ° C to 40 ° C (32 ° 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	5.8 kg (12 lb 12 oz)	
Dimensions (W x H x D)	211x 149 x 443 mm (8 3/8 x 5 7/8 x 17 1/2 inches)	
Tape speed	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	Standard size Mini size	Less than 3 min. with PDV-184ME/184N/184MEM Less than 1 min. with PDVM-40ME/40N/40MEM
Search speed	Shuttle mode Slow mode	32 times normal speed ±0.5 times normal speed
● VIDEO PERFORMANCE		
Bandwidth (via analog component I/O)	Luminance Chrominance	30 Hz to 5.0 MHz ±1.0 dB 30 Hz to 1.3 MHz ±1.0 dB, 1.5 MHz +1.0 dB/-5.0 dB
S/N ratio (via analog component I/O)		25 Hz to 5.0 MHz ±1.0 dB 25 Hz to 1.5 MHz ±1.0 dB, 2.0 MHz +1.0 dB/-2.0 dB
K-factor(K2T,KPB)		More than 55 dB
Y/C delay		Less than 2.0 % 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 dB/-1.0 dB 20 Hz to 14.5 kHz +0.5 dB/-1.0 dB
Dynamic range		More than 87 dB
Distortion (THD + N)		Less than 0.07 %
● INPUT SIGNALS		
VIDEO (ANALOG)		
Ref. Video (BNC x2, loop-through connection)	Black burst, 0.286Vp-p	Black burst 0.3Vp-p
Video (BNC x2, loop-through connection)		Composite, 1.0 Vp-p, 75 Ω, sync negative 1.0 Vp-p, 75 Ω, sync negative
Component (BNC x3)*	Y R-Y B-Y	0.7 Vp-p, 75 Ω (75 %) 0.7 Vp-p, 75 Ω (75 %)
* Using optional DSBK-170 Analog Component Input/Output Board		0.7 Vp-p, 75 Ω (100 %) 0.7 Vp-p, 75 Ω (100 %)
S-Video (DIN 4-pin x1)	Y C	1.0 Vp-p, 75 Ω, sync negative 0.3 Vp-p, 75 Ω (at burst level)
* Using optional DSBK-160A SDI/LINK Input/Output Board	0.286 Vp-p, 75 Ω (at burst level)	
VIDEO (DIGITAL)		
SDI (BNC x1)*		Conforms to Serial Digital Interface (270 Mbps), SMPTE259M
* Using optional DSBK-160A SDI/LINK Input/Output Board		
i.LINK (DV In/Out) (6-pin x1)*		IEEE1394
* Using optional DSBK-140 i.LINK/DV Input/Output Board or DSBK160A SDI/LINK Input/Output Board		
SDTI(OSDI) (BNC x1)*		Conforms to SDTI (270 Mbps), SMPTE 305M
* Using optional DSBK-150 SDTI(OSDI) Input/Output Board		
AUDIO (ANALOG)		
Audio (CH-1,2)		XLR 3-pin female x2
● OUTPUT SIGNALS		
VIDEO (ANALOG)		
Ref. Video (BNC x1)	0.286 Vp-p, 75 Ω, sync negative	0.3 Vp-p, 75 Ω, sync negative
Video 1/2 (SUPER) (BNC x2)		Composite, 1.0 Vp-p, 75 Ω, sync negative 1.0 Vp-p, 75 Ω, sync negative
Component (BNC x3)*	Y R-Y B-Y	0.7 Vp-p, 75 Ω (75 %) 0.7 Vp-p, 75 Ω (75 %)
* Using optional DSBK-170 Analog Component Input/Output Board		0.7 Vp-p, 75 Ω (100 %) 0.7 Vp-p, 75 Ω (100 %)
S-Video (DIN 4-pin x1)	Y C	1.0 Vp-p, 75 Ω, sync negative 0.3 Vp-p, 75 Ω (at burst level)
* Using optional DSBK-160A SDI/LINK Input/Output Board	0.286 Vp-p, 75 Ω (at burst level)	
VIDEO (DIGITAL)		
SDI (BNC x2)*		Conforms to Serial Digital Interface (270 Mbps), SMPTE 259M
* Using optional DSBK-160A SDI/LINK Input/Output Board		
i.LINK (DV In/Out) (6-pin x1)*		IEEE1394
* Using optional DSBK-140 i.LINK/DV Input/Output Board or DSBK160A SDI/LINK Input/Output Board		
SDTI(OSDI) (BNC x1)*		Conforms to SDTI (270 Mbps), SMPTE 305M
* Using optional DSBK-150 SDTI(OSDI) Input/Output Board		
AUDIO (ANALOG)		
Audio (CH-1,2 or CH-3,4)		XLR 3-pin male x2
Audio monitor (R/L)		Phono jack x1
Headphones		JM-60 stereo phone jack x1
TIME CODE		
Input		BNC x1
Output		BNC x1
● LCD		
LCD display (x1)		6.4-inch VGA, 640 (H) x 480 (V)
● SPEAKER		
Built-in speaker (x1)		Monaural
● REMOTE		
RS-422A		D-sub 9-pin (x1)
● OTHER		
DC 12 V input		XLR 4-pin x1
● SUPPLIED ACCESSORIES		
	Operation Manual (x1), Carrying Belt (x1), Connector Cap (x1/ per interface), Warranty card (x1)	

Sony Electronics Inc.
Broadcast and Professional Company
One Sony Drive
Park Ridge, NJ 07656
www.sony.com/professional

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