NTSC | Digital Videocassette Recorder

SONY

DVCAM®

DSR-2000

For

Professional

Results

Master Series

Beyond Your Expectations.
The DVCAM Digital Solution for You.

Video production styles have diversified in response to the sudden and massive growth in visual data needs. In this type of environment, it is clear that a VTR that meets various demands for higher productivity and greater creativity in professional video production is eagerly needed. That's why Sony is proud to present you with our top-of-line DVCAM Editing Recorder – the DSR-2000.

Ideal for professional use as well as ENG use, this innovative unit is designed to support all DV (25 Mb/s) format recorded tapes, including DV tapes recorded in LP mode and DVCPRO tapes. The DSR-2000 also has industry-leading performance features such as preread editing, never before offered in a 1/4-inch (6.35 mm) VTR. Additional advantages include a built-in Jog/Shuttle dial that allows two-machine editing and DMC (Dynamic Motion Control) for noiseless slow-motion playback.

Filled with professional features and a functionally designed front panel that put editing controls at your fingertips, the DSR-2000 is the ideal choice for today's demanding video production applications.


Optimum
Performance
More
Productivity
Greater Efficiency

The DVCAM Format

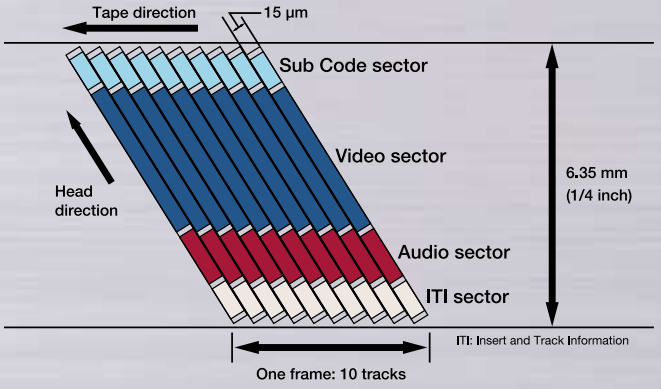
The DSR-2000 employs the DVCAM format that is the professional extension of the world-wide standard DV format.

Digital Component Recording for Professional Performance

The DVCAM format uses 8-bit digital component recording with a 5:1 compression ratio that is identical to the DV format. It also offers a sampling rate of 4:1:1 for 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) that gives higher reliability for professional editing.

The DVCAM format utilizes an intra-frame compression scheme and is based on DCT (Discrete Cosine Transform) techniques with each frame consisting of 10 tracks. Each track has video, audio, ITI (Insert and Track Information) and sub-code sectors. It is the combination of ITI – a reference signal used for precise tracking – and time code on the sub-code sector that helps to assure highly accurate editing performance.

Track Pattern of the DVCAM Fomat



High-Quality Digital Audio

The DVCAM format also offers superior digital audio performance comparable to CD quality, thanks to a wide dynamic range and excellent signal-to-noise ratio. There are two selectable audio channel modes: a two-channel mode with 48 kHz/16-bit recording and a four-channel mode with 32 kHz/12-bit recording.

Recording Capability of Up to Three Hours

DVCAM videocassette 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. The long recording times of these very compact cassettes that have a tape width of 1/4-inch (6.35 mm) is made possible through Sony's advanced Metal Evaporated tape technology.

Mini

Standard

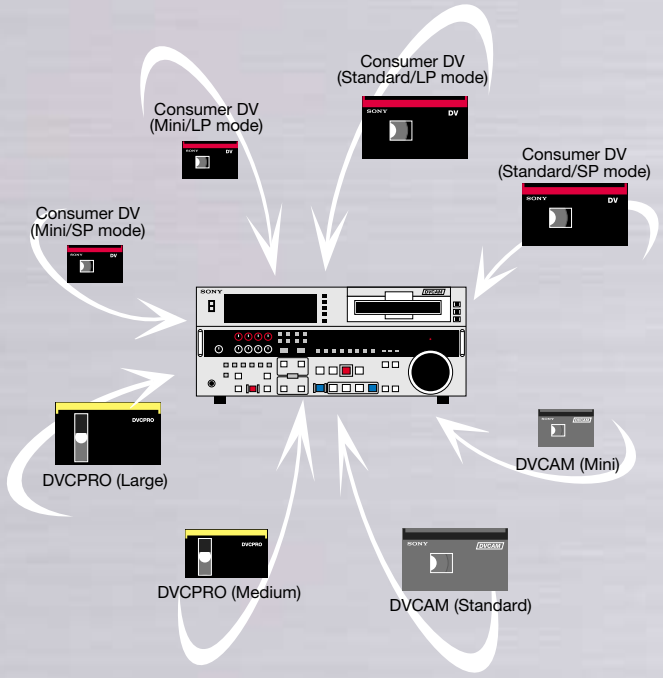
Playback Compatibility with All DV (25 Mb/s) Formats

The DSR-2000 boasts playback compatibility with all DV (25 Mb/s) format recorded tapes. This is especially useful because home-use DV products are now widely used in professional video applications due to their compact portability and superior picture quality. For maximum versatility in a wide range of video editing environments, the DSR-2000 is designed to play back DVCAM tapes, DV tapes recorded in both SP/LP modes, and even DVCPRO tapes* without any adapters. Moreover, it is possible to use these tapes directly as editing source material without the need for dubbing up to other formats.

This unique compatibility saves time and improves productivity as it eliminates the need to use different VTRs for each format.

**Not compatible with the SDTI (QSDI™) and i.LINK™ (DV In/Out) interfaces.*

Playback of All DV (25 Mb/s) Format Tapes



Digital Videocassette Recorder

DSR-2000

Versatile Interfaces

Analog Interfaces

Incorporating comprehensive analog interfaces for both video and audio, the DSR-2000 interfaces with current analog equipment to ensure smooth upgrading to future digital systems. Composite, component, S-Video (Y/C) for video, and XLR audio interfaces are provided.

Digital Interfaces

The DSR-2000 also has a full range of standard digital interfaces such as SDI, SDTI (QSDI) and AES/EBU, as well as optional i.LINK (DV In/Out) and SDTI-CP (MPEG Out) interfaces.

Taking advantage of these digital interfaces, the DSR-2000 offers full access to a wide variety of digital equipment like the SDI-based editing system with the Betacam SX® or Digital BETACAM® formats or a cut editing system with the Sony DSR-500WS DVCAM Camcorder or consumer DV camcorder via i.LINK interface. The DSR-2000 also enables a direct link to MPEG-based networks, making it possible to import all DV (25 Mb/s) recorded tapes into the MPEG-based system.

- *SDTI (Serial Data Transport Interface) is defined as SMPTE 305M.*
- *SDTI (QSDI) is the DV compressed signal interface which is defined as SMPTE 322M.*
- *SDTI-CP is defined as SMPTE 326M.*
- *i.LINK stands for IEEE1394-1995 standards and their revisions.*

is the logo for products that implement i.LINK.

*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

Remote Control Interface (RS-422A)

The DSR-2000 is fully equipped with an RS-422A interface that is the industry standard for professional editing. It allows the DSR-2000 to interface with Sony VTRs, editing controllers and the Sony EditStation™ non-linear editing system.

Comprehensive, Convenient Functions

16:9 Aspect Ratio Capability

By receiving a wide aspect ID signal, the DSR-2000 records and plays back 16:9 aspect ratio pictures shot with the Sony DXC-D35WS Digital Video Camera, DSR-500WS or DSR-PD100A DVCAM Camcorder.

Video Process Control

To provide highly stable video signals, the DSR-2000 is equipped with the process control for both analog and digital outputs. This provides accurate control of video level, chroma level, chroma phase (hue), set up, Y/C delay, Sync phase and SC (Sub Carrier) phase for composite, component, S-Video and SDI outputs.

These can be also adjusted from an optional UVR-60 TBC Remote Control Unit through the Video Control port (D-sub 15-pin) on the rear panel.

VITC

In addition to TC, VITC (Vertical Interval Time Code) is supported by the DSR-2000. Since the VITC data is stored in a different portion of the tape from that of TC, the DSR-2000 handles two kinds of TC data.

Channel Condition Monitoring

The DSR-2000 has a three-color channel condition indicator, with each color representing a particular error rate threshold level. This function enables you to quickly recognize the condition of a VTR or tape for more reliable editing operation.

Built-in Signal Generator

Equipped with a built-in signal generator, the DSR-2000 can generate a color bar or black burst for video, and 1 kHz tone or mute for audio. This is very convenient for creating pre-striped tapes prior to editing.

DSR-2000 Rear Panel (with optional DSBK-190)

Audio Level Control
In both recording and playback modes, the audio levels can be adjusted manually by using the control knobs on the front panel.

Dial Menu Operation
The DSR-2000 incorporates an initial set-up menu that provides easy accessibility and simplified operation. This set-up menu can be scrolled and modified with the search dial while monitoring Composite Video Out 3, SDI Video Out 3 or the time counter display.

Key Inhibit & Rec Inhibit
To help prevent accidental operation, the DSR-2000 is equipped with Key and Rec Inhibit functions. The Key Inhibit function disables all keys while the Rec Inhibit function makes it impossible to record onto a tape.

Flexible Input Selection
For greater flexibility during input selection, the DSR-2000 allows various combinations* of video and audio signals to be input. It is possible to select the digital interface for video and the analog interface for audio.

**The i.LINK interface cannot be combined with other signal interfaces. When SDTI (QSDI) is selected as the audio input, the video signal is determined to be SDTI (QSDI). However, when it is selected as the video input, other signal interfaces can be selected for the audio input.*

Universal Powering System
The DSR-2000 employs a universal powering system that enables the use of AC 100 V to 240 V power sources.

Closed Caption Function
With a built-in closed caption function, the DSR-2000 can record character data on the video area as video auxiliary data and add it into the vertical blanking area in playback mode. The closed caption data is input and output through the composite and SDI interfaces.

ClipLink™ Operation
The DSR-2000 supports the ClipLink system that conveys shooting data into the digital production process. During acquisition with the Sony DXC-D35/D35WS + DSR-1 DVCAM Dockable Recorder, DSR-300A or DSR-500WS DVCAM Camcorders, the in-point/out-point time code data of each shot and its OK/NG status can be recorded in the cassette memory of the DVCAM tape. These can be changed later on the DSR-2000 while viewing the character display of the ClipLink Log Data on the monitor. Also, by adding in/out-points from the front panel, the DSR-2000 records these as newly created Mark In/Out points. What's more, you can easily cue up to the designated points (Mark In points/Cue address) while viewing the ClipLink Log Data to perform a quick picture search.

The ClipLink Log Data can then be used to create an ideal non-linear editing suite by integrating the DSR-2000 with the EditStation system.

Extremely Functional Front Panel Design
Incorporating an ergonomically designed front panel with a Jog/Shuttle dial and full editing keys, the DSR-2000 provides a variety of professional features, clearly making it the leading-edge product in the DSR Series.

Rugged Design Features
Three-size Cassette Compartment


The DSR-2000 incorporates a newly designed three-size cassette compartment to ensure compatibility with DV (25 Mb/s) format recorded tapes of all currently existing sizes and types. Thanks to this feature, it is possible to use standard and mini size consumer DV and DVCAM cassettes as well as medium DVCPRO cassettes without any adapter. The cassette compartment is also designed for durability, providing optimum performance in demanding editing environments.

Quick, Responsive Mechanism
Quick response is an essential requirement for professional editing and the DSR-2000 provides this through the use of a reliable direct reel and drum motor mechanism. For example, in switching STILL mode to PLAY mode, response is exceptionally quick, especially for audio playback. Fast forward and rewind speeds are an impressive 85 times with a maximum search speed of 60 times during color playback.

Easy Maintenance
The DSR-2000 provides easy servicing and maintenance by incorporating a self-diagnostics function, error log and hours meter. Also, thanks to its highly durable drum, the DSR-2000 has an extended drum replacement interval (2,000 hours*).

**Recommended figure.*

Other Features…
Full Tape Dubbing with ClipLink Log Data Built-in Character Generator

Excellent Editing Performance

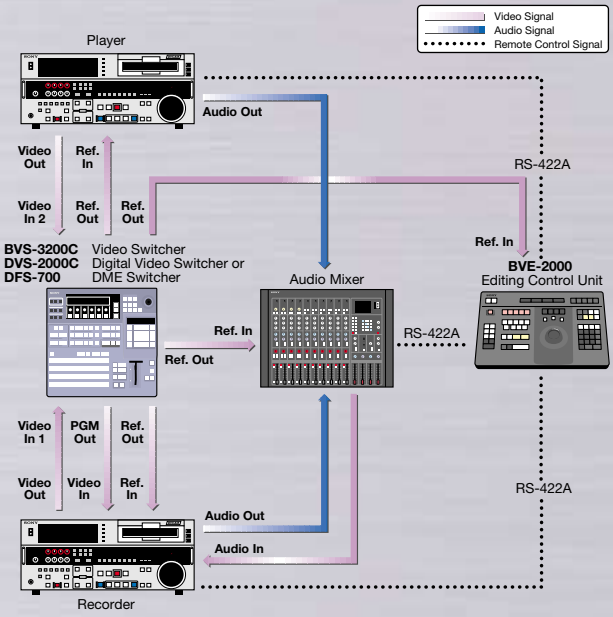
Preread Editing Capability

Thanks to newly developed digital processing, the DSR-2000 offers preread editing capability* never before offered on a 1/4-inch (6.35 mm) VTR. Since preread heads are positioned ahead of record heads on the drum, they scan previously recorded video and audio signals that are then recorded back onto the same track.

This feature provides many advantages such as A/B roll editing (MIX and WIPE only) using two VTRs and a sound-on-sound capability as well as audio cross-fade function for clean audio transitions at editing points. In addition, audio mix/swap and over-dubbing of audio are available without the delay between video and audio.

**Not available for SDTI (QSDI) and i.LINK interfaces as these handle compressed signals.*

Preread Editing System



VTR-to-VTR Editing

DSBK-200 Control Panel with BKNW-121

The front panel features a built-in Jog/Shuttle dial that provides convenient two-machine editing without external controllers. By connecting the DSR-2000 to a VTR with an RS-422A or i.LINK (DV In/Out) interface, an editing system with an editing precision of ±0 frames can be created. Additionally, the optional DSBK-200 Control Panel enables remote operation from a distance of up to 10 meters (approx. 33 ft.).

Wide Range of Digital Slow Speed

The DSR-2000 offers a variable speed playback function with the range of -1 to +1 times. Within this wide range, the DSR-2000 plays back noiseless digital slow images with smooth jog sound to make it easy to designate editing points. This feature can be applied when using any DV (25 Mb/s) format recorded tapes.

DMC (Dynamic Motion Control)

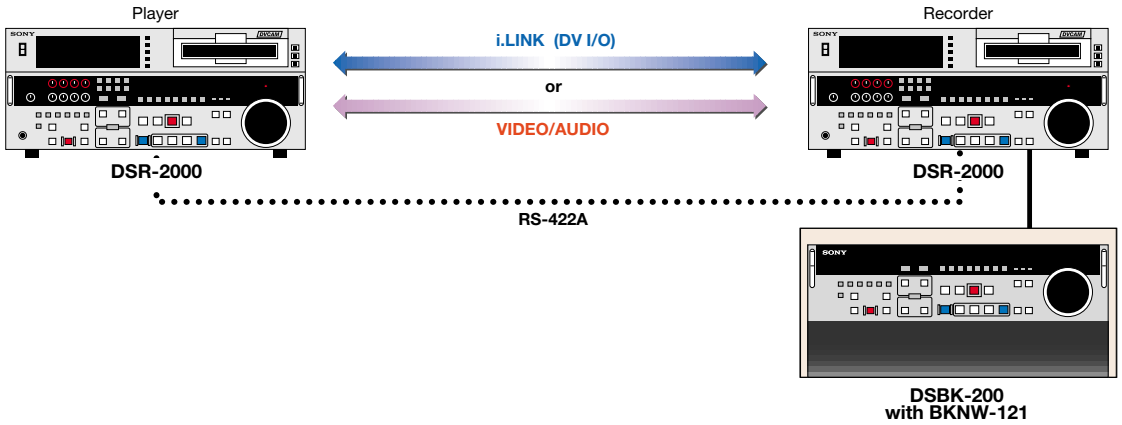
Equipped with Sony's innovative DMC, the DSR-2000 provides noiseless slow-motion playback from -1 to +1 times normal speed. For a two-machine editing system, the DSR-2000 can memorize the variable speed range of a designated portion on the player side and execute editing* with slow-motion images. Additionally, DMC makes it possible to control VTRs equipped with Dynamic Tracking® from the DSR-2000.

**The SDI is recommended for DMC editing. The SDTI (QSDI) and i.LINK interfaces are not suitable for this use, since they handle compressed signals.*

DSR-2000 Front Panel

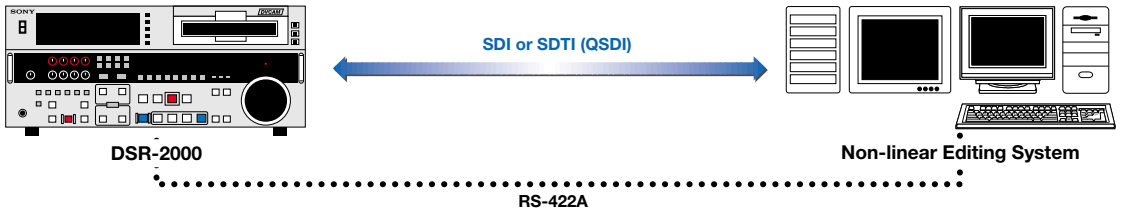
VTR-to-VTR Editing System

- Simple and efficient cut editing
- Superior multi-generation picture and sound quality via an i.LINK interface
- Space-saving design
- Remote operation from a distance of up to 10 m via a DSBK-200



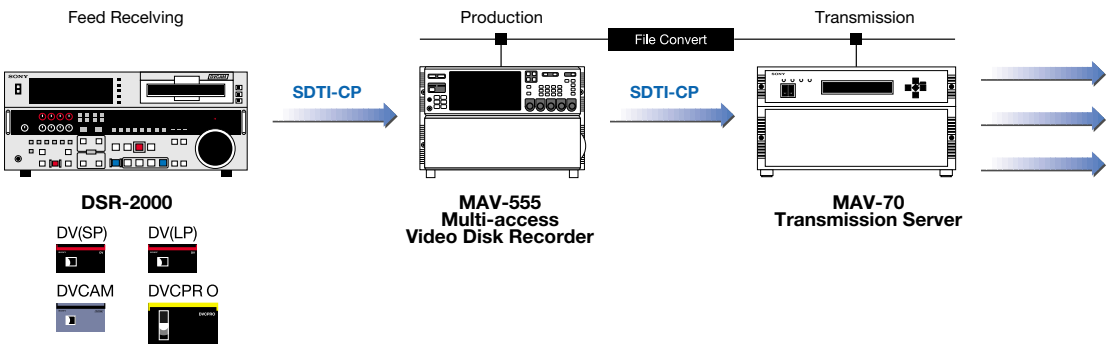
Non-linear Editing System

- Degradation-free picture and sound quality by using an SDI or SDTI (QSDI) interface through the entire production process



Feed Receiving for MPEG-based Network

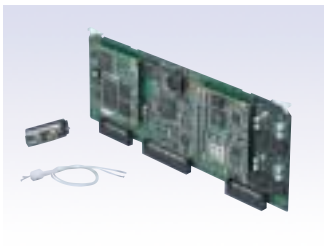
- Direct link to MPEG-based networks by use of SDTI-CP interfacing
- Ability to upload DV (SP/LP mode), DVCAM and DVCPRO recorded tapes as editing source material



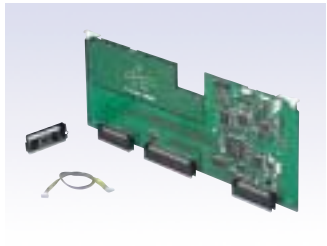
Peripheral Equipment & Optional Accessories

DSR-500WS
Digital Camcorder

DSR-300A
Digital Camcorder

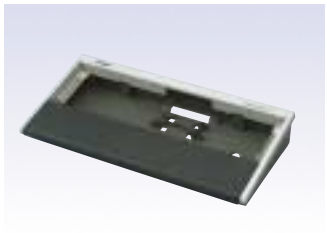


DSBK-210
SDTI-CP Output Board



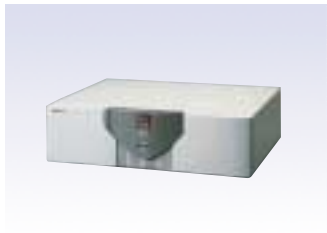
DSBK-190
i.LINK/DV Input/Output Board

DSBK-200
Control Panel



BKNW-121
Control Panel Case

ES-7
EditStation



ES-3
EditStation

BVE-2000
Editing Control Unit

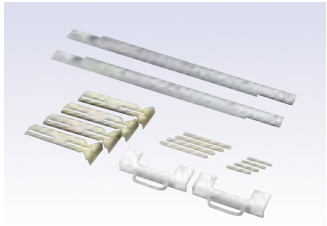
PVE-500
Editing Control Unit

DVS-2000C
Digital Video Switcher

BVS-3200C
Video Switcher

DFS-700
DME Switcher

UVR-60
TBC Remote Control Unit



RMM-130
Rack Mount Kit

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

CCF-3L(6P*-6P) **/CCFD-3L**(6P*-4P)
DV Cable
**with lock*

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)

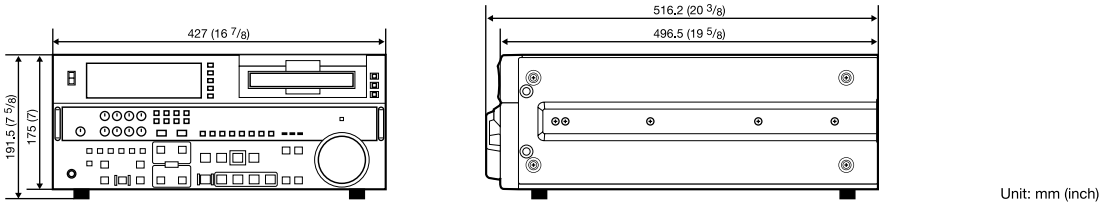
Specifications

GENERAL	
Power requirements	AC 100 to 240 V, 50/60 Hz
Power consumption	120 W
Operating temperature	41 °F to 104 °F (5 °C to 40 °C)
Storage temperature	-4 °F to 140 °F(-20 °C to 60 °C)
Operating humidity	25 to 80%
Storage humidity	Less than 90%
Weight	39 lb 10 oz(18 kg)
Dimensions (W x H x D)	16 7/8 x 7 x 19 5/8 inches(427 x 175 x 496.5 mm)
Tape speed	28.193 mm/s
Recording/Playback time	
Standard size	184 min. with PDV-184ME/184N/184MEM
Mini size	40 min. with PDVM-40ME/40N/40MEM
Fast forward/Rewind time	
Standard size	Less than 3 min. with PDV-184ME/184N/184MEM
Mini size	Less than 1 min. with PDVM-40ME/40N/40MEM
Search speed	
Shuttle mode	Still to ±60 times normal speed
Digital slow mode	±1 times normal speed
VIDEO PERFORMANCE	
Band width (via analog component I/O)	
Luminance	30 Hz to 5.0 MHz ±1.0 dB
	5.75 MHz +0/-3.0 dB (Typical measurement)
Chrominance	30 Hz to 1.5 MHz ±1.0/-5.0 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)	20 Hz to 20 kHz +0.5/-1.0 dB
4CH mode (32 kHz/12-bit)	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)	
	Composite, 0.286 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%)
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)

VIDEO (DIGITAL)	
SDI (BNC x 2, active-through connection)	
	Conforms to Serial Digital Interface (270 Mb/s), SMPTE 259M
SDTI (QSDI) (BNC x 1)	Conforms to SDTI (270 Mb/s), SMPTE 305M/322M
i.LINK (DV In/Out) (6-pin x 1)	IEEE1394-based
	** Using optional DSBK-190 i.LINK/DV Input/Output Board*
AUDIO (ANALOG)	
Audio (XLR 3-pin female x 4)	-6/0/+4 dBu, -60 dBu (high impedance)/600 Ω off/on
AUDIO (DIGITAL)	
AES/EBU (BNC x 2)	75 Ω, unbalanced
TIME CODE	
Time Code In (BNC x 1)	0.5 Vp-p to 18 Vp-p, 3 kΩ, unbalanced
OUTPUT SIGNALS	
VIDEO (ANALOG)	
REF. Video (BNC x 1)	0.286 Vp-p, 75 Ω, sync negative
Video 1/2/3(SUPER) (BNC x 3)	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%)
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)
VIDEO (DIGITAL)	
SDI (BNC x 3)	Conforms to Serial Digital Interface (270 Mb/s), SMPTE 259M
SDTI (QSDI) (BNC x 1)	Conforms to SDTI (270 Mb/s), SMPTE 305M/322M
SDTI-CP** (BNC x 2)	Conforms to SDTI (270 Mb/s), SMPTE 305M/326M
	** Using optional DSBK-210 SDTI-CP Output Board*
i.LINK** (DV In/Out) (6-pin x 1)	IEEE1394-based
	** Using optional DSBK-190 i.LINK/DV Input/Output Board*
AUDIO (ANALOG)	
Audio (XLR 3-pin male x 4)	+4/0/-6 dBu (selectable by menu)
Monitor (RCA x 1)	-11 dBu, 47 kΩ, unbalanced (-20 dBFS)
Headphone (JM-60 headphone jack x 1)	
	-∞ to -13 dBu, 8 Ω, unbalanced (-20 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
Video Control	D-sub 15-pin (male) x 1
Control Panel	D-sub 15-pin (female) x 1
SUPPLIED ACCESSORIES	
AC power cord, Operating instructions, RCC-5G 9-pin remote control cable	

*** As there is only one option slot, SDTI-CP and i.LINK connections are not available simultaneously.*

Dimensions



Unit: mm (inch)

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