SONY

PAL

Digital Videocassette Recorder

DSR-80P/DSR-60P

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-80P Editing Recorder ensures excellent editing performance along with convenient features such as an RS-422A Remote Control Interface, a Time Code Generator/Reader, Frame Accurate Editing capability and more.

The complementary DSR-60P Feeder Player incorporates an RGB output and Auto Repeat function with a Power-on Playback capability, making it suitable for a wide range of applications - not only in editing but also for a large-screen, high quality video presentations.

Digital signal interfacing is via optional SDI and SDTI(QSDI™) connections, the latter providing ClipLink™ operation. Of course, a full complement of analogue interfaces is also available for perfect integration into current analogue systems.

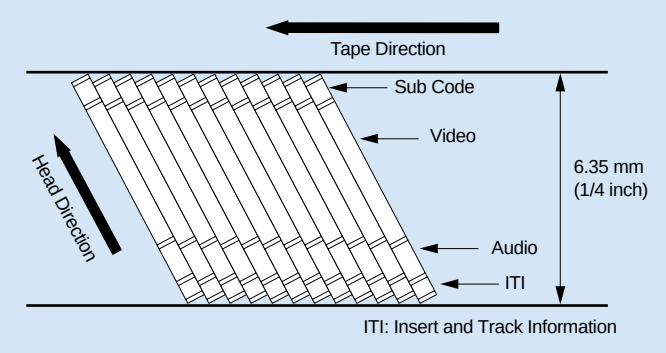
Providing the superb performance of the DVCAM format and a wide range of operational functions, the DSR-80P and the DSR-60P are the right choice for video professionals looking for real creative tools in a high quality digital environment.

** The SDTI (Serial Data Transport Interface) is defined as SMPTE 305M.*
The SDTI(QSDI) is the DV signal interface which conforms to the SDTI.

Features

DVCAM Recording Format For the Next Generation

The DSR-80P and DSR-60P provide superb picture quality, multi-generation capability and production flexibility from their use of the new DVCAM digital recording format—specially 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 recordings, and has the advantage that both standard and mini cassettes can be used in the same machine. The DVCAM format has a wider track pitch than the DV format to give the greater ruggedness required in the professional editing environment.

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. 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 the 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

The DSR-80P and DSR-60P provide two selectable audio channel modes, two-channel and four-channel.
For superb audio performance with a wide dynamic range and an excellent signal-to-noise ratio, PCM (Pulse Code Modulation) digital 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.

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 enhances the quality of DVCAM recording by achieving an RF video output which is +4.5dB higher compared to that of metal evaporated Hi8™ tape. Higher durability is also ensured for professional editing applications by enhancing protection with DLC (Diamond Like Carbon) coating. Each cassette has a built-in 16kbit memory to store ClipLink editing data. DVCAM cassettes are available in two sizes; the DVCAM Standard cassette provides a maximum recording time of 184 minutes and the DVCAM Mini cassette up to 40 minutes.

<Cassette Memory>

High Efficiency in the Editing Environment

SDTI(QSDI) Digital Interface

The DSR-80P is equipped with an SDTI(QSDI) interface which handles compressed video as well as Sub Code data and the digital audio signals of the DVCAM recording format. The SDTI(QSDI) allows degradation-free transfer of both picture and audio signals between the DSR VTRs and between the VTRs and a Sony EditStation™ in a non-linear editing system.
The SDTI(QSDI) is available as an option on the DSR-60P (DSBK-110P QSDI Output Board).

ClipLink Operation

ClipLink is a comprehensive supervisory system which, throughout the production and post production process, manages information on camera shots that have been recorded on a tape. Incorporated into each Sony DVCAM cassette is a memory which holds shot list information, called ClipLink Log Data.
When a cassette is loaded into the DSR-80P or the DSR-60P, its ClipLink information is uploaded into the Sony EditStation for immediate viewing on its GUI (Graphical User Interface) screen. Then, at a glance, particular clips can be selected for transfer to the EditStation, saving both time and hard disk capacity.
Thus, both the DSR-80P and the DSR-60P perform highly effective roles when integrated into a non-linear editing system with the Sony EditStation.

Full Tape Dubbing with ClipLink Log Data

The DSR-80P has a full tape dubbing function which allows dubbing of recorded DVCAM tape information (video/audio/sub code) along with the ClipLink Log Data held in the DVCAM cassette memory. Dubbing is initiated via the menu and signals are transferred via the SDTI(QSDI) and RS-422A interfaces.

Versatility for Current System Environments

The DSR-80P and the DSR-60P have been specifically designed to integrate with existing analogue editing systems. So, in addition to their versatile digital interfaces, these VTRs also include comprehensive analogue interfaces.

Remote Control via RS-422A

The DSR-80P and the DSR-60P are equipped with an RS-422A serial communication port to interface not only with Sony EditStations, but also with Sony VTRs and editing controllers such as the PVE-500. The interface is also used to transfer ClipLink Log Data from the DVCAM cassette memory to a Sony EditStation.

Full Analogue Interfacing

The DSR-80P and the DSR-60P provide full analogue interfaces for audio and video signals, making them compatible with analogue VTRs such as Betacam SP™, Hi8 and S-VHS. This makes them the ideal choice for updating analogue systems to digital operation.
For video, composite, component and S-video connections are provided. Four-channel or two-channel (selectable) inputs (DSR-80P only) and outputs are provided for audio.

Comprehensive Editing Features

Built-in EBU Time Code Generator/Reader

A built-in EBU Time Code generator (DSR-80P only) and reader are included in the DSR-80P and the DSR-60P for precise video editing.
The time code conforms to the EBU standard. Time code written in the Sub Code is controlled via the RS-422A interface port. Input (DSR-80P only) /output of time code is possible with the optional DSBK-130P Time Code Input/Output Board.

Time Base Corrector

The DSR-80P and the DSR-60P are equipped with a built-in time base corrector for the output of highly stable analogue video signals. Sync and SC phase adjustments are made from the front panel. The TBC can also be controlled from the optional UVR-60 TBC Remote Control Unit.

Digital Slow Function

The Digital Slow function takes advantage of digital processing to provide playback at 0.39 times (DSR-80P) and 0.33 times (DSR-60P) normal playback speed, in both reverse and forward, with noiseless slow-motion images. Either frame or field accurate playback is available.

Frame Accurate Editing Capability

When connected to RS-422A equipped editing controllers, the DSR-80P and the DSR-60P function as an editing recorder and an editing player for assemble or insert editing. Frame accurate editing is assured in both modes, thanks to the sophisticated servo control and built-in time code generator (the DSR-80P only) and reader.
In the insert mode of the DSR-80P, video, audio and time code can be inserted independently or in any combination. In the assemble mode, all of the prerecorded signals (video, audio and time code) are erased and replaced with new signals.

High-Speed Picture Search

The DSR-80P and the DSR-60P offer high-speed picture search which provides a recognizable picture at various speeds over a range of up to 32 times normal speed, in both forward and reverse, to quicken editing operations.
In JOG mode, frame accurate picture search is accomplished. These functions are available using the optional DSRM-10 Remote Control Unit or with editing controllers equipped with an RS-422A capability.
*The search speed varies with the type of controllers.
In case of the DSRM-10, the search speed is up to 16 times.

Jog Audio

It is possible to reproduce four channels or two channels of digital audio within 1/30 to 1 times normal playback speed, both in forward and reverse, in JOG mode. This feature is helpful in quickly and precisely designating editing points while monitoring the digital audio signals. The audio data is held in memory and output according to search speed for enhanced recognition.

Sony Integrated Remote Control System (SIRCS)

The DSR-80P and the DSR-60P are equipped with a SIRCS (Sony Integrated Remote Control System) interface on the front panel, enabling connection of the optional DSRM-10 Remote Control Unit to control jog, shuttle, playback, record, pause, fast forward and rewind modes.


<DSRM-10>

Serial Digital Interface (SDI)

The SDI (Serial Digital Interface) which conforms to the ITU-R BT.656 broadcast standard, is supported by installing the optional DSBK-120P SDI I/O Board to the DSR-80P and the optional DSBK-100P SDI Output Board to the DSR-60P for simple connection with other SDI equipped devices such as D-1 and Digital BETACAM™ VTRs.

DSR-80P

Convenient Functions for High Quality Video Demonstrations

Auto Repeat and Power-on Playback Function (DSR-60P only)

The auto repeat function enables either the entire tape or a specific portion of the tape to be replayed continuously. By simply selecting A and B points, or presetting the time codes on the setup menu, the DSR-60P plays back the selected segment repeatedly. Furthermore, the power-on function allows the DSR-60P to playback video programmes immediately power is applied to the machine.

RGB and Y/R-Y/B-Y for High Picture Quality Video Presentations

The DSR-80P and the DSR-60P are ideally suited for an RGB environment, such as large-screen, high-quality video presentations and computer graphic environments. This is because RGB signals can be converted from Y/R-Y/B-Y component signals with minimum picture degradation. With the RGB/Component Out switch set to RGB, the DSR-80P and the DSR-60P supply high-quality RGB signals, while the DSR-80P also accepts these as input signals.

User Friendly Operation

Ease of Initial Set-Up for Convenient Operation

The DSR-80P and the DSR-60P are provided with an initial set-up menu system, which is programmed in the form of a layered structure. By simply going through the menu using the subcontrol panel, users can easily initialize the VTR. This set-up menu allows many detailed operational parameters to be preset. Once the menu is set, the DSR-80P and the DSR-60P will memorize the options and retain them in memory even after the power is turned off. With the use of these memorized set-up parameters, the DSR-80P and the DSR-60P can be immediately set up for a specific application.

DSR-60P

Built-in Character Generator

The DSR-80P and the DSR-60P have a built-in character generator which superimposes characters on the video signal output from the VIDEO OUT 2 terminal. Time code data (TC, User-bit), VTR operation status, menu items, and all alarm, warning and error messages can be shown on a monitor.

High Visibility Front Panel Display

The DSR-80P and the DSR-60P have a large, highly visible LED display on their front panel. This display shows a variety of information such as audio and video input modes, ClipLink and cassette memory so that users can assimilate VTR status at a glance.

Consumer DV Playback

The DSR-80P and the DSR-60P have the ability to play back tapes recorded to the consumer DV format, so that a wider range of acquired programme material can be used without the need for a special adapter. As Jog Audio and Digital Slow function when playing back DV recordings, this material can be used as sources in the editing environment.

* The DSR-80P and the DSR-60P do not support the LP mode of the consumer DV format.

Reliable, Responsive and Serviceable

The tape transport of the DSR-80P and the DSR-60P is a highly responsive mechanism, which is an essential factor for efficient editing. In addition, to maintain their excellent performance, the DSR-80P and the DSR-60P offer ease of servicing and maintenance by incorporating self-diagnostics, error log and an hours meter.

Quick, Responsive Mechanism

The DSR-80P and the DSR-60P assure the high reliability required of all professional applications through U-loading, direct reel drive, and electronic tension servo. Forward and rewind speeds are an impressive x85 normal speed, while the maximum search speed with colour playback is x32 normal.

Self-Diagnostics and Error Log

Should a malfunction be detected, an error message will be displayed which will identify the problem area. In this way, down-time can be minimized. Moreover, the error log function makes it easier to detect the error factor by retaining the past status data of the DSR-80P and the DSR-60P in their memory.

Hours Meter

An hours meter is also provided to simplify maintenance by showing total operating time, drum rotation time, transport operation time and number of thread/unthread operations.

Appealing, Simple, Design

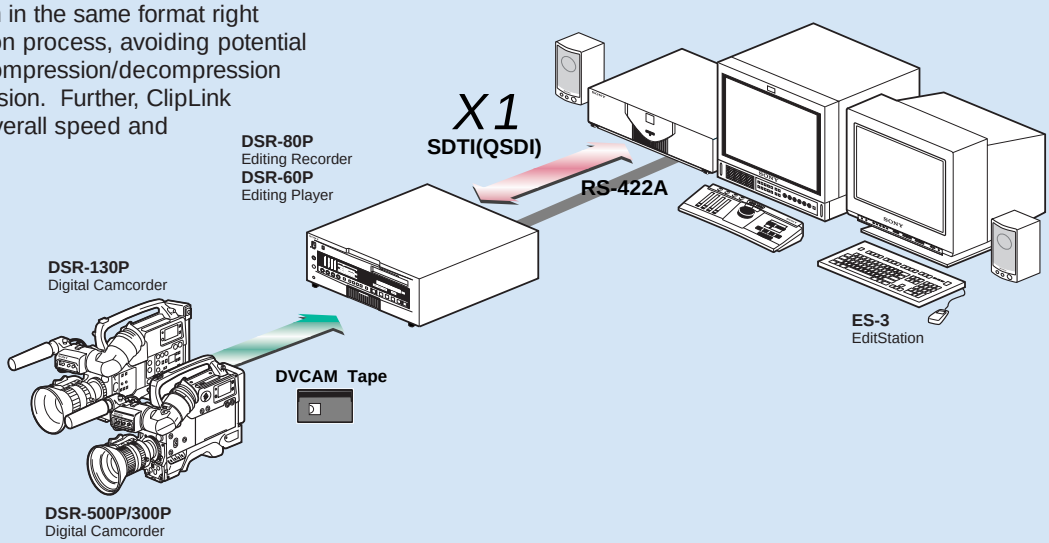
The attractive and functional appearance of the DSR-80P and the DSR-60P have evolved through long years of experience. They integrate visually with Sony EditStations and other Sony equipment, providing the aesthetically pleasing look that appeals to creative professionals. The DSR-80P and the DSR-60P are four units high and EIA standard 19-inch rack mountable with the optional RMM-130 Rack Mount Unit.

DSR-60P

System Configurations

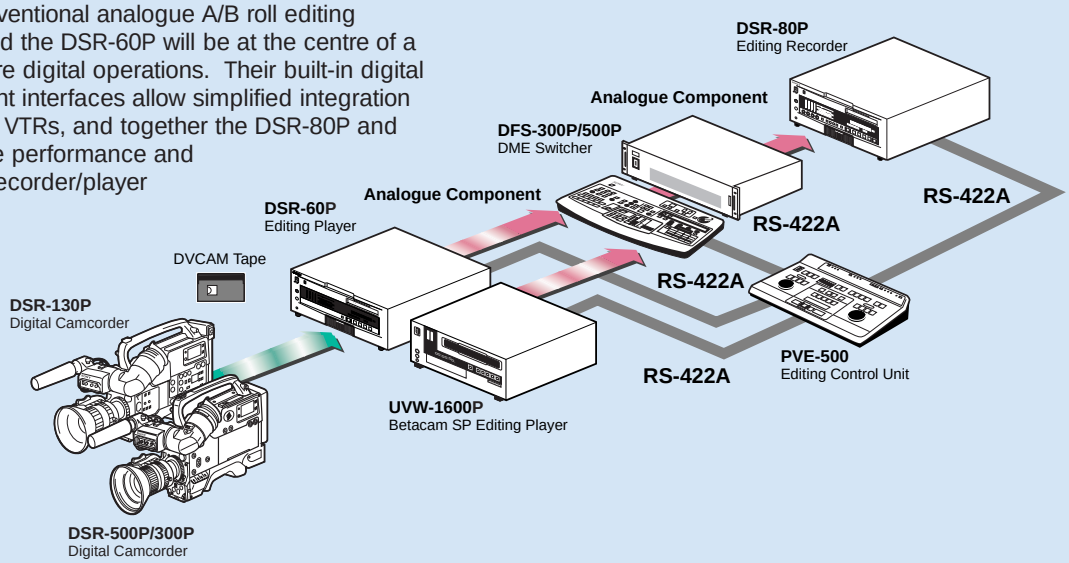
Efficient Digital Editing

In digital edit suites the DSR-80P provides outstanding multi-generation performance. Its SDTI(QSDI)interconnection allows the signal to remain in the same format right through the post production process, avoiding potential loss of quality by signal compression/decompression or analogue/digital conversion. Further, ClipLink operation enhances the overall speed and creativity of editing.



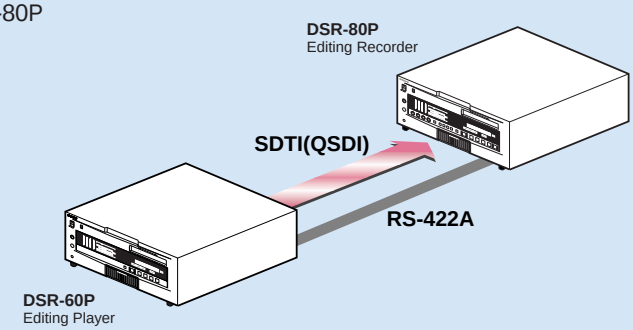
Conventional Linear A/B Roll Editing System

In the evolution of a conventional analogue A/B roll editing system, the DSR-80P and the DSR-60P will be at the centre of a smooth transition to future digital operations. Their built-in digital and analogue component interfaces allow simplified integration with current UVW Series VTRs, and together the DSR-80P and the DSR-60P provide the performance and functions required of a recorder/player combination.



Digital Dubbing System

Digital dubbing can be done between the DSR-60P and the DSR-80P without any additional controller.
The recorded DVCAM tape information (video/audio/sub code) along with the ClipLink Log Data in the Cassette Memory can be dubbed with degradation-free quality.



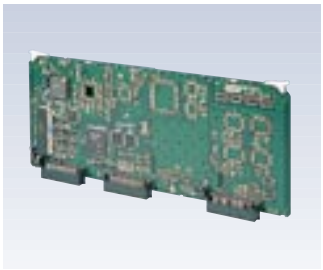
Peripheral Equipment

DSR-130P
Digital Camcorder
(Consists of DSR-1P Digital Videocassette Recorder and DXC-D30P Digital Camera)

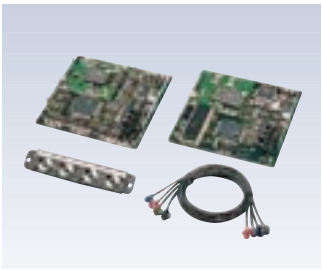
DSR-300P
Digital Camcorder

ES-7
EditStation

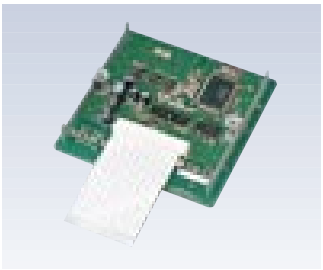
DSBK-100P
SDI Output Board



DSBK-110P
QSDI Output Board

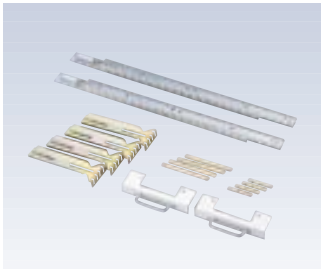


DSBK-120P
SDI Input/Output Board



DSBK-130P
Time Code Input/Output Board

DSRM-10
Remote Control Unit



RMM-130
Rack Mount Unit

UVR-60P
TBC Remote Control Unit

PVE-500
Editing Control Unit

DFS-500P
DME Switcher

RM-450A
Editing Remote Controller

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

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

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

PDVM-32MEM/40MEM (Mini size)
PDV-64MEM/124MEM/184MEM (Standard size)
Digital Video Cassette (Master Tape)

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

Specifications

	DSR-80P	DSR-60P
GENERAL		
Power requirements	AC 220 to 240 V, 50/60 Hz	
Power consumption	145 W	87 W
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	19 kg (41 lb 14 oz)	18 kg (39 lb 10 oz)
Dimensions (W x H x D)	427 x 174 x 494 mm excluding external projections (16 7/8 x 6 7/8 x 19 1/2 inches)	
Tape speed	28.221 mm/s	
Recording/playback time		
Standard size:	More than 184 min. w/PDV-184ME/184N	
Mini size:	More than 40 min. w/PDVM-40ME/40N	
Fast forward/rewind time		
Standard size:	Less than 3 min. w/PDV-184ME/184N	
Mini size:	Less than 1 min. w/PDVM-40ME/40N	
Search speed		
When controlling via RS-422A:	Search speed is up to 32 times, forward and reverse.	
When controlling via optional DSRM-10:		
JOG mode:	Frame by frame to x2 normal speed, forward and reverse	
SHUTTLE mode:	8 steps, still to x16 normal speed, forward and reverse	
DIGITAL SLOW mode:	3 steps, still, x1/5, x1/10 normal speed, forward and reverse	
JOG AUDIO mode:	x1/30 to x1 normal speed, forward and reverse	
VIDEO PERFORMANCE		
Band width (via analogue component I/O)		
Luminance:	25 Hz to 5.5 MHz +1.0/-2.0 dB 5.75 MHz +0/-3.0 dB (Typical measurement)	
Chrominance:	25 Hz to 2.0 MHz +1.0/-2.0 dB	
S/N ratio (via analogue 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 85 dB	
Distortion (THD + N)	Less than 0.05 %	
SIGNAL INPUTS		
<VIDEO>		
ANALOGUE		
REF. VIDEO (BNC x2, loop-through connection)	Composite, 1.0 Vp-p, 75 Ω, sync negative	
VIDEO (BNC x2, loop-through connection)	Composite, 1.0 Vp-p, 75 Ω, sync negative	—
RGB/COMPONENT (BNC x3) (Selectable)		
Y/R-Y/B-Y:	Y: 1.0 Vp-p, 75 Ω, sync negative R-Y/B-Y: 0.7 Vp-p, 75 Ω (100 %)	—
R. G (w/o Sync). B:	0.7 Vp-p, 75 Ω	
G (w/Sync):	1.0 Vp-p, 75 Ω	
S-Video (DIN 4-pin x1)		
Y:	1.0 Vp-p, 75 Ω, sync negative	—
C:	0.3 Vp-p, 75 Ω (at burst level)	

	DSR-80P	DSR-60P
DIGITAL		
SDI* (BNC x2 active-through connection)	Conforms to Serial Digital Interface (270 Mbps), ITU-R BT.656 *Using Optional DSBK-120P (SDI Input/Output Board)	—
SDTI(QSDI) (BNC x1)	Conforms to SDTI (270 Mbps), SMPTE 305M	—
<AUDIO>		
ANALOGUE		
AUDIO (XLR 3-pin female x4)	-9 dBu to 28 dBu, 600 Ω/10 kΩ, balanced	—
DIGITAL		
AES/EBU (XLR 3-pin female x2)	110 Ω, balanced	—
<TIME CODE>		
Time Code In* (BNC x1)	0.5 Vp-p to 18 Vp-p, 3 kΩ, unbalanced * Using optional DSBK-130 (Time Code Input/Output Board)	—
SIGNAL OUTPUTS		
<VIDEO>		
ANALOGUE		
REF. VIDEO (BNC x1)	Black Burst: 0.3 Vp-p, 75 Ω, sync negative Composite: 2.0 Vp-p, 75 Ω, sync negative (When not adding Sync to RGB output.)	
VIDEO 1/2 (SUPER) (BNC x2)	Composite, 1.0 Vp-p, 75 Ω, sync negative	
RGB/COMPONENT (BNC x3) (Selectable)		
Y/R-Y/B-Y:	Y: 1.0 Vp-p, 75 Ω, sync negative R-Y/B-Y: 0.7 Vp-p, 75 Ω (100 %)	
R. G (w/o Sync). B:	0.7 Vp-p, 75 Ω	
G (w/Sync):	1.0 Vp-p, 75 Ω	
S-Video (DIN 4-pin x 1)		
Y:	1.0 Vp-p, 75 Ω, sync negative	
C:	0.3 Vp-p, 75 Ω (at burst level)	
DIGITAL		
SDI* (BNC x2)	Conforms to Serial Digital Interface (270 Mbps), ITU-R BT.656 *Using Optional DSBK-120P (SDI Input/Output Board) for DSR-80P and DSBK-100P (SDI Output Board) for DSR-60P	
SDTI(QSDI) (BNC x1)	Conforms to SDTI (270 Mbps), SMPTE 305M *Using Optional DSBK-110P (QSDI Output Board) for DSR-60P	
<AUDIO>		
ANALOGUE		
AUDIO (XLR 3-pin male x4)	4 dBu, 600 Ω loading, low impedance, balanced	
AUDIO MONITOR (RCA phono jack x1)	-6 dBu, 47 kΩ, unbalanced	
HEADPHONES (JM-60 headphone jack x1)	-16 dBu, 8 Ω, unbalanced	
DIGITAL		
AES/EBU (XLR 3-pin male x2)	2 to 7 Vp-p,110 Ω, balanced	—
<TIME CODE>		
Time Code Out* (BNC x1)	2.2 Vp-p, 600 Ω, unbalanced * Using optional DSBK-130 (Time Code Input/Output Board)	
REMOTE		
RS-422A	9-pin multi connector (x1)	
TBC	D-sub 15-pin connector (x1)	
CONTROL-S (SIRCS)	Stereo mini jack (x1)	
SUPPLIED ACCESSORIES		
AC power cord (x1) Operating instructions (x1) RCC-5G Remote Control Cable (x1) ClipLink Guide (x1)		

* 0dBu = 0.775Vrms

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