JVC Digital Audio Mastering System

Closer to the Musical Truth

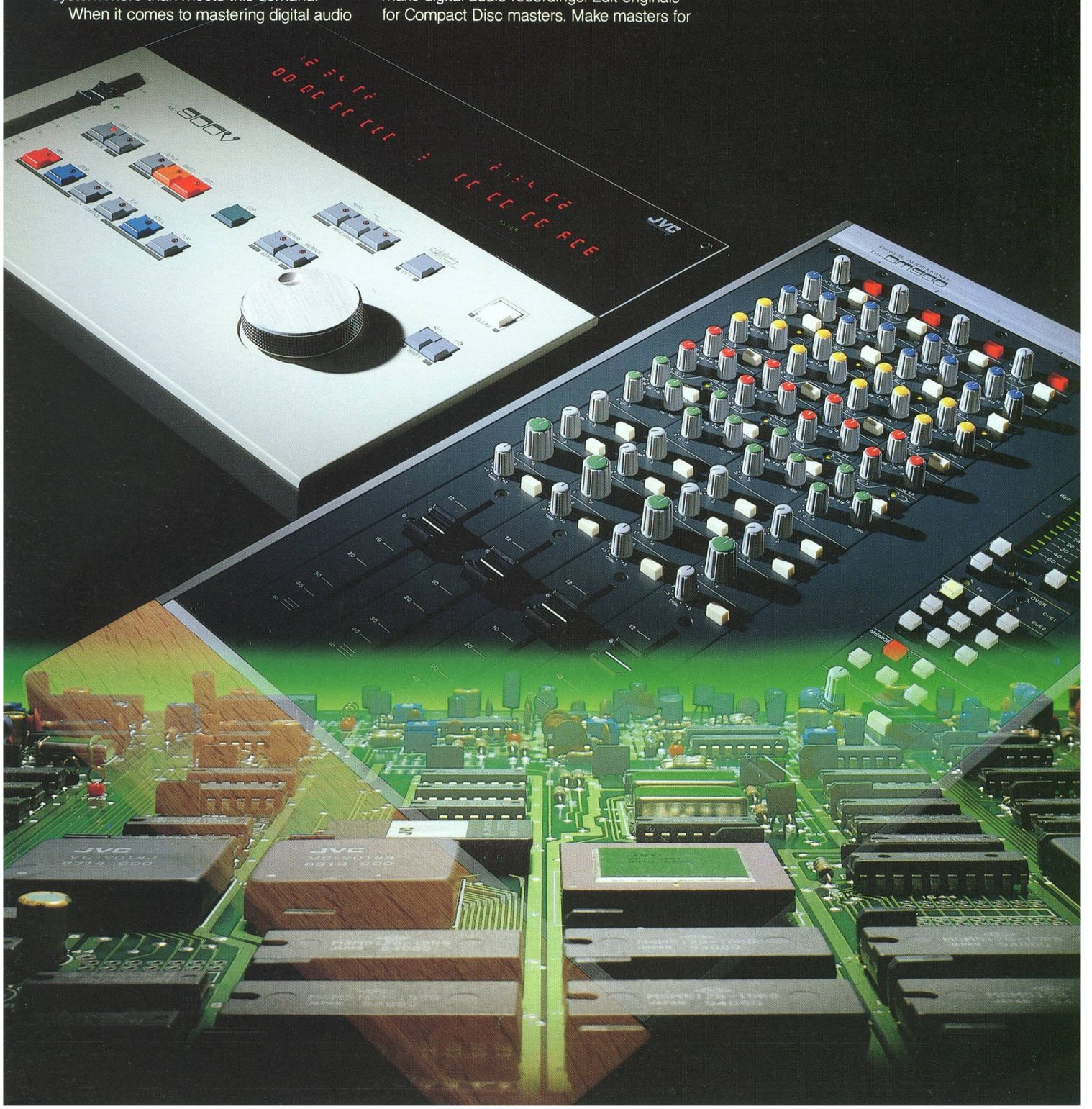
JVC Digital Audio Mastering System—better performance, more flexibility

The JVC Digital Audio Mastering System is a professional two-channel PCM (Pulse Code Modulation) recording/editing/mastering system for recording studios, broadcasting stations, video productions, etc. With the arrival of Hi-Fi videos, Compact Discs, videodiscs, CD-ROMs and satellite broadcasting, the demand for flexible and reliable digital audio mastering systems has never been greater. The JVC Digital Audio Mastering System more than meets this demand.

When it comes to mastering digital audio signals, the VCR format has a number of advantages over the open-reel format. Running cost is lower. Cassettes are easier to handle. They take less storage space, and are less accident and damage prone. With the JVC Digital Audio Mastering System it's even possible to use 1/2″ VHS tapes for longer recording hours and still more economy.

There are many applications for the JVC Digital Audio Mastering System. Use it to make digital audio recordings. Edit originals for Compact Disc masters. Make masters for Hi-Fi videos with synchronized audio and video information. Produce TV programs with audio and video synchronized. Or even make masters for CD-ROM with graphics and still pictures.

Our digital audio mastering system is flexible and designed to perform. You can configure your system to meet all of your needs. For digital technology and professional reliability, turn to JVC.



Digital Audio Editor

AE-900V

The AE-900V is a highly versatile, high-precision digital editor for editing originals for a master, and consists of a main unit and a separate control console. The emphasis is on versatility as well as high performance: it offers three editing modes and other easy-to-use control functions.

Its major features are:

■Three convenient edit modes: Manual cueing is provided for monitoring actual sound as you near edit points. Auto scanning is for use when cueing and reviewing for a splice point at any speed slower than normal. And address editing is for directly accessing an edit point by specifying its address (time code).

■Pinpointing edit points with accuracy of 180 μsec.

■You can confirm individual cut-in and cut-out points by recalling cue signals stored in the memory.

■Variable-gradient crossfade function makes it possible to create smooth transitions at an edit point between the joints of two recorded segments. You have a choice of four cross-fade times of 0 (cut-in/out), 10, 20 and 40msec

■Digital fader control adjusts levels of original recordings.

■Shift buttons advance or back up the edit point in precise 2msec steps for fine adjustment.

■Auto locator function automatically finds the desired tape position specified by the address recorded on the original.

■It's possible to use two 1/2″ VCRs or 3/4″ VCRs, or one of each, for editing and mastering.

Digital Audio Mixer

DS-DM900

With the addition of the DS-DM900 to your digital audio mastering system, you can now mix four inputs for two outputs while equalizing the sound. In the past, the sound processing of digital signals was performed after the signals had been converted into analog, which resulted in the degradation of sound quality. But no longer: with the DS-DM900, the mixing and equalization is all achieved in digital signal, so there is no degradation of sound whatsoever. Using the latest LSI technologies, the DS-DM900 is extremely reliable. And the unit has a familiar mixing console design for easy operation.

■DSP (Digital Signal Processor) chips are employed to achieve digital signal equalization and control signal level. They have also enhanced reliability and the cost/performance ratio.

■Using two digital audio processors and two VCRs for playing back originals, it's possible to mix four inputs for two outputs.

■There are four frequency-band controls for each of the four channels: Low Frequency, Low-Mid Frequency, High-Mid Frequency and High Frequency. With each, both the center frequency and the Q factor and variable.

■For the Low and High Frequencies, you can also choose the shelving-type and pass-type equalization curves in addition to the common bell type. This arrangement helps you to equalize the sound of originals as required.

■Equipped with an RS-232C serial interface, the unit can be controlled from a workstation through its RS-232C port (software required). You can, for instance, put a number of equalizations in the memory and automatically recall them one by one based on the time code.

■8-column display of messages informing the status of the mixer/equalizer (knob position, error message, mode, connection, etc.).

■Three equalization patterns can be stored in buffer memory, and each automatically recalled by pressing a key or by referring to the time code.

■Connects with an AES/EBU digital interface (optional).

■When connected with the AE-900V Digital Audio Editor, it permits control of the level and response of the signal during editing.

■Emphasis and de-emphasis filters are provided.

■Two analog cue send lines for connection of analog reverberation unit, etc. Return signals go through the A/D converter unit in the processor to be mixed in the mixer/equalizer.

Digital Audio Processor
VP-900

•Front panel removed to show inside.

The VP-900, our professional two-channel PCM processor, is for use in digital recording and editing. It's been designed, first and foremost, to keep the difference in quality between input and output to an absolute minimum. This has been achieved thanks to newly developed low-distortion A/D and D/A converter units, a low transmission bit rate and our exclusive BP (Bi-Parity) recording format. Use of JVC-developed CMOS LSIs has also made the VP-900 compact enough (22kg or 48.6 lbs.) to be transportable for field recording, while reducing power consumption drastically and improving reliability. The VP-900 is the heart of a variety of professional digital recording, editing and playback systems that can be built with our expanded line of peripherals.

Its important features and specifications include:

■Sixteen-bit linear quantization for wide dynamic range of more than 90dB, and flat frequency response from 10 to 20,000Hz with ±0.5dB accuracy.

■JVC's exclusive BP (Bi-Parity) recording format offers exceptional error correction capability to compensate for most dropouts. Features include: (1) our advanced error detection technique, using a 22-bit CRC (Cyclic Redundancy Check) code; (2) two-parity check codes and a triple error correction system to correct random errors; (3) ability to correct burst errors of up to 37 continuous horizontal lines to fully eliminate dropouts; and (4) a low transmission bit rate of 3.087Mbps (at 44.1kHz).

■Both professional 3/4″ and 1/2″ VHS VCRs may be used for recording, editing and playback. Using the latter, it's possible to record for up to two hours.

■Use of CMOS LSIs has improved reliability, reduced size, weight and power consumption.

■Circuits for better sound include balanced input and output circuits using no transformer, low-distortion A/D and D/A converter units and a low-noise emphasis circuit (50μs/15μs).

TC-900V

Time Code Unit

A unit used when recording or editing digital originals for video productions, Compact Discs or CD-ROMs. Houses an SMPTE time code reader and generator, converting the unique BP time code into the standard SMPTE time code.

VP-900

RM-900

Remote Control Unit

This unit lets you control both the VP-900 Digital Audio Processor and a VCR in 3/4″ or 1/2″ format. It not only lets you operate the VCR (PLAY, STOP, FF and REW) but also specify the auto-locate point by address, check signal levels and monitor addresses.

RM-900

CR-850U

3/4″ Editing Videocassette Recorder

The CR-850U is a durable, heavy-duty U-format VCR that operates as part of the JVC Digital Audio Mastering System. Its signal format conforms to NTSC broadcasting standards. **Dimensions** (W × H × D): 17-9/16 × 11 × 22-3/16 inches (446 × 279 × 562mm) **Weight**: 73 lbs. (33kg)

DS-FC901

Digital Interface Unit

This unit serves as a converter for digital signals in different data formats. It converts signals in the 14- and 16-bit EIAJ format used in consumer PCM adaptors to the JVC BP format of the VP-900 Digital Audio Processor, and vice versa. It's capable of processing both NTSC and PAL/SECAM EIAJ formats.

DS-SU900

A/V System Synchronizing Unit

This is a unit to synchronize operation of an NTSC/PAL/SECAM video system with the JVC Digital Audio Mastering System using the NTSC video format. Data memory assures perfect synchronization of audio with video.

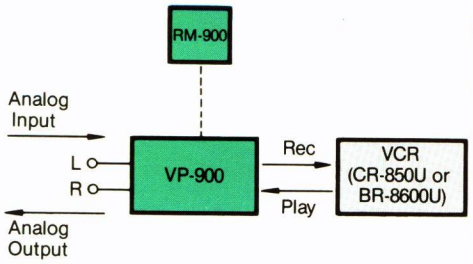
BR-8600U

1/2″ Editing Videocassette Recorder

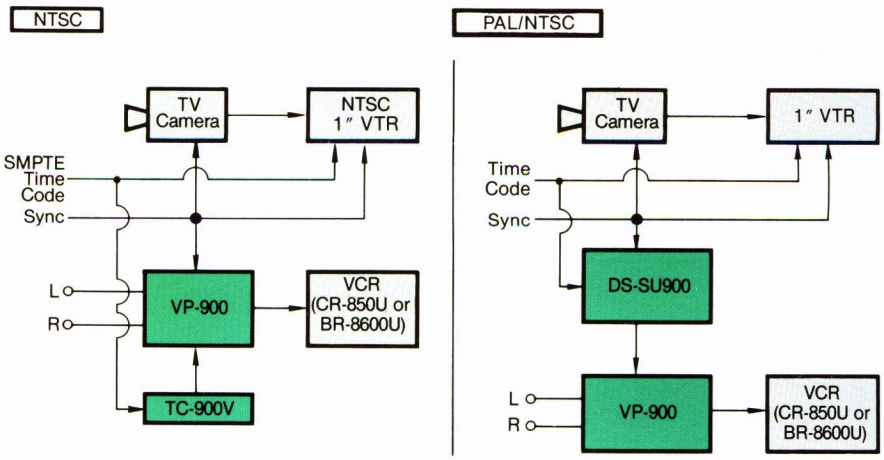
The BR-8600U is a professional VHS VCR using the NTSC signal format. It records and plays up to two hours of program on a single cassette. **Dimensions** (W × H × D): 17-5/16 × 6-7/8 × 17-7/8 inches (440 × 174 × 454mm) **Weight**: 40.7 lbs. (18.5kg)

System Configurations

Recording/Playback System for 2-Channel Masters

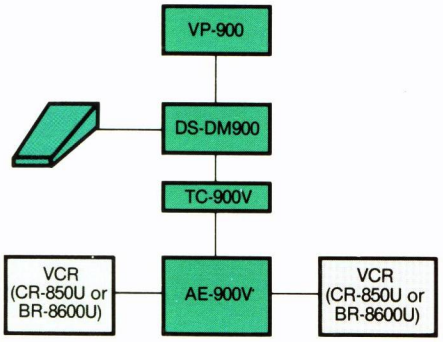


Synchronized Audio/Video Recording



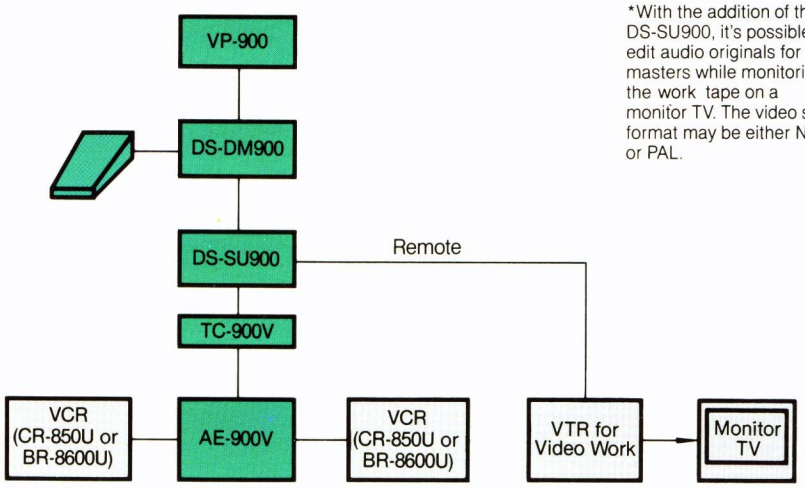
Editing System for 2-Channel Digital Masters

*Basic editing can be performed without the DS-DM900 and TC-900V.

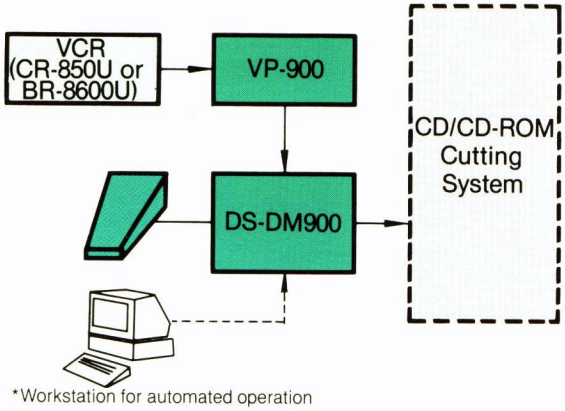


Synchronized Audio/Video Editing

*With the addition of the DS-SU900, it's possible to edit audio originals for masters while monitoring the work tape on a monitor TV. The video signal format may be either NTSC or PAL.

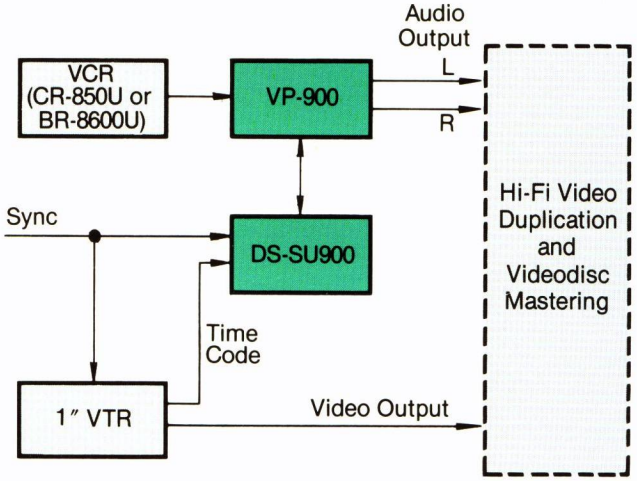


CD/CD-ROM Cutting System



*Workstation for automated operation

Synchronized Audio/Video Playback System for Hi-Fi Video Duplication and Videodisc Mastering



*The DS-SU900 permits playback of video signals in both NTSC and PAL formats.

Specifications

VP-900

Number of channels:	2
Signal format:	Conforming to NTSC TV signal
Transmission bit rate:	3.087/3.084 Mbits/sec.
Sampling frequency:	44.1/44.056kHz (switchable)
Quantization:	16 bits linear
Dynamic range:	More than 90dB
Harmonic distortion:	Less than 0.02% (at 1kHz, +19dBm output)
Wow & flutter:	Below measurable limits
Frequency response:	10Hz to 20kHz (±0.5dB)
Emphasis time constant:	50μs/15μs
Dropout compensation:	Error detection & correction (22-bit CRCC, 2-parity, triple error correction)
Tape addressing:	6-digit BCD system
Analog input:	XLR-3-31, 10k ohms balanced/unbalanced Reference level, +4dBm Peak level, +19dBm
Analog output:	XLR-3-32, low impedance (suitable for 600-ohm load) balanced/unbalanced (switchable) Reference level, +4dBm Peak level, +19dBm
Headphone output:	−10dBs, variable from approx. −10dB to +10dB in 1dB steps
Video signal input:	BNC-R, 75 ohms, 1Vp-p (±2dB) (1 line)
Video signal output:	BNC-R, 75 ohms, 1Vp-p (2 lines)
VCR sync output:	BNC-R, 75 ohms, 4Vp-p (3 lines)
External sync	
Composite sync input:	BNC-R, 75 ohms, 1Vp-p to 4Vp-p (1 line)
Composite sync output:	BNC-R, 75 ohms, 1Vp-p to 4Vp-p (1 line)
External sync input:	BNC-R, 44.1kHz, 50 ohms unbalanced, TTL level/2
Digital input/output:	50 ohms unbalanced, TTL level/2 (1) Input/output for digital dubbing & editing (2) External monitor signal input (3) A/D converted output
Power consumption:	150W
Dimensions (W × H × D):	17 × 7-1/8 × 17-3/4 inches (430 × 180 × 450mm)
Weight:	48.6 lbs. (22kg)

AE-900V

Number of channels:	2
Digital input/output:	16 bits, 2's complement
Video input/output:	Conforming to NTSC TV signal
Time code:	Frame unit address, recorded simultaneously with signal data
Editing accuracy:	Approx. 180μsec.
Memory time:	6 sec for originals and masters
Rehearsal time:	8 sec (typical)
Crossfade time:	0, 10, 20, 40msec
Fader:	+12dB — (∞)
Editing point shifting function:	2msec steps in forward and back
Power consumption:	150W
Dimensions (W × H × D):	
Main unit:	17 × 9-1/2 × 19-3/4 inches (430 × 241 × 500mm)
Control unit:	17 × 4-3/8 × 12-1/8 inches (430 × 110 × 307mm)
Weight:	
Main unit:	42 lbs. (19kg)
Control unit:	34 lbs. (15kg)

DS-DM900

Type:	4-channel digital audio mixer
Digital inputs/outputs:	50-pin Amphenol, 50 ohms unbalanced, TTL level/2: (1) Inputs/outputs for recording and play (two 2-channel inputs acceptable for playback) (2) Inputs/outputs for external equipment (2-channel) (3) Output for monitor (2-channel) (4) A/D converted signal input (2-channel) AES/EBU interface (optional): Inputs, 4 channels, XLR-3-31 Outputs, 2 channels, XLR-3-32
Analog outputs:	Cue output signal (2-channel) Reference level +4dBm balanced/unbalanced, XLR-3-32, low impedance (suitable for 600-ohm load)
Equalizer section:	
Type:	4-band equalizer with selectable bell, shelving and pass curves
Bell type response:	Gain, ±15dB Q, 0.5 — 3.0 (in 5 steps) Selectable frequencies, LF, 30 — 350Hz (19 steps) LMF, 203Hz — 2.4kHz (19 steps) HMF, 607Hz — 7.1kHz (19 steps) HF, 1.4 — 16kHz (19 steps)
Shelving/pass type response:	12dB/oct.
Digital faders:	Balance channels (+12dB — ∞) and adjust master level (0dB — ∞)
Input attenuator:	Controls between 0 and −20dB range
Fine adjust trimming:	±3.5dB with 0.5dB per step
Digital emphasis filter:	50μs/15μs (emphasis/de-emphasis)
Event memory:	3 systems (store & recall type)
Communications bus:	Conforms to RS-232C standard with 25-pin D sub-connector, including connectors for workstation, Digital Audio Processor and auxiliary equipment
Power consumption:	180W
Dimensions (W × H × D):	
Main unit:	16-15/16 × 7-3/4 × 17-3/4 inches (430 × 196 × 450mm)
Control unit:	12-1/4 × 5-9/16 × 21-3/4 inches (311 × 141 × 552mm)
Weight:	
Main unit:	39.6 lbs. (18kg)
Control unit:	22 lbs. (10kg)

TC-900V

Input (SMPTE time code):	XLR-3-31, 100k ohms balanced, ±0.1V to ±12V
Output (SMPTE time code):	XLR-3-32, 600 ohms unbalanced, ±4.5V max.
Digital I/O:	50 ohms unbalanced, TTL level/2
Power supply:	90 to 120VAC, 50/60Hz
Dimensions (W × H × D):	17 × 2 × 18 inches (430 × 52 × 455mm)
Weight:	17.6 lbs. (8kg)

RM-900

Displays:	Signal level (L & R ch), tape address, preset address, monitor mode
VCR controls:	PLAY, REC, FF, REW, STOP, STILL, SEARCH
Digital interface:	24-pin Amphenol, unbalanced, TTL level
Power supply:	5VDC (supplied from VP-900 through remote cable)
Dimensions (W × H × D):	6-5/8 × 2-3/8 × 9 inches (166 × 59 × 227mm)
Weight:	3.1 lbs. (1.4kg)

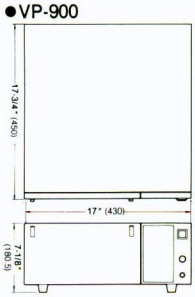
DS-FC901

Number of channels:	2
Signal format:	Video signal conforming to NTSC or PAL/SECAM TV signal standard
Error detection & correction:	CRCC error detection, single parity correction (for 16-bit format), double parity correction (for 14-bit format), interpolation
Sampling frequency:	44.056kHz (NTSC standard) 44.1kHz (PAL/SECAM standard)
Video signal input:	BNC-R, 75 ohms, 1Vp-p
Sync signal input (composite sync):	BNC-R, 75 ohms, 1Vp-p to 4Vp-p
Video signal output:	BNC-R, 75 ohms, 1Vp-p
Sync signal output:	BNC-R, 75 ohms, 4Vp-p
Digital input/output:	50-pin Amphenol, 50 ohms unbalanced, TTL level/2
Power consumption:	20W
Dimensions (W × H × D):	17 × 2 × 14-9/16 inches (430 × 52 × 370mm)
Weight:	11 lbs. (5kg)

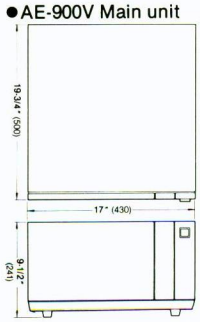
DS-SU900

Digital I/O:	50-pin Amphenol, 50 ohms unbalanced, TTL level/2
Control unit I/O:	24-pin Amphenol, RS422
VCR remote control I/O:	
VCR for picture:	45-pin rectangular connector in JVC parallel I/O format 9-pin D sub-connector (RS422) in SMPTE/EBU serial I/O format
VCR for sound:	45-pin rectangular connector in JVC parallel I/O format
External sync signals:	
Composite sync input:	BNC, 75 ohms, 1Vp-p to 4Vp-p
Composite sync return:	BNC, 75 ohms, 1Vp-p to 4Vp-p
FS output:	BNC, 50 ohms, TTL level/2
Tally output:	BNC, open collector
Power consumption:	80W
Dimensions (W × H × D):	17 × 3-1/2 × 18-1/2 inches (430 × 88 × 470mm)
Weight:	
Main unit:	26.4 lbs. (12kg)
Control unit:	8.8 lbs. (4kg)

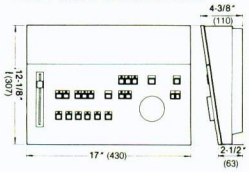
● VP-900



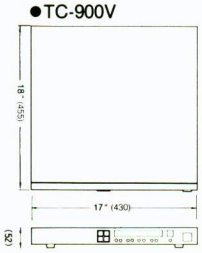
● AE-900V Main unit



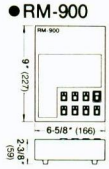
● AE-900V Control unit



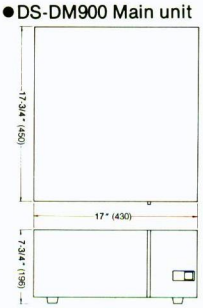
● TC-900V



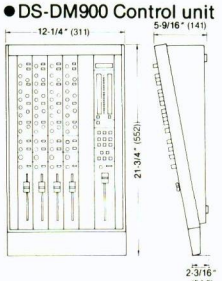
● RM-900



● DS-DM900 Main unit

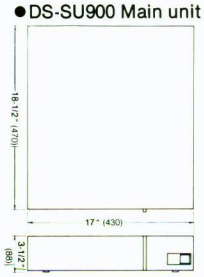


● DS-DM900 Control unit

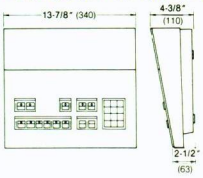


● DS-FC901

● DS-SU900 Main unit



● DS-SU900 Control unit



Unit: inch (mm)