SONy

DVCAM™

Technical Features and Benefits

High quality picture and sound. DVCAM is Sony's new professional digital component video format using ¼" *Advanced Metal Evaporated Tape*. DVCAM Video recordings yield **500 Lines horizontal resolution** along with an outstanding **55dB signal to noise** ratio for luminance *and* color components. Full frequency range audio recording and wide dynamic range are assured. No more annoying hiss, wow, flutter and distortion associated with the old analog video formats. You will be amazed at the improved quality compared to ¾" and ½" analog recordings*. There are no noise bars or head switching artifacts in still pictures (pause). Clear slow motion is standard.
* For reference: Horizontal resolution is 260 TVL for conventional ¾", 240 TVL for VHS, 340 TVL for UMatic SP, and approx. 360 TVL for Betacam SP in 4:3 (1.33) aspect ratio.

Multi-channel digital audio for multi-lingual tapes. Audio is professional quality using PCM in either the two channel format 16 bit/48 kHz or four channels using 12 bit/32kHz sampling. Playback of either 2 channel or 4 channel formatted tapes is automatic for the user. Audio monitoring is direct for all or individual channels from the PCM tracks. No analog audio cue track is needed for scrubbing in the studio VCRs. High quality digital jog audio is fully implemented in the **Master Series** VCRs. Discrete audio insert on individual tracks is possible with precise digital audio editing in DVCAM editing VCRs. Review of multilingual tracks is direct, fast and without compromise in quality in all models. All DVCAM VCRs and camcorders produce recordings with precise audio/video synchronization since audio sampling is *locked* to video sampling in the DVCAM format. This prevents audio edit point glitches, noises or bad cross fades.

Direct support for LTC and **VITC time code.** All professional DVCAM recordings can support SMPTE time code including User Bits. The new **Master Series* DVCAM** Studio editing VCRs provide built in support for **both SMPTE longitudinal (LTC) and vertical interval time code (VITC). The DVCAM format supports both Drop Frame and Non-Drop Frame time code formats.** Virtually all DVCAM VCR models have both front panel time code readout and the ability to superimpose the time code visually on the video output to your monitor. Thus, you do not have to create separate dubs of "window burn" time code tapes for users if they have DVCAM or DV players. **All DVCAM editing VCRs can have the time code value preset to a specific value.** User bits are also supported. The Master Series DVCAM studio VCRs also allow re-striping of the time code for the entire cassette (beginning to end) to correct discontinuities of the existing time code or to re-stripe with new preset value. Time code dubbing is simple and direct between DVCAM editing VCRs.

Line 21 Closed Captioning is supported in DVCAM editing recorders and players. The vertical blanking interval line 21 data is captured to AUX data during recording and recovered and reinserted to line 21 during playback. Output can be blanked in field 1 and/or 2 via the video setup menu.

Reasonable costs and small tape cassette size. DVCAM professional tapes are small and easy to handle and store. Convenient snap shut library cases and labels are provided with every professional tape cassette. Two size cassettes are widely used without having to have any sort of machine adapters. All VCRs and most camcorders will accept either size (mini or standard). Mini cassettes record up to 40 minutes and standard cassettes record up to 184 minutes (over 3 hours!). Standard shorter tape loads are also stocked by the Sony DVCAM tape distributors for your convenience and cost control. The DVCAM cassettes are high grade advanced metal evaporated tape and are fully compatible for playback in consumer DV equipment. In fact, most every brand and model of consumer DV equipment will play DVCAM format tapes. **DVCAM cassettes without IC memory** are **widely available** at lower cost for general use. In less critical applications, consumer DV tapes can be used.

Support for 16:9 (wide) recording and playback. DVCAM camcorders and VCRs utilize the Wide Screen ID signal to identify WS 16:9 (1.78:1 aspect ratio) anamorphic video recordings to fully enable the newer video monitors and displays having automatic aspect ratio switching. The WS ID is carried automatically when using the digital dubbing features of the DVCAM VCRs and camcorders (via i.LINK and SDTI). It is also supported for analog inputs and outputs. Additionally, Sony provides one professional table top VCR, model DSR-30 and one consumer model, DHR-1000, with the ability to provide down-converted letterbox analog video output from the playback of WS ID tapes. So, even your standard (4:3) video monitor or TV set can display the full width of the picture without having to watch the program in the "squeezed" appearance of the anamorphic wide screen video.

Easy to use and low cost viewing VCRs. Sony DVCAM models are available in several low cost desktop models with easy to use front panel controls. All offer front panel visible search and pause controls with perfect noiseless still picture for beautiful quality image review. Some models are equipped with jog/shuttle controls. Convenient heavy duty small desktop remote controls providing full jog/shuttle, pause, stop, record and play are also available for several models.

Assured compatibility. All DVCAM VCRs and camcorders will play consumer DV (SP mode) recordings. Additionally, most every brand and model of contemporary consumer DV equipment will play back Sony DVCAM recordings. The new **Master Series*** DVCAM VCRs from Sony also play back DVCPRO (25) tapes. Sony's top model editing DVCAM VCR, the DSR-2000, will even play all consumer DV LP format tapes perfectly! All DVCAM VCRs can use consumer DV tape cassettes for recording and playback since the tape formulations are compatible. The professional grade DVCAM tapes are recommended for optimum durability in daily wear and tear situations as well as long term storage or re-use re-recording, etc.

Consumer DV Tapes and Professional DVCAM Tape Compatibility: There are two sizes of DV and DVCAM recording cassettes. They are the MINI size and the STANDARD size. The tapes are not pre-formatted. The consumer MINI DV size cassette can record up to 60 minutes in DV format using the SP (standard play speed). The larger cassette, referred to as STANDARD size, can record up to 270 minutes in SP mode using Consumer DV recording format.

Consumer DV recording equipment uses a relatively narrow standardized track pitch of 10 microns, whereas DVCAM uses a wider track pitch of 15 microns. DVCAM recording results in a more robust magnetic recording onto the tape for professional performance and assured frame accurate editing. The 15 micron track pitch dictates a faster longitudinal tape speed for DVCAM. Thus, for the same size tape load in a given size cassette, DVCAM yields a 1/3 less recording time compared to consumer DV. For example, when using a fully loaded MINI size cassette, the DVCAM recording will be able to record up to 40 minutes. However, the STANDARD size cassette will yield up to 180 minutes (3 hours). Recording times marked on the various cassette shells are based on either the DV (consumer format) use or DVCAM (pro) use. So if one uses a consumer DV tape marked "60" in a DVCAM recorder, the maximum record time will be 40 minutes. This is normal and not a deficiency. Please note that all DVCAM equipment will play back DV recordings at the correct speed automatically without any adapters. A 60 minute original DV recording tape (made on a DV recorder) will play for 60 minutes in DVCAM equipment just exactly as intended and with full quality of picture, sound and time code.

The advanced metal evaporated tape stock inside the cassettes is interchangeable for either DV or DVCAM use. DVCAM branded tape stock and cassette shells make use of the highest professional materials and are the most desirable for heavy usage. All Sony DVCAM cassettes are provided with their own library cases for dust/moisture resistance and convenient storage and labeling. Please note that cassette IC memory (CM) is optionally available in both Consumer DV and DVCAM cassettes. This is primarily for use in camcorders for capturing scene file and or camera setup information. It is generally not needed for studio work. All DV and DVCAM cassettes are available without the cassette memory at reduced cost and are recommended for the majority of all film daily recordings.

IEEE-1394 Digital tape duplication possible. The DVCAM lineup of VCRs offer either a standard or optional (depending upon model) IEEE-1394 digital interface for duplicating and editing of the digital video, digital audio, digital time code and auxiliary data automatically. This allows the native DV encoded digital signals to avoid any degradation during dubbing or editing via this popular low cost interface. Sony now also offers direct automatic dubbing on several models of VCRs and it is possible to use simple IEEE-1394 hubs to interconnect multiple machines to one source machine for true digital dubbing for multiple copies of the dailies for your clients and users. This maintains superb image, sound and time code integrity for your facility and clients. Other industry standard digital video and digital audio interfaces are on specific models or options such as SDI, SDTI and AES/EBU audio. VCR control interfacing can be via IEEE-1394 (Sony's i.LINK), RS-422A, RS-232C or Control S depending on model.

Professional Digital format with Pro support . No worries about having to buy low cost consumer grade viewing VCRs to fit your budget and the attendant low reliability and limited tech support from consumer companies. The DVCAM VCR lineup includes high quality low cost professional VCRs along with local and national tech support for professional users and provided by Sony's Broadcast and Professional technical support network. Prompt and efficient support is also provided by local Sony Professional resellers nationwide. All DVCAM models have one year parts and labor warranty from Sony.

*** Note: DVCAM Master Series models are DSR-2000, DSR-1800, DSR-1600 and DSR-1500**

SMPTE is the Society of Motion Picture and Television Engineers

IEEE is the Institute of Electrical and Electronic Engineers