LEARNING CURVE

CAMERA PRODUCT SALES GUIDE

Simply put, a camera is nothing more then a device that takes light and translates it into an electrical signal, this electrical signal can then be stored or transmitted where your television translates it back from the electrical signal to visible light.

The brain of any camera is the CCD (charged coupled device) which is a sensor array that has many individual photosensitive elements called pixels. Optics in front of the CCD, focus light from the scene unto the CCD where each individual pixel creates an electric charge proportional to the received light intensity.

Since the CCD is the most important part of any camera, it has the most affect on the cameras performance and of course, the better the CCD the higher the price.

Of the main features presented in this guide that determine a camera's price and attractiveness in the market, most of the factors derive from the CCD level. The rest are in the electronics of the processors in the camera head and the lens optical capabilities.

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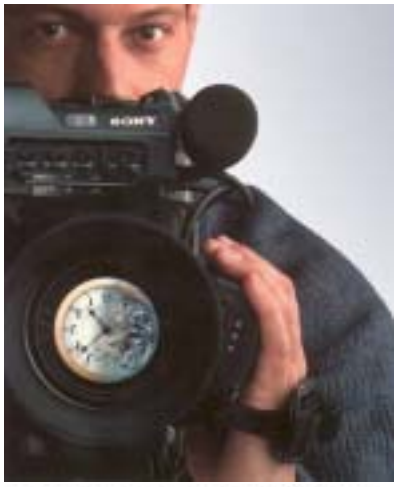

SONY

PRO A|V DISTRIBUTOR

Useful information

This is your comprehensive introduction to the world of Video Acquisition, along with the full lineup of Sony Cameras and camcorders. It includes detailed information about each particular model, a review of terms & FAQs and a comparison chart including what makes each model unique from others. We hope that this will be a valuable tool for you in helping you grow your camera business as well as your overall video business. If you find something that is not covered in this publication, please lat us know and we will most certainty include it in future releases.

Features, Functions & Foundational terms

Number of CCD's

Professional cameras usually have three CCD's one for each color that is recorded Red, Green, and Blue, every color in-between is just a combination of these three, while basic camcorders will have just one CCD capturing all colors.

CCD Size

Size does matter when it comes to CCD's since the larger the CCD the more light is captured. A larger CCD operates more effectively in low light conditions.

Aspect ratio

4:3 is the conventional TV image height and width, while 16:9 is the widscreen format. CCDs can be either size. Some 4:3 CCDs can output part of the chip in 16:9 and likewise 16:9 chips can use a 4:3 ratio inside their full surface.

Horizontal Lines of Resolution

Like it sounds, the approximate total of horizontal TV lines that the Camera is capable of producing. Standard NTSC video is capable of providing about 470TVL

S/N Signal-to-noise ratio

The ratio between the desired signal output and the noise level in the electronics. This is measured by dB, the **higher** number; the lower the noise.

Continued>

Features, Functions & Foundational terms cont.

Low light Sensitivity (Lux)

The brightness of a scene is measured in “Lux” (the amount of light a candle disperses in a foot =10.76 Lux) The lower the Lux rating on the camera the better, since it means that it doesn’t need to be as bright for the camera to do its job. Not too long ago very bright lights were needed whenever video was recorded. Nowadays some Sony cameras will record in a fraction of one LUX or even in “0 LUX” in pitch black with IR (infrared).

Gain

Gain is an amplification of the signal. Which is useful in low light situations. The higher the number; the greater the added gain. Gain increases also add noise. Some cameras have AGC (automatic gain control) which automatically compensates when changing from a well lit area to a darker area or when the sun goes behind a cloud etc. Gain is also measured in dB (decibels), the **higher** the number, the better the capability.

Smear (very bright situations)

Smear is a negative artifact of CCD’s. When they are exposed to too much light they create white vertical lines off the very bright light sources. Sony has many different technologies to reduce or suppress smear. **HAD**, **Hyper HAD**, **Power HAD**. **EX HAD**, and **FIT** are all different generations of CCD’s, each better then the other in reducing smear among other things. Smear is measured in dB (decibels), the **lower** the number the better the CCD.

White Balance

Different color temperatures reflect different colors. Low color temperatures shift toward red, while high color temperatures shift towards blue. Therefore, incandescent (tungsten) lighting will cast a yellow/orange color, while florescent lighting will cast a bluish hue. Our eyes and brain compensate for this, and we don’t notice it in our day to day experience. The camera however simply translates what it sees, and when watched thru the cameras eye the color imbalances become quite evident.

The original cameras used filters to block out the orange or blue hues; the later generation of cameras have introduced a concept called “white balance”. It is a reference that tellsl the camera what object in the scene is really supposed to be white. The camera can calculate the difference of the current color temperature of that object and the color temperature the white reference and change all colors in the lighting environment by that difference.

Continued

CAMERA TYPES

When the first Video camera was released it consisted of two separate pieces, the camera which included the CCD and a recording device which included the tape drive and recording heads which was usually carried over the shoulder. The video signal was fed to the VTR (Video Tape Recorder) via a bulky cable.

The next step in the evolution of video cameras allowed the user to connect the VTR to the back of the camera thru a multipin connector making it virtually one single unit, these Cameras were called “Dockable Cameras”. With this technology as well as with the original technology, it was possible to connect one manufactures VTR to another’s Camera.

Dockable VTR

The last step was the introduction of the Cam/Corder, which is

essentially a camera head and VTR combined into one unit allowing the manufacturer to produce them smaller lighter and more cost effectively.

Today all three production camera types are made since they each have their own advantages.

“Camera Heads” also called “block cameras” are still widely used in applications where either a recording device is not needed (traffic, internet, machine vision, microscopic, point-of view POV in live production) or for applications like security where the recording takes place at a central location.

The **PTZ motorized camera** of (for pan, tilt,zoom control capability) is in th camera head family with the addition of a a mechanism that allows positioning the camera by remote control.

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Since not all scenes have a pure white object, cameramen have carried around a white sheet which they constantly use to adjust the cameras.

“Preset temperatures” was introduced later; the camera had a handful of color presets, (Tungsten. Florescent, sunny, cloudy, etc.) This made it easier on the cameramen. Some cameras include a feature called “**AWB**” yes, **A**utomatic **W**hite **B**alance. That way any camera handles different lighting situations is a significant factor in determining which camera to purchase especially for **ENG (**Electronic **N**ews **G**athering**)**

Progressive vs. Interlaced

Progressive scanning is the latest in CCD technology. NTSC Video which is the format used in the US is refreshed at 60 times a second, AKA 60 fields. (This correlates with the electric signal AC-alternating current- in the US which is not a direct continuos stream.) In video, there are two fields to a frame. Back when processors could not produce the video signal fast enough, the image was divided in two. The processor first scanned the even lines and a sixtieth of a second later the odd lines, and together, when **interlaced,** they make up 30 frames per second. Since it is constantly changed from even to odd so fast it is not perceptible to the human eye. However at any split moment that video is viewed, only half the information is there. That’s the reason when you pause a picture it is not as detailed. In PAL Video (for Europe or Asia) it is recorded in 50 fields correlating to their AC current of 50hz, and thus giving them 25 frames instead of 30 frames per second

Progressive scan is the way some new CCD’s and processors are designed which allows them to capture and produce the even lines and the odd lines simultaneously in one pass. This yields a higher resolution since at any given time the whole image is seen.

Another feature that some cameras have is **24PsF** which stands for 24 Progressive, frames per second. Movie Film is recorded at 24 frames per second. Since film is progressive, with the 24Pfs feature, the video looks as if it was shot with a film camera. Sony HDV fits 24 frames into a 60i framework by using a process called 3:2 pull-down.

Genlock

Since any video signal is a series of 30 frames, it means that there are 30 black spots in between the 30 frames. It happens so fast that our eye, which readjusts 18 times a second cannot pick up the black spots. However, imagine a live shoot with two

Continued

Features, Functions & Foundational terms cont.

cameras,where the producer switches live from CAM 1 to CAM 2. It is possible that CAM 1 would be in the black blanking between frames, while CAM 2 would be half way through a frame. When switched together, a visible black area glitch will appear as long as a fifteenth of a second! This hiccup in the video is remedied via genlock. "**Genlock**" syncs up all the cameras assuring that are beating with the same pulse and turning frames and fields together.

SMPTE Time Code
In order to lock video tape recorders in sync with each other audio recorders and time-based control units, a time code is imprinted on the tape for reference. TIme code can be in 24 fps for film or 30 fps for video. Standard time code went one step further to create a 29.97 fps reference to fit the color signal. This may also be a drop-frame variety. This was created to fit timecode into a complete day. At 30 fps, it would run too long. Think of leap year at the video frame level.

The Lens
The other main factor in differentiating between cameras is the **Lens**, since the lens controls the zoom, focus, iris, f stop' etc. The quality of the lens will have a significant impact on the final picture all consumer camcorders come with a lens attached, with the only option being a wide converter or tele-converter adaptor available. Most professional cameras, especially the more expensive ones, don't come with an attached lens.

There are different types of lenses and mounts. Primarily, mounts belong to these major categories:

- ½" for cameras with ½" CCD's
- 2/3" for cameras with 2/3" CCD's
- C-Mount- a 1' x 32 thread employed usually for smaller CCD's
- Bayonet- is an easy to move clamp-on style of mount usually associated with professional cameras

VISCA
This is a version of RS-232 serial control that Sony uses to control PTZ cameras.

Multicore or Triax adapters
As camera cables are required to run distances, signals are often bundled into multiple conductors (26 for Multicore and 3 conductor for Triax).

Mbps
Mega bits per second is the data transfer rate a digital tream. In the DV format it is 25MBps.

for mor see FAQs on page 16

DVCAM ADVANTAGE

The DVCAM format is the professional extension of the worldwide standard DV format, using 8-bit digital component recording with a 5:1 compression ratio and a sampling rate of 4:1:1 (for NTSC). The DVCAM format has a wider track pitch of 15 µm (compared with 10 µm for the basic DV format) which gives higher reliability for professional editing. It also offers superior digital audio performance. Alternative audio channel modes can be selected.

What is Sony's DVCAM advantage over Panasonic'sDVCPRO?

DVCAM has the ability to provide true editing playback capability of all DVformats: DV-SP, DV-LP, DVCAM and DVCPRO with all the same professional performance in Playback, Jog Audio, and Slow Motion (from -100% to +100% with the DSR-2000) — a DVCAM Exclusive Feature.

The DVCAM Master Series VTRs automatically sense the format and size of the tape and adjust accordingly. No menu setting changes are needed.

Pre-Read Editing and Double-Scan Playback capability — a DVCAM Exclusive Feature.

DVCAM has over 20 models in the product line-up, from low-cost solutions to high-performance products.

Provides analog-like Jog audio capability to find in-points with audio very easily.

Camera comparison chart

SD Cameras	List	CCD	Resolution	Aspect	Sensitivity	S/N	Lens
DXC-390	$2,995	(3) 1/3” Exwave HAD	800 TVL	4:3	F8 @ 2000lx	62 dB	C
DXC-990	$4,310	(3) 1/2” Exwave HAD	850 TVL	4:3	F11 @ 2000lx	63 dB	Bayonet
SD PTZ Cameras							
EVI-D70	$1,599	(1) 1/4” Exview HAD	470 TVL	4:3	F1.4 @ 1lx*	50 dB	18X
EVI-D100	$1,200	(1) 1/4” Super HAD	470 TVL	4:3	F1.8 @ 3.5lx*	50 dB	10X
BRC300	$5,499	(3) 1/4.7” Adv HAD	600 TVL	4:3 (4:3-16:9)	F1.6 @7lx* *(50 IRE)	>50 dB	12X zoom
SD Studio Cameras							
DXC-D50	$13,388	(3) 2/3” Power HAD	920 TVL	4:3	F11 @ 2000lx	65 dB	Bayonet
DV Camcorders							
DSR-PDX10	$2,395	(3) 1/4.7” Adv HAD	530 TVL	4:3-16:9	F1.6 @ 7lx	50dB	12X zoom
DSR-PD170	$3,940	(3) 1/3” Adv HAD	530 TVL	4:3-16:9	F1.6 @ 1lx (+18dB)	55dB	12X zoom
DSR-250	$5,330	(3) 1/3” Power HAD	530 TVL	4:3	F1.6 @ 2lx (+18dB)	55dB	12X zoom
DSR-400L	$10,800	(3) 2/3” Power HAD-EX	800 TVL	4:3	F13 @ 2000 lx	65dB	Bayonet
DSR-570WSL	$18,000	(3) 2/3” Pwr HAD-WS	850 TVL	4:3-16:9	F11 @ 2000 lx	63dB	Bayonet
HD Cameras							
HDC-X300	$15,000	(3) 1/2” Pwr HAD HD	800 TVL	16:9	F10 @ 2000 lx	54dB	Bayonet
HDV Camcorders							
HVR-Z1U	$5,946	(3) 1/3”Super HAD HD	800 TVL	4:3-16:9	F1.6 @ 3 lx (+18dB)	TBA	12X zoom

STANDARD DEFINITION CAMERAS

DXC-390

The DXC-390 is a 10-Bit, three 1/3" CCD Camera with 800 lines of horizontal resolution and a S/N ratio of 62dB. In addition to surveillance, microscopy, and industrial inspection applications, laboratory experiments and live sports action are applications to which the DXC 390 is well suited. The DXC 390 incorporates many amazing features like strobe function technology, long term exposure setting, and computer control (RS-232C making it the most flexible camera in its class.

DXC-990

The DXC-990 is a 10-Bit, three **1/2"** CCD Camera. In addition, instead of C-mount lenses, it uses ½” bayonet mount lenses allowing the use of higher quality lenses. The DXC 990 incorporates all the **same features as the DXC-390** while adding higher resolution and lower light capabilities.

High sensitivity of **f11** @ 2000 Lux and a minimum illumination of **1 Lux** @ f1.4 (with hyper gain)

- **RGB** as well as Composite or Y/C (S-Video) output

Required: Power supply, 10.5-15V DC Bayonette-mount Lens

Optional Accessories: **Same as the DXC 390**

Features of the DXC-390 and DXC-990

- **10-Bit** DSP (Digital Signal Processing) this enables a variety of enhancement features like; **DCC+ (Dynamic Contrast Control Plus),** avoids signal washout or distortion when subjects are to bright (the light reflecting off the hood of a car) **Black Stretch** and **Dynalatitude,** both help capture clear images when part of the scene is very bright while another part is dark (an afternoon baseball game where the pitcher is in the sun and the hitter is in the shade) **Digital Detail,** Adjusts the sharpness of a objects outline **Linear Matrix,** Enhances Color Reproduction By adjusting the color saturation and hue **Partial Enhance,** allows the enhancement or softening of a specific color by accessing the Hue and Saturation levels.
- **On Screen Menu,** allows for quick and easy picture adjustments while viewing the image
- **Long term exposure,** the shutter speed can be manually selected from 0.1 to 8 seconds, (astronomy is one application that comes to mind)
- **Clear scan,** since video is at 30 frames a second and computer monitors are not, the appearance that the computer image is rolling or scrolling appears when you attempt to capture a computer screen on video. **Clear scan** avoids that by allowing the matching of shutter speeds to match the scanning frequencies of computer monitors.
- **RS 232C Control,** allows the operation and control of the camera by computer.
- **Remote Control** , an optional remote control (RM-C950) is available with full control of the camera as well as the zoom, focus and iris functions of the lens (since the lens is electronically connected to the camera)
- A slew of different automatic white balance options are available on this camera as well as a **manual** white balance option.
- Genlock for seamless integration with other cameras
- **RGB** as well as Composite or Y/C (S-Video) output
- AGC (Automatic Gain Control) is switchable to either STEP, AUTOMATIC or HYPER GAIN **"30dB**" helps to capture images in less then ideal lighting
- **TEN** levels of electronic shutter speed from off to 1/100,000 allowing the camera to capture blur free images of very high speed moving objects.
- High **62** dB signal/noise ratio.

Required: Power supply, 10.5-15V DC C-mount Lens

Optional Accessories:

RM-C950 Remote Control Unit

CMA-D2 acts as a power supply as well as a transmitter for the video signal from the camera to its destination. (**25** meter maximum distance)

CCMC-12P02 Multi-core 12 pin cable 2 meters
CCMC-12P05 Multi-core 12 pin cable 5 meters
CCMC-12P10 Multi-core 12 pin cable 10 meters
CCMC-12P25 Multi-core 12 pin cable 25 meters
MVA-15 Microscope adaptor
MVAC-33-N Nikon Adaptor
MVAC-33-O Olympus Adaptor
MVAC-33-SM Adaptor

CMA D3 acts as a power supply as well as a transmitter for the video signal from the camera to its destination. (**100** meter maximum distance)

CCDC-5 Multi-core 12 pin cable 5 meters
CCDC-10 Multi-core 12 pin cable 10 meters
CCDC-25 Multi-core 12 pin cable 525meters
CCDC-50A Multi-core 12 pin cable 50 meters
CCDC-100A Multi-core 12 pin cable 100 meters
CCMC-9DS
CCXC-9DBS
CCMC-3MZ

PTZ CAMERAS

Integrated pan, tilt, zoom (PTZ) motorized cameras offered by Sony include the EVI-D100, EVI-D70 and BRC-300 models. These are ideal for distance learning, web and videoconferencing, house of worship, courtrooms, hospitals, special event and concert hall installations where high video quality is required in a remotely operated unit.

EVI-D100

The EVI-D100, using a ¼" Super HAD™ CCD chip, is a standard with auto focus and automatic exposure control with backlight compensation, easily coping with difficult lighting conditions. Since the drive motor is gearless, these features operate much more quietly than other conventional PTZ cams. There are 6 pre-set shot positions that can be stored and recalled. When not in use, there is an auto-sleep function to save wear and tear. Direct drive motors account for the gear-less structure of the camera, reducing the noise of pan/tilt motion drastically compared to conventional models.

·Built-in Conversion Lens for Wide Angle View (65 degrees)
·40x Zoom Ratio (10x Optical + 4x Digital
·Six Position Presets with Battery Back-up
·Horizontal Resolution- 460 TV Lines Effective Pixels- 752 x 582
·Remote Controllable via RS-232C (VISCA)
·Quiet Operation

Required & supplied: Multi-function IR Remote Commander® unit
Optional Accessories: RM BR300 Remote

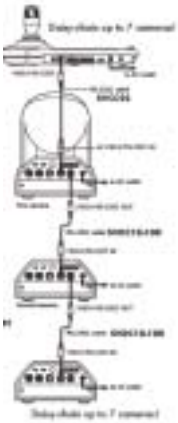
EVI-D70

The EVI-D70 uses a recently developed ¼" Exview HAD® imager which greatly increases the visible and IR sensitivity and reduces the tendency for vertical smear on bright objects. Other new features of the 70 include e-flip, which allows the unit to be ceiling mounted, greatly increased pan tilt speeds, and a horizontal range of view of 340 degrees. EVI-D70 camera incorporates a wider pan/tilt range with an 18x optical zoom lens and a faster pan/tilt mechanism.

·Wide Range Pan/Tilt: 340 degrees Pan / 120 degrees Tilt
·Excellent Low Light Sensitivity: less than 1 Lux
·37mm Mount for Optional Conversion Lens
·Upright or upside-down ceiling mount ·Alarm Function
·Remote Controllable via RS-232C (VISCA)
·In white and black

Required & supplied: Power supply DC 10.8 to 13.2 V
Optional Accessories:EVIFDP8C3 Outdoor Clear Dome Housing; EVIID8C1 Indoor pendant mount, clear dome housing; EVIID8T1 Indoor pendant mount, tinted dome housing; EVIOD8T3 Outdoor Pendant Mount, tinted dome housing; EVIRD7 Indoor vandal resistant, pendant mount, tinted dome housing; EVIRDP7C3 Outdoor Vandal Resistant pendant mount, clear dome housing; SNCWM20G Gooseneck Wall Mount; SNCWM30G Parapet Mount Bracket; SNCACA2 Corner Mount Adapter Bracket; SNCAPM3 Pole Mount Adapter Bracket

RMBR300



The stylish RMBR300 is a controller for the EVI or BRC family in an ergonomic, easy-to-use design. It can control seven cameras through daisy chaining the VISCA serial connections(RS-232C and RS-422), auto addressing each camera. All major camera functions, including access to the menu and preset functions are addressable, with the ability to save 16 camera pre-sets, functionally replaces the Telemetrics CP-ITV-D100.

Optional Accessories:SVCC25 VISCA Control Cable (from controller to first camera) 25FT; SVDC10 VISCA Daisy-chain control cable 8PIN Mini-8PIN Mini DIN 10 FT; SVDC25 VISCA Daisy-chain control ca 8PIN Mini-8PIN Mini DIN 25 FT; SVDC50 VISCA Daisy-chain control cable 8PIN Mini-8PIN Mini DIN 50 SVDC100 VISCA Daisy-chain control cable 8PIN Mini-8PIN Mini DIN 100 F**T**

BRC-300

When even higher image quality is needed in a PTZ camera, the new BRC300 is in a category by itself. This camera uses three 1/4.7” 1 megapixel 16:9 native Advanced HAD™ imagers to provide 600 lines resolution in 4:3 mode and even higher resolution in 16:9. The remarkable video quality of this camera is just the beginning.

It outputs native NTSC and S-video, but a range of option cards make it easy to interface with any video system from RGB, iLINK™ DVCAM to SDI (Serial Digital Interface) or to remote the whole thing on fiber if the installation requires it. Fast, wide PTZ response, eflip for ceiling mount and flexible remote control of up to seven BRC300 cameras with the RMBR300 joystick controller.

An Optical Multiplex Unit (BRU-300) converts non-compressed digital raw data from a camera (with the optical multiplex card) into any video output and has two interface card slots.

- ·E:Flip Function
- ·Horizontal Resolution - 600 TV Lines
- ·Built-in Auto Focus 48x Zoom Lens
- ·4:3 / 16:9 Aspect Selectable
- ·Pan angle: -170° to +170° Tilt angle: -30° to +90°

Optional Accessories- BRBK301 Analog RGB/Component Card; BRBK302 SDI Card; BRBK303 Optical Multiplex Card; BRBK304 Ilink Card; BRCSDP12 12" Outdoor Dome Housin; BRU300 Optical Multiplex Unit; CCFCM100 100m Optical Fiber Cable; RMBR300 Remote Control Unit

IP PTZ CAMERAS

SNC ZR30N

Combining network functionality with Pan/Tilt/Zoom (PTZ) capability, to see almost anything within the camera’s range and field-of-view over an ordinary TCP/IP network by simply using a popular web browser. Ther’s a pan range of 340°, a tilt range of 115°, plus a 25x optical / 300x digital zoom capability. The full 340° pan range can be covered in 2 seconds, and the -90° to +25° tilt range can be covered in 1.5 seconds.

- ·Sony’s “RealShot Manager” allows viewing multiple cameras.
- ·9Mbps is the largest bandwidth used
- ·Image quality can be set by adjusting the compression ratio; camera uses motion JPEG compression.
- ·Memory stick storgae of stills set by alarm or periodic
- ·“Area” setting can display a select portion of an image
- ·Supports both FTP and SMTP protocols
- ·Analog composite output
- ·Generally a high resolution image can be captured by selecting “Frame”. However, because an interlaced CCD is used in the camera, the subject can be difficult to see if it is moving. “Field” images use a lower still resolution, which are more suited to moving subjects. “Auto” images use the internal motion detection function to automatically select between “Field” images for moving subjects and “Frame” images for still subjects.

Supplied Accessories- Ceiling mount kit, AC power adaptor, AC power cable, Ethernet cable (UTP category 5 cross cable), CD-ROM (setup program and user’s guide) Option: Memory Sticks

STUDIO CAMERAS

DXC- D50

The DXC-D50 camera is the top of the DXC line and offers all of the capabilities and automation expected of a truly professional camera system. Featuring exceptional image quality, sensitivity, low noise and FIT level vertical smear characteristics, the DXCD50 can be configured to meet the needs of Studio, Field and Portable applications by using the wide range of optional cable adapters, CCUs and dockable VTRs.

- 3CCD imager using 2/3" PowerHAD EX CCDs
- 12 bit A/D and DSP 30 bits for superior contrast, & processing- Knee Saturation, Adaptive Highlight Control and Skin Detail.
- High Sensitivity of F11@2000lx with FIT level vertical smear of -140dB and high horizontal resolution of 920 TVL.
- Advanced, one-button operational controls include EZ mode for quick camera setups, EZ focus for quick, precise focus adjustments and Auto Tracking White Balance.
- Both Multicore, (for wired CCU operation up to 150m), and Triax configurations, (for wired CCU operation up to 1500m), can be created with the appropriate adapters.
- Dockable Betacam and DVCAM VTRs can also be used for stand-alone camcorder

Required: BPGL series Graphite-Lithium Ion Batteries and BCM series charger or ACDN10 AC Power Supply; 2/3" Lens – Canon YJ19X9BKRSD or Fujinon A20X86BRM

Optional Accessories:CCUD50/CAD50 - Multicore CCU and camera adapter; CCZAD - Multicore cable. 2, 5, 10, 25, 50, 100 or 150m lengths available; CCUTX50/CATX50 - Triax CCU and camera adapter; RCPD50 Joystick or RCPD51 Dial type Shader control; RMM7G – Miniature remote control (uses CCA7 cables up to 50m); DSR1/1- DVCAM dockable VTR; PVV3 – Betacam SP dockable VTR; DXF801 – Eyepiece viewfinder (included in some models); DXF-51 – 5" B/W Viewfinder; VCTU14 – Tripod mounting plate (included in some models); LC424 – Hard Carrying Case LCR1 – Rain Cover

CCUTX50

Camera Packages DXC-D50L or H---- See page 9

FORMATS

U-matic- a 3/4" analog workhorse still used but no longer being manufacturer
Beta SP- Analog using 1/2" tape
D-9 (Digital S) use two DV codecs in parallel. The tape data rate is doubled to 50 Mbps (video) and the compression work is split between the two codecs uses the 1/2" SVHS tape
DV Consumer / DV Pro- 8 bit, 4:1:1, intra-frame DCT coding using 5:1 video compression. DCT is similar to Motion JPEG. Data rate is 29Mbps onto 1/4" tape.
DV Cam- Sony professional DV format using wider track width, faster tape speed and special 1/4" tape
DVC PRO- DVCPRO50 and DVCPRO100HD are higher quality variants of DV using multiple codecs and data rates of 2 and 4 times that of DV respectively. 4:2:2 coding is used on DVCPRO50 and 100.
Digital BetaCam- Sony's 10-bit, 4:2:2, intra-frame DCT coded, professional format on 1/2" tape
HDV / JVC- JVC's version of HDV which only yields 720p
HDV / Sony- Sony's advanced format 8-bit MPEG 1440x 1080 format that yields 1080i and plays JVC's 720p
MPEG IMX- Sony 50Mbps MPEG format on 1/2" tape
HD CAM SR- (SMPTE D11) – Sony 140Mbps DCT format.
D-5 (10-bit uncompressed digital) 10
D-1 (8-bit uncompressed digital) 9.9
HD CAM SR- Sony "Super Reality" line of VTRs. Capable of 4:4:4 sampling for RGB inputs. Uses parallel DPCM (Differential Pulse Code Modulation) and DCT coders for compression to tape data at 440Mbps

DXC-D50 CAMERA PACS

Camera packages may be referenced on order as the PACs shown below, however ALL PACS SHIP AS INDIVIDUAL LINE ITEMS OF THE COMPENENTS IN THE PACS

CAMERA PACK ITEMS

DXCD50WSL- 16:9/4:3----------DISCONTINUED
DXCD50L- 4:3 2/3" CCD Camera (Head, 1.5 viewfinder, vctu14, ext. mic included)
DXCD50H-4:3 2/3" CCD Camera (Head only)
VCTU14-Tripod Plate
DXF51-5" Viewfinder
CAD50-Multicore Adapter
CCUD50-Multicore Control
CCUTX7/1-Triax Control
CATX7-Triax Adapter
DXBK701-SDI out board
RCPD50-Joystick Remote
RCPD51-Dial Remote
A20X86BRM-2/3" Fujinon Lens
YJ19X9BKRSD-2/3" Canon Lens

CAMERA PACK CONTENTS

	DXCD50WSL	DXCD50L	DXCD50H	VCTU14	DXF51	CAD50	CCUD50	CCUTX7/1	CATX7	DXBK701	RCPD50	RCPD51	A20X86BRM	YJ19X9BKRSD
DXCD50LPAC		X		X										
DXCD50SDPAC1			X	X	X	X	X							
DXCD50SDPAC2		X		X	X	X	X							
DXCD50SDPAC3			X	X	X	X	X					X		
DXCD50SDPAC4			X	X	X	X	X				X			
DXCD50SDPAC5		X		X	X	X	X					X		
DXCD50SDPAC6		X		X	X	X	X				X			
DXCD50WSPAC1	X			X	X	X	X					X		
DXCD50WSPAC2	X			X	X	X	X				X			
DXCD50WSPAC3	X			X	X	X	X							
DXCD50WSLPAC	X			X										
DXCD50WTXPAC1	X			X	X			X	X	X		X		
DXCD50WTXPAC2	X			X	X			X	X	X	X			
DXCD50WX19PC1	X			X	X			X	X	X	X			X
DXCD50WX19PC2	X			X	X			X	X	X		X		X
DXCD50WX20PC1	X			X	X			X	X	X	X		X	
DXCD50WX20PC2	X			X	X			X	X	X		X	X	

Optional Accessories (also see optional accessories above. DXCD50 cameras are NOT SUPPLIED WITH POWER OR LENS.)

CCA7 cable	X		X	X							X	X		
CCZAD cables	X		X	X		X	X							
BCM150 4 battery charger for **BPGL65/95 batteries**														
BCM50 2 battery charger for **BPGL65/95 batteries**														
AC550 ac adapter (if not using batteries, power needs to come from CCU config or AC550)														
PVV3 Beta SP dockable	x		X	X										
LCR-1 rain cover	X		X	X										
PH8S head set						X	X							

DV CAMCORDERS

DSR-PDX10

The DSR-PDX10 provides high quality acquisition in the smallest professional DVCAM package, allowing up to forty minutes recording on one tape Mini DVCAM tape or 60 minutes in the DV mode; This camcorder offers true 16:9 acquisition in a compact, feature-rich package.

- ·Mega pixel 1/4.7-inch type 3-CCD camera system
- ·Compact and lightweight: 2 lb 5 oz w/ battery and tape.
- · Switchable 4:3 and 16:9 image acquisition and recording modes (native 16:9 extraction)Precision 16:9 technology and wider angle of view in 16:9mode
- ·Optical super SteadyShot function
- ·Manual adjustment :Audio levels, Exposure, Shutter speed, White balance
- ·Program AE (effects) :Soft portrait, sports, beach & ski, sunset & moon, landscape
- ·Compact and lightweight: 1050 g (2 lb 5 oz) with a battery and tape.
- ·LCD Touch panel operation for adjusting frequently used camera functions
- ·XLR 2-ch audio adaptor for professional microphones

Supplied::Battery, 8MB MemoryStick, wireless remote, battery charger, PC software

DSR-PD170

The DSR-PD170 is a 1/3-inch type 3CCD Digital Camcorder that like its acclaimed predecessor, the DSR-PD150, addresses a broad spectrum of applications where quality, reliability, and mobility are prime concerns.

- ·3CCD System - 1/3-inch type CCDs, each with 380,000 pixels that contribute to the high sensitivity and high signal-to-noise ratio. These CCDs are capable of interlace scan to acquire moving images and progressive scan to capture still images. Advanced HAD™Technology reduces fixed pattern noise and vertical smear.
- ·Low Light Shooting- minimum illumination improved from 2 to 1 lux
- ·Widescreen Acquisition Mode - produces true 16:9 images.
- ·Manual Functions – For the flexibility required in professional applications; Zoom, Focus, Iris (with smoother and more sensitive iris control), Shutter speed, Gain, AE(Auto Exposure) Shift, White Balance, Custom Preset (Color Level, Sharpness, White Balance Shift, AGC Limit), ND Filters (1/4 and 1/32), Spotlight Button, Backlight Button, Digital Effects (Still, Flash Motion, Luminance Key, Trail, Old Movie), Audio Recording Level (Separate or Linked adjustment of CH1 and CH2), Zebra Patterns(100% or 70%).
- ·Index Marking - When a Cassette Memory-equipped DV tape is used, an Index can be marked while recording with the camera or recording from an external video source.This function allows quick access to the marked tape position in subsequent operations..
- ·Time Code Preset - The time code can be preset for accurate tape-positioning information. The time-code mode can be selected between “rec-run” or “free run”. User bits can also be set. Title Function - When using a Cassette Memory-equipped tape, titles can be set and stored in the Cassette Memory for superimposition during playback. This information is not part of the video signal, but is overlaid only during the playback.

Supplied: AC-L15 AC Adaptor, ECM-NV1 Microphone, NP-F330 InfoLITHIUM Rechargeable Battery VCL-HG0758 Wide Conversion Lens w/ LSF-S58 Lens Hood,, RMT-811 Remote Commander, Carrying Belt, i.LINK®Cable, Strap. Optional Accessories:NP-F550/NP-F750/NP-F960 InfoLITHIUM Battery Packs, AV-V700A AC Adapter/Charger, VCL-HG1758 1.7X Tele conversion lens, UWP-C1 UHF wireless mic package, ECM-670/ECM-672/ECM-678 Electret Condenser Shotgun Mics (requires CAC-12 Mic Holder)

DSR-PD250

The DSR-250 is the entry level camera of the full size DVCAM lineup, offering many professional features at an affordable price. It's ability to use full size cassettes allows recording times of up to 184 minutes (DVCAM mode) or 270 minutes (DV SP mode) (w/ PDV-184ME cassette) or use mini-DV tapes for convenience.

- ·1/3-inch Power HAD type CCDs for accurate color reproduction
- ·12x lens with Super SteadyShot™ system
- ·16:9 recording mode available (electronically processed)
- ·Three XLR audio input
- ·Digital still camera functions with Memory Stick™
- ·Time code preset capability

Supplied::ECMNV1 Microphone, RMT-811 Remote Commander, MSA-4A MemoryStick, MSAC-US2 MemoryStick Adapter, Picture Gear 4.1 lite, Lens Hood, Lens Cap.

Optional Accessories:678 Electret Shotgun Mic (req. CAC12 Mount) UWP Wireless Mic System

DSR-400L

The DSR-400 delivers superb picture quality by utilizing the latest 2/3-inch Power HAD-EX IT 4:3 CCD sensors. Because the image capture process is 100 percent digital from the CCD to the media, the video signal remains in its native digital component format throughout the recording process. The three-CCD array boosts sensitivity and S/N ratio while lowering vertical smear ratio. Sensitivity levels to increase to F13 (about 3dB), S/N ratio increase to 65dB, and smear ratio drops to an astounding "FIT like" level of -140Db. The 400L is w/o lens and the 400K has a Fujinon 17X lens supplied.

DSR-400K with Fujinon 17X

The DSR-400 DVCAM camcorder will work with hard- disk video recorder. Pairing the camcorder with Sony's DSR-DU1 through the camcorder's i.LINK (IEEE 1394) digital video port can increase recording options. Used in serial mode, the DSR-DU1 unit extends combined tape and HDD recording time to a full six hours. In parallel mode, this creates a backup recording that reduces the risk of missing an important shot. Workflow innovation can be achieved in ENG/EFP applications, using the DSR-DU1 with an i.LINK-SBP2 protocol capable non-linear editing system.

DSR-400 includes Hyper Gain (36 dB), Black Stretch and Compress control functions, along with the DynaLatitude process to minimize video level distortion. The TruEye process delivers faithful color reproduction, including added accuracy in skin tone detail with auto detection of the active area. The camcorder can be used in studio configuration with an optional CA-370 adapter to add full duplex intercom capabilities and is remote (model CCU-D50) controllable. Get accurate F stop indication feedback on the 1.5" viewfinder, 3.5" LCD panel, 3 tally lamp levels, new Memory Stick scene file storage for camera settings to be recalled. VCT-U14 tripod plate supplied.

Optional Accessories:L-NEEDS LENS BCM50/BCM150 Battery Charger, DXF-51 5" VF (req. A-8274-968-B mount included with CA370), CCUD50 Multicore CCU (req.CCZAD series multicore cable) , RMM7G Miniature Remote Control Unit (req. CCA7 cable), CA370 Intercom Adapter, ECM-670/ECM-672/ECM-678 Electret Shotgun Micrs (req. CAC12 Mic Holder), DSBK301A Index Picture Board, LC424TH Hard Carrying Case, LCR1 Rain Cover, LC400BP- Soft Bag,BP-L60S 60 watt hour LiIon battery, BP-GL65 65 watt hour intelligent LiIon battery, BP-GL95 90 watt hour intelligent LiIon battery, RCP-D50 & RCP-D51 Remote control panels multi access w/Memory Stick scene file storage capability

DSR-570WSL

The DSR-570WS is the top-of-the-line DVCam that shoots in both widescreen 16:9 and standard 4:3 aspect ratios. Equipped with three 2/3-inch type Power HAD WS™ CCDs, it achieves a high resolution of 850 TV lines in 4:3 mode or 800 TV lines in 16:9 mode. It delivers the superb picture quality required to support virtually any creative shooting environment. This camera offers the same functionality and features as the DSR-390L mentioned previously, while providing the improved image quality, sensitivity, signal to noise ratio and widescreen capabilities of the larger CCD imager.

Supplied:1.5-inch B/W Viewfinder (DXF-801), Microphone with Wind Screen, Tripod Adaptor (VCT-U14), Shoulder Strap, Lens Mount Cap, Flange Focal Length Adjustment Test Chart, Operating Instructions.

Optional Accessories:NEEDS LENS BCM50/BCM150 Battery Charger, DXF51 5" B&W VF (req. A-8274-968-B mount included with CA370), CCUD50 Multicore CCU (req.CCZAD series multicore cable) , RMM7G Miniature Remote Control Unit (req. CCA7 cable), CA370 Intercom Adapter, Wireless Mic package, ECM-670/ECM-672/ECM-678 Electret Shotgun Microphones (req. CAC12 Mic Holder), DSBK301A Index Picture Board, LC424 Hard Carrying Case, LCR1 Rain Cover.

DSR 570 Camera Pacs

Camera packages may be referenced on order as the PACs shown below, however **ALL PACS SHIP AS INDIVIDUAL LINE ITEMS OF THE COMPONENTS IN THE PACS**

DSR570ENGNPAC=DSR-570WSL, BP-M50 (2) NiMH 49Wh battery, BC-M50 Battery charger , LC-400BP soft carrying bag
DSR570LGLPAC=DSR-570WSL 3 CCD DVCAM camcorder, BP-GL65 (x2) new Graphite 65Wh Li-Ion battery, BCM-50 battery charger, & LC-400BP soft carrying case.
DSR570WENG19N=DSR-570WSL, YJ19X9BKRSD, BPM-50 (2)NiMH 49Wh battery, LC-400BP Soft carry case, and BCM-50 Battery charger.
DSR570WSDPAC2=DSR570WSL, DXF515 inch Studio B/W Viewfinder, CA370 Intercom Headset and CCUD50 Camera Control Unit, and RMM7G Miniature remote control.

DV VIDEO TAPE DECKS

DV Playback

DSR-11

Great for NLE workstation transfer

DSR-25

Includes LCD panel

DSR-45

Similar to DSR-25 with RS-232/422 for control

DV Edit Decks

DSR-1500A

Frame accurate editing recorder

DSR-1600

Multi-format DV Player

DSR-1800

Multi-format DV Recorder

DSR-2000

Fron panel edit control of other decks; plays DVSP, DVLP, DVCam, DVCPro Double scan playback

DSR-DR1000

DV Cam Studio *Disk Recorder* with vari-speed

Multi-format

J-10

Betacam , Betacam SP and Betacam SX, player

J-30

Betacam , Betacam SP, Betacam SX, MPEG IMX, and Digital Betacam player

HIGH DEFINITION CAMERAS

HDCX-300

For high definition camera applications, Sony offers the HDCX300 and HDCX300K, which include an auto-focus lens. Using three newly developed ½ inch, 1.5 megapixel Power HAD CCD imagers, this camera offers a range of features to professional high definition users unequalled by any other camera on the market, including conventional 60i (interlaced) or 24Psf 24-frame progressive scan modes (3:2 pulldown) and slow shutter modes for low light still imaging. The HDCX300s make a great point of view camera for broadcast or venue applications.

- ·Newly developed 1/2 type 1.5 Mega Pixel HD 3CCD
- ·Interlace or Progressive scan switchable 1080/59.94i, 29.97psf or 23.976psf at 59.94i output 1080/50i or 25psf at 50i output mode
- ·CCD efffective pixles 1,440 (H) x 1,080 (V)
- ·Shutter speed up to 64 frames; minimum illumination **0.003lx**
- ·Outputs- SDI & YPbPr/RGB on D-sub (15-pin)
- ·Lens- Sony 1/2 type bayonet mount

Lens Package: The VCL-719BXS lens is supplied on the **HDC-X300K package** and is not sold separately. Zoom Ratio: 19X Range of Focal Length: 6.7-127mm Maximum Relative Aperture: 1:1.6 (6.7-96.8mm), 1:2.1 (at 127mm) Angular Field of View (16:9 basis): W 55.0 degrees x 32.6 degrees; 61.7 degrees. T 3.14 degrees x 1.77 degrees; 3.61 degrees

Optional Accessories: RCP700 Remote Control Panel for BVP-700/500 Series Cameras; RMB150//A Handheld remote control unit for BVP-950A, BVP-750A, BVP-570, BVP-550, HDW-700A, HDW-F900; RMB750 Remote Control Unit For HDC and BVP Series

HVR-Z1U

It's now possible for videographers to shoot hi-def with more affordable equipment on standard mini-DV cassettes. Quality from this new HDV format is lower than from existing pro HD cameras, like Sony's HDW line, because the signal is compressed to MPEG 2.

Sony has built everything they know about high quality, user friendly cameras into the first HDV camera, HDR-Z1U. The camera features a high quality 12X Zeiss Vario-Sonnar T lens and *three* 1/3 inch, 16:9, 1.12 megapixel Super HAD CCDs. The images are converted to digital by a 14 bit A/D and processed by Sony's unique DXP (Digital Extended Processor). By utilizing the world standard 25 Mbps DV data transmission rate and their own MPEG2 Real Time Encode engine, Sony has made a system which is already compatible with much cont. p.15

HVR-Z1U

of the existing DV infrastructure, including computer-based nonlinear editors like Sony's Vegas 5. Besides the advantage that it can record 1080I video and play 720p (where the JVC only does 720p), there are a number of additional features that set the HDR-Z1U ahead of the current JVC single-chip offer; among them is a 16:9 viewfinder and a new shoulder brace. The distinctive "shot transition" feature allows transitions from one scene to another and "picture profiles" provide six pre-sets for color brightness, color phase, sharpness, skin tone, auto exposure shift, iris limit, white balance, gamma and CineFrame. CineFrame modes include 24 frame (3:2 pulldown), 25 PsF and 30PsF.

Optional Accessories: ACV700A Ac Adaptor / Charger; ECM670 Short Shotgun Microphone; NPF970 Infolithium L series battery; UWPC1/6264 Lav Mic, Bodypack TX and Portable RX Wireless System (Channels 62 to 65); UWPC1/6668 Lav Mic, Bodypack TX and Portable RX Wireless System (Channels 66 to 69)

HVR-M10U Deck

The companion HDV player deck to the HDR-Z1U called the **HVR-M10U**. It is battery operated, so it can be used in the field as well as in the edit suite. It has a built-in LCD screen, down converter to SD, time code functions and all the pro I/Os you'd expect.

Consumer HDV HDR-FX1

The HDR-FX1 consumer version of the HDV camera uses the same lens, CCD and image processing, but sacrifices professional features like Timecode functions, DVCam record, variable white balance, HyperGain, date record, EVF B&W display, XLR balanced audio (w/48volt phantom), L & R indepenedent record, peaking level, auto noise reduction among 40 differences.

WORLD-CLASS WIRELESS MICROPHONES

CAMERA MOUNT RECEIVERS

WRR-862B - unique 2 channels in one pack

WRR-861B

WRR-855B drop in receiver for select Sony Cameras

UWP-C1 Rcvr with lavalier mic transmitter pacakge

FOR MORE ON THE RIGHT WIRELESS FOR YOUR CUSTOMER, ASK FOR OUR WIRELESS MIC GUIDE

What do 4:2:2, 4:1:1, and 4:2:0 represent?
These notations represent the rations for different sampling structures of digital video. The first number refers to the 13.5 MHz sampling rate of the luma. It is "4" because it is approximately four times the NTSC subcarrier frequencies and as 4 the other numbers can be single integers versus decimals relative to it (1:0.5:0.5) The other two numbers refer to the sampling rates of the R & B color signals. **4:2:2** systems (D-1, D-5, DigiBeta, BetaSX, Digital-S, DVCPRO50) yield 360 color samples per scanline. **4:1:1** systems (NTSC DV & DVCAM, DVCPRO) color data are sampled half as frequently yielding 180 color samples per scanline.

Is it possible to upconvert 4:1:1 DV sources to HDTV? All SDTV source material will show some degradation when upconverted to HDTV. A 4:2:2 original will be more forgiving, but yes it can be done. However, if you're starting a project and plan on ending up in HD, then the new HVR-Z1U HDV cam would be a better acquisition camera.

What is IEEE 1394, "FireWire" or "i.LINK"?
IEEE-1394 is a standard communications protocol for high-speed, short-distance data transfer. I.LINK is Sony's implementation of it, while FireWire is Apple Computer's. DVCPRO gear with 1394 connections can not transfer data with other DVCAM systems, it requires that one deck "transcode" the signal. You can only run about 15 feet with it, which makes it fine for transferring into a Non Linear Editing PC.

What about SDI connections?
Serial Digital Interface is intended for "broadcast quality" SDI is carried on one coax cable with a BNC connector and can run hundreds of feet. SDI is a high-speed connection at 270 Mbps and 27 mHz clock speed. It is sometimes referred to as 4:2:2 component video.

With an SDI connection, are audio connections necessary?
No. The SDI connection has imbedded digital audio that accommodates up to 4 channels of digital audio. In addition, the user can choose either analog audio, SDI imbedded audio or AES/EBU audio when utilizing the SDI connection.

Then waht is the DVI connection?
Digital *Virtual* Interface can carry virtually any kind of data (video, audio, graphic, or any computer files.). This is becoming the preferred way to connect to near-by display devices. A major draw-back is that it has limited range with a transmission distance of 30 feet. It's modestly fast at 25Mbps (165 mHz clock speed) and uses a multi-pin D connector.

What's the Best Mini DV Cam in the $2,000-$3,000 Category?
The VideoMaker Magazine award stated, "The Sony DSR-PDX10 is just about as small a camera as you can make and still have XLR audio with gain control. It also has a superbly sharp, typically -Sony image and an electronic, but truly anamorphic, 16:9 mode. If you need an ultra-portable 3-CCD camera with features a pro-fessional will appreciate, it's tough to beat the price of this winner."

OTHER PRODUCT SALES GUIDES
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Sony Media Software
Switchers & Mixers

What's the difference between DV, DVCAM, and DVCPRO?
The video data recorded in all three formats is essentially identical, following the DV standard, though there are differences in the actual codec implementations. See page 4 for more.

What is the Super SteadyShot®System?
Unsteady horizontal and vertical camera movements are detected and corrected by the prism system located behind the lens, while maintaining image quality.