DXC-D50 Series

Digital Video Cameras

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SONY

The Next-Generation DXC Camera, for High-Picture-Quality Video

Since the first models, the Sony DXC Series of production video cameras have been widely accepted for use in a number of professional video-acquisition applications because of their superb picture quality and operational performance.

The DXC-D50P/D50WSP represent the next-generation of DXC cameras, designed for even greater picture quality and operational convenience. These cameras are offered in two different versions: the DXC-D50P 4:3 model and DXC-D50WSP 16:9/4:3-switchable model. Both feature the new high-performance Power HAD™ EX CCD sensor and precise 12-bit A/D conversion built into a highly sophisticated LSI.

The result is superior picture quality, high sensitivity, plus low noise and smear characteristics compared to previous models. A variety of automatic functions have also been included, allowing easy and convenient operation in any shooting scenario.

Another important aspect of Sony DXC-D50 Series cameras is their excellent system versatility. A multicore camera control unit, the CCU-D50P, is available, and the new RCP-D50/D51 Remote Controllers can also be used with the system.

With a host of sophisticated features, the DXC-D50 Series provides an ideal solution for small studio operations at an affordable price.

High-Quality Pictures

New Power HAD EX CCDs

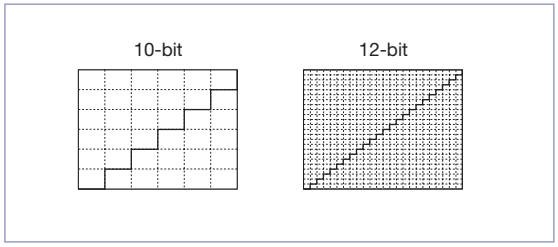
The DXC-D50 Series cameras are equipped with three newly developed 2/3-inch type Power HAD EX CCDs, each with a high density of 1.2 million (570 K effective) pixels and offering high horizontal resolutions of 920* TV lines. A high sensitivity of F11 (at 2000 lx, 3200 K), an excellent S/N ratio of 63 dB (PAL), and an FIT-like vertical low smear level of -140 dB (typical) are achieved.

New Power HAD EX CCDs

* On DXC-D50P models

12-bit A/D Conversion

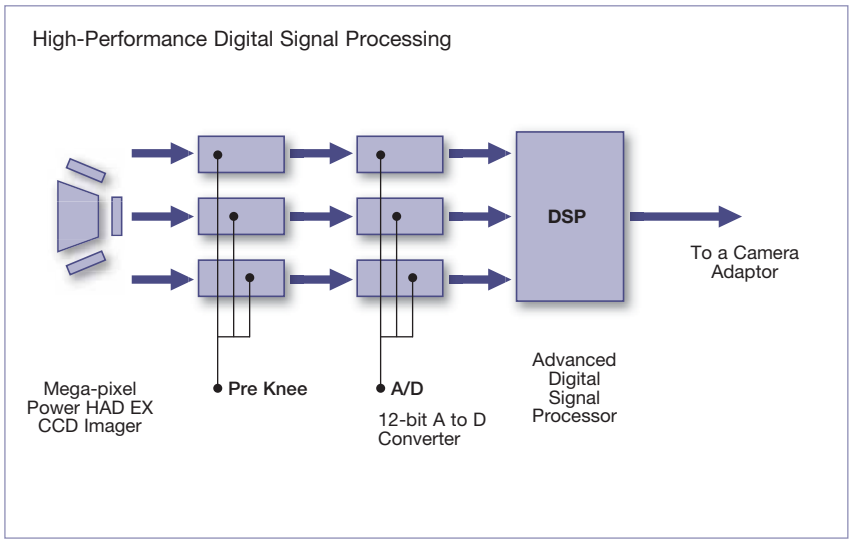
The Sony DXC-D50 Series incorporates a high-integrity 12-bit A/D LSI, so that the high-quality images captured by the Power HAD EX CCDs are processed with greater precision than conventional 10-bit A/D LSIs. In particular, this higher bit resolution allows the contrast to be reproduced more faithfully in mid-tone areas of the picture.



Advanced Digital Signal Processing (DSP)

Another key to quality in a DSP camera is how many bits are used in its nonlinear processes, such as gamma correction.

The internal processing of the DXC-D50 Series camera uses more than 30 bits, minimising rounding errors to maintain the CCD's high quality. The DSP LSI of the DXC-D50P/D50WSP also enables highly sophisticated image controls, such as Knee Saturation, and Adaptive Highlight Control functions.



Creative Image Control

Natural Colour Reproduction with “Knee Saturation Control”

Traditionally, shooting very bright portions of an object (such as key light reflections from a person's forehead) can reduce colour saturation and change the hue in highlight areas.

The DXC-D50 Series cameras adopt a Knee Saturation Control function in which this 'washed-out' effect on saturation and hue change is reduced to a minimum, and far more natural colour reproduction in highlight areas is achieved.

Knee Saturation Control On

Knee Saturation Control Off

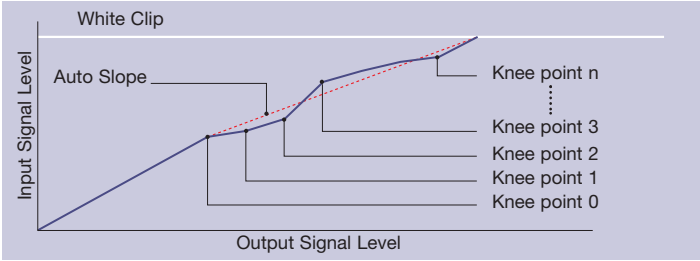
Adaptive Highlight Control Off

Adaptive Highlight Control On

Adaptive Highlight Control

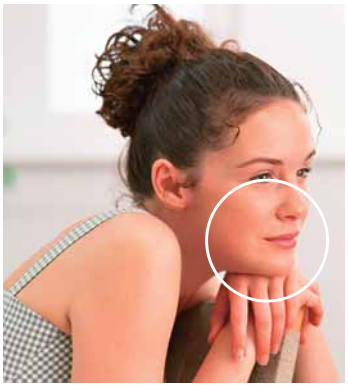
In conventional cameras, only a single knee-point/slope is available for contrast control over highlights. The DXC-D50P/DXC-D50WSP camera, however, provides multiple knee-points/slopes for superior overexposure control. The camera analyzes the highlight areas of a scene and automatically sets and optimises multiple knee points/slopes accordingly. This allows the reproduction of extremely difficult images (such as an interior scene that includes a brightly sunlit window) with much more overexposure latitude. This function applies only to input video levels in excess of the knee point - the middle and low luminance parts of the video signal are unaffected by this control.

Knee Curve Image

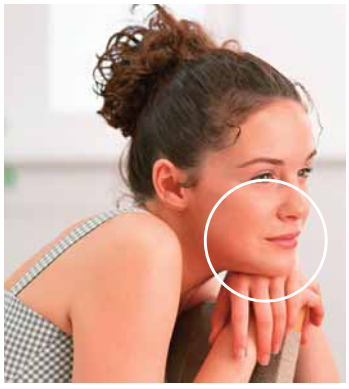


Low Key Saturation

With traditional cameras, low-light areas can be subject to reduced saturation, resulting in the colour in these areas being “washed-out”. The Low Key Saturation function on the DXC-D50 Series helps eliminate this problem by optimising the amplification of colour saturation at low light levels, providing more natural colour reproduction.



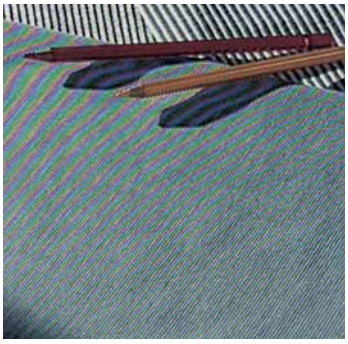
Low Key Saturation Off



Low Key Saturation On

Cross-Colour Suppression

Separating the luminance and chrominance components of a composite signal can be a difficult task, even with the most advanced comb-filtering techniques. In order to keep cross colour and cross luminance to a minimum, the DXC-D50 Series minimises frequency components that may result in such artifacts being generated prior to the signal output. These frequency components are virtually eliminated from the Y/R-Y/B-Y signals within the camera head through sophisticated digital three-line (NTSC) /five-line (PAL) comb filtering, resulting in a great reduction of the cross colour and dot crawl normally seen on picture monitors fed with a composite video signal.



Cross Colour Suppression Off

Cross Colour Suppression On

Skin-Tone Detail Control

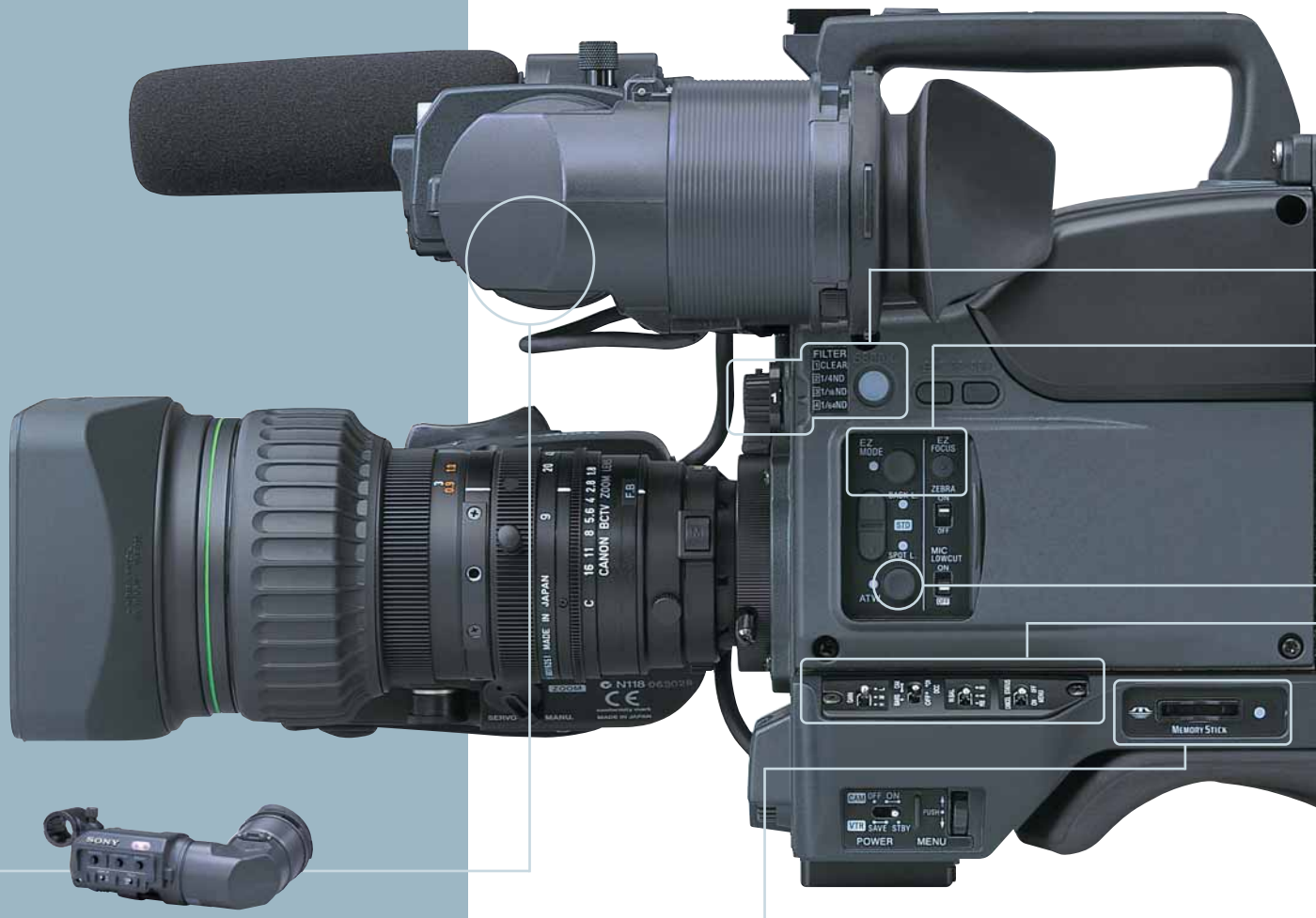
The Skin-Tone Detail function on the DXC-D50 Series allows softer detail correction to be applied in the facial area, while maintaining the sharpness of other parts of the picture.

The Skin-Tone Detail area can be selected simply and quickly using the Area-Detect Cursor in the viewfinder screen. The colour range for the Skin-Tone Detail (and skin detail level) can also be selected manually using the viewfinder menu system.

Skin-Tone Detail Control Off

Skin-Tone Detail Control On

Operating Convenience



Supplied DXF-801 Viewfinder

The DXC-D50PK, DXC-D50PL and DXC-D50WSPL models are equipped with a 1.5-inch* type Black/White viewfinder, which includes the following features.

- Automatic scan-size switching between 16:9 and 4:3
- VF light (LED)
- Time, camera ID, and colour temperature display
- Display switch - turns off character superimposition on the viewfinder
- Vertical and horizontal detail-level control via peaking potentiometer
- Tally lamp levels (high/low/off)
- Two red REC tally lamps
- Diecast aluminum body
- Wide range of diopter adjustments

* Viewable area measured diagonally.

MEMORY STICK

File Operation Using Memory Stick™ Media Storage

The DXC-D50 Series incorporates the Sony Memory Stick system, enabling you to store and recall setup-parameter files for individual scene or camera setup preferences. The setup parameter files stored on a Memory Stick media card can be transferred to another DXC-D50 Series camera or a RCP-D50/D51 remote control unit, allowing quick, easy setup in multiple camera systems. What's more, the setup files can be loaded to a PC equipped with a Memory Stick slot, enabling them to be e-mailed as attachments and installed in cameras at remote locations.

Optical ND Filter and Electronic CC Filter

Using the DXC-D50 Series, optimum light and colour control is easily achieved using an optical ND (Neutral Density) filter wheel and electronic Colour Correction. The use of electronic Colour Correction allows all filters in the filter wheel to be of the ND type, providing the operator with greater flexibility in depth-of-field and exposure control. Electronic Colour Correction can also be controlled using a remote controller, for even easier operation.

Adjustable Shoulder Pad

The position of the shoulder pad can be adjusted – either forwards and backwards - to provide the operator with a comfortable, well-balanced camera, both when docked with a camera adaptor or with a dockable VTR.

EZ Functions

Recognizing the importance of making camera operation as quick and straightforward as possible, the DXC-D50 Series cameras provide two highly convenient "EZ Functions", enabling operators to start shooting with minimum setup procedures, and in less time.

EZ Mode

Settings for key camera parameters are instantly set to the standard or auto position by simply pressing the EZ Mode button - making the camera instantly ready for shooting. This feature is very convenient when operators require fast camera setup within a limited time frame.

EZ Focus

The EZ Focus function allows accurate focus adjustments without manually opening the lens iris. Simply by pushing the EZ Focus button, the iris automatically opens to reduce the depth of field and make focusing significantly easier. At the same time, the electronic shutter is automatically set to obtain the correct exposure.

Auto-Tracing White Balance (ATW)

The DXC-D50 Series cameras feature a convenient Auto-Tracing White Balance ATW) function, which automatically adjusts white balance as lighting conditions change. This function is very useful when shooting in rapidly changing lighting conditions, such as when moving from indoor to outdoor locations.

Backlit Switch Panel

The switch panel is backlit, allowing operators to see switch positions in dark environments.

Clear Scan™ (CLS) Function

The Clear Scan function allows operators to shoot computer displays without the horizontal bands or flickers they usually create on screen. This is achieved by activating the Clear Scan function to select a shutter speed, which then precisely matches the scanning frequency of the computer display. Shutter speeds are available ranging from 60.1 (NTSC)/ 50.2 (PAL) Hz to 6000 Hz.

Factory-Preset Matrix

Factory-Preset Matrix files are provided, allowing operators to instantly set up camera parameters that match common lighting situations, such as STANDARD, HIGH SATURATION, FLORESCENT, etc.

Other Features

- Programmable gain (-3/0/3/6/9/12/18/24/30/36 dB)
- Variable-speed electronic shutter
- Monitor output
- Built-in 1-kHz audio reference
- Date-and-time superimposition on the video signal and viewfinder
- Enhanced Vertical-Definition System (EVS)
- Auto iris mode (spot, backlight)
- Mic low cut
- Dual zebra

System Versatility

Multi-Core CCU Operation – for End-to-End Digital Systems CCU-D50 & CA-D50

With the CA-D50 Camera Adaptor attached, the DXC-D50P/D50WSP can be remotely controlled from the CCU-D50P Multicore Camera Control Unit using a CCZ-A cable (26-pin). The video and audio output of the CA-D50 Camera Adaptor are transferred to the CCU-D50/D50P Camera Control Unit as a component digital-SDI signal* through a CCZ-A cable up to 75 m long. This combination allows the establishment of a full digital-acquisition system. The CCU-D50P system supports the following features:

- Digital or analogue signal transmission (switchable)
- 75 m cable compensation for component digital-SDI transmission via a CCZ-A cable (26-pin)
- 200 m cable compensation for component digital-SDI transmission using a separate low-loss coaxial video cable in addition to a CCZ cable
- Analogue transmission for longer control distances of up to 300 m via a CCZ-A cable
- Analogue composite output and one of the following outputs:
  SDI, Y/R-Y/B-Y, RGB, Y/C
- Wide variety of control functions
- Compatibility with remote-control panels, including the RCP-D50, RCP-D51 and RM-M7G
- Support for major intercom systems (two-wire/four-wire/RTS/Clearcom)
- Teleprompter support
- Red/Green tally indication**
- Fan alarm LED**

*Embedded audio is not supported.

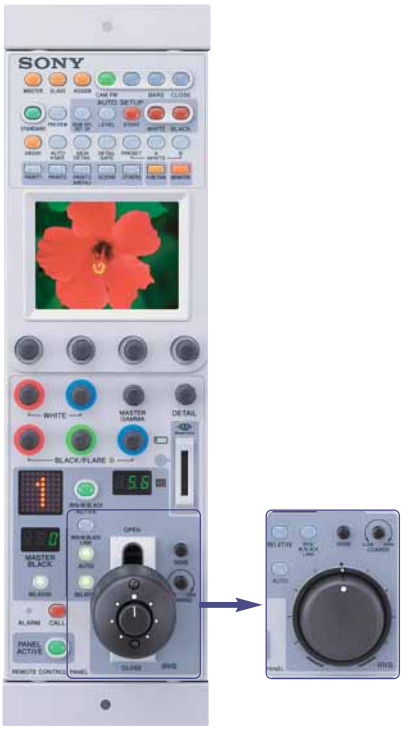
*The tally and fan alarm share the same LED.

CCU-D50 Front Panel

CCU-D50 Rear Panel

The DXC-D50 Series can be used with a variety of peripheral equipment including camera adaptors, camera control units, dockable VTRs and remote controllers, allowing operators to flexibly build systems according to their needs both in the studio and out in the field. The DXC-D50 Series can be configured in three core operation styles: Muticore CCU, camcorder, and portable-VTR operation.

An easy-to-use range of remote controllers – the RCP Series – is also available for added operational convenience.



RCP-D50 (Joystick)

RCP-D51 (Dial)

Remote Controllers

For remote operation of the DXC-D50 Series cameras, three types of remote controllers are available, each offering direct control of the camera.

RCP-D50 (Joystick Type) RCP-D51(Dial Type)

The RCP-D50 and RCP-D51 have been newly designed for use with Sony DXC-D50 Series cameras. The RCP-D50 is a joystick-type controller, while the RCP-D51 is a dial-type controller. Both are equipped with a 3.5-inch* colour touch panel LCD screen and offer extensive control of camera functions through easy-to-use menu-based operations. The LCD also allows the incoming camera image to be monitored - a feature that comes in handy when identifying which RCP is controlling which camera in multi-camera systems.

Another convenient feature is the Memory Stick system, which allows various scene files to be stored on and recalled from the Memory Stick media and loaded to either a different RCP-D50/D51 controller, or to a DXC-D50 camera.

*Viewable area measured diagonally.

Camcorder Operation
DSR-1 (DVCAM VTR)

The DSR-1P is a dockable recorder that allows 4:2:0 (PAL), 8-bit DVCAM digital recordings. This configuration provides a long recording time and supports both DVCAM Mini and Standard cassette types.

- Compact and lightweight: 3.1 kg (6 lb 13 oz) including battery
- Support for both Mini and Standard cassettes
- Superb picture quality of the DVCAM format
- Playback capability of DV-recorded tapes (SP mode only)
- Long recording time of 184 (Standard cassette)/ 40 (Mini cassette) minutes

PVV-3 (Betacam SP VTR)

By combining the DXC-D50P/D50WSP with the PVV-3P Betacam SP recorder, you can easily configure a Betacam SP camcorder system.

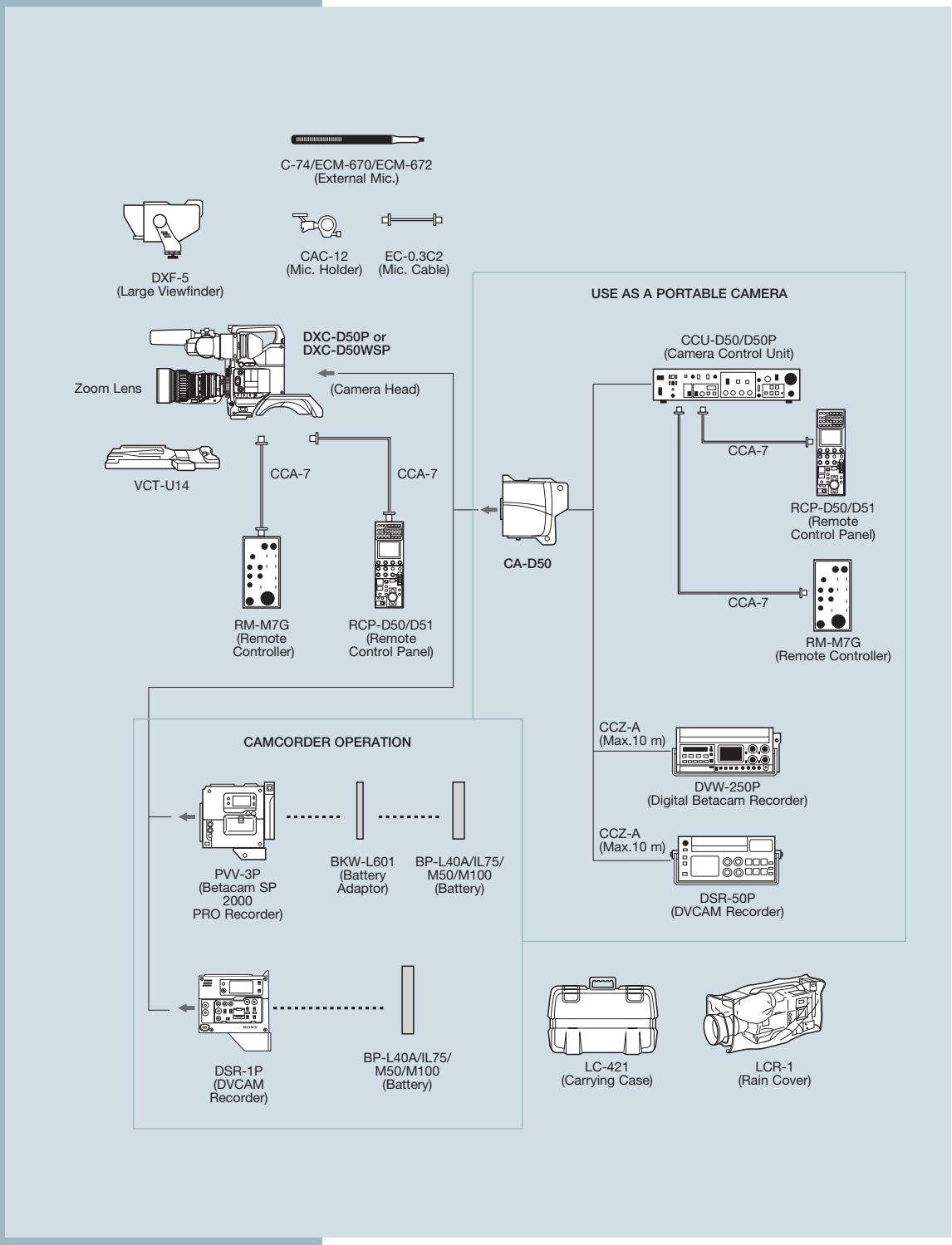
- Compact and lightweight: 3.5 kg (7 lb 11 oz) including battery
- Superb picture quality of the Betacam SP format
- More than 30 minutes recording time

RM-M7G

The RM-M7G controller is a compact, handheld-type remote controller ideal for use in the field, or for basic remote control.

RM-M7G

System Configuration



Optional Accessories

PrimeSupport

PrimeSupport

Sony offers a comprehensive after sales support service to ensure that your DXC-D50 Series operates with optimum efficiency at all times. Whether you need remote diagnostics, on-site support or telephone help, PrimeSupport can be configured to meet your needs now and adapted to your business requirements in the future.

PrimeSupport is a flexible, scalable and affordable range of support agreements designed to maximise your uptime and functionality at a fixed cost. PrimeSupport enables optimised return on investment and provides affordable peace of mind. The Sony PrimeSupport Programme is probably the most comprehensive after-sales package available in Europe – and it is dedicated to keeping your DXC-D50 Series running smoothly, efficiently and productively at all times.

PrimeSupport for the DXC-D50 Series includes:

- 2 year duration.
- Multilingual specialist telephone assistance available during business hours offering advice on operational assistance and fault diagnosis.
- Same day despatch of a loan unit in the event that telephone assistance fails to resolve the problem.

(Loan Unit currently only available in mainland EU, Norway and Switzerland. For other countries please contact your local Sony Sales Office for availability)

DSR-1P
DVCAM Digital Recorder
*Photo shows DSR-1 with BP-L40A.

PVV-3P
Betacam SP 2000 PRO Recorder

CA-D50
Camera Adaptor

CCU-D50/D50P
Camera Control Unit

RCP-D50
Remote Control Panel

RCP-D51
Remote Control Panel

RM-M7G
Remote Control Unit

BP-IL75
Rechargeable Li-ion Battery Pack

BP-L40A
Rechargeable Li-ion Battery Pack

BP-M50/M100
Rechargeable Nickel Metal Hydride Battery Pack

BKW-L601
Adaptor to attach BP-L40A/IL75/M50/M100 to PVV-3/3P

BC-M150
Battery Charger for BP-L40A/IL75/M50/M100

BC-M50
Battery Charger for BP-L40A/IL75/M50/M100

CMA-8A/8ACE
AC Power Adaptor

ECM-672
Electret Condenser Microphone

EC-0.3C2
Microphone Cable

CAC-12
Microphone Holder

WRT-847A/847B[*1]
UHF Synthesized Transmitter

WRT-822A/822B
UHF Synthesized Transmitter

WRR-855A/855B[*2]
UHF Synthesized Tuner

*Photo shows WRR-855A/855B with BTA-801.

WRR-861A/861B[*3]
UHF Synthesized Tuner

DXF-51
5-inch Monochrome Viewfinder

VCT-U14
Tripod Adaptor

1DR-100
Intercommunication Headset

CCZ-A2/A5/A10
Connecting Cable
(26-pin - 26-pin)

LC-421
Hard Carrying Case

LCR-1
Rain Cover

*1 Microphone capsule is optional.
*2 BTA-801 Mount Adaptor is required.
*3 When a lithium-ion or nickel metal hydride battery (BP-L40A/IL75/M50/M100) is mounted on a DSR-1/1P or PVV-3/3P, a mounting braket (A-8278-057-A) is required.

Product Configurations

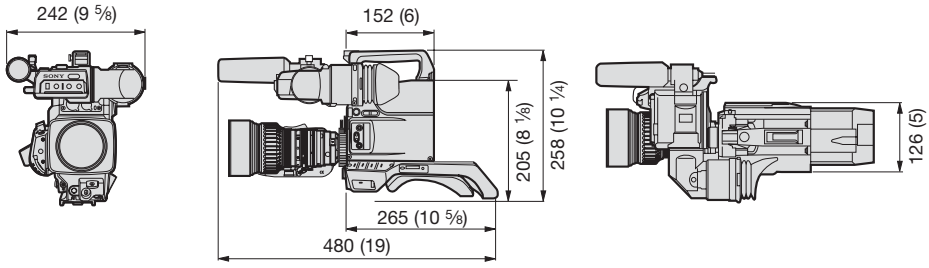
	DXC-D50PK	DXC-D50PL DXC-D50WSPL	DXC-D50PH
Camera Head	Yes	Yes	Yes
Camera Handle*	Yes	Yes	Yes
Viewfinder DXF-801* (includes microphone holder)	Yes	Yes	Option
Tripod Adaptor VCT-U14	Yes	Yes	Option
External Microphone*	Yes	Yes	Option
Zoom Lens	Yes	Option	Option

*Available only as service parts.

Specifications

Video Camera Head	DXC-D50P	DXC-D50WSP

Image device	3-chip 2/3-inch,Interline-Transfer CCD	
A to D conversion	12 bits	
Optics	F1.4 medium index prism system	
Effective picture elements (H x V)	DXC-D50P/D50WSP: 980 x 586	
Total picture elements (H x V)	DXC-D50P/D50WSP: 1038 x 1188	
Sensing area	DXC-D50P: 6.6 mm x 8.8 mm DXC-D50WSP: 9.6 mm x 5.4 mm	
Built-in filters	1: Clear, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND	
Electronic filter	5600 K (on/off)	
Lens mount	Sony 2/3-inch Bayonet mount	
Signal system	PAL colour system	
Scanning system	DXC-D50P/D50WSP: 2:1 interlaced, 625 lines, 50 fields/s	
Horizontal frequency	DXC-D50P/D50WSP: 15.625 kHz	
Vertical frequency	DXC-D50P/D50WSP: 50 Hz	
Sync system	Internal and External with the VBS or BS signal	
Horizontal resolution	920 TV lines	850 TV lines (4:3 mode), 800 TV lines (16:9 mode)
Vertical resolution	DXC-D50P/D50WSP: 480TV lines (without EVS), 530 TV lines (with EVS)	
Minimum illumination	0.5 lx with F1.4, Hyper gain (36 dB) 0.8 lx with F1.8, Hyper gain (36 dB)	
Sensitivity	F11 at 2000 lx (3200 K, 89.9 % reflectance) (typical)	
Gain selection	-3 dB, 0 dB, 3 dB, 6 dB, 9 dB, 12 dB, 18 dB, 24 dB, 30 dB, 36 dB	
Shutter speed selection	DXC-D50P/D50WSP: OFF, 1/60, 1/250, 1/500, 1/1000, 1/2000 s	
Clear scan selection	DXC-D50P/D50WSP: 50.2 to 6000 Hz	
Signal-to-noise ratio	DXC-D50P/D50WSP: 63 dB (typical)	
Registration	0.05 % (all zones,without lens)	
Geometric distortion	Below measurable level	
Video output	Camera head BNC connector VBS: 1.0 Vp-p, sync negative 26-pin connector of CA-D50 VBS: 1.0 Vp-p, sync negative Y/R-Y/B-Y: Y: 1.0 Vp-p negative R-Y/B-Y : 525 mVp-p (DXC-D50P/D50WSP) RGB:1.4 Vp-p Y/C: Y: 1.0 Vp-p, sync negative C: DXC-D50P/D50WSP: 300 mVp-p (burst level)	
Input/Output	INTERFACE: Pro 76-pin DIGITAL, Pro 50-pin VIDEO OUT: BNC MONITOR OUT: BNC LENS: 12-pin VF: 20-pin REMOTE: 10-pin MIC IN: XLR 3-pin	
Power requirements	DC 12 V (10.5 to 17 V)	
Power consumption	14 W	
Operating temperature	-10 °C to 45 °C (14 °F to 113 °F)	
Storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)	
Operating humidity	Less than 85 %	
Storage humidity	Less than 90 %	
Mass (camera head only)	2.2 kg (4 lb 13 oz)	
Dimensions (W/H/D) (camera head only)	242 x 258 x 480 mm (9 ½ x 10 x 19 inches) including protruding parts	



DXF-801 Viewfinder

Picture tube	1.5-inch monochrome
Scan size	4:3 / 16:9 switchable
Indicators	REC TALLY x 2, TAKE TALLY, BATT, SHUTTER, GAIN UP
Horizontal resolution	600 TV lines
Power requirement	DC 12 V
Power consumption	2.1 W
Mass	620 g (1 lb 9 oz)
Dimensions (W/H/D)	240 x 91 x 196 mm (9 ½ x 3 ⅝ x 7 ¾ inches) including protruding parts

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