

CCIR/PAL

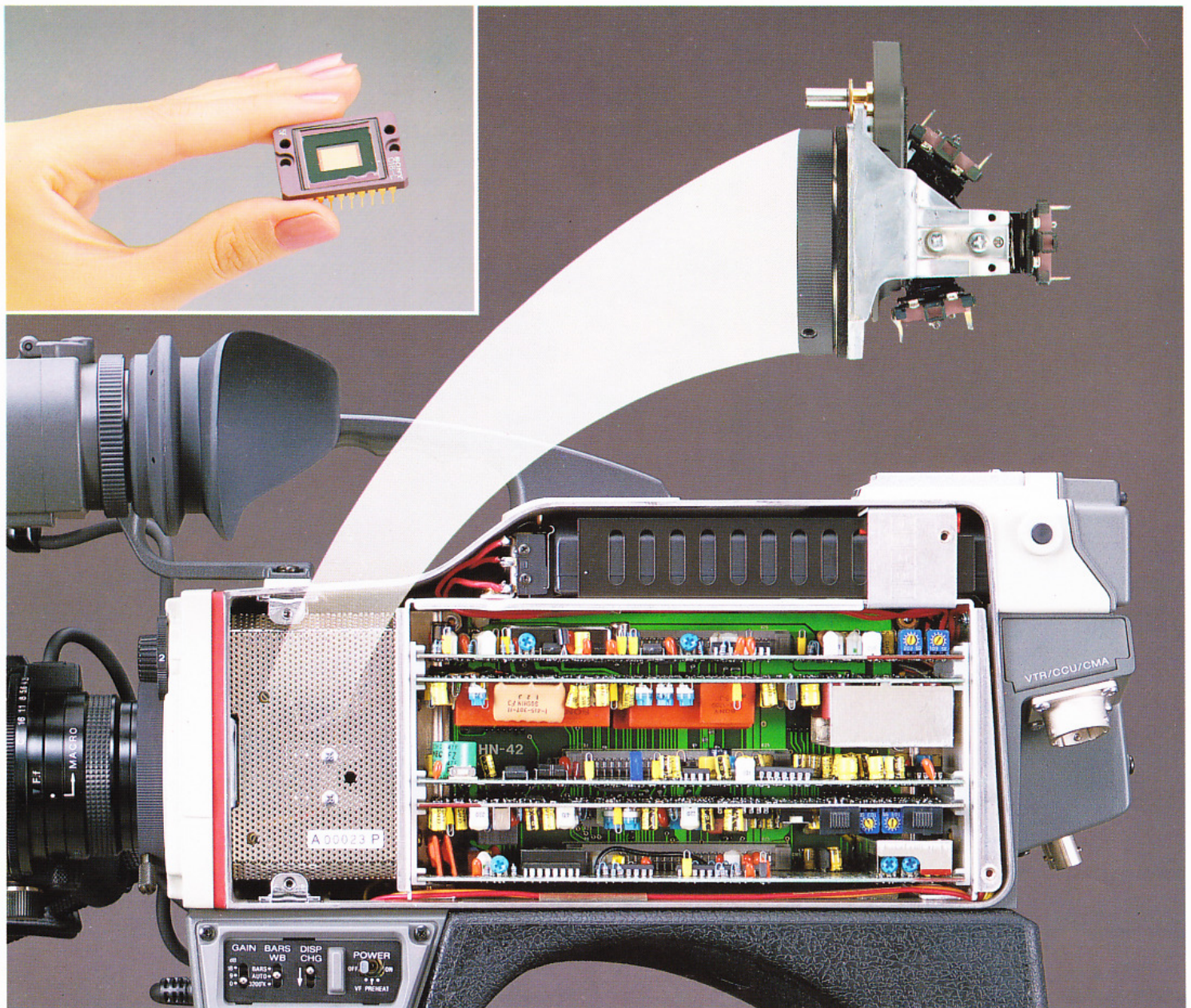
3-Chip CCD Color Video Camera DXC-3000AP



3CCD

THE QUALITY AND RELIABILITY OF CCDs FROM SONY

Sony's world-leading CCD technology has been adopted to be used as the image sensor for color video cameras, adding yet another page to the history of Sony innovations in this field. The innovative 3-chip technology housed in these cameras provides many outstanding features that have never been seen in video cameras before. Among these features are high image burning resistance, low lag, excellent picture reproduction, permanent registration, superior durability and reliability, high sensitivity, freedom from magnetic field interference, high resistance to vibration and shock, and compactness. Yet, no sacrifice is made in the picture quality, which approaches that of high quality 3-tube cameras. Without a doubt, Sony's 3-chip CCD technology has opened up a world of exciting applications for video cameras that before would have been thought impossible.



The Sensational Sony Innovation for a Superior Performance Video Camera With the Reliability of CCDs ... the DXC-3000AP

The Sony DXC-3000AP, a 3-chip CCD color video camera, offers an amazingly high 560 TV lines (luminance at the center) of horizontal resolution and an excellent S/N of 56 dB, along with all of the superior features of CCDs.

Furthermore, the fully automatic control functions of "Intelligent Software Servo" ease the complex balancing and adjustment pertinent to 3-chip/3-tube cameras. Everything necessary for optimum

operation of the camera is computerized and automatic and can be monitored by an interactive viewfinder character display.

Quite simply, the Sony DXC-3000AP is the only 3-chip CCD video camera which can almost equal the outstanding performance of 3-tube cameras.

The adoption of CCDs technology has allowed Sony to create a feature-packed video camera that is incredibly small, lightweight, and cost-efficient.

3-chip Interline-transfer CCD Image Sensor

- A multitude of features that are almost unobtainable from conventional pickup tubes.
- High-density VLSI with over 250,000 picture elements
- Sensing area of 8.8×6.6 mm

Outstanding Portability

- Compact size
- Lightweight
- Low power consumption
- 3-way power supply

Light Control

- Gain selection: 0dB, 9dB, 18dB
- Auto iris servo

Superior Picture Quality

- Resolution: 560 TV lines
- S/N ratio: 56 dB

User-friendly Functions

- Automatic black/white balancing
- ABL (Automatic Black Level)
- Automatic warning system
- Status display
- Title setting

Quick Start-up

- Only 3 sec. to start up
- No pre-heat necessary

System Flexibility

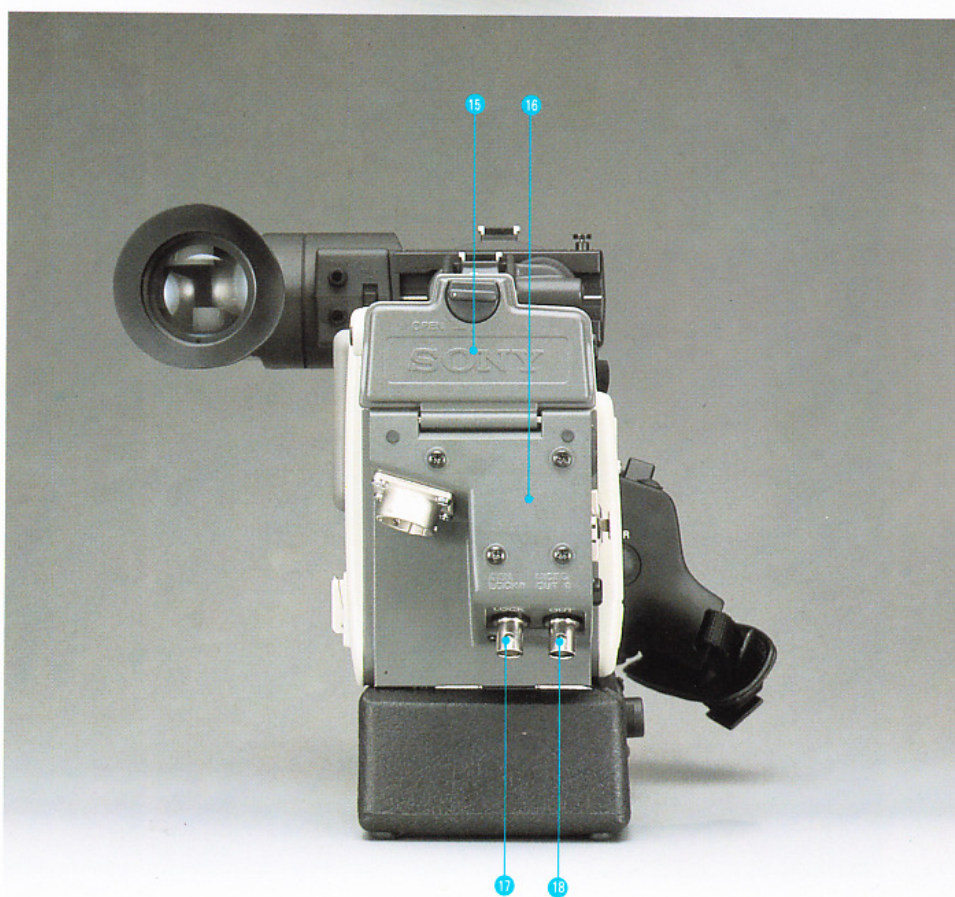
- Direct interface with various VTRs
- Lens compatibility
- Viewfinder compatibility

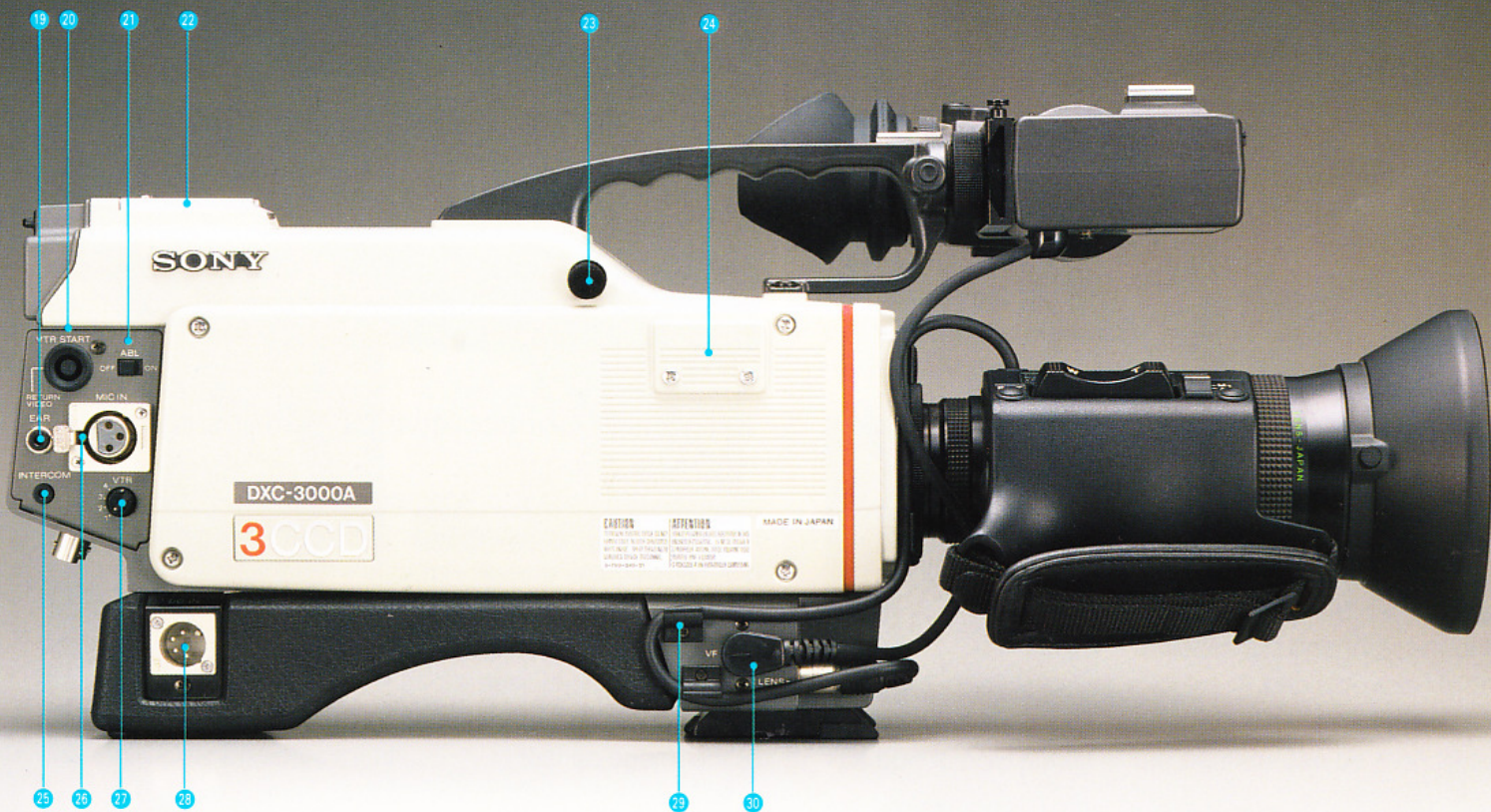
Excellent cost performance

- Extremely cost-efficient
- Highly durable
- Easy maintenance



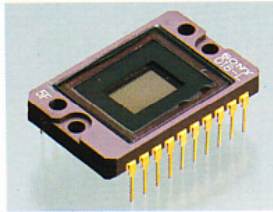
- 1 AUTO W/B BALANCE SWITCH
- 2 UP/ON BUTTON AND DOWN/OFF BUTTON
- 3 VCL-1012BY ZOOM LENS
- 4 DIOPTOR ADJUSTMENT RING
- 5 FILTER SELECTOR (1/2/3)
- 6 ZEBRA SWITCH (ON/OFF)
- 7 H (horizontal) PHASE CONTROL
- 8 SC (subcarrier) PHASE CONTROL
- 9 SC (subcarrier) PHASE SELECTOR (0°/180°)
- 10 GAIN SELECTOR (0dB/9dB/18dB)
- 11 BARS/WB SELECTOR (BARS/AUTO/3200°K)
- 12 DISP CHG (display change) switch
- 13 POWER/VF PREHEAT SWITCH (ON/OFF/VF PREHEAT)
- 14 VTR/CCU/CMA CONNECTOR (Sony Q-type, 14-pin)
- 15 BATTERY PACK COMPARTMENT
- 16 ATTACH AN OPTIONAL BATTERY ADAPTOR
SHOE CAC-21 HERE
- 17 GEN LOCK INPUT CONNECTOR
- 18 VIDEO OUT CONNECTOR
- 19 EAR (earphone) JACK
- 20 VTR START/RETURN VIDEO BUTTON
- 21 ABL (Automatic Black Level) SWITCH
- 22 ACCESSORY SHOE FOR VIEWFINDER ATTACHMENT
- 23 BUILT-IN MICROPHONE
- 24 ATTACH AN OPTIONAL MICROPHONE HOLDER CAC-11A HERE
- 25 INTERCOM JACK
- 26 MIC IN (microphone input) CONNECTOR
- 27 VTR SELECTOR (1/2/3/4)
- 28 DC IN CONNECTOR
- 29 LENS CABLE CLAMP
- 30 VF (viewfinder) CONNECTOR





A Host of Outstanding Features

Adoption of 3 Interline-transfer CCD Chips for the Image Sensor



Sony's CCD Image Sensor is a unique, high-density VLSI with over 250,000 picture elements packed onto a tiny chip (only 8.8×6.6 mm). Because of this, the CCD image sensor incorporated in the

DXC-3000AP offers a multitude of features that are almost unobtainable from conventional pickup tubes.

- High image burning resistance and low lag
- Excellent picture reproduction due to zero geometric distortion in all areas.
- Permanent low registration error of 0.05% in all zones (I, II, III) due to 3 fixed CCD chips.
- Superior durability and reliability
- High sensitivity in a minimum illumination of 30 lux with a F1.7 lens (20 lux with a F1.4 lens)
- Free from magnetic field interference
- High resistance to vibration and shock

The Most Superior Picture Quality Ever Achieved with a CCD Camera

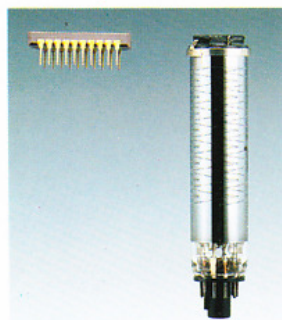
Sony's original spatial offset technology in the CCD chip alignment offers an amazingly high 560 TV lines (luminance at the center) of horizontal resolution. What's more, as a result of Sony's advanced CCD technology, the on-chip pre-amplifier, and the CDS (Correlated Double Sampling) circuit, an excellent S/N ratio of 56 dB is achieved.

Increased Sensitivity without Increased Noise

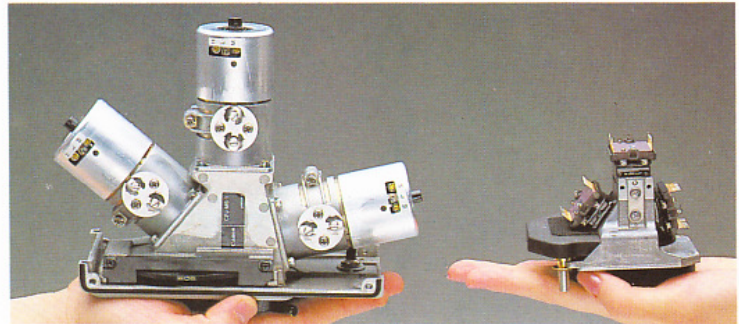
The excellent noise performance of the CCD chip allows full gain up switching (0, +9, and +18dB) for low light shooting.

Compact in Size and Light in Weight

The adoption of the CCD chip for the image pickup sensor reduces the block size so dramatically that the compact size and light weight of the DXC-3000AP are quite remarkable. As the result, a clear view to the right and outstanding portability are obtained.



CCD chip Conventional tube

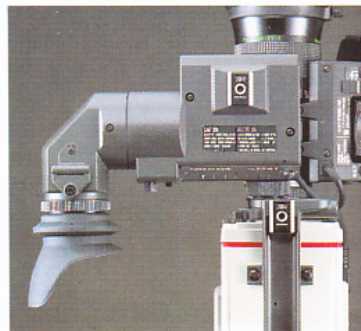


Conventional tube block

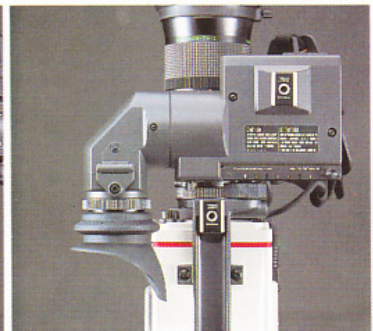
CCD block

Adjustable Viewfinder to Maximize Viewing Comfort

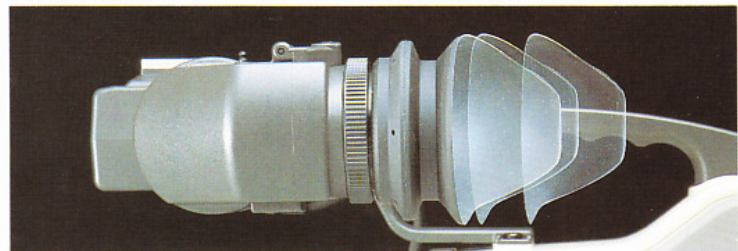
The DXF-3000CE Viewfinder has two adjustments that take the need for comfortable viewing by the operators into consideration. The viewfinder can be adjusted to allow left-eye viewing, which should prove invaluable to those operators who prefer to view with that eye. In addition, the diopter can easily be adjusted to the length which will allow the most comfortable viewing by the operator.



left-eye viewing



right-eye viewing



diopter adjustment

100-min. of Consecutive Operations with One NP-1A

Because of the CCD image sensor, the DXC-3000AP has very low power requirements. With one NP-1A battery, approximately 100-min. of consecutive operations are possible. An NP-1A battery can even be installed inside the DXC-3000AP due to the small size of the image sensor.



Convenient Built-in Microphone

The DXC-3000AP is provided with a convenient built-in microphone, thus reducing the need for attaching optional microphones.



No Blooming, No Comet-tails

Due to the adoption of the CCD image sensor, the DXC-3000AP comfortably handles exceedingly strong light inputs which would cause "blooming" and "comet-tails" in tube cameras.

User-friendly Automatic Functions for Greater Operational Simplicity

The fully automatic control functions of "Intelligent Software Servo" ease the complex balancing and adjustments pertinent to 3-chip/3-tube cameras and the camera conditions are always monitored by an interactive viewfinder character display. These functions allow the easy and precise setting of the camera for peak performance. These settings are automatically stored in a digital memory for about 12 hours after the power is turned off. All the setting and adjustment procedures of the automatic control functions of the DXC-3000AP are virtually the same as those of the DXC-M3AP.

Automatic Balancing

The black set/black balance, as well as the white balance, can be automatically adjusted, in a matter of seconds, using the same switch. Moreover, once set, there's no need to re-adjust the black balance when the gain setting changes.



The black balance has been correctly adjusted.



The white balance has been correctly adjusted.

No More Automatic Centering

As mentioned previously, the permanent registration of the CCD image sensor frees the camera operator from making centering adjustments.

Automatic Warning System

When the automatic set-up functions do not operate properly, the character indications and the LED indications of the viewfinder immediately tell the camera operator what to do. When recording, this system also warns the operator of any impending problem conditions such as low light or weak batteries.



LED indicators on the viewfinder



The light is insufficient. Add more light or raise the video output level via the gain selector.



The battery voltage is below approx. 11.0V. Replace the battery with a fully charged one.



The lens iris is not closed. Check the functions of the lens or the connection of the lens plug.



The color temperature is out of automatic control range. Change the filter and repeat the balancing procedure.

Tape Remaining Time Indication

The tape remaining time is indicated on the viewfinder by the built-in character generator when connected to the Sony Portable U-matic VTR VO-6800PS for recording. This indication appears on the viewfinder when the return video button on the camera is pressed while the VO-6800PS is in the REC mode.

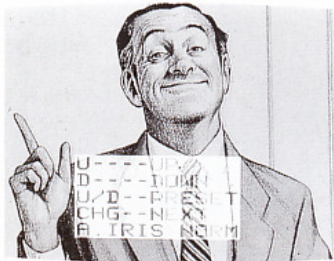


When the above indication appears, the tape remaining time is approximately 15 min.

Status Display

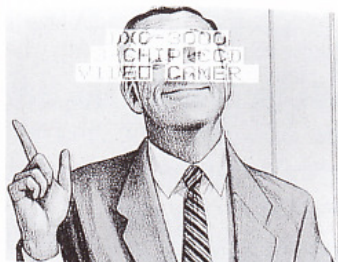
The operational status of the camera can be monitored as

necessary. Many useful messages appear in the viewfinder, such as the black and white balance modes, the gain level setting, and the low light indications of ON and OFF. The display can be also switched for fine-adjustment of the master pedestal from about -30% to $+30\%$ of the reference level in increments of about 1% , or of the automatic iris reference level from about -1.0 to $+1.0$ F stop in increments of about 0.5 . Moreover, the GAIN UP LED indicator on the viewfinder lights up when the gain selector is set to 9 dB or 18 dB.



Title Setting

When the character generator is set to the title setting mode, it can produce letters and numbers for dates, titles, etc. A maximum of 48 characters in 4 lines, either in the upper or lower part of the viewfinder or monitor screen can be shown. They can also be recorded by the VTR



Zebra Video Level Indication

When the zebra switch is set to ON, a zebra pattern appears on the part of the viewfinder screen where the video level of the picture is 70% to 80% of an IRE unit. This function comes in especially handy when manually adjusting the iris.



More Features for Increased Versatility

System Flexibility and Portability



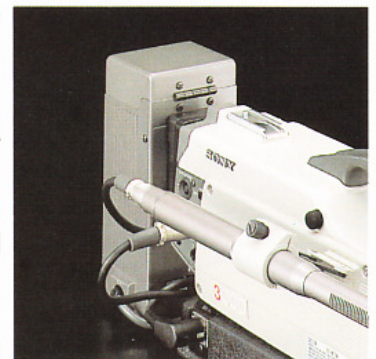
The DXC-3000AP is the right choice for active and heavy duty outdoor shooting because it is so compact, light, and durable, and makes an ideal portable system when combined with the Sony Portable U-matic VTR VO-6800PS. Various other

portable VTRs, including 1", U-matic, Betamax, and VHS, can be connected, although certain functions of particular VTRs may not be compatible with the DXC-3000AP. It also accepts a wide variety of bayonet-mount lenses, as well as both monochrome and color viewfinders. Furthermore, along with various optional accessories and peripheral equipment, the DXC-3000AP can easily turn into a studio-use camera.

Versatile Power Supplies

In the field, the DXC-3000AP can operate for approximately 100 minutes, continuously, with one NP-1A battery installed inside the camera or 200 minutes with two NP-1A batteries encased in the optional DC-8 battery adaptor which can be conveniently attached to the back of camera. For longer operation, the DXC-3000AP can be powered by either Anton Bauer batteries or an external power supply of DC 12 V connected to the XLR EXT DC IN connector.

In the studio, the CMA-8CE AC Power Adaptor is used for AC operation.

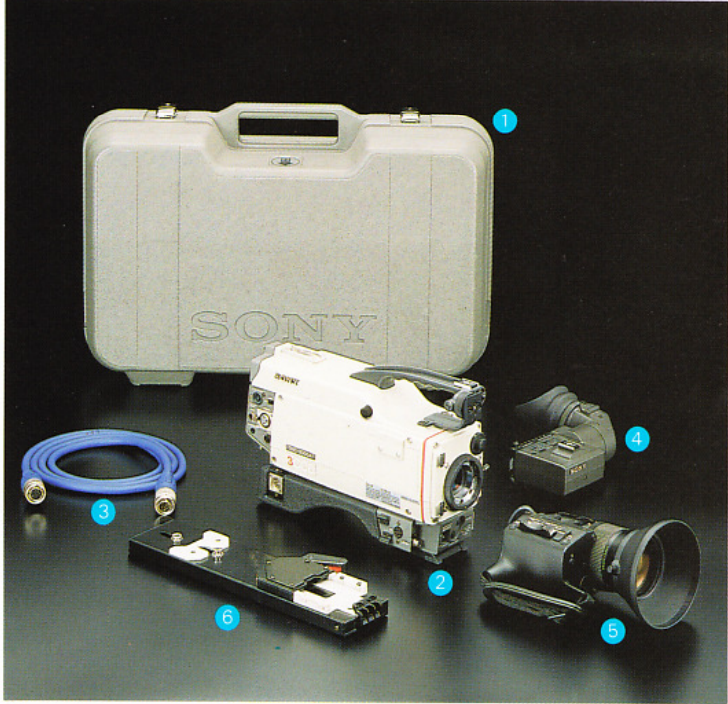


Other Features

- Built-in sync generator
- 2H vertical image enhancer for increased sharpness
- Built-in color bar generator
- Color temperature conversion filters for optimum color balance indoors and out
- Conductive rubber shielding of the camera body to avoid noise interference

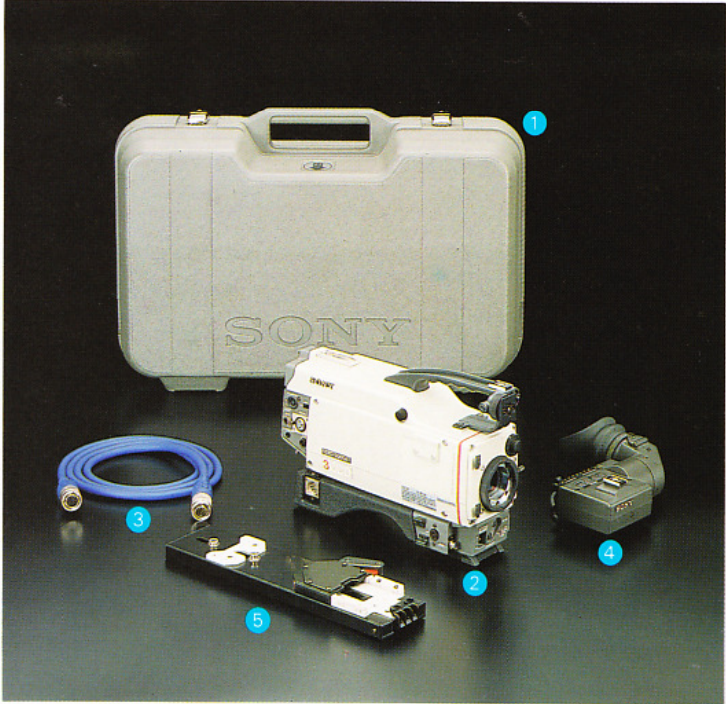
Product Configurations

DXC-3000APK



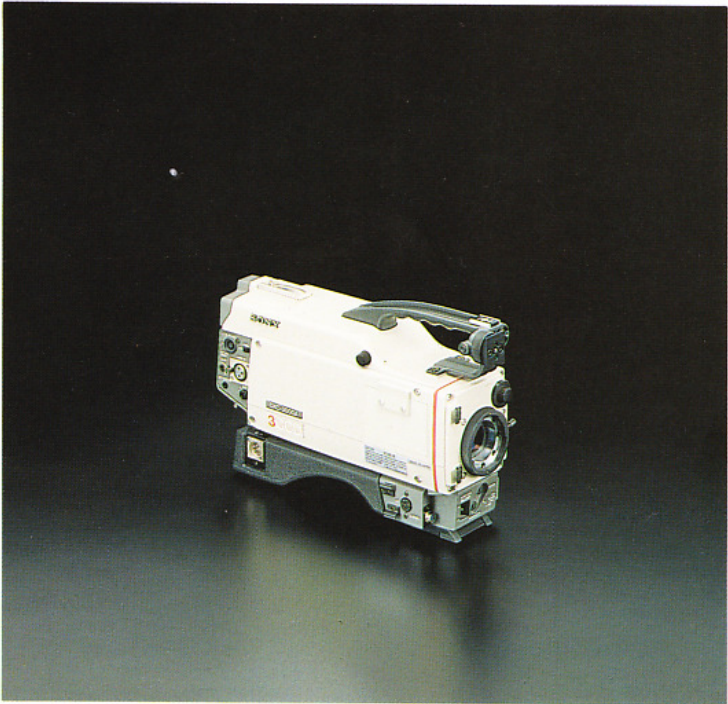
- 1 Carrying case LC-3001
- 2 Color video camera head
- 3 Camera cable CCQ-2BRS
- 4 Viewfinder DXF-3000CE
- 5 Zoom lens VCL-1012BY
- 6 Tripod adaptor VCT-12

DXC-3000AP



- 1 Carrying case LC-3001
- 2 Color video camera head
- 3 Camera cable CCQ-2BRS
- 4 Viewfinder DXF-3000CE
- 5 Tripod adaptor VCT-12

DXC-3000APH



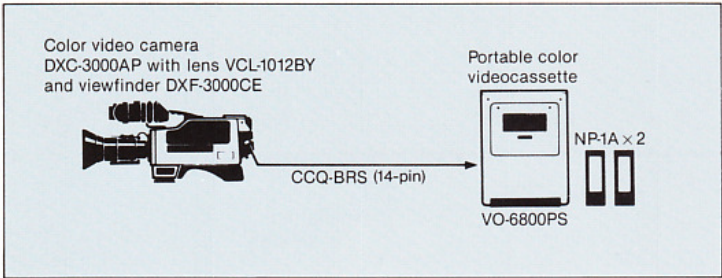
- 1 Color video camera head

Model	DXC-3000APK	DXC-3000AP	DXC-3000APH
Composition			
Color video camera head	Yes	Yes	Yes
Zoom lens VCL-1012BY	Yes	No	No
Viewfinder DXF-3000CE	Yes	Yes	No
Carrying case LC-3001	Yes	Yes	No
Camera cable CCQ-2BRS	Yes	Yes	No
Tripod adaptor VCT-12	Yes	Yes	No

System Applications

1. Portable Operation (NP-1A Battery Operated)

When two NP-1A rechargeable battery packs are installed in the VO-6800PS, continuous operation of approximately 80 minutes is possible.

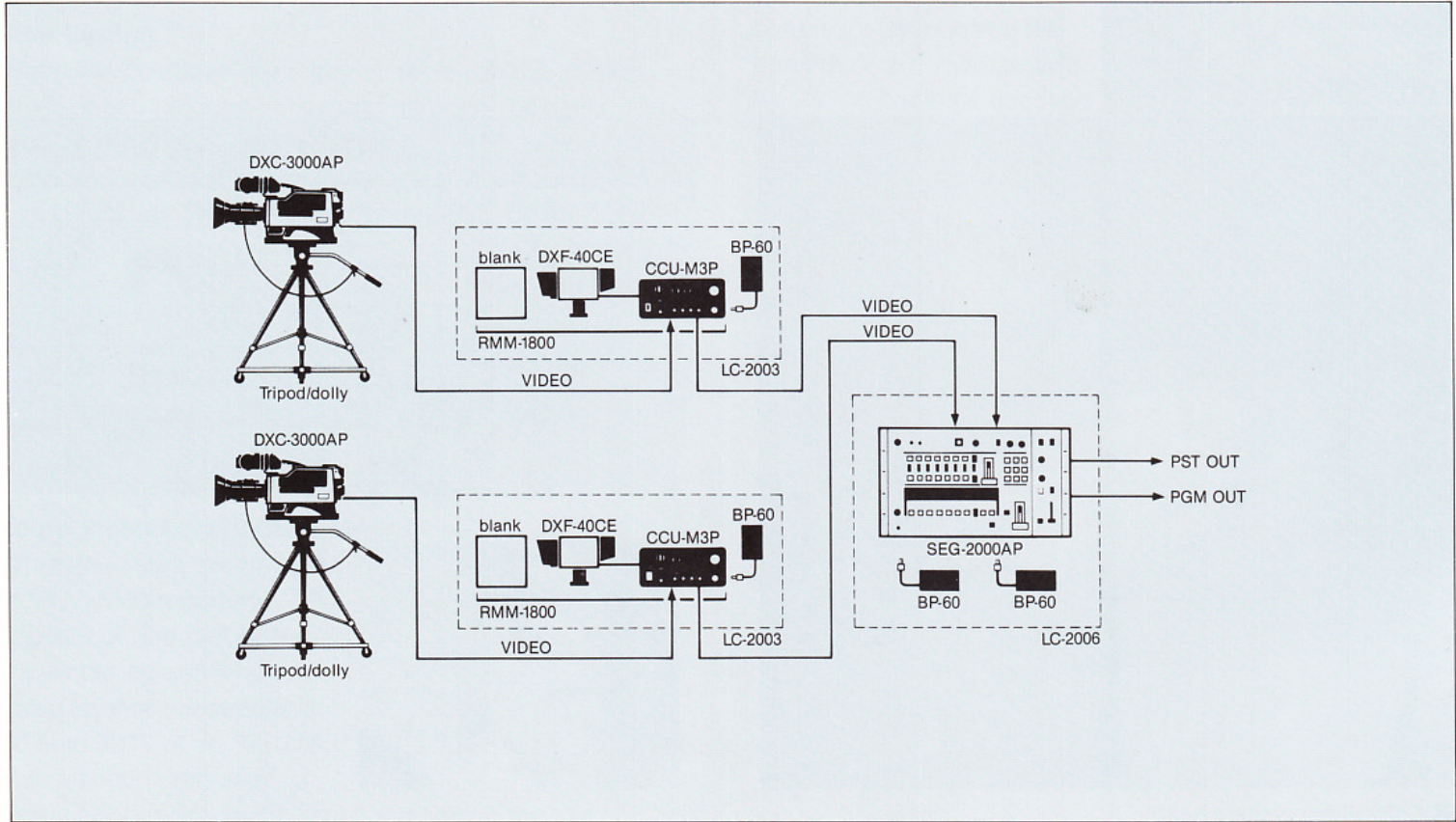


VTR Interface

The DXC-3000AP can be interfaced with various types of portable VTRs, including U-matic, 1", 1/2" Betamax, and VHS format, by setting the VTR select switch to the appropriate position shown in the chart, although certain functions of any particular VTR may not be compatible with the DXC-3000AP.

VTR select switch	VTRs	Cable for connection
VTR 1	U-matic, 1" VTR	CCQ-AR/BRS
	Institutional Betamax	CCQJ-2
VTR 2	Consumer Betamax	CCQK-2
VTR 3	VHS format VTR by JVC	CCQJ-2
VTR 4	VHS format VTR by Panasonic	CCQJ-2

2. Field Camera Operation (Battery Operated)



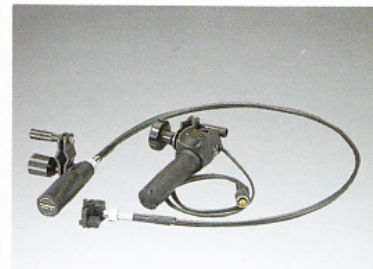
Optional Accessories

Lenses

VCL-1012BY (F1.7, 10 - 120mm)
 VCL-915BY (F1.8, 9.5 - 143mm)
 J13 × 9B4 IRS-A (F1.6, 9 - 117mm)
 J18 × 9B4 IRS (F1.7, 9 - 162mm)
 A3.5 × 6.5BRM-8 (F1.4, 6.5 - 23mm)
 A14 × 9BERM-8P-2 (F1.7, 9 - 126mm)
 J18 × 8.5B4 IRS (F1.7, 8.5 - 153mm)



J18 × 8.5B4 IRS A14 × 9BERM-8P-2 VCL-1012BY J13 × 9B4 IRS-A VCL-915BY



LO-23

Flexible Cable Unit (Combination of Servo Zoom and Manual Focus Unit) for VCL-1012BY



LO-26

Flexible Cable Unit for VCL-915BY



DXF-3000CE

1.5" Monochrome Electronic Viewfinder



DXF-50CE

5" Monochrome Electronic Viewfinder



DXF-40CE

4" Monochrome Electronic Viewfinder



CCU-M3P

Camera Control Unit



CMA-8CE

AC Power Adaptor for DXC-3000AP or CCU-M3P



CMA-9CE

AC Power Adaptor for DXC-3000AP, CA-M3P or CCU-M3P



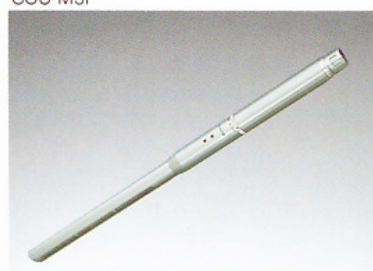
CA-M3P

Camera Cable Extension Adaptor



ECM-672

Electret Condenser Microphone



C-74

Condenser Microphone



CAC-11A

Camera Mic Holder for ECM-672/C-74



NP-1A

Rechargeable Ni-Cd Battery Pack



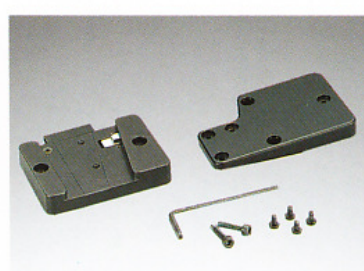
BC-1WA

Battery Charger for up to four NP-1A Battery Packs



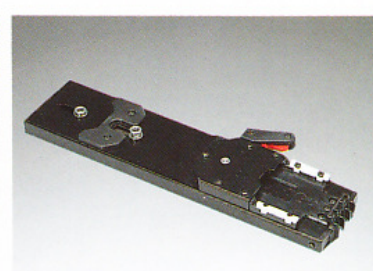
DC-8

Camera Battery Adaptor



CAC-21

Battery Shoe



VCT-12

Tripod Adaptor



DR-100
Intercommunication Headset



LC-3001
Carrying Case for DXC-3000AP

Cables

CCQ-2BRS/5BRS/10BRS: Shielded Cable for Connection to Portable VTR (ex. VO-6800PS) or CMA-8CE (14-pin/14-pin)

CCQ-2AR/5AR/10AR: Cable for Connection to Portable VTR (ex. VO-6800PS) or CMA-8CE (14-pin/14-pin)

CCQ-10AM/25AM/50AM/100AM: Cable for connection to CCU-M3P (14-pin/14-pin)

CCQJ-2: Cable for Connection to 1/2" VHS VTRs (14-pin/10-pin)

CCQK-2: Cable for Connection to 1/2" Beta VTRs (14-pin/14-pin)

CCZ-M10/M100: Extension Cable for Connection between CHU Adaptor and CCU Adaptor (26-pin/26-pin)

EC-0.5C2: Microphone Cable for ECM-672/C-74 (XLR 3-pin connector)

Peripheral Equipment



VO-6800PS
Portable U-matic Videocassette Recorder



VO-5850P
U-matic Videocassette Recorder



VO-9600P
U-matic SP Videocassette Recorder



SEG-2550AP
Color Special Effect Generator



SEG-2000AP
Color Special Effect Generator



WEX-2000P
Wipe Pattern Extender



CRK-2000P
Universal Chroma Keyer



PVM-1320P
Color Video Monitor



PVM-1371QM
Color Video Monitor



PVM-9020ME
Portable Video Monitor



PVM-9220ME
Color Video Monitor

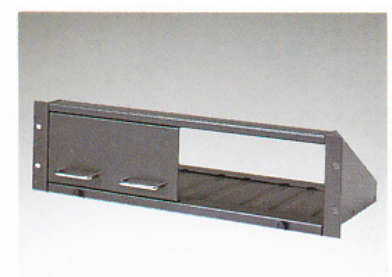


PVM-91CE
Monochrome Video Monitor



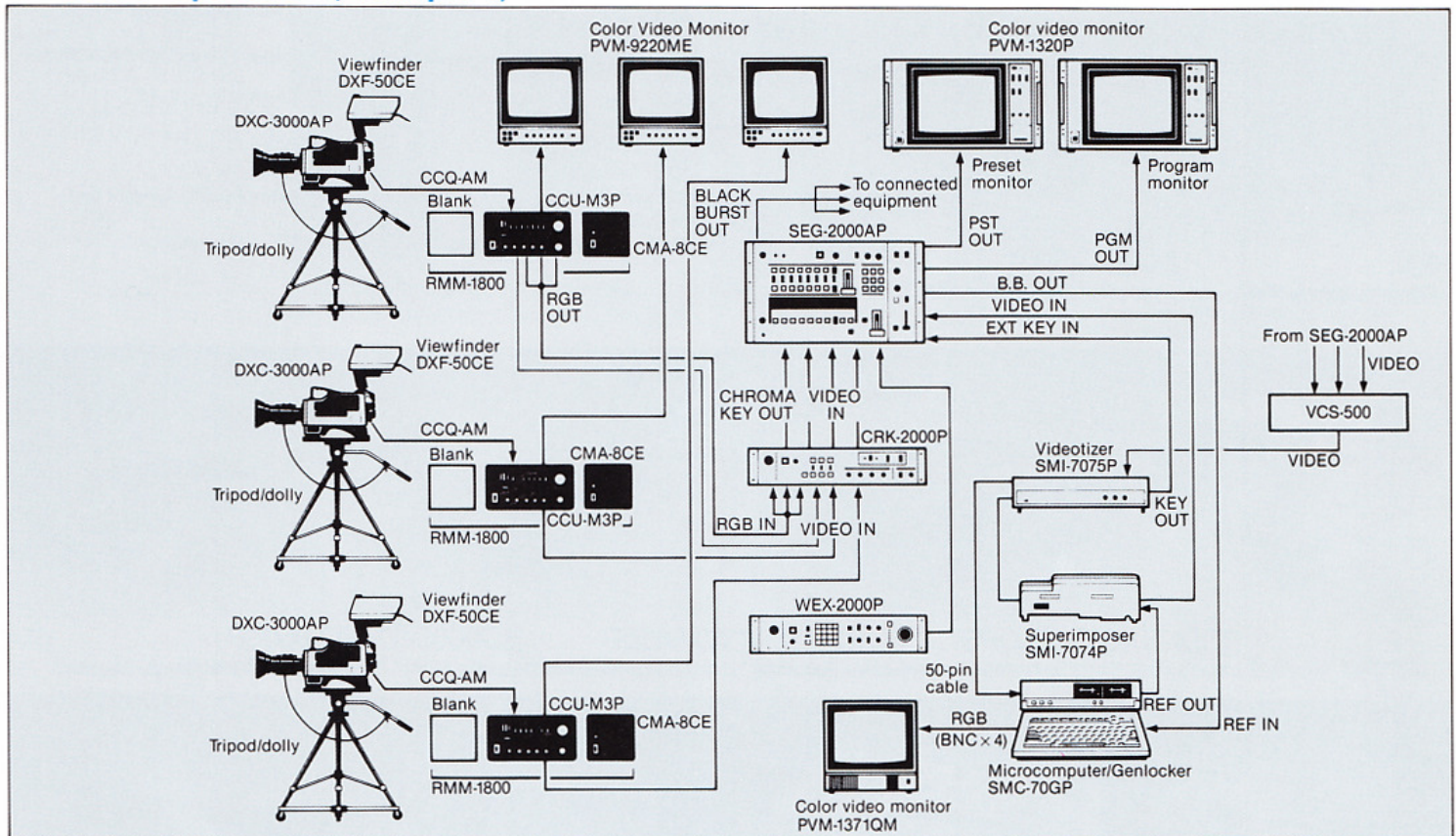
SMC-70GP System
SMC-70GP Microcomputer/Genlocker
SMI-7074P PAL Superimposer
SMI-7075P Videotizer

SMW-PE/PD7070 Video Titler
SMW-P7072 Graphic Editor
SMW-P7076 Q-Manager
SMW-P7078 Quick Titler

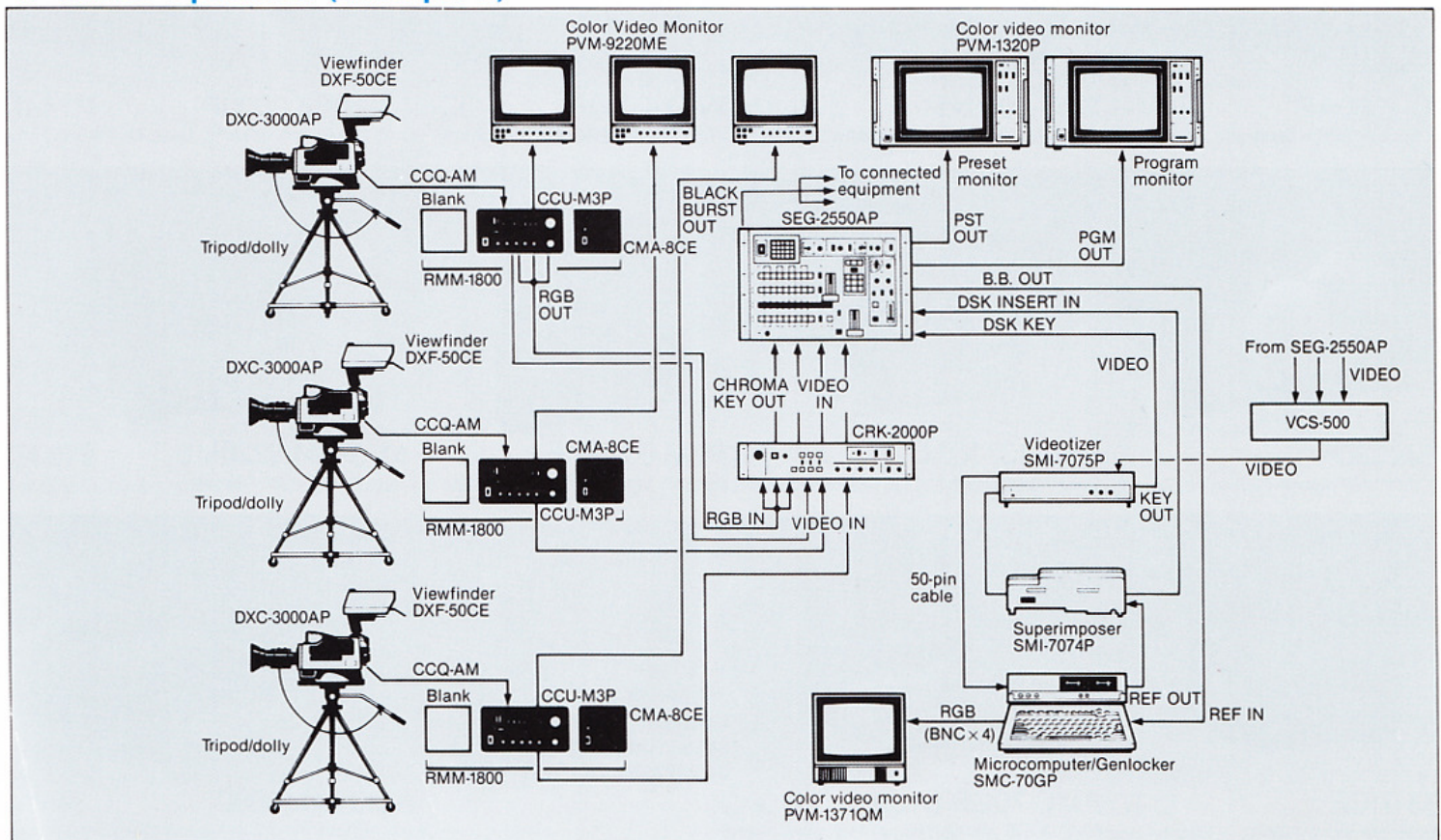


RMM-1800
Rack-mounting Kit for CCU-M3P and CMA-8CE

3. Studio Operation (Example 1)



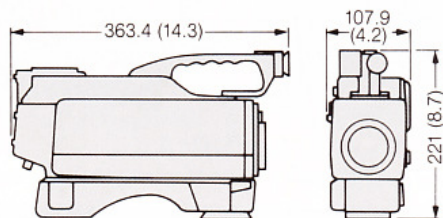
4. Studio Operation (Example 2)



Specifications

DXC-3000AP Camera Head

Image device	Interline-transfer CCD, 3-Chip
Optics	F1.4 medium index prism system
Picture elements	500 × 582 (h/v)
Sensing area	8.8 mm × 6.6 mm (equivalent to a 2/3-inch pickup tube)
Built-in filters	1: 3,200°K 2: 5,600°K + 1/8 ND 3: 5,600°K
Lens mount	Bayonet mount
Signal system	CCIR standards, PAL color system
Scanning system	625 lines, 2:1 interlace, 25 frames/sec.
Horizontal frequency	15.625 kHz
Vertical frequency	50 Hz
Sync system	Internal or External with the BS or VBS signal supplied to the GEN LOCK input connector, or the reference signal input to the VTR/CCU/CMA connector from the GEN LOCK connector of the CCU-M3P
Horizontal resolution	560 lines (Y channel at the center)
Minimum illumination	30 lux with F1.7, +18 dB (20 lux with F1.4, +18 dB)
Sensitivity	2,000 lux (200 footcandles) with F5.0, at 3,200°K
Gain selection	0 dB, 9 dB or 18 dB
Video output	1.0 V(p-p), sync negative, 75 ohms, unbalanced
Signal to noise ratio	56 dB
Registration (A type)	0.05 % for Zone I 0.05 % for Zone II 0.05 % for Zone III
Geometric distortion	All areas 0 % (excluding geometric distortion of lenses)
Inputs/Outputs	VTR/CCU/CMA connector*: Sony Q-type, 14-pin MIC IN: XLR-type, 3-pin GEN LOCK: BNC-type VIDEO OUT: BNC-type LENS: 6-pin VF: 8-pin EARPHONE: mini jack INTERCOM: mini intercom jack *Video output, microphone output, power input, recording and playback picture, etc.
Power requirements	DC 12 V
Power consumption	9.2 W (for camera only)
Operating temperature	-5°C ~ 45°C (23°F ~ 113°F)
Storage temperature	-20°C ~ 60°C (-4°F ~ 140°F)
Weight	3.3 kg (7 lb 4 oz)
Dimensions	



Unit: mm (inches)

VCL-1012BY Zoom lens

Focal length	10 mm to 120 mm
Zoom	Manual and motorized, selectable zooming ratio: 12 ×
Maximum aperture ratio	1:1.7
Iris control	Manual and auto, selectable 1.7 to 16 and C (closed)
Range of object field (at the distance of 1 meter)	W (wide angle): 616 × 822 mm (24.3 × 32.4") T (telephoto): 51.4 × 68.5 mm (2.0 × 2.7")
Minimum object distance	1 m
Filter thread	72 mm dia. 0.75 mm-pitch
Mount	Bayonet mount
Weight	Approx. 1.4 kg (3 lb 1 oz) with hood
Dimensions	Approx. 120 mm dia. × 204 mm (4.7 × 8.0")

DXF-3000CE Viewfinder

Picture tube	1.5-inch monochrome
Indicators	REC/TALLY indicator BATT indicator LOW LIGHT indicator GAIN UP indicator
Resolution	400 lines
Power requirements	DC 12 V
Power consumption	2.3 W
Weight	Approx. 600 g (1 lb 5 oz)
Dimensions	Approx. 201(W) × 68(H) × 184(D)mm (7.9 × 2.7 × 7.2")

LC-3001 Carrying Case

Weight	Approx. 4.4 kg (9 lb 8 oz)
Dimensions	Approx. 620(W) × 394(H) × 234(D)mm (24.4 × 15.5 × 9.2")

VCT-12 Tripod Attachment

Weight	Approx. 770 g (1 lb 11 oz)
Dimensions	Approx. 105(W) × 32(H) × 320(D)mm (4.1 × 1.3 × 12.6")

Design and specifications subject to change without notice.

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