SONY

3-CCD Colour Video Camera
DXC-990P

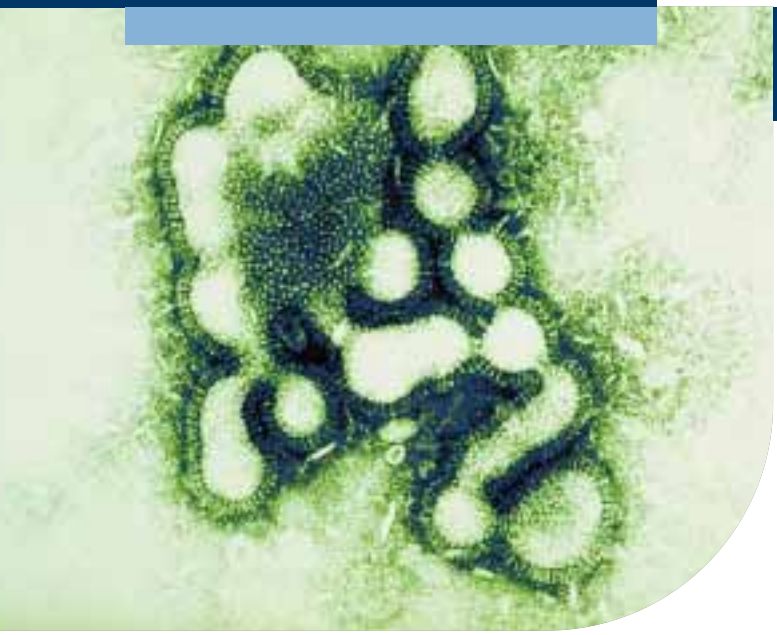
With high picture quality and so many functions, the DXC-990P is the ideal choice for a variety of applications.

The Sony DXC-990P is a 1/2 type DSP 3-CCD color video camera which incorporates ExwaveHAD™ technology – a Sony technology that greatly improves camera sensitivity (F11 at 2000 lx) while reducing smear. The DXC-990P not only inherits all of the advanced functions of its predecessor, the DXC-950P, but also includes improved technology and innovative features for versatile operation in the same body size. Allowing use of a high quality Bayonet mount lens, and providing a resolution of 850 TV lines and high S/N ratio, the DXC-990P is ideal for applications such as microscopy, industrial inspection and remote camera systems where picture accuracy and detail are important. Incorporating new 10-bit DSP technology, a user-friendly on-screen menu allows for simple control of various features including a DynaLatitude™ function, Partial Enhance, and a wide selection of Automatic Exposure (AE) modes.

Features

Superior Picture Quality – New ExwaveHAD CCDs

The DXC-990P incorporates 1/2 type IT (Interline Transfer) ExwaveHAD technology and attains a high sensitivity of F11 at 2000 lx while the improved HAD sensor structure drastically reduces smear level. This permits pictures of the highest quality to be captured in difficult lighting conditions. With the high packing density of these CCD image sensors and their accurate spacial offsetting, a remarkably high horizontal resolution of 850 TV lines is achieved. The combination of ExwaveHAD technology, improved electronic circuitry and advanced video processing results in an excellent signal-to-noise ratio of 62 dB.



Features

Features

Picture Contrast Controls

DynaLatitude Function

Automatically adjusts contrast corresponding to the brightest signal level of the entire image. Clear images can be captured if both bright and dark areas exist within the image.

OFF

ON

DCC + (Dynamic Contrast Control Plus)

Avoids hue factor distortion that can occur when subjects are very bright. DCC+ also automatically adjusts the knee point according to the contrast of the image.

OFF

ON

Black Stretch

Black stretch/compress enhances the gradation of the dark area by stretching or compressing the range of the image.

Knee Control

By adjusting the knee, a knee point and knee slope are set so that the highlighted areas of the picture can be clearly reproduced. High/Normal/Low switchable.

DSP (Digital Signal Processing)

The DXC-990P incorporates Sony 10-bit DSP technology. DSP enables a variety of enhancement features and increases picture reliability that cannot be achieved with analogue signal processing. The DXC-990P has several DSP functions for powerful picture controls.

Picture Enhancement Controls

Digital Detail

Adjusts the sharpness of the object outline with minimal noise. This feature also enables horizontal detail frequency control.

Linear Matrix

Provides sophisticated electronic adjustment for accurate colour reproduction by adjusting colour saturation and hue.

Partial Enhance

Allows a particular colour to be selected, and its hue, saturation and detail altered. In addition, the detail produced by the high resolution of the camera can be softened or emphasised in certain parts of the image by the Partial Enhance function.

OFF

ON

On-Screen Menu

The on-screen menu feature allows for quick and easy picture adjustments while viewing the image. All camera control functions are accessible from the side panel of the camera or through the optional RM-C950.

AE (Automatic Exposure)

AE automatically controls the level of brightness by varying the exposure times. This is done by combining the CCD IRIS® function, AGC (Automatic Gain Control), and Auto Iris function of the lens. The DXC-990P is equipped with a number of convenient AE modes.

AE Level

Adjusts the standard brightness level by up to ± 0.5 F-stop in a lens iris.

AE Speed

Selectable AE conversion speed to suit applications under varying lighting conditions.

AE Area

AE Area is a light metering system that includes six different modes.

Electronic Shutter Functions

Variable speeds

A variable speed electronic shutter is built into the CCD imager, making it possible to capture blur-free, clear images of high speed moving objects. The DXC-990P features 11 different shutter speeds (OFF to 1/100,000), including flickerless mode.

Clear Scan™ Function

The Clear Scan feature eliminates the horizontal bands that appear across the screen when shooting a computer display. This is achieved by matching the camera shutter speed with the display scanning frequency.

CCD IRIS Function

When the level of incoming light exceeds the auto iris adjustment range, the CCD IRIS function automatically reduces the exposure in a range equivalent to 10 F-stops.

Linear Matrix


OFF

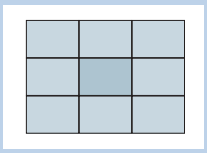

STANDARD


R.ENHANCE


G.ENHANCE

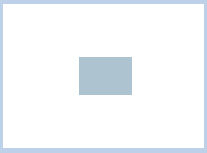

B.ENHANCE

AE Area


Multi


Large


Mid


Spot


Slit


Manual

Other Features

Bayonet mount

The DXC-990P is designed to accept high quality bayonet mount lenses so that it can adapt various kinds of professional lenses. The strong points of bayonet mount lenses include higher sensitivity and lower colour shading compared with C-mount lenses. A hot-shoe connection is also provided to eliminate the need for a lens-to-camera interconnecting cable, providing easy remote control of zoom, focus and iris function.

Scene Files and User Files

Scene Files: The preset files are set to accommodate four different situations (Standard/ Microscope/Full Auto/Strobe). Copying the settings between two files is also possible (File A/B).

User Files: Allows user to set two custom parameters in the menu for instant recall.

Hyper Gain (+30 dB)

High sensitivity mode used for shooting objects in very low light conditions.

Colour Shading compensation

Allows for verification of colour on microscope.

RGB, component, Y/C and composite video outputs

RS-232C controllable

Easy control and operation of the camera by an external computer is possible.

Field or Frame integration mode

The DXC-990P has the ability to switch between Field or Frame CCD integration modes. Field integration is effective for capturing moving objects, while Frame integration is good for capturing a still image.

White Balance modes

AWB, ATW-Normal/Wide, MANU, Preset 3200K/5600K.

Extended Genlock (VBS Genlock and HD/VD in/out)

Allows for synchronisation of signals with frame grabber boards.

Synchronisation capabilities (Strobe function, WEN output)

Realises full vertical resolution of fast moving objects.

Hyper Gain (+30 dB)


GAIN (0 dB)


GAIN (18 dB)


HYPER GAIN

Optional Accessories

CMA-D2CE/D2MDCE

Camera Adaptor
- Supplies DC power and transmits video/sync signal between the adaptor and the DXC-990P with CCMC 12-pin multi-core cable
- Complies with medical safety standard (CMA-D2MDCE Only)
- Dimensions: 210 (W) x 50 (H) x 200 (D)mm
- Max. cable length: 25 m with CCMC-12P25 cable

CMA-D3CE

Camera Adaptor
- Supplies DC power and transmits video/sync signal between the adaptor and the DXC-990P with CCZ-A cable and CCMC-3MZ cable
- Connects with optional RM-C950 remote control unit
- AC IN/DC IN
- Composite, Y/C, RGB or component video signal output
- Dimensions: 210 (W) x 44 (H) x 210 (D)mm
- Max. cable length: 100 m with CCZ-A100 cable

RM-C950

Remote Control Unit
- Full remote control of the DXC-990/990P camera functions and lens zoom/focus/iris functions via RS-232C
- Dimensions: 212 (W) x 41 (H) x 132 (D)mm

CCMC-12P02/12P05/12P10/12P25

12-pin Multi Cable (2/5/10/25 m)

CCDC-5/10/25/50A/100A

DC Cable (5/10/25/50/100 m)

CCMC-3MZ

Camera Cable
(3 m, for CMA-D3CE connection, capable of connecting to the CCZ-A2/A5/A25/A50/A100 cables, CCZZ-1E interconnection adaptor is supplied)

CCMC-9DS

9-pin D-sub Cable
(5 m, 9-pin D-sub ↔ BNCs (R/G/B/SYNC), DIN 4-pin (Y/C))

LO-32BMT

2/3-inch Lens Mount Adaptor

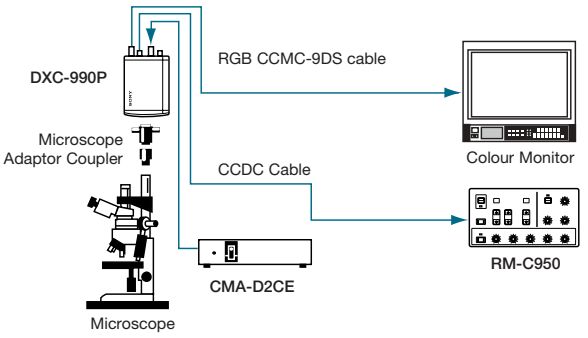
VCL-0716BXA

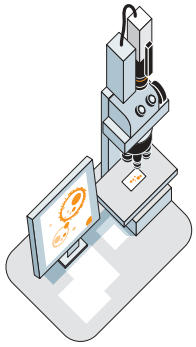
Mount	1/2 Type Bayonet
Focal length	7.3 mm to 117 mm
Zoom ratio	16x
Iris range	F1.9 to F16, closed
Flange focal length	38mm (adjustable range ±0.3 mm)
Min. object distance	1 m (0.04 m in macro operation)
Filter screw	M62 x 0.75
Dimensions (W x H x D) mm	90.5 x 75.0 x 144.2
Mass	0.85 kg

Applications

Microscopy

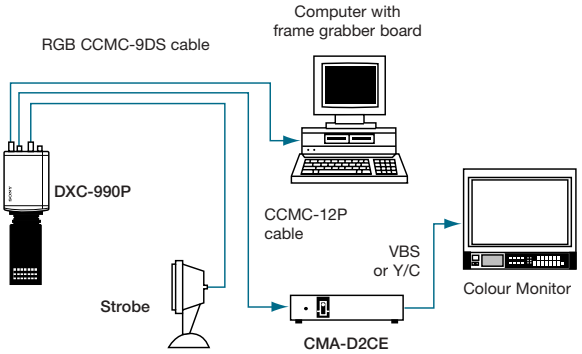
The DXC-990P features DynaLatitude, Digital Detail, Partial Enhance and Color Shading Compensation functions which are useful for microscopy applications.

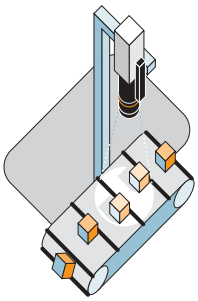




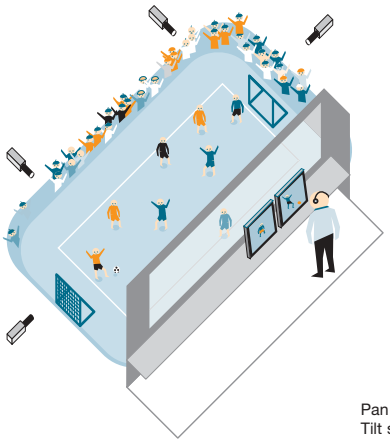
Industrial Inspection

The DXC-990P features Strobe trigger function, WEN output, RGB sync, RS-232C Interface and Extended Genlock (VBS GENLOCK and HD/VD In/Out) functions which are useful for industrial inspection applications.



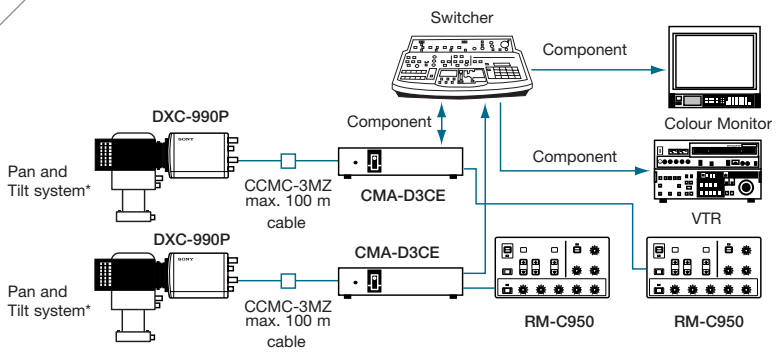


Remote Camera System



The DXC-990P features Motorized remote control lens, Selectable AE speed and User-defined AE area which are useful functions for remote camera applications. A pan and tilt system is a compact remote-controlled system for indoor operation, designed to accomodate miniature CCD-cameras and that covers a wide range of applications, including standard monitoring applications or remote monitoring of places where utmost silence is required, such as churches, wedding-halls, theatres or in TV-studios.

* PTZ systems are available from third party suppliers.

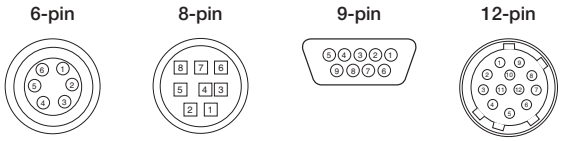


DXC-990P

General

Pick-up device	1/2 type IT (Interline Transfer) ExwaveHAD CCD
Effective picture elements	752 (H) x 582 (V)
Sensing area	6.4 x 4.8 mm
Scanning system	1/2 type interlined
Horizontal frequency	15.734 kHz
Vertical frequency	59.94 Hz
Sync system	Internal or external with VBS, HD/VD
Horizontal resolution	850 TV lines
Sensitivity	F11 (2000lx)
Minimum illumination	1 lux (F1.4, GAIN: HYPER)
S/N ratio	63 dB (NTSC)/62 dB (PAL)
Gain	STEP/AGC (0-24 dB)/HYPER
Shutter speed	0.5 - 1/100,000 s
Lens mount	Bayonet mount
AE area	Multi/Large/Medium/Spot/Slit/Manual
AE level	Variable
AE speed	Fast/Mid/Slow selectable
AE detect	Average/Peak selectable
Contrast effect	Manual/DynaLatitude/DCC+ selectable
Knee point	High/Normal/Low selectable
Black stretch	Variable
Gamma	On/Off
Pedestal	Master, R/B manual adjustable
Black balance	ABB
White balance	AWB/ATW normal/ATW wide/Manual/3200K/5600K selectable AWB or ATW R/B paint, manual R/G gain
ATW area	Normal/Manual
ATW speed	Slow/Mid/Fast
Detail level	On (Variable)/Off
Detail frequency	High/Mid/Low
Linear matrix	On/Off
Linear matrix mode	STANDARD/R Enhance/G Enhance/B Enhance/Manual Selectable
Partial enhance	All/In/Out
CCD integration mode	Field/Frame
Shading compensation	On/Off (manual)
Trigger polarity	Positive edge trigger/Negative edge trigger selectable
Baud rate	19200/9600/4800/2400/1200 selectable
Sync	RGB/G/OFF
Trigger	On/Off
User file	A/B
Scene file	Standard/Microscope/Full Auto/Strobe/File A or B
Output signals	VBS, RGB/SYNC, Y/C,Y/R-Y/B-Y
Serial data	RS-232C
Operational temperature	-5 °C to 45 °C (23 °F to 113 °F)
Storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Power requirements	DC 10.5 V to 15.0 V
Power consumption	Approx. 8.0 W
Dimensions (W x H x D)	70 x 72 x 123.5 mm (2 ⅞ x 2 ⅞ x 4 ⅞ inches)
Mass	630 g (1 lb 6 oz)
Connectors	RGB/SYNC (9pin D-sub), DC IN/VBS (12pin), VIDEO OUT (BNC), TRIGGER IN (BNC),REMOTE (8 pin mini DIN), GEN LOCK IN (BNC), LENS (6pin)
SUPPLIED ACCESSORIES	
	Lens mount cap (x1), Stopper mount (x1), Operation instruction manual (x1), Panel sheet for RM-950 (x1)
OPTIONAL ACCESSORIES	
Camera adaptor	CMA-D2CE/D2MDCE, CMA-D3CE
Camera cable	CCMC-12P02/12P05/12P10/12P25, CCDC-5/10/25/50A/100A, CCMC-9DS, CCMC-3MZ
Remote control unit	RM-C950
Lens mount adapter	LO-32BMT
Lens	VCL-0716BXA

DXC-990P Connector Pin Assignments



6-pin

MENU	LENS : REMOTE
1	NC
2	NC
3	DC OUT (G)
4	INTERNAL CONNECT
5	IRIS CONTROL
6	DC OUT (+)

8-pin

1	INTER CONNECT
2	INTER CONNECT
3	DATA OUT
4	DC OUT (G)
5	DATA IN
6	NC
7	DATA OUT (+)
8	CMA DATA

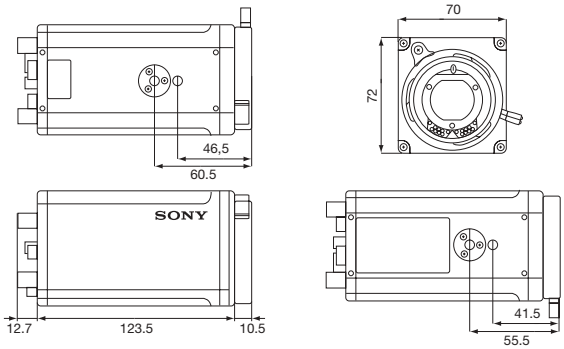
9-pin

MENU	D-sub OUT:RGB D-sub VIDEO:VBS D-sub SYNC:C.SYNC	D-sub OUT:RGB D-sub VIDEO:VBS D-sub SYNC:WEN	D-sub OUT:Y/C D-sub VIDEO:VBS D-sub SYNC:C.SYNC	D-sub OUT:RGB D-sub VIDEO:Y/C D-sub SYNC:WEN	D-sub OUT:Y/CR/CB D-sub OUT:Y/C D-sub SYNC:WEN	When using the CMA-D3CE
1	VBS OUT (G)	VBS OUT (G)	Y/C OUT (G)	VBS OUT (G)	Y/C OUT (G)	- (G)
2	RGB OUT (G)	RGB OUT (G)	RGB OUT (G)	RGB OUT (G)	RGB OUT (G)	VBS/Y/C OUT (G)
3	R OUT (X)	R OUT (X)	R OUT (X)	R OUT (X)	CR OUT(X)	VBS OUT (X)
4	G OUT (X)	G OUT (X)	G OUT (X)	G OUT (X)	Y OUT(X)	Y OUT (X)
5	B OUT (X)	B OUT (X)	B OUT (X)	B OUT (X)	CB OUT(X)	C OUT (X)
6	VBS OUT (X)	VBS OUT (X)	Y OUT (X)	Y OUT (X)	Y OUT (X)	- (X)
7	C.SYNC OUT (X)	WEN OUT (X)	C.SYNC OUT (X)	WEN OUT (X)	WENCOUT (X)	WEN OUT (X)
8	C.SYNC OUT (G)	WEN OUT (G)	C.SYNC OUT (G)	WEN OUT (G)	WEN OUT (G)	WEN OUT (G)
9	- (X)	- (X)	- (X)	C OUT (X)	C OUT (X)	- (X)

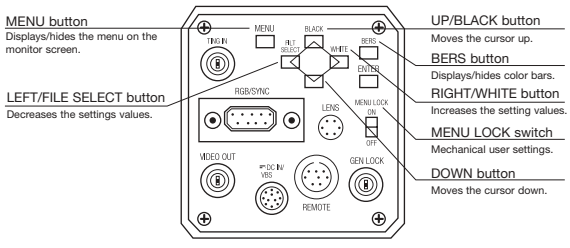
12-pin

MENU	D-sub VIDEO:VBS 12pin connector:IN	D-sub VIDEO:VBS 12pin connector:C.SYNC	D-sub VIDEO:VBS 12pin connector:HD/VD	D-sub VIDEO:Y/C 12pin connector:IN	D-sub VIDEO:Y/C 12pin connector:C.SYNC	D-sub VIDEO:Y/C 12pin connector:HD/VD
1	DC IN (G)	DC IN (G)	DC IN (G)	DC IN (G)	DC IN (G)	DC IN (G)
2	DC IN (+)	DC IN (+)	DC IN (+)	DC IN (+)	DC IN (+)	DC IN (+)
3	VBS OUT (G)	VBS OUT (G)	VBS OUT (G)	VBS OUT (G)	VBS OUT (G)	VBS OUT (G)
4	VBS OUT (X)	VBS OUT (X)	VBS OUT (X)	Y OUT (X)	Y OUT (X)	Y OUT (X)
5	-/HD IN (G)	- (G)	HD OUT (G)	-/HD IN (G)	- (G)	HD OUT (G)
6	-/HD IN (X)	- (X)	HD OUT (X)	-/HD IN (X)	- (X)	HD OUT (X)
7	VBS/VD IN (X)	C.SYNC OUT (X)	VD OUT (X)	VBS/VD IN (X)	C.SYNC OUT (X)	VD OUT (X)
8	- (G)	- (G)	- (G)	C OUT (G)	C OUT (G)	C OUT (G)
9	- (X)	- (X)	- (X)	C OUT (X)	C OUT (X)	C OUT (X)
10	DC IN (G)	DC IN (G)	DC IN (G)	DC IN (G)	DC IN (G)	DC IN (G)
11	DC IN (+)	DC IN (+)	DC IN (+)	DC IN (+)	DC IN (+)	DC IN (+)
12	VBS/VD IN (G)	C.SYNC OUT (G)	VD OUT (G)	VBS/VD IN (G)	C.SYNC OUT (G)	VD OUT (G)

Dimensions (unit: mm)



Rear Panel



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