SONY®

3-CCD Colour Video Camera
DXC-390P

With so many functions, the DXC-390P is the perfect choice for a variety of applications.

The Sony DXC-390P is a 1/3 type DSP 3-CCD colour video camera which incorporates Exwave HAD™ technology – a Sony technology that greatly improves camera sensitivity (F8 at 2000 lx) while reducing smear. Using a C-mount lens and providing a resolution of 800 TV lines and high S/N ratio, the DXC-390P 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 DynaLatitude™, Partial Enhance, and a wide selection of Automatic Exposure (AE) modes. Moreover, the DXC-390P is very compact [56 (W) x 50 (H) x 128 (D) mm] and lightweight (370 g), making it easy to install.

Features

High Picture Quality
Incorporating three 1/3 type IT CCDs, the DXC-390P produces a high resolution of 800 TV lines and a high S/N ratio of 61 dB. Featuring Sony's new Exwave HAD the DXC-390P provides excellent sensitivity and low smear levels. Moreover, the DXC-390P incorporates DSP (Digital Signal Processor) technology, resulting in images with higher picture quality and color accuracy.

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

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.

Black Stretch
Black stretch/compress enhances the gradation of dark areas by stretching or compressing the range of the brightness signal in these areas.

DSP (Digital Signal Processing)
The DXC-390P incorporates new Sony 10-bit DSP technology. DSP enables a variety of enhancement features and increases picture reliability. The DXC-390P has several DSP functions for powerful picture controls.

Picture Enhance Controls
Digital Detail
Adjusts the sharpness of the object outline with minimal noise. This feature also enables horizontal detail frequency control.

Linear Matrix
Enhances color reproduction by adjusting the color saturation and hue.

Partial Enhance
Enhances or softens a specific part of the picture, selected according to color parameters.

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-390P features 10 different shutter speeds (OFF to 1/100,000), including flickerless mode.

Long term exposure
The shutter speed can be manually selected from 1 to 255 frames (field mode) or 2 to 256 frames (frame mode) in one-frame steps or from 0.1 to 8.0 seconds.

Clear Scan™
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
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.

*Exwave*HAD™

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-390P is equipped with a number of convenient AE modes.

AE Level

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

AE Speed

Selectable AE (Auto Exposure) reaction speed to suit applications under varying lighting conditions.

AE Area

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

Other Features

Compact and lightweight
56 (W) x 50 (H) x 128 (D) mm (2 1/4 x 2 x 5 1/8 inches), 370 g (13 oz).

C mount
Extensive choice of lens.

Scene Files and User Files
Allows user to instantly recall prepared sets of parameters.

C mount
Extensive choice of lens.

Hyper Gain (+30 dB)
Useful to capture images in dark conditions.

Color Shading compensation
Allows accurate compensation of vertical non-uniformity of colors due to optical coupling to prism. Useful for color verification on microscope.

RGB, Y/C and composite video outputs

RS-232C controllable
Easy control and operation of camera by external computer.
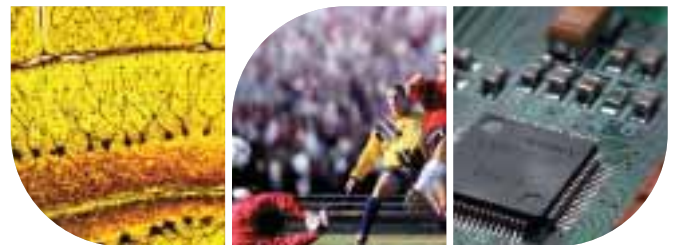
White Balance modes
(AWB, ATW-Normal/Wide, MANU, Preset 3200K/5600K).

Extended Genlock
(VBS Genlock and HD / VD in / out) Allows for synchronisation of signals with frame grabber boards and the camera to operate in Genlock with other video sources.

Synchronisation capabilities
(Strobe function, WEN output) Realises full vertical resolution of fast moving objects.

Optional Accessories

CMA-D2CE

Camera Adaptor
• Supplies DC power and transmits video/sync signal between the adaptor and the DXC-390P with CCMC 12-pin multi-core cable.
• Dimensions:
  210 (W) x 50 (H) x 200 (D) mm (8 ³⁄₈ x 2 x 7 ⁷⁄₈ inches).
• 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-390P with CCZ-A cable and CCMC-3MZ cable.
• Connects with optional RM-C950 remote control unit.
• AC IN/DC IN
• Composite, Y/C or RGB video signal output.
• Dimensions:
  210(W) x 44(H) x 210(D) mm (8 ³⁄₈ x 1 ³⁄₄ x 8 ³⁄₄ inches).
• Max. cable length:
 100 m with CCDC-100A cable.

RM-C950

Remote Control Unit
• Full remote control of the DXC-390P camera functions and lens zoom / focus / iris functions via RS-232C.
• Dimensions:
  212 (W) x 41 (H) x 132 (D) mm (8 ³⁄₈ x 2 ⁵⁄₈ x 5 ¹⁄₄ inches).

VCL-616WEA

Mount Lens

|	
Application	1/3 Type C-mount
Focal length	5.5mm to 88mm
Zoom ratio	16x
Max. relative F1.8 aperture	F1.4 (5.5mm) to (88mm)
Iris range	F1.4 to F16, closed
Flange focal length	17.526 ± 0.05mm (in air)
Min. object distance	1.0m
Clear aperture of lens	Front 55.5mm
Filter screw	M62 x P0.75mm
Mass	900g (± 90g)

AE Area
Six different modes
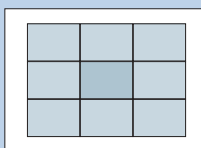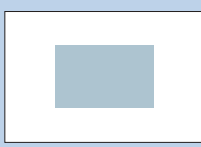
MULTI
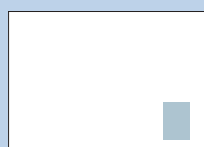Concentrates on center of image area
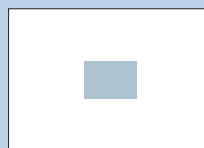
SPOT
25% of entire image area
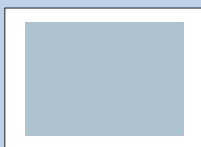
LARGE
75% of entire image area
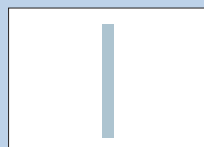
SLIT
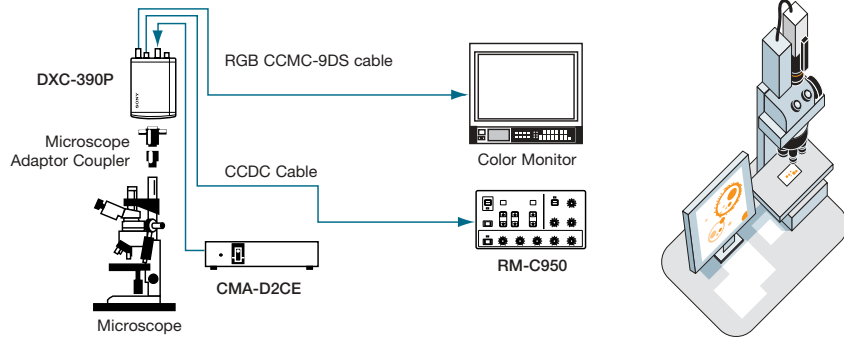Vertical slit

MID
50% of entire image area

MANUAL
User defined (manual) setting of area and size

APPLICATIONS

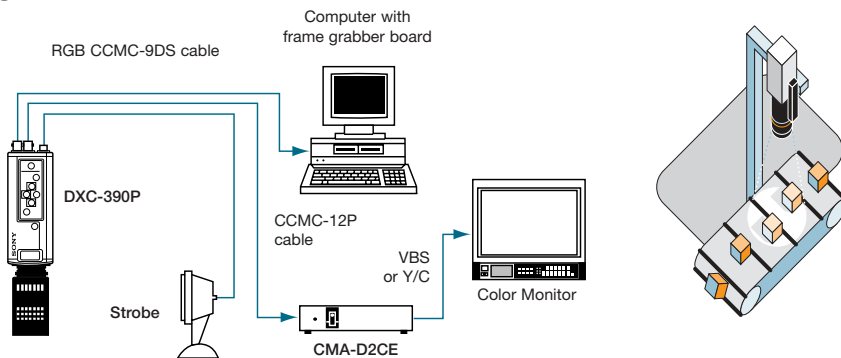# Microscopy

Useful DXC-390P functions include:

- DynaLatitude
- Digital Detail
- Partial Enhance
- Color Shading
- Compensation
- Flange Back Adjustment

DXC-390P

Microscope Adaptor Coupler

RGB CCMC-9DS cable

CCDC Cable

Color Monitor

RM-C950

CMA-D2CE

Microscope

Industrial Inspection

Useful DXC-390P functions include:

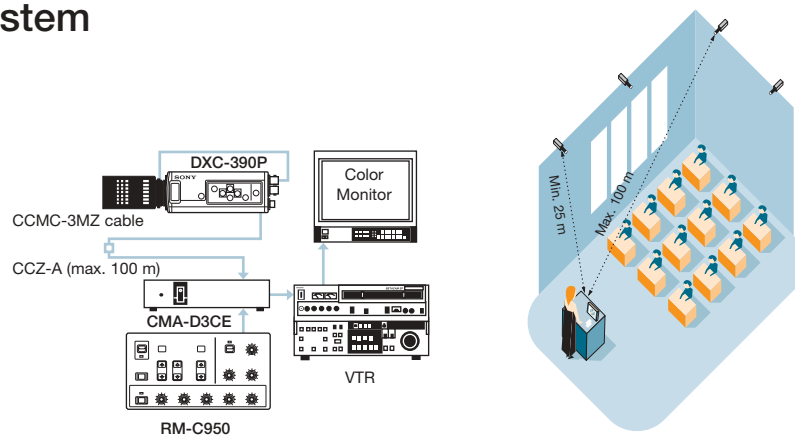- Strobe trigger function
- WEN output
- RGB sync
- RS-232C Interface
- Extended Genlock (VBS GENLOCK and HD/VD In/Out)

Computer with frame grabber board

RGB CCMC-9DS cable

DXC-390P

CCMC-12P cable

VBS or Y/C

Color Monitor

Strobe

CMA-D2CE

Remote Camera System

Useful DXC-390P functions include:

- Motorised remote control lens
- Selectable AE speed
- User-defined AE area
- Video servo auto iris lens

DXC-390P

Color Monitor

CCMC-3MZ cable

CCZ-A (max. 100 m)

CMA-D3CE

VTR

RM-C950

Min. 25 m

Max. 100 m

Sony Contacts

ISS for Central Zone	+49 221 537 3668
(Austria, Eastern Europe, Germany, Netherlands, German-speaking Switzerland)	
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(Baltics, Denmark, Finland, Norway, Sweden)	
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(UK, Ireland, Greece, Israel, South Africa)	
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(Belgium, France, Portugal, Spain, French-speaking Switzerland)	
ISS for Italy	+39 (0) 6 334 372 27

Specifications

General

|	
Pick-up device	1/3 type IT (Interline Transfer) CCD
Effective picture elements	752 (H) x 582 (V)
Sensing area	4.8 (H) x 3.6 (V) mm
Scanning system	2:1 interlaced, 625 lines
Horizontal frequency	15.625 kHz
Vertical frequency	50 Hz
Sync system	Internal or External with VBS, HD / VD
Phase control	H / SC phase control
Horizontal resolution	800 TV lines
Sensitivity	F8.0 at 2000 lx
Minimum illumination	4 lx (F2, GAIN: HYPER)
S/N ratio	61 dB
Gain	STEP/ AGC/ HYPER selectable
Electronic shutter	OFF/ STEP/ VARIABLE / CCD IRIS selectable
Lens	Remote (Auto or Manual) / Video selectable
AE area	Multi / Large / Medium / Spot / Slit / Manual selectable
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 (Contrast Effect: Manual)
Black stretch	Variable (Contrast Effect: Manual)
Gamma	ON / OFF Variable
Pedestal	Master and 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/B Gain
ATW area	NORMAL/ MANU selectable
ATW speed	FAST/ NORMAL/ SLOW selectable
Detail level	ON/ OFF (Variable at ON)
Detail Frequency	HIGH/ MID/ LOW selectable
Linear matrix	ON/ OFF
Linear matrix MODE	STANDARD/ R Enhance/ G Enhance/ B Enhance/ Manual selectable
Partial Enhance	ALL/ IN/ OUT selectable
CCD integration mode	FIELD/ FRAME selectable
Shading Compensation	OFF / ON (Manual control)
Trigger Polarity	Positive edge trigger / Negative edge trigger selectable
Baud rate	19200/ 9600/ 4800/ 2400/ 1200 selectable
Sync	RGB/ G/ OFF selectable
Strobe	ON/ OFF
User File	A/ B switchable (Two pattern memories)
Scene File	STANDARD/ MICROSCOPE/ FULL AUTO/ STROBE / FILE A or B
Output signal	VBS / RGB / SYNC / Y / C
Operating temperature	-5 ℃ to 45 ℃
Storage temperature	-20 ℃ to 60 ℃
Power requirements	DC 10.5 V to 15.0 V
Power consumption	Approx. 7.6 W
Dimensions	56 (W) x 50 (H) x 128 (D) mm (2 ¼ x 2 x 5 ⅛ inches) (Excluding projecting parts)
Mass	Approx. 370 g (13 oz)
Connectors	Lens (6 pin) RGB / SYNC (9 pin D-sub) DC IN / VBS (12 pin) VIDEO OUT (BNC) TRIGGER IN (BNC) REMOTE (8 pin mini DIN)
SUPPLIED ACCESSORIES	
	Lens cap (x1) / Tripod adapter (x1) / Operation manual (x1) / Panel sheet for RM-C950
OPTIONAL ACCESSORIES	
Remote control unit	RM-C950
Camera adaptor	CMA-D2CE, CMA-D3CE CCDC-5/10/25/50A/100A
Camera cable	CCMC-12P02/05/10/25 CCMC-9DS CCMC-3MZ CCZ-A2/A5/A10/A25/A50/A100

DXC-390P Side Panel

Connector Pin Assignments
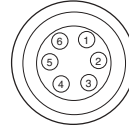
6-pin

1	FOCUS CONTROL
2	ZOOM CONTROL
3	DC OUT (G)
4	IRIS CLOSE
5	IRIS CONROL/VIDEO OUT
6	DC OUT (+)
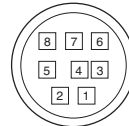
8-pin

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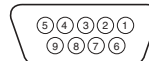
9-pin

1	VBS/Y OUT (G)
2	RGB OUT (G)
3	R OUT (X)
4	G OUT (X)
5	B OUT (X)
6	VBS/Y OUT (X)
7	C.SYNC/WEN OUT (X)
8	C.SYNC/WEN OUT (G)
9	-/C OUT (X)
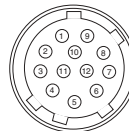
12-pin

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

Dimensions (unit: mm)

Rear Panel

DC IN / VBS OUT connector (12-pin)
Connects to the CMA-D2 and CMA-D3 camera adaptors. DC power input and video signal output

MENU LOCK switch
Mechanical switch protects user settings. If switch is ON, buttons on side panel are disabled.

RGB/SYNC connector (D-sub 9-pin)
RGB signals and their respective sync signals are output. CCMC-9DS/ CCXC-9DBS cables is used.

TRIG IN connector (BNC)
External trigger signals input when the camera is in strobe mode

LENS connector (6-pin)
Connects to general video servo auto iris lenses or the optional VCL-614WEA zoom lens.

REMOTE connector (mini-DIN 8-pin)
Connects to the optional RM-C950 remote control unit.

TRIG IN connector (BNC)
External trigger signals input when the camera is in strobe mode.