SONY

EXWAVE HAD™ DSP COLOR VIDEO CAMERA

SSC-DC50A/ SSC-DC54A

1/2" HIGH RESOLUTION EXWAVE HAD DSP COLOR CAMERA

- 1/2" High resolution EXWAVE HAD CCD
- 470 lines of horizontal resolution
- High sensitivity - 0.4 lux at F1.2, 30 IRE (0.8 lux at F1.2 50 IRE)
- Excellent S/N - better than 50 dB (Weight ON)
- Excellent smear characteristics - minus 120 dB (1/50 of SSC-DC50/SSC-DC54)
- Backlight compensation by Smart Control®
- Preset Auto exposure (AE) settings
- ATW Pro/ATW/AWB/Preset 5600° K color temperature settings
- Composite and Y/C outputs
- Genlock capability
- Wide range CCD Iris® function - 1/60 to 1/100,000 sec.
- C/CS Mount
- Accepts Video or DC auto iris lenses
- AC 24V line lock with ±90° V-phase (SSC-DC54A)
- DC 12V or Triple multiplex (video, power, sync) capability (SSC-DC50A) via optional YS-W150 or YS-W250

EXWAVE HAD

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EXWAVE HAD DSP COLOR VIDEO CAMERA

SSC-DC50A/ SSC-DC54A

THE DIFFERENCE IS EXWAVE HAD CCD SENSOR

In monitoring and surveillance applications, camera sensitivity is one of the most important factors in obtaining an adequate picture in low light conditions. In addition to this requirement for high sensitivity, low smear levels are necessary, especially for surveillance of transportation and parking areas, where bright headlights of vehicles can be a problem. Because of the importance of these factors, Sony has developed the EXWAVE HAD CCD sensor.

HIGHER SENSITIVITY

The sensitivity of the SSC-DC50A/SSC-DC54A is well over twice that of the current SSC-DC50/ SSC-DC54 surveillance cameras. The conventional Sony Hyper HAD® sensor structure has an OCL (on chip lens) located over each pixel. The result is that light is concentrated on the photosensor areas and the sensitivity of the camera is improved. The EXWAVE HAD CCD takes the Hyper HAD sensor technology a giant step further. The OCL of the EXWAVE HAD CCD is a nearly gap-less structure, eliminating the ineffective areas between the microlenses. This enables the hole accumulated layer to receive the maximum amount of light (See Fig. 1).

LOWER SMEAR

Smear is caused by the leakage of unwanted light on to the vertical shift register. The smear level of the EXWAVE HAD CCD is reduced to 1/50th that of the Hyper HAD CCD. This leakage is dramatically reduced because the improvement of the unit cell structure minimizes the unnecessary reflection of the light onto the CCD surface.

EXCELLENT PICTURE QUALITY

With the high resolution of 470 TV lines and excellent sensitivity of 0.8 lux (F1.2, 50 IRE, Turbo Gain® AGC ON), the SSC-DC50A/ SSC-DC54A captures high quality images in extremely low light situations. A further benefit of the EXWAVE HAD sensor technology is that dark current noise is reduced to provide a very high signal-to-noise ratio of 50 dB.

Y/C VIDEO OUTPUT CAPABILITY

As well as outputting a composite signal via a BNC connector, SSC-DC50A/SSC-DC54A cameras have a Mini DIN 4-pin connector which provides a Y/C output signal. This feature allows these cameras to fit into a wide range of systems and take advantage of the clearer pictures available with separate luminance and chrominance signals.

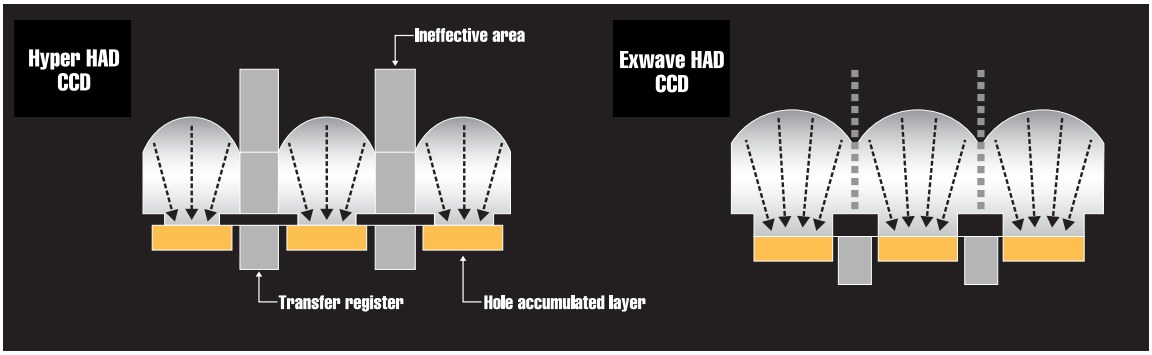
ADVANCED TURBO GAIN AGC

SSC-DC50A/SSC-DC54A cameras are equipped with a powerful AGC (Auto Gain Control) function, Turbo Gain AGC. This advanced function can improve sensitivity more flexibly and effectively than conventional AGC by controlling the video gain over a range that is increased from 0 - 18 dB to 0 - 24 dB. Thus a subject under very low illumination can be distinguished more clearly, with excellent color reproduction.

SMART CONTROL - FULL AUTOMATIC BACKLIGHT COMPENSATION (BLC)

Strong backlighting can often cause the subject of the picture to be cast into shadow. To overcome this problem, SSC-DC50A/SSC-DC54A cameras have Smart Control compensation which achieves the optimum balance between Iris and Gain settings

Fig. 1



in a unified digital signal processing circuit. As a result, clear color images can be obtained even under severe or varying lighting conditions.

The Smart Control function also works intelligently. Wherever the subject appears in a picture, SSC-DC50A/ SSC-DC54A cameras sense the entire area of the frame and measure the average light level (No. 0). Where the position of the subject can be defined in advance, the picture optimization area can be preset to one of the seven areas shown below (No. 1 to 7). By presetting the detection area, faster backlight compensation is achieved.

Selection of Light Metering Areas

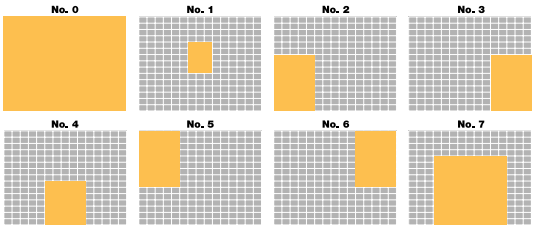


Fig. 2

ALTERNATIVE WHITE BALANCE CONTROL MODES

The SSC-DC50A/SSC-DC54A have four types of white balance control modes - ATWpro, ATW, AWB (one-push) and 5600° K - to meet a wide range of operational conditions.

Advanced ATWpro mode

Ideal for frequently changing lighting conditions and applications where the operator needs to see objects as they appear to the eye. The effective operational color range is 2500° K to 6000° K. This mode makes optimum use of the capabilities of the Smart Control function.

ATW mode

Allows the operator to see objects as they appear during daylight. The color temperature compensation range extends down to 2000° K and up to 10,000° K.

AWB mode

Automatically memorizes the adjusted white balance values every time the AWB button on the side panel is pushed.

5600° K mode

Recommended when the cameras are used outdoors during daytime operations.

CCD IRIS FUNCTION

As the illumination level of the scene changes, the camera responds by automatically reducing or increasing the exposure time of the photo sensors. This is achieved by changing the electronic shutter speed of the CCD, in the range of 1/60 of a second to 1/100,000 of a second. The CCD IRIS function is digitally controlled by the advanced Sony Smart Control feature. The control of incoming light by the CCD Iris function is completely electronic and does not require a conventional mechanical iris control facility inside the camera. This means that reliability is greatly enhanced. An added benefit of the CCD Iris function is when the information is recorded onto video tapes. For example, thanks to high shutter speeds during the day, clear still images can be obtained when the tape is reviewed. This facilitates the identification of fast moving objects such as license plate numbers.

License plate of a moving car

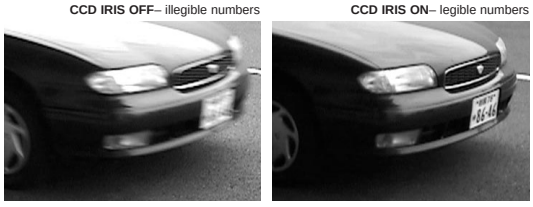


Fig. 3

VARIABLE SPEED ELECTRONIC SHUTTER

With the electronic shutter, you can capture clear, blur-free pictures even if the subject is moving. During playback of the recorded image, you can obtain clear still or slow-motion pictures. The shutter speeds are easily selected by a rotary switch on the side panel.
Shutter Speeds - 1/60, 1/100 (Flickerless mode), 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 second

SIMPLE SINGLE CABLE WIRING (SSC-DC50A ONLY)

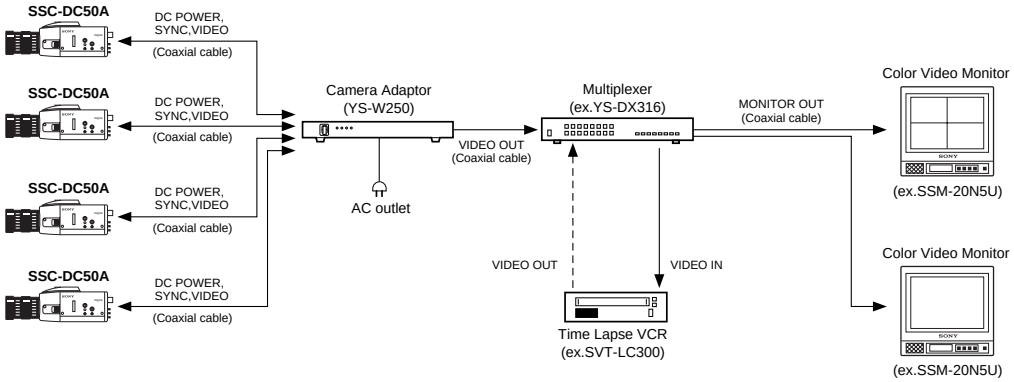
The SSC-DC50A features optional Triple Multiplexing operation. Using a single coaxial cable, the video and sync signals can be transmitted together with DC power from an optional YS-W150/W250 Camera Adaptor. The camera can be operated from these adaptors by using a coaxial cable such as the 300 m RG-59B/U (3C-2V) or 600 m RG-11A/U (7C-2V). Since the SSC-DC50A has a MONITOR OUT connector, the picture can be easily checked at the installation point with a portable monitor. The SSC-DC50A can also be operated from a local DC 12V power source using a commercially available power supply adaptor.

OTHER FEATURES

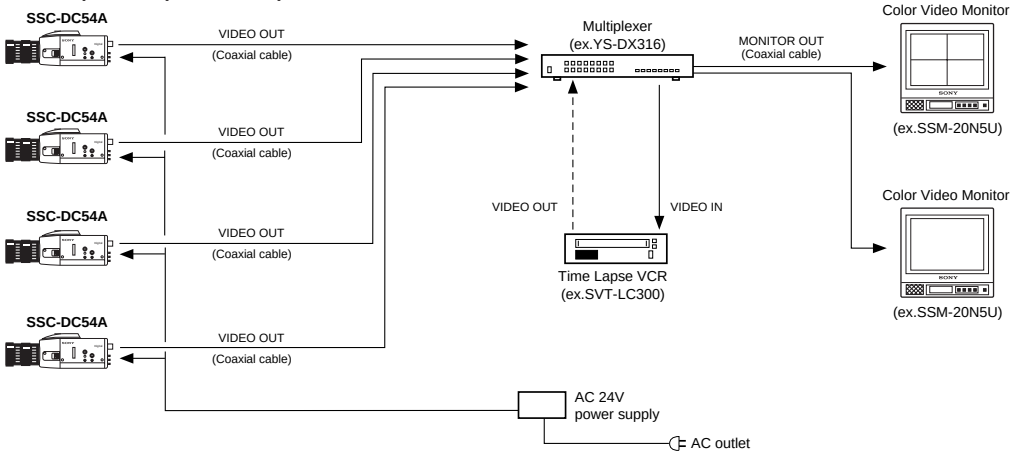
Aperture/Sharp Mode
VBS and VS lock
C/CS Mount Lenses Compatible
Video/DC Servo type Auto Iris Lens Compatible

SYSTEM EXAMPLES

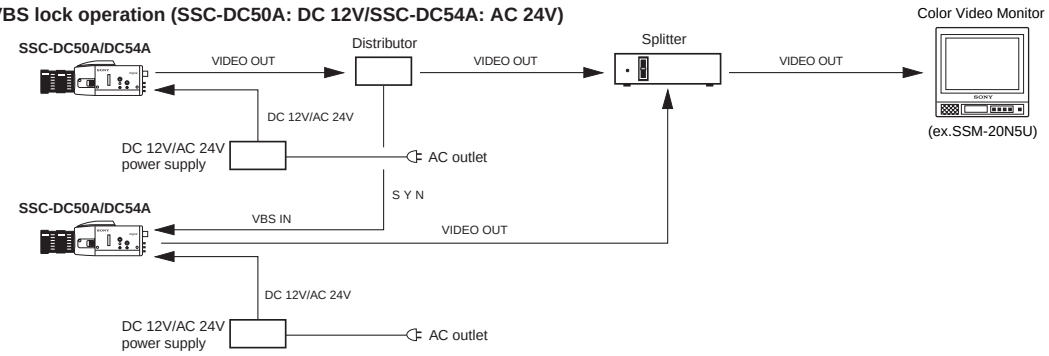
1. Triple multiplexing operation (SSC-DC50A)



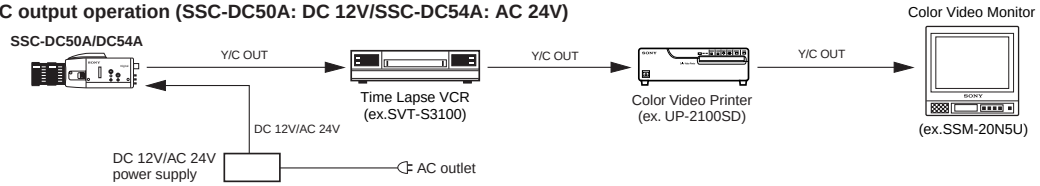
2. AC line lock operation (SSC-DC54A)



3. VBS lock operation (SSC-DC50A: DC 12V/SSC-DC54A: AC 24V)



4. Y/C output operation (SSC-DC50A: DC 12V/SSC-DC54A: AC 24V)



SSC-DC50A/SSC-DC54A

1/2" HIGH RESOLUTION EXWAVE HAD DSP COLOR CAMERA

Side View

①AGC ON/OFF switch
②AGC selection switch (TURBO/NORMAL)
③BLC ON/OFF switch
④Electronic shutter ON/OFF switch
⑤White balance mode selection switch

White Balance	A	B
AWB	1	1
5600° K	0	1
ATW	1	0
ATWpro	0	0

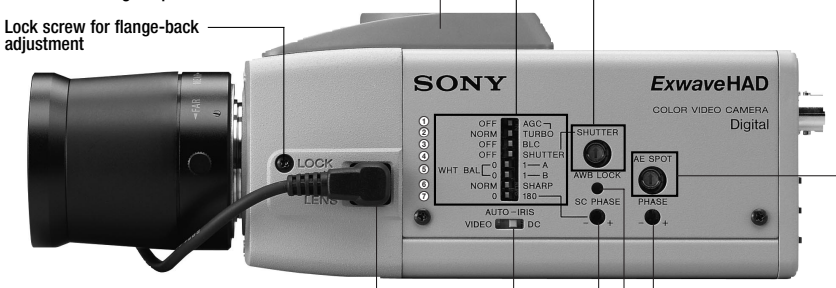
⑥Aperture level selection switch (SHARP/NORMAL)
⑦SC Phase selection switch (0/180)

Electronic shutter selection

SHUTTER	Position
1/60	0
1/100	1
1/250	2
1/500	3
1/1000	4
1/2000	5
1/4000	6
1/10000	7
CCD IRIS	8
CCD IRIS BLC	9

AE spot selection**

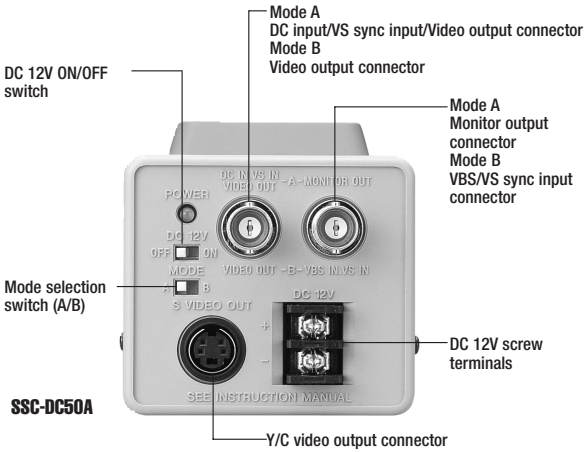
AE spot	Position
ALL SCREEN	0
CENTER SMALL	1
LEFT DOWN	2
RIGHT DOWN	3
LOWER CENTER	4
LEFT UP	5
RIGHT UP	6
CENTER-BIG	7



Camera mounting adaptor
Lock screw for flange-back adjustment
Auto iris lens connector
Auto iris lens selection switch
Horizontal phase adjustment screw (-/+)*
AWB (Auto White Balance) button
SC phase adjustment screw (-/+)

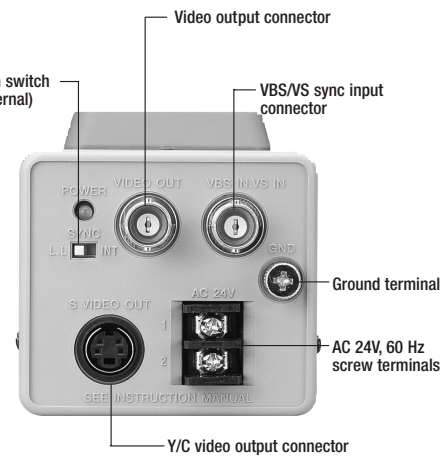
*When the SSC-DC54A uses AC line lock, this screw is used for vertical phase adjustment
**Please refer to Figures 2 and 3

Rear View



DC 12V ON/OFF switch
Mode A
DC input/VS sync input/Video output connector
Mode B
Video output connector
Mode A
Monitor output connector
Mode B
VBS/VS sync input connector
Mode selection switch (A/B)
DC 12V screw terminals
Y/C video output connector

SSC-DC50A



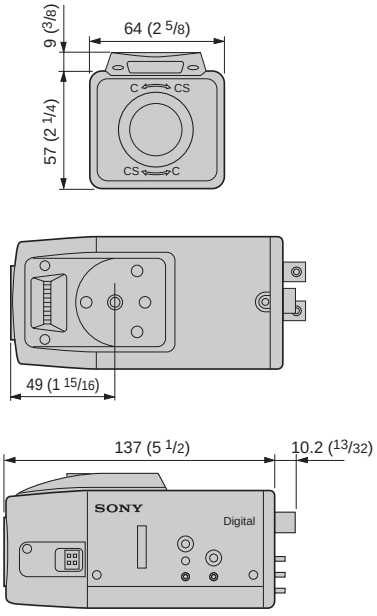
Video output connector
Sync selection switch (Line Lock/Internal)
VBS/VS sync input connector
Ground terminal
AC 24V, 60 Hz screw terminals
Y/C video output connector

SSC-DC54A

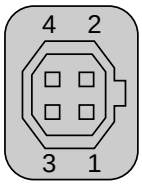
SSC-DC50A/ SSC-DC54A

1/2" HIGH RESOLUTION EXWAVE HAD DSP COLOR CAMERA

DIMENSIONS



LENS (4 PIN)



PIN	SIGNAL DC Servo	SIGNAL Video Servo
1	CONTROL(-)	POWER (DC 9V, 50 MA)
2	CONTROL(+)	NOT CONNECTED
3	DRIVE(-)	VIDEO (0.7 VP-P)
4	DRIVE(+) GND(+)	GND

SPECIFICATIONS

SSC-DC50A/SSC-DC54A

Image device: 1/2-inch Interline Transfer EXWAVE HAD CCD

Picture elements: 768 (H) X 494 (V)

Sensing area: 6.3 X 4.7 mm

Signal system: EIA, NTSC color

Scanning system: 525 lines, 2:1 interlace

Sync system: **SSC-DC50A:** Internal or external with VBS/VS or MPX-VS
SSC-DC54A: Internal or external with VBS/VS or AC line lock

Phase control: H /SC phase adjustment
(H phase: ±0.12H, SC phase: 360° with 0/180° switch)
V phase adjustment (±90°) for AC line lock (SSC-DC54A only)

Horizontal resolution: 470 TV lines

Lens mount: C/CS mount adjustable

Minimum illumination: AGC ON (Turbo Gain mode)
0.4 lux at F1.2 (30 IRE), 0.8 lux at F1.2 (50 IRE)
3.0 lux at F1.2 (100 IRE)

Aperture control: SHARP/NORMAL switchable

Automatic Gain Control (AGC): TURBO/NORMAL/OFF switchable

Electronic shutter: 1/60, 1/100 (Flickerless mode), 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 s

CCD IRIS control: ON/OFF switchable, 1/60 to 1/100,000 sec.

White balance: ATWpro/ATW/AWB (one-push)/5600° K switchable

Backlight compensation: BLC ON/OFF switchable (Eight AE spot is selectable)

Signal-to-noise ratio: More than 50 dB (Weight ON, AGC OFF)

Video out: BNC: 1.0 Vp-p, 75-ohm, sync negative
Y/C: Y: 1.0 Vp-p, 75-ohm, sync negative
C: 0.286 Vp-p, at burst level, 75-ohm

Operating temperature: -10° to 50°C (14° to 122°F)

Storage temperature: -40° to 60°C (-40° to 140°F)

Power requirements:
SSC-DC50A: Multiplexing with YS-W150/W250
12V from DC 12V power supply
SSC-DC54A: AC 24V, 60 Hz

Power consumption:
SSC-DC50A: 5.5 W supplied from YS-W150/W250
4.5 W at DC 12V
SSC-DC54A: 6.0 W

Mass: 600 g (1 lb 5 oz)

Auto iris type: DC/VIDEO servo type

Connectors: **SSC-DC50A:** DC 12V terminals
Mode A (Triple multiplexing operation):
DC IN/VS IN/VIDEO OUT (BNC), MONITOR OUT (BNC)
S-VIDEO OUT (Mini DIN 4-pin)
Mode B (DC 12V operation)
VIDEO OUT (BNC), VBS/VS IN (BNC)
S-VIDEO OUT (Mini DIN 4-pin)
SSC-DC54A: AC 24V terminals
LENS (4-pin), VBS/VS IN (BNC), VIDEO OUT (BNC),
S-VIDEO OUT (Mini DIN 4-pin), GND

Supplied Accessories: Lens connector, lens mount cap, operating instruction manual

Optional Accessories: YS-W150 Single camera adapter
YS-W250 Four camera adapter
CB101 6" Ceiling bracket

SONY

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