PAL

SONY SURVEILLANCE SYSTEMS

SSC-DC50AP/DC54AP/DC58AP

CCD Colour Video Camera

Lens shown is optional.

SONY®

SSC-DC50AP/DC54AP/DC58AP

CCD Colour Video Camera

Camera performance is probably the most critical factor for the successful operation of surveillance systems. This factor has taken on a special significance with the introduction of the Sony SSC-DC50AP, SSC-DC54AP, and SSC-DC58AP colour video cameras; cameras that have a level of performance only made possible with the Sony Exwave HAD™ CCD.

The Exwave HAD CCD is a major new advance in the application of Sony semiconductor technology to surveillance cameras. Long a world leader in the development of CCD sensors, the Sony commitment to uncompromising performance has led to the introduction of this new device - a CCD that provides a major advance in camera sensitivity combined with a reduction in smear levels.

These cameras also provide a full range of enhancement features and convenient controls including full automatic backlight compensation with Smart Control®, Y/C output capability, Turbo AGC™, ATWpro and Aperture Control. For improved backlight compensation, exposure control can be derived from one of seven light metering areas.

With identical performance specifications, the three cameras offer different methods of powering. The SSC-DC58AP operates on AC 220-240 V, the SSC-DC54AP on AC 24 V, and the SSC-DC50AP on DC 12 V.
The SSC-DC50AP also features Triple Multiplexing operation, with power and video/sync signals carried over a single coaxial cable.

SSC-DC58AP

SSC-DC54AP

SSC-DC50AP

Exwave HAD CCD - Higher Sensitivity, Lower Smear

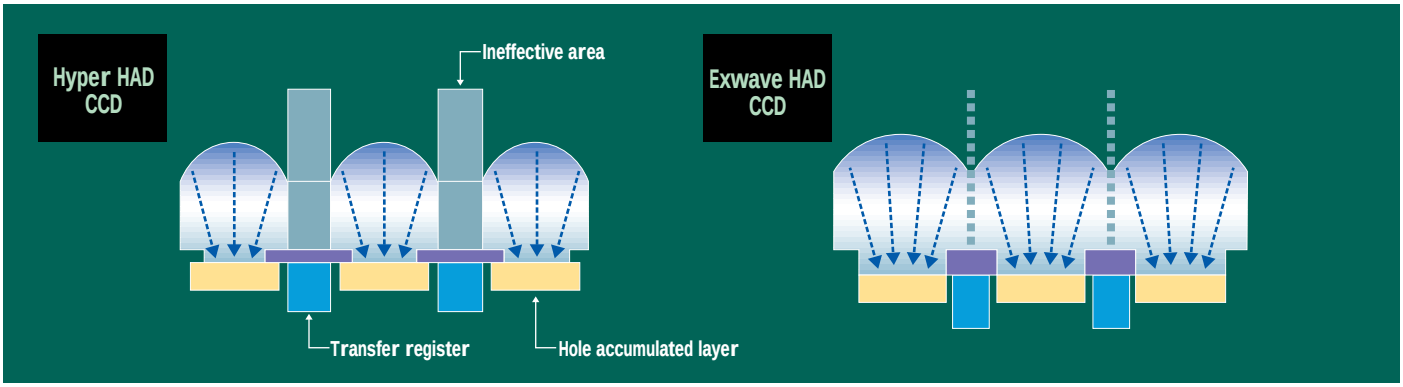
The Difference is Exwave HAD

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-DC50AP, SSC-DC54AP and SSC-DC58AP is well over twice that of the current SSC-DC50P/54P 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 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)*.

Fig. 1



Sensitivity comparison between SSC-DC50AP and SSC-DC50P :

SSC-DC50AP

SSC-DC50P

Lower Smear

Smear is caused by the leakage of unwanted light onto 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.

Smear level comparison between SSC-DC50AP and SSC-DC50P :

SSC-DC50AP

SSC-DC50P

** The sensitivity and smear level comparison pictures were taken in indentical lighting conditions with the same lens F stop and gain, resulting in relatively high smear levels.*

Excellent Picture Quality

With the high resolution of 470 TV lines and excellent sensitivity of 0.8 lx (F1.2, 50 IRE, TURBO AGC ON), these cameras capture 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, these 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 AGC

These cameras are equipped with a powerful AGC (Auto Gain Control) function, Turbo 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 colour 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, these cameras have Smart Control which achieves the optimum balance between Iris and Gain settings in a unified digital signal processing circuit. As a result, clear colour images can be obtained even under severe or varying lighting conditions.
Smart Control also works intelligently. Wherever the subject appears in a picture, the 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.

Alternative White Balance Control Modes

Each camera has four types of white balance control mode - 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 colour 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 colour temperature compensation range extends down to 2000 K and up to 10,000 K.

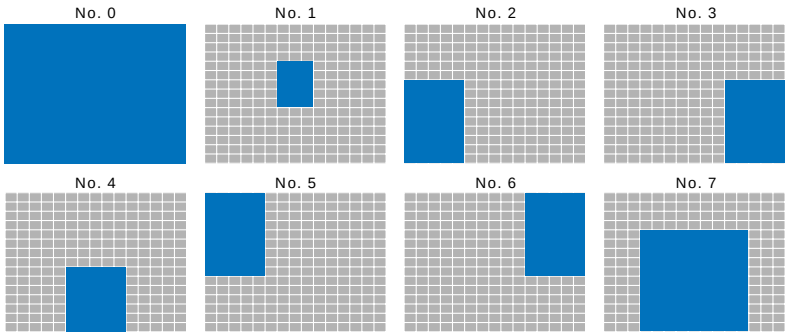
■ AWB mode

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.

■ Selection of Light Metering Areas



SIDE VIEW

① AGC ON/OFF switch
② AGC selection switch (TURBO/NORMAL)
③ BLC ON/OFF switch
④ Electronic shutter ON/OFF switch
⑤ White balance mode selection switch
⑥ Aperture level selection switch (SHARP/NORMAL)
⑦ SC Phase selection switch (0/180)

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

Electronic shutter selection

SHUTTER	Position
1/50	0
1/120	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

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

When the SSC-DC54AP or SCC-DC58AP uses AC line lock, this screw is used for vertical phase adjustment

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 1/50 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 CCD IRIS function is apparent 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

CCD IRIS OFF
– illegible numbers

CCD IRIS ON
– legible numbers

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 - *1/50, 1/120 , 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 seconds*

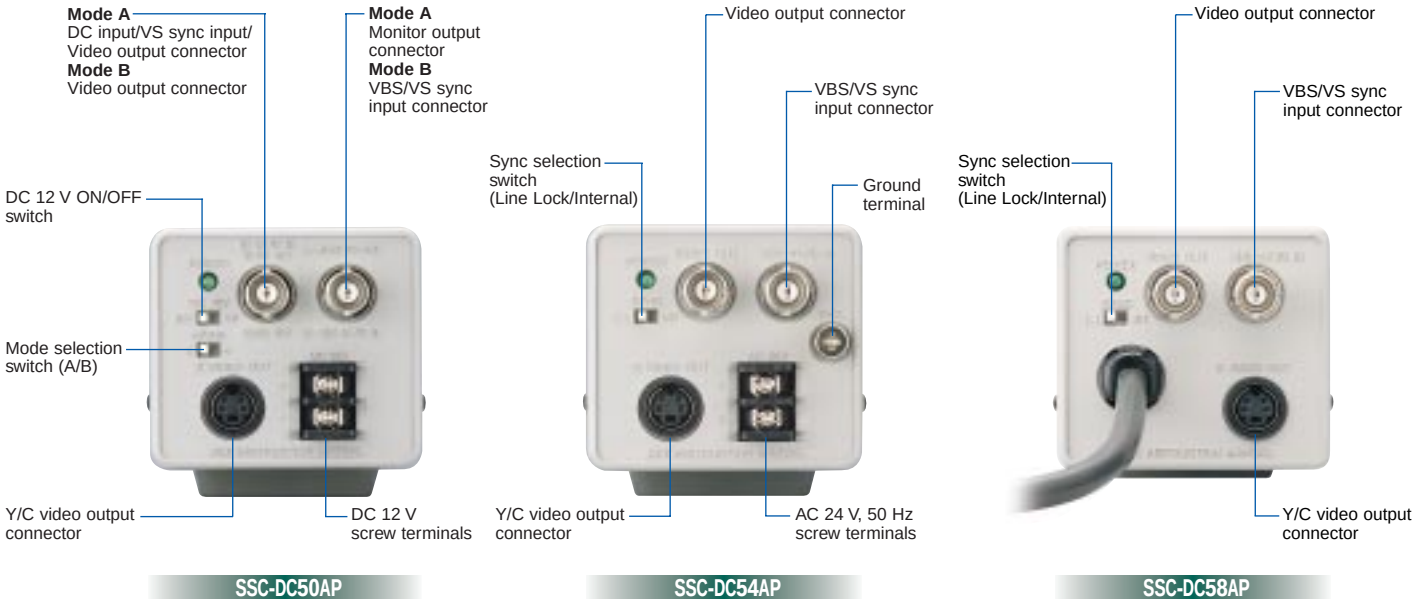
Simple Single Cable Wiring *(SSC-DC50AP only)*

The SSC-DC50AP 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-W150P/W250P 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-DC50AP has a MONITOR OUT connector, the picture can be easily checked at the installation point with a portable monitor. The SSC-DC50AP can also be operated from a local DC 12 V power source using a commercially available power supply adaptor.

Other Features

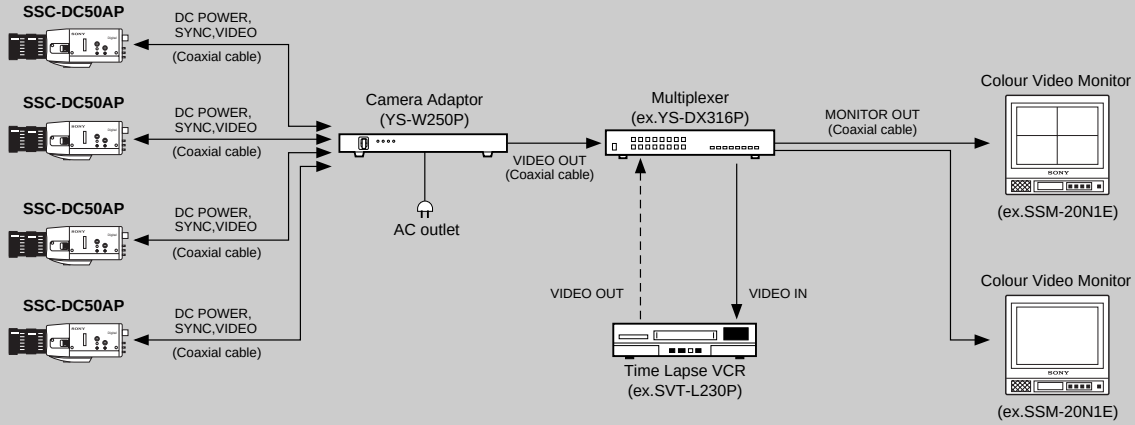
- Aperture/Sharp Mode
- VBS and VS lock
- C/CS Mount Lens Compatible
- Video/DC Servo type Auto Iris Lens Compatible

REAR VIEW

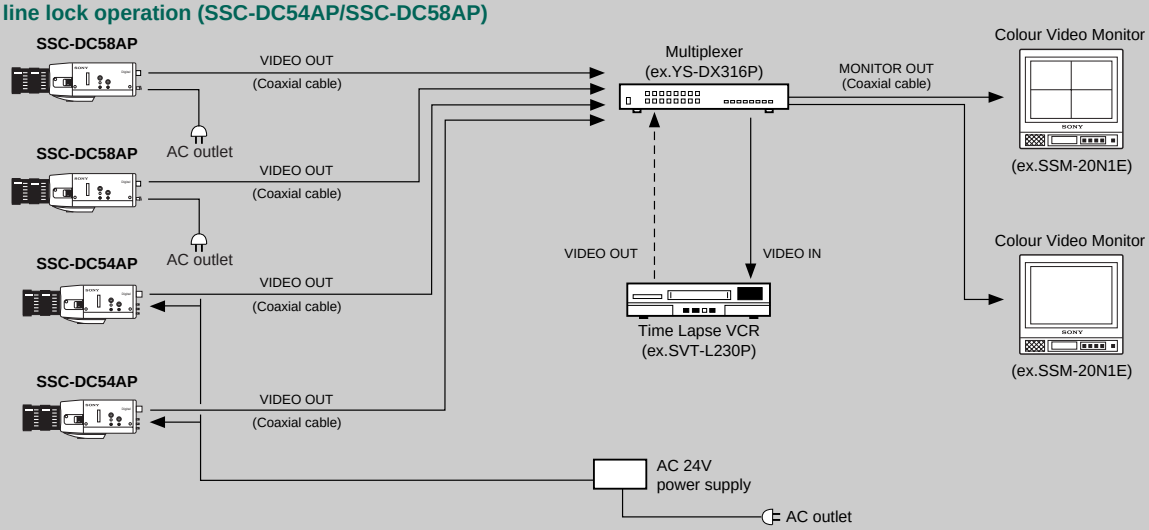


System Examples

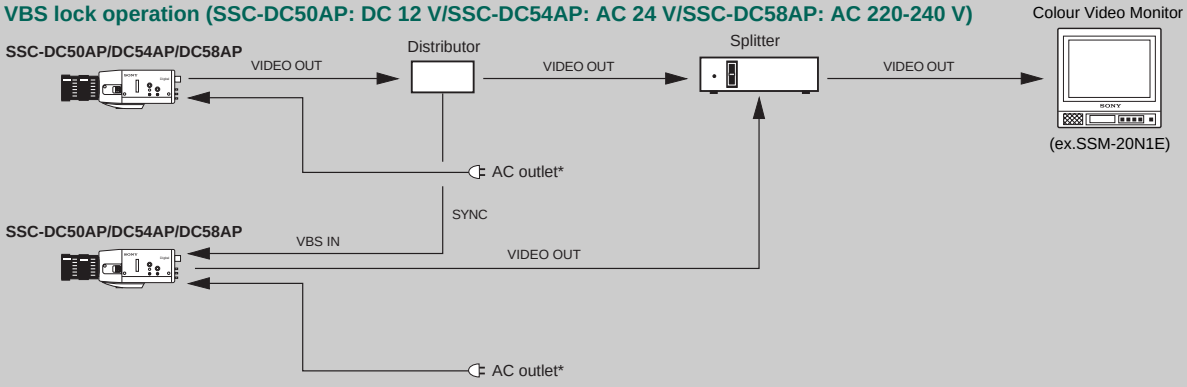
1. Triple multiplexing operation (SSC-DC50AP)



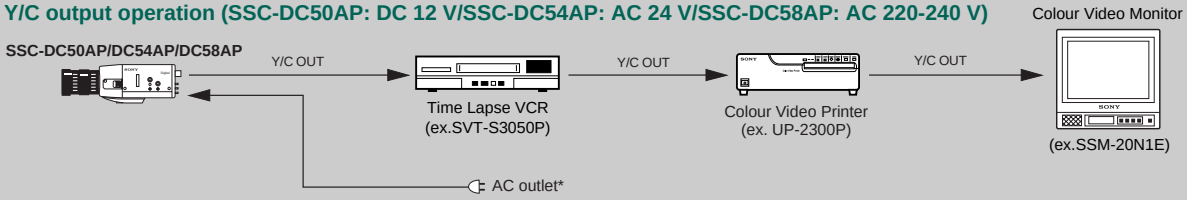
2. AC line lock operation (SSC-DC54AP/SSC-DC58AP)



3. VBS lock operation (SSC-DC50AP: DC 12 V/SSC-DC54AP: AC 24 V/SSC-DC58AP: AC 220-240 V)



4. Y/C output operation (SSC-DC50AP: DC 12 V/SSC-DC54AP: AC 24 V/SSC-DC58AP: AC 220-240 V)



** The SSC-DC50AP operates from a DC 12 V power supply, the SSC-DC54AP from a AC 24 V power supply, and the SSC-DC58AP from AC 220 to 240 V.*

Optional Accessories

YS-W150P/W250P Camera Adaptors

The YS-W150P/W250P Camera Adaptors are designed to transmit power and video/sync signals between the adaptor and the camera, using a single coaxial cable. The YS-W150P is for use in a single camera configuration while the YS-W250P is used in configurations of up to four cameras. Both units have two camera outputs for each camera input, allowing the camera picture to be monitored in two locations.
The YS-W150P/W250P not only accept a VS sync signal but also feature AC line lock for external synchronization.

YS-W150P

YS-W150P Rear Panel

YS-W250P

YS-W250P Rear Panel

Lenses

1) Aspherical Auto Iris Lens
(DC servo type)

Model	VCL-3ADXEA
Mount	CS
Focal length	3.8 mm
Iris control	Auto
Maximum aperture ratio	1: 0.8
Angle of view	108°
Angle of view (horizontal)	89°
Angle of view (vertical)	69°
Minimum object distance	0.15 m
Filter size	M43 × 0.75 mm
Mass	150 g (5.3 oz)
Dimensions (dia. × H × L)	45.0 × 56.8 × 52.5 mm (1 13/16 × 2 1/4 × 2 1/8 inches)
Cable length	90 mm (3 5/8 inch)

2) Auto Iris Lenses
(Video servo type)

Models	VCL-S03XEA	VCL-S06XEA	VCL-S12XEA
Mount	C	C	C
Focal length	3.6 mm	6.0 mm	12 mm
Iris control	Auto	Auto	Auto
Maximum aperture ratio	1 : 1.6	1 : 1.2	1 : 1.2
Filter size	—	M43 × 0.75 mm	M43 × 0.75 mm
Mass	88 g (3.1 oz)	128 g (4.5 oz)	126 g (4.4 oz)
Dimensions (dia. × L)	ø45 × 32.9 mm (1 13/16 × 1 5/16 inches)	ø45.5 × 48.5 mm (1 13/16 × 1 15/16 inches)	ø45.5 × 48.5 mm (1 13/16 × 1 15/16 inches)
Supply voltage	DC 8 to 16 V	DC 8 to 16 V	DC 8 to 16 V

3) Manual Iris Lenses

Models	VCL-S03XM	VCL-S06XM
Mount	C	C
Focal length	3.6 mm	6.0 mm
Iris control	Manual	Manual
Maximum aperture ratio	1 : 1.6	1 : 1.2
Filter size	M35.5 × 0.5 mm	M35.5 × 0.5 mm
Mass	66 g (2.3 oz)	74 g (2.6 oz)
Dimensions (dia. × L)	ø38 × 28.6 mm (1 1/2 × 1 3/16 inches)	ø38 × 36.4 mm (1 1/2 × 1 7/16 inches)

Mounting bracket For indoor use

YT-B21

Supplied accessories	Mounting screw (x4) Operating instruction manual
Maximum load	2 kg (4 lb 6 oz)
Mass	200 g (7 oz)

SSC-DC50AP

COLOR · Exwave HAD CCD · 1/2" CCD · C/CS MOUNT · AWB · ATW · ATW pro · 5600K · CCD IRIS · SHUTTER · AUTO IRIS · Smart Cont. · 8 AREA AE SPOT · Turbo AGC · APERTURE · HIGH RES · TRIPLE VIDEO/Y/C MULTIPLEXING · GEN LOCK · SYNC LOCK · Y/C OUT · MONITOR OUT · DC DC 12V

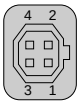
SSC-DC54AP/SSC-DC58AP

COLOR · Exwave HAD CCD · 1/2" CCD · C/CS MOUNT · AWB · ATW · ATW pro · 5600K · CCD IRIS · SHUTTER · AUTO IRIS · Smart Cont. · 8 AREA AE SPOT · Turbo AGC · APERTURE · HIGH RES · GEN LOCK · L LOCK · Y/C OUT · SSC-DC54AP AC 24V · SSC-DC58AP AC 220–240V

SSC-DC50AP/DC54AP/DC58AP Specifications

	SSC-DC50AP	SSC-DC54AP	SSC-DC58AP
Image device:	1/2-inch Interline Transfer Exwave HAD CCD		
Picture elements:	752 (H) × 582 (V)		
Sensing area:	6.3 × 4.7 mm		
Signal system:	PAL standard		
Scanning system:	625 lines, 2:1 interlace		
Sync system:	Internal or external with VBS/VS or MPX-VS	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-DC54AP/DC58AP only)		
Horizontal resolution:	470 TV lines		
Lens mount:	C/CS mount adjustable		
Minimum illumination:	AGC ON (TURBO mode) 0.4 lx at F1.2 (30 IRE) 0.8 lx at F1.2 (50 IRE) 3.0 lx at F1.2 (100 IRE)		
Aperture control:	SHARP/NORMAL switchable		
Automatic gain control (AGC):	TURBO/NORMAL/OFF switchable		
Electronic shutter:	1/50, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 s		
CCD IRIS control:	ON/OFF switchable, 1/50 to 1/100000 s		
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, 75Ω, sync negative Y/C: Y: 1.0 Vp-p, 75Ω, sync negative C: 0.286 Vp-p, at burst level, 75Ω		
Operating temperature:	-10 to 50°C (14 to 122°F)		
Storage temperature:	-40 to 60°C (-40 to 140°F)		
Power requirements:	1) Multiplexing with YS-W150P/W250P 2) DC 12 V from DC 12 V power supply	AC 24 V, 50 Hz	AC 220-240 V, 50 Hz
Power consumption:	1) 5.5 W supplied from YS-W150P/W250P 2) 4.5 W at DC 12 V	6.0 W	5.5 W
Mass:	600 g (1 lb 5 oz)		900 g (2 lb)
Auto iris type:	DC/VIDEO servo type		
Connectors:	DC 12 V 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 12 V operation) VIDEO OUT (BNC), VBS/VS IN (BNC), S-VIDEO OUT (Mini DIN 4-pin)	AC 24 V terminals LENS (4-pin), VBS/VS IN (BNC), VIDEO OUT (BNC), S-VIDEO OUT (Mini DIN 4-pin), GND	LENS (4-pin), VBS/VS IN (BNC), VIDEO OUT (BNC), S-VIDEO OUT (Mini DIN 4-pin)

LENS (4-pin)

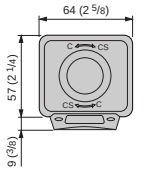


Pin	DC servo	VIDEO servo
1	Control (-)	Power (DC 9 V, 50 mA)
2	Control (+)	Not connected
3	Drive (+)	Video (0.7 Vp-p)
4	Drive (-) (GND)(+)	GND

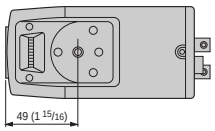
Supplied accessories:	Lens connector, lens mount cap, operating instruction manual

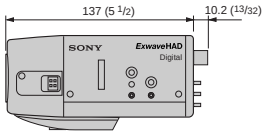
Dimensions:

SSC-DC50AP/DC54AP/DC58AP

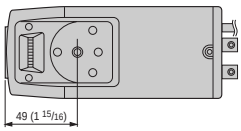


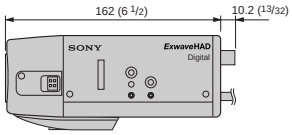
SSC-DC50AP/DC54AP





SSC-DC58AP





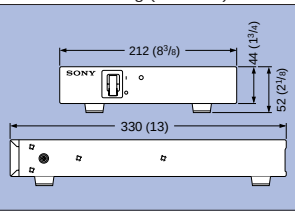
Unit: mm (inch)

YS-W150P/W250P Specifications

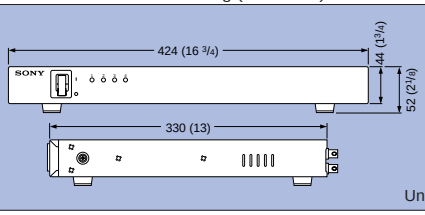
	YS-W150P	YS-W250P
Power requirements:	AC 220-240 V, 50 Hz	
Power consumption:	15 W	48 W
Operating temperature:	–10°C to 50°C (14°F to 122°F)	
Input connectors:	CAMERA IN (BNC), SYNC IN (BNC)	CAMERA IN 1 to 4 (BNC × 4), SYNC IN (BNC)
Output connectors:	VIDEO OUT (BNC × 2), SYNC OUT (BNC, Loop-through, 75Ω ON/OFF)	VIDEO OUT A: 1 to 4 (BNC × 4), VIDEO OUT B: 1 to 4 (BNC × 4) SYNC OUT (BNC, Loop-through, 75Ω ON/OFF)
Synchronization:	Internal or external with VS or AC line lock	
Maximum cable length:	300 m (984 ft) using RG-59B/U (3C-2V) 500 m (1640 ft) using RG-6A/U (5C-2V) 600 m (1968 ft) using RG-11A/U (7C-2V)	
Cable compensation:	3 steps (100/200/300 m)	
Mass:	1.9 kg (4 lb 3 oz)	3.6 kg (7 lb 15 oz)

Dimensions:

YS-W150P



YS-W250P



Unit: mm (inch)

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