

**SONY**<sup>®</sup>

CCIR/PAL

# Sony CCTV Systems

## Network Video Surveillance



**General Catalogue  
1999-2000**

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# Contents

## Introduction

The Total Surveillance System Solution from Sony	2
Case studies from around the world	4
Sony Camera, Monitor and Time - Lapse VCR Technologies - The Sony Advantage	6

## Colour Cameras and Monitors - Quick Reference 9

<b>Colour Video Cameras</b>	
SSC-CX34P	10
SSC-DC50AP/DC54AP/DC58AP	12
SSC-DC10P	14
SSC-DC14P/DC18P	14
SSC-C108P/C104P	15
SSC-C370P	16
Colour Cameras Typical System	17
Colour Camera Specifications	18
<b>Colour Video Monitors</b>	
SSM-9040P	20
SSM-14N5E/14N5A	20
SSM-20N5E/20N5A	21
Colour Monitor Specifications	22

## Black & White Cameras and Monitors - Quick Reference 23

<b>Black &amp; White Video Cameras</b>	
SPT-M308CE/M304CE	24
SPT-M122CE/M124CE/M128CE	24
SSC-M370CE	25
B/W Cameras Typical System	26
B/W Camera Specifications	28
<b>Black &amp; White Video Monitors</b>	
SSM-930CE	29
SSM-125CE	29
SSM-175CE	30
SSM-Q177CE	30

## Camera Optional Accessories - Quick Reference 31

Camera Adaptors	32
Lenses	33
Cables	34
Mounting Brackets	34

## Multiplexers and Switchers - Quick Reference 35

YS-DX316P/YS-DX216CE	36
YS-SX310P/YS-SX210CE	38
YS-S6	40
YS-Q440P	41

## Time Lapse Video Recorders - Quick Reference 43

SVT-L230P	44
SVT-124P	45
SVT-1000P	46
SVT-S3050P	47
SVT-5050P	48
Analog Time Lapse VCR Feature Comparison Chart	49
HSR-1P	50
<b>Optional Accessories</b>	51

## Monitoring Codecs and System Controller - Quick Reference 53

PMS-500P/400P	54
CSP-5000E	56

## Printers - Quick Reference 59

<b>Colour Video Printers</b>	
Feature Comparison Charts	60
UP-5600MDP	61
UP-2850P/2800P	62
UP-2300P/2100P	63
<b>Black &amp; White Video Graphic Printers</b>	
UP-960CE	64
UP-890CE	65
<b>Video Printer Optional Accessories</b>	
66	
<b>Digital Colour Printer</b>	
UP-D6500/D6400/D6300	67

## Automotive Camera and Monitors - Quick Reference 69

<b>Black &amp; White Video Camera</b>	
SSC-534AM	70
<b>Black &amp; White Video Monitors</b>	
SSM-504AM/724AMR	71

## Glossary 72

## Product Index 74

## Major Security Product Shows '99

	Show	Date	Place
<b>Europe</b>			
	IFSEC	May 10-13	Birmingham
	Alarmer Protection Securite 99	Oct 6-8	Paris
	SiTech 99	Oct 27-30	Berlin
<b>North America</b>			
	ISC-EAST	Aug 31-Sept 2	New York
	ASIS	Sept 27-30	Las Vegas
	CANASA CENTRAL	Oct 20-21	Toronto

	Show	Date	Place
<b>Asia</b>			
	ASIA Security 99	Aug. 10-12	Melbourne
	Security China	Oct. 26-29	Shenzhen
	Securex China	Dec. 1-4	Shanghai
<b>Central and South America</b>			
	Expo Seguridad Mexico City	June 14-16	Mexico City
	Securitech Argentina	July 6-8	Buenos Aires
	Expo Security Brazil	Nov 17-19	Sao Paulo

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 • Features and specifications subject to change without notice.



# *The Total Surveillance System Solution from*

Sony continues to expand its line up of products and new technologies in order to give you the most effective surveillance and monitoring system possible. Versatile, high quality video equipment, backed up by a world wide sales and service network make Sony the obvious choice for your video surveillance needs. When it comes to surveillance, look no further than Sony.

The image displays a variety of Sony surveillance components arranged around a central globe. The components are labeled as follows:

- Analog VCR**: A silver VCR unit with a tape slot and control panel.
- Camera**: Two different camera models, one with a lens and another with a lens and a microphone.
- Monitoring Codec**: A silver unit with a diamond-shaped display on the front.
- Printer**: A silver unit with a paper tray and a printer mechanism.
- Switcher**: A silver unit with multiple input and output ports.
- Digital VCR**: A silver VCR unit with a digital display and control panel.
- Monitor**: A CRT monitor with a silver frame.
- Multiplexer**: A silver unit with a front panel of buttons and indicators.


The background includes surveillance footage of a subway station with escalators and a supermarket aisle with a person walking. A person is also shown in a control room monitoring multiple video feeds on a wall of monitors.

## Surveillance system applications

### Convenience store/Retail surveillance

System configuration example

SPT-M128CE camera - 

SSM-930CE monitor - 

YS-S6 switcher - 

SVT-124P time-lapse VCR - 





### Remote facility monitoring

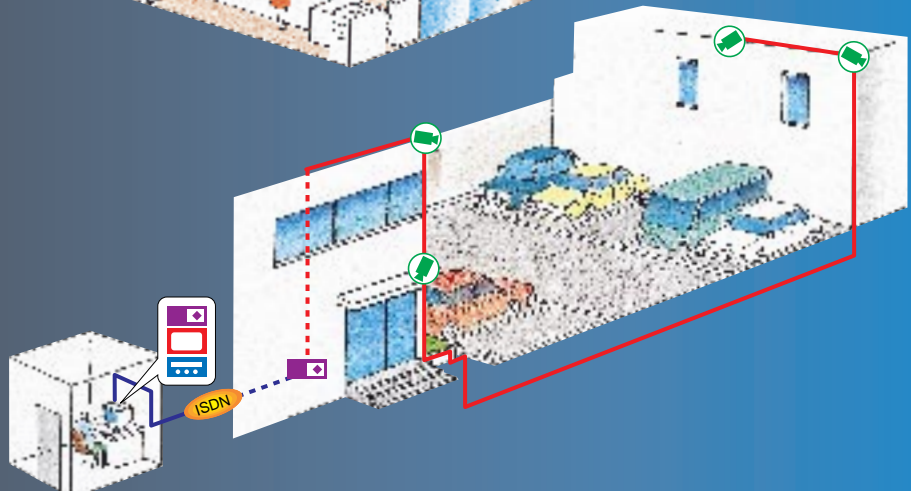
System configuration example

PMS-500P monitoring codec - 

SSC-DC58AP camera - 

Computer monitor - 

SVT-1000P time-lapse VCR - 



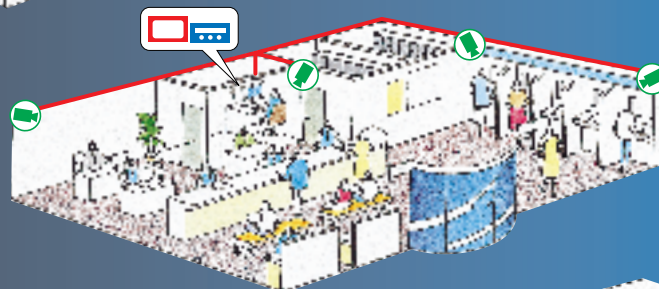
### Bank surveillance

System configuration example

SSC-DC18P camera - 

SSM-20N5E/20N5A monitor - 

HSR-1P digital time-lapse VCR - 



### Transportation/Train station surveillance

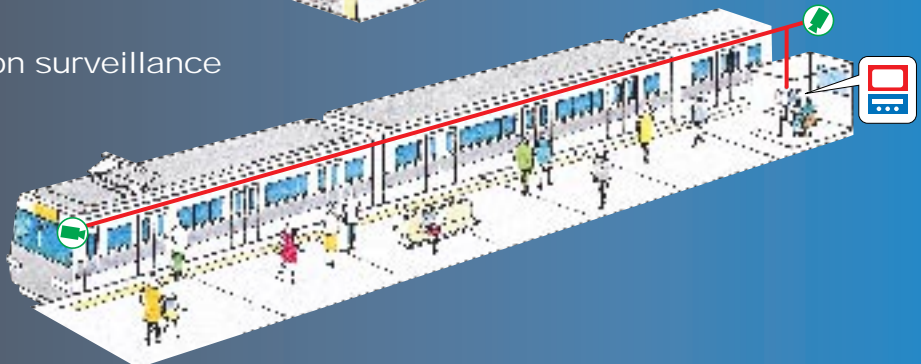
System configuration example

SSC-DC58AP/DC18P camera - 

SSM-14N5E/14N5A monitor - 

YS-DX316P multiplexer - 

SVT-S3050P time-lapse VCR - 





# Case studies from around the world

## Portugal Expo'98

Expo'98 in Lisbon, Portugal hosted 150 countries and in four months a total of 10 million people visited the two million square metre site. The highest attendance was 380,000 visitors passing through the site on the Expo's last day. In this environment surveillance and security are critical issues, and Sony took over the role of prime contractor with sole responsibility for project execution, equipment supply, system installation and maintenance during Expo'98's four month open period.



Sony installed a network of 43 high-performance surveillance cameras, all with pan & tilt capabilities suited to outdoor operation. The monitoring centre had at its heart a control and switching system based on the new Sony CSP-5000 matrix switcher and a total of 24 Sony CCTV

colour monitors. A basic requirement of the system was for continuous 24-hour recording of all incoming images. To achieve this, Sony used five S-VHS SVT-S3050P time-lapse VTRs and five top of the range colour multiplexers (YS-DX316P). The network of cameras was connected to the control room using more than 60km of copper wire and 10km of optical fibre. All the images entering the control room were fed in to three Sony CSPK-5000 matrix keyboards, and these pictures were relayed to another control room where the security department's controller could watch all the public areas on six Sony monitors. Despite daily temperatures of up to 43 degrees Celsius, the system never failed during the four month period of Expo'98.



## City of Mississauga, Ontario Canada

At the City of Mississauga, keeping residents secure is a top priority. Canada's sixth largest city, located west of Toronto, is in the midst of installing a comprehensive video surveillance system. By the time the project is complete, more than 100 closed-circuit television (CCTV) cameras will have been installed at strategic locations throughout the city - at transportation works yards, transit yards, community centres, libraries, parking lots, swimming pools and bus depots.

Cameras chosen for the job were Sony SSC-DC14 and SSC-DC54A digital colour cameras. The high resolution and sensitivity of the cameras yield high-quality images even in adverse lighting conditions.

The Sony SSC-DC54A capitalizes on its advanced 1/2-inch Exwave HAD CCD chip to deliver exceptional colour accuracy with 470 lines of horizontal resolution. Small enough to be used in the most demanding circumstances, the chip maximizes sensitivity, reduces smear and significantly increases S/N levels. For Control Centre monitoring, the City of Mississauga has installed six Sony SSM-20N1U Trinitron colour monitors.

The 20-inch versatile, rack-mountable units offer more than 500 lines of horizontal resolution for sharp pictures and auto beam current feedback for colour stability. Built-in speakers permit audio monitoring, and on-screen prompting provides easy, user-friendly operation.



## ***Gelredome, The Netherlands***

The Arnhem Gelredome was fitted with a security system in which Sony equipment plays the central role. There are 35 SSC-DC18P cameras located both inside the stadium and outside - in the promenade areas, above the stands, above the parking areas - all linked to 14" and 20" monitors, allowing instant playback of recorded images. The 20" monitors are used with colour quad units in the control room, manned by the police and Gelredome staff. This allows images from 16 cameras to be monitored simultaneously and permits any selected picture to be displayed onto a spot monitor for further study at any time. Three Sony time-lapse recorders ensure continuous recording and the Sony video printers provide printouts direct from the video. This makes surveillance, detection and follow-up easy and efficient.



## ***Mycal Akashi, Akashi Japan***

Mycal Akashi is a 150,000 square meter complex consisting of a number of department stores, restaurants, sports facilities and movie theaters. The buildings and parking lots of this complex are kept safe and secure thanks to 50 cameras which are centrally controlled by the Sony CSP-5000 System Controller. The cameras are strategically located through out the buildings and out - door parking lots. Moreover, four cameras on the roof can monitor traffic 4 to 5 km beyond the complex. Since implementing this surveillance system, security staff have been able to respond more quickly to problems such as a group of trouble-makers indoors, as well as monitor traffic and parking more effectively outdoors. This monitoring system also has made labor saving possible during night shift hours.



## ***Norddeutsche Landesbank, Germany***

Security is essential to all organisations but none more than banks. With cash dispensers throughout the world needing surveillance around the clock, security requirements are pushed to the limits. That's why a German bank giant, The Norddeutsche Landesbank, installed Monitoring Codocs in several of its branches. It's a system developed by Sony that gives multi-site two-way surveillance from a single central location. And by using the latest ISDN technology it's possible to prevent crimes as and when they happen.

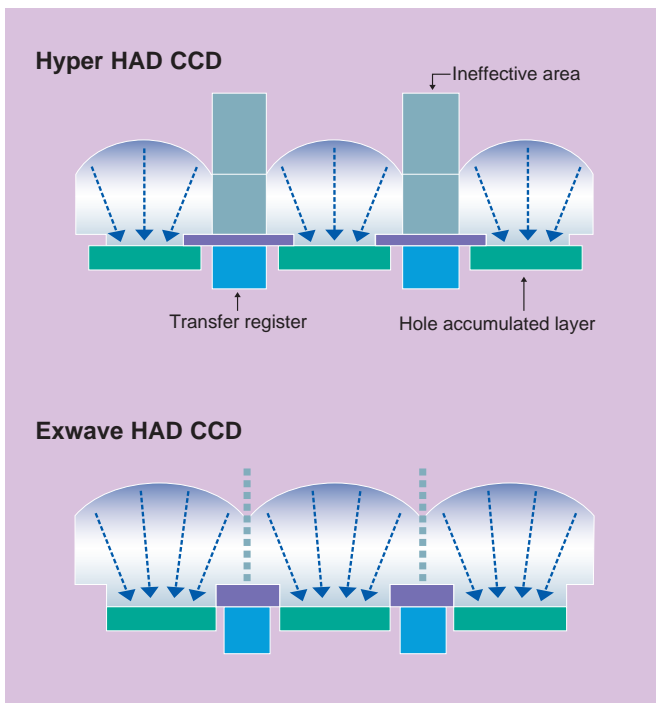


# Sony Camera, Monitor and Time-lapse VCR

## Camera technologies

### Exwave HAD™ (SSC-DC50AP/54AP/58AP)

In monitoring and surveillance applications, camera sensitivity is one of the most important factors in obtaining an adequate picture in low light conditions. The sensitivity of Sony cameras using the Exwave



HAD CCD is well over twice that of the cameras using the Sony Hyper HAD CCD. The 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.

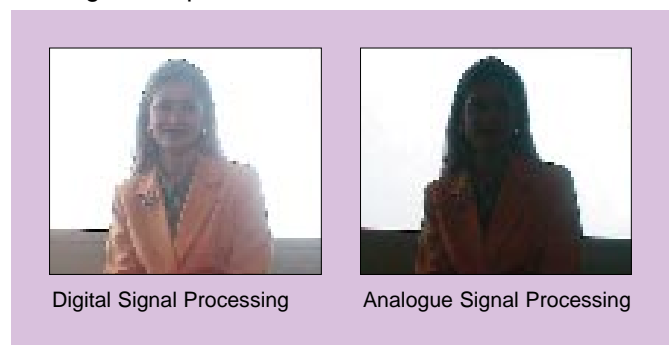
Moreover, the smear level of the Exwave HAD CCD is reduced to 1/50th that of the Hyper HAD CCD. This leakage is dramatically reduced because the improvement of the unit cell structure minimizes the unnecessary reflection of the light onto the CCD surface.

### Smart Control

#### (SSC-DC10P/14P/18P/50AP/54AP/58AP/CX34P)

Strong backlighting can often cause the subject of the picture to be cast into shadow. To overcome this problem, Smart Control 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 as it employs average light metering to detect the position of the major subject, and Fuzzy Logic to calculate the proper exposure.

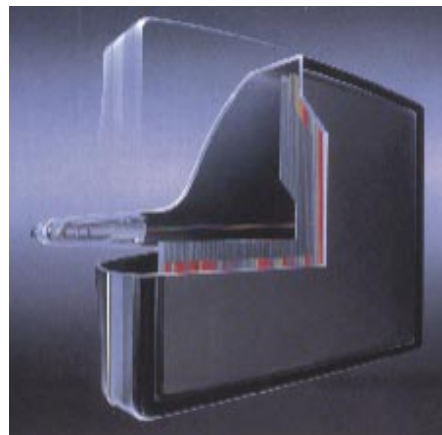
### Backlight Compensation



## Monitor technology

### Trinitron CRT

Sony incorporates Trinitron CRTs in all of its surveillance colour monitors. With its completely original design, the Trinitron technology allows for high resolution and the best possible picture reproduction. The completely flat, straight vertical surface of the Trinitron CRT provides the lowest purity imperfection available with the CRT technologies of today. Moreover, Sony manufactures its own CRTs to assure quality performance in all of its monitors.



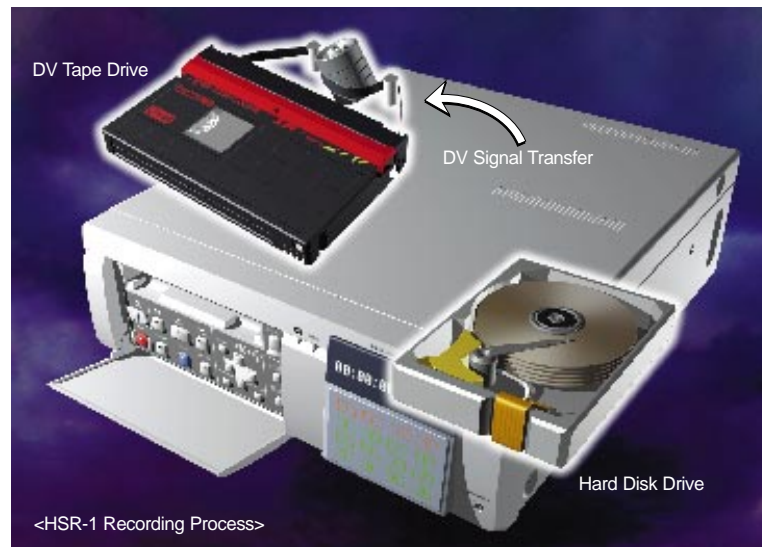


# Technologies - The Sony Advantage

## Time-lapse VCR technologies

### Hybrid Recording (HSR-1P)

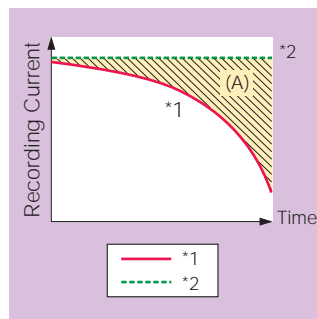
The Sony HSR-1P digital time-lapse recorder uses both a hard disk drive (HDD) and a DV (digital video) tape drive for storage. The image data is first recorded onto the HDD and is then transferred to DV tape. This "hybrid" approach to recording has two major advantages. The first advantage is reduced maintenance. Because the DV tape drive works only while recording the image data being transferred from the HDD, the tape transport and heads are stationary most of the time. This significantly reduces the need for head maintenance. The second advantage is multiple protection. In the unlikely event that the DV tape drive fails, recording continues onto the HDD. Conversely, if the HDD fails, recording continues on the DV tape.



### APC (Adaptive Picture Control)

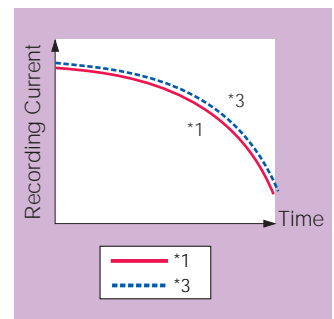
As the recording heads of VCRs become worn after extended use the picture quality will deteriorate unless the recording current is adjusted accordingly. All Sony SVT time-lapse VCRs have an APC (Adaptive Picture Control) function which automatically detects the condition of the recording head and the video cassette tape, then sets the optimum record head current. With conventional recorders the recording current is preset at a constant level, which results in an excessive recording signal as the VCR heads become worn. This is called over-modulation. APC maintains the recording current at the ideal level, preventing over-modulation and therefore recording clear pictures even after long periods of use.

#### Conventional VCR



- \*1 Ideal recording current
- \*2 Preset recording current
- (A) Excessive recording current (over-modulation)

#### VCR with APC



- \*1 Ideal recording current
- \*3 APC recording current

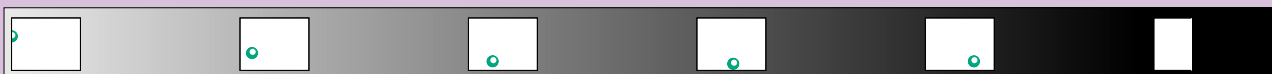
### RealAction Recording (SVT-L230P)

The SVT-L230P time lapse VCR features RealAction high density recording. For example, conventional time lapse VCRs record only 5.5 fields per second in 24 hour recording mode. However, Sony RealAction technology allows recording of 16.6 fields per second - three times as much information. This recording density ensures smooth, natural recording of even fast moving objects.

RealAction recording 16.6 fields/sec.



Normal time-lapse recording 5.5 fields/sec.





# COLOUR CAMERAS AND MONITORS

The selection of high quality surveillance cameras and monitors from Sony is better than ever. Sony cameras now incorporate more features and superior technology such as the highly sensitive Exwave HAD CCD used in the SSC-DC50AP series cameras. Sony monitors use the Emmy award winning Trinitron technology, providing clearly defined, high quality images that are vital for effective surveillance.

## Colour Cameras



**SSC-CX34P**  
1/3-inch Hyper HAD CCD  
Built-in 12x zoom lens  
Remote lens control capability  
High resolution  
Smart Control



**SSC-DC50AP/54AP/58AP**  
1/2-inch Exwave HAD CCD  
High resolution  
Smart Control  
DC 12 V or multiplexing with YS-W150P/W250P (SSC-DC50AP)  
AC 24 V, 50 Hz (SSC-DC54AP)  
AC 220 to 240 V, 50 Hz (SSC-DC58AP)



**SSC-DC10P/DC14P/DC18P**  
1/3-inch Hyper HAD CCD  
High resolution  
Smart control  
DC 12 V or multiplexing with YS-W150P/W250P (SSC-DC10P)  
AC 24 V, 50 Hz (SSC-DC14P)  
AC 220 to 240 V, 50 Hz (SSC-DC18P)



**SSC-C108P/C104P**  
1/3-inch Hyper HAD CCD  
High S/N ratio  
AC 220 to 240 V, 50 Hz (SSC-C108P)  
AC 24 V, 50 Hz (SSC-C104P)

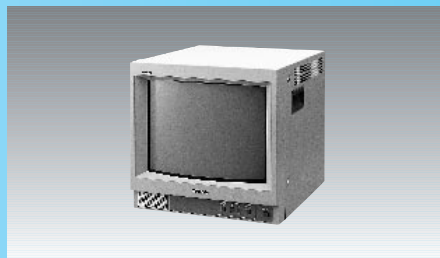


**SSC-C370P**  
1/2-inch Hyper HAD CCD  
High resolution  
DC 12 V or multiplexing with YS-W150P/W250P

## Colour Monitors



**SSM-9040P**  
Trinitron 9-inch monitor



**SSM-14N5E/14N5A**  
Trinitron 14-inch monitor  
High resolution



**SSM-20N5E/20N5A**  
Trinitron 20-inch monitor  
High resolution

## Built-in Zoom Lens Colour Video Camera

# SSC-CX34P



- Especially designed for surveillance applications
- Built-in 12x switchable motorized/auto iris zoom lens with zoom/focus preset capabilities
- The lens zoom, focus and iris functions can be remotely controlled from an external controller/receiver (Lens control voltage,  $\pm 6$  V or  $\pm 12$  V is selectable)
- Digitally-controlled Smart Control function provides intelligent and flexible automatic backlight compensation
- High density 1/3-inch IT Hyper HAD CCD offers a high resolution of 470 TV lines and high sensitivity with a minimum illumination of 4.5 lx at F1.8 (50 IRE)
- Excellent signal-to-noise ratio of 50 dB
- Extra gain with Turbo AGC function, providing 6 dB more gain than conventional AGC
- Aperture/Sharp Mode makes object outlines sharper in the reproduced picture
- Three alternative automatic white balance control modes: AWB (Auto White Balance) by one push /ATW (Auto Tracing White Balance)/ATWpro
- New ATWpro mode ensures reliable white balance control based on the absolute colour temperature of the object (The effective operational colour range is 2500 K to 6000 K)



Front Panel



Rear Panel

## Supplied Accessories

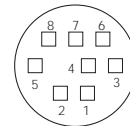
- Tripod adaptor (1)
- Lens control cable (1)
- Operation manual (1)

## Built-in Zoom Lens Specifications

Lens:	12 x zoom (f = 5.4 mm ~ 64.8 mm) (F1.8 to 2.7)
Angle of view (horizontal):	48.8°(Wide) ~ 4.3°(Tele)
Angle of view (vertical):	37.6°(Wide) ~ 3.3°(Tele)
Maximum object distance:	10 mm (Wide), 800 mm (Tele)
Focus:	Manual
Lens control voltage:	6 V or 12 V selectable
Voltage polarity:	NORMAL or REVERSE switchable
Focus/lens control:	Preset function from external remote control system
Auto iris:	ON/OFF switchable

## Lens Connector Information

### 1. Pin Assignments



Pin number	Name	Meaning	Voltage spec	Supplied Cable Colour
1	Preset +	V1 = + Power for preset	12 Vp-p maximum	Red
2	Preset -	V2 = - Power for preset	12 Vp-p maximum	White
3	Zoom Position Out	Zoom position voltage output	V2 to V1	Black
4	GND	-	-	Yellow
5	Focus Position Out	Focus position voltage output	V2 to V1	Blue
6	Focus In	Focus control voltage input	-12 V to +12 V	Green
7	Zoom In	Zoom control voltage input	-12 V to +12 V	Brown
8	Iris In*	Iris control voltage input	-12 V to +12 V	Grey

\*Note: If Iris is in auto mode, this voltage control is not accepted.

### 2. Lens Motion by NORM/REV switch

		Switch NORM position	Switch REV position
Focus In	+ Voltage	Far	Near
	- Voltage	Near	Far
Zoom In	+ Voltage	Wide	Tele
	- Voltage	Tele	Wide
Iris In	+ Voltage	Close	Open
	- Voltage	Open	Close

### 3. Position Output Motion

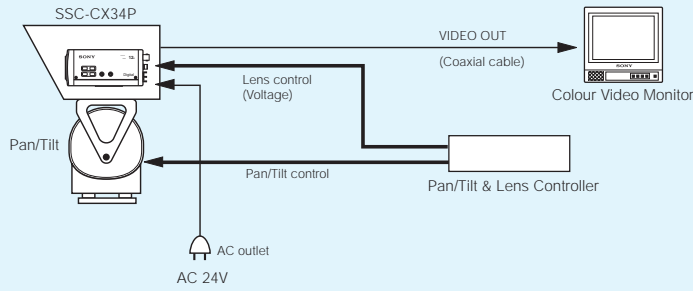
		Position voltage increase	Position voltage decrease
Zoom Position output	3-pin	Tele side	Wide side
Focus Position output	5-pin	Far side	Near side



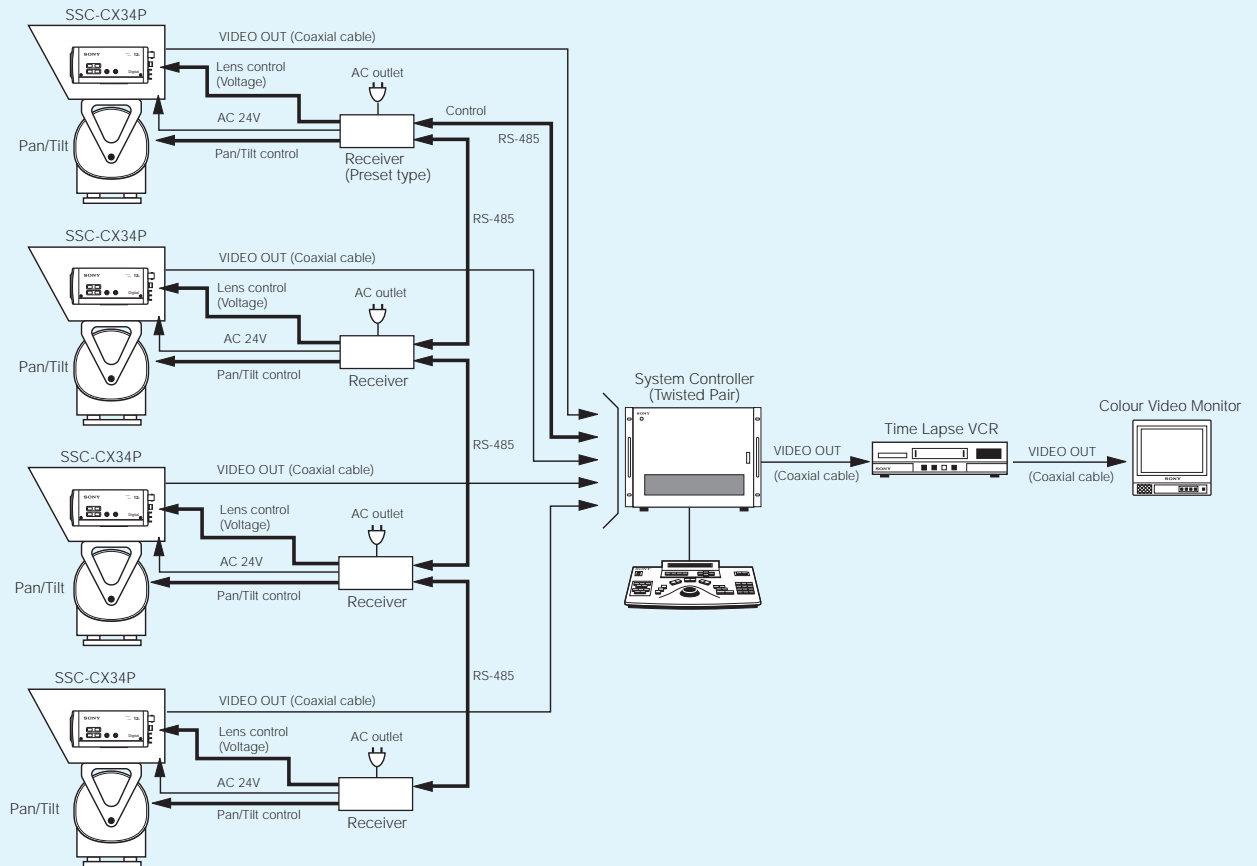


## SSC-CX34P Typical System

### 1. Analogue Pan/Tilt and Lens Controller System



### 2. Twisted Pair System



## CCD Colour Video Camera

### SSC-DC50AP/DC54AP/DC58AP



Lens shown is an option

- Especially designed for surveillance applications
- High density 1/2-inch IT Exwave HAD CCD offers excellent sensitivity with a minimum illumination of 0.8 lx at F1.2 (50 IRE), very low smear, and high resolution of 470 TV lines.

**•Selectable eight detection area**

- Digitally-controlled Smart Control function provides intelligent and flexible automatic backlight compensation
- For faster backlight compensation, the detection area can be preset


- Excellent signal-to-noise ratio of 50 dB
- Y/C output capability
- Extra gain with Turbo AGC function, providing 6 dB more gain than conventional AGC
- Aperture/Sharp Mode makes object outlines sharper in the reproduced picture
- Four alternative white balance control modes: AWB (Auto White Balance) by one push/ATW (Auto Tracing White Balance)/ATW pro/5600 K
- New ATW pro mode ensures reliable white balance control based on the absolute colour temperature of the object (The effective operational colour range is 2500 K to 6000 K)
- Variable speed electronic shutter
- Accepts 2 types of auto iris lenses (DC servo type/Video servo type)
- Accepts C/CS-mount lenses

#### Exclusive features for SSC-DC50AP

- External synchronization with VBS or VS
- Single cable operation (video/sync/power triple multiplex transmission) for easy installation with the optional YS-W150P/W250P Camera Adaptor (Mode A)
- Monitor out function for on-the-spot camera positioning (Mode A)
- 12 V DC power supply can also be used (Mode B)

#### Exclusive features for SSC-DC54AP/DC58AP

- External synchronization with VBS, VS or AC line lock
- AC power operation: AC24 V (DC54AP), AC220-240 V (DC58AP)



SSC-DC50AP

SSC-DC54AP

SSC-DC58AP

Rear Panel

#### Supplied Accessories

- Lens connector (1)
- Lens mount cap (1)
- Operation manual (1)

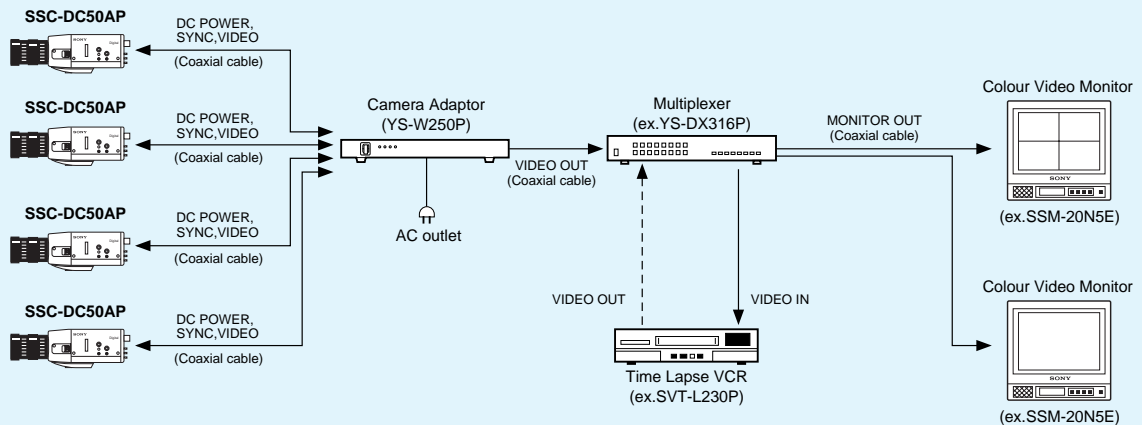
#### Optional Accessories

- Camera Adaptor (for SSC-DC50AP only) YS-W150P, YS-W250P
- Manual Iris Lens
  - VCL-S03XM (3.6 mm, F1.6)
  - VCL-S06XM (6.0 mm, F1.2)
  - VCL-S12XM (12 mm, F1.2)
- Auto Iris Lens
  - VCL-S03XEA (3.6 mm, F1.6)
  - VCL-S06XEA (6.0 mm, F1.2)
  - VCL-S12XEA (12 mm, F1.2)
- Aspherical Auto Iris Lens
  - VCL-3ADXEA (3.8 mm, F0.8)

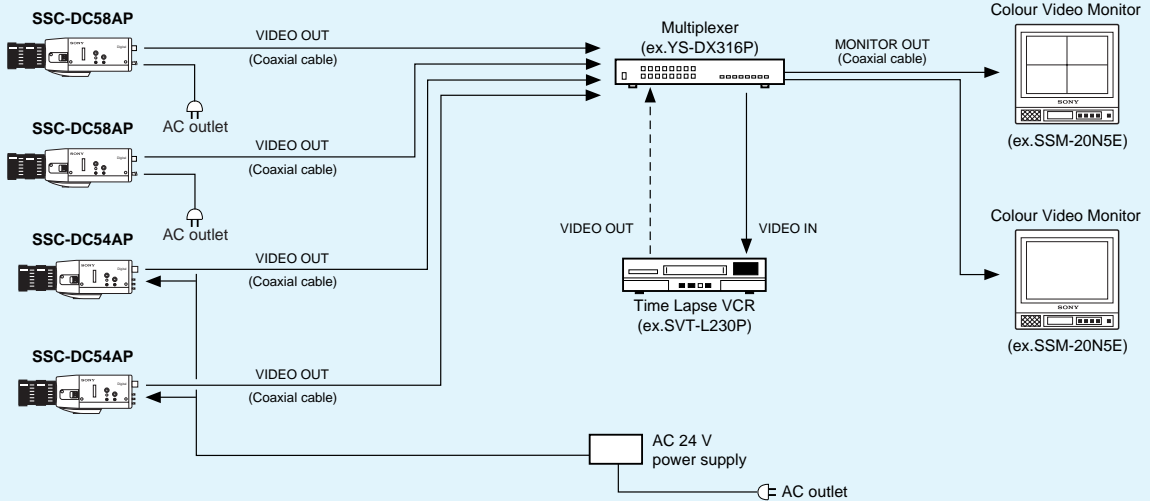


## SSC-DC50AP/DC54AP/DC58AP Typical Systems

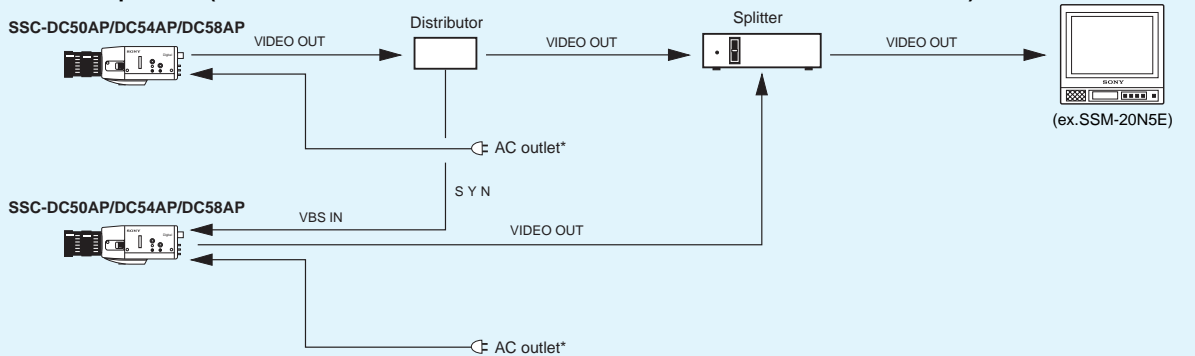
### 1. Triple multiplexing operation (SSC-DC50AP)



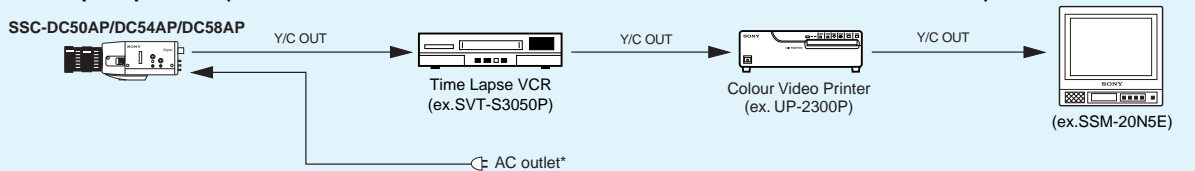
### 2. AC line lock operation (SSC-DC54AP/SSC-DC58AP)



### 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.

Please see page 19, also.

# COLOUR VIDEO CAMERAS

## CCD Colour Video Camera

### SSC-DC10P



Lens shown is an option

- Especially designed for surveillance applications
- Digitally-controlled Smart Control function provides intelligent and flexible automatic backlight compensation
- High density 1/3-inch IT Hyper HAD CCD offers a high resolution of 470 TV lines and high sensitivity with a minimum illumination of 1.7 lx at F1.2 (50 IRE)
- Excellent signal-to-noise ratio of 50 dB
- Extra gain with Turbo AGC function, providing 6 dB more gain than conventional AGC
- Aperture/Sharp Mode makes object outlines sharper in the reproduced picture
- Two alternative automatic white balance control modes: ATW (Auto Tracing White Balance)/ATW pro
- New ATWpro mode ensures reliable white balance control based on the absolute colour temperature of the object (The effective operational colour range is 2500 K to 6000 K)
- Accepts 2 types of auto iris lenses (DC servo type/Video servo type)
- Accepts C/CS-mount lenses
- External synchronization with VS
- Single cable operation (video/sync/power triple multiplex transmission) for easy installation with the optional YS-W150P/W250P Camera Adaptor (Mode A)
- Monitor out function for on-the-spot camera positioning (Mode A)
- 12 V DC power supply can also be used (Mode B)



Rear Panel

#### Supplied Accessories

- Lens connector (1)
- Lens mount cap (1)
- Operation manual (1)

#### Optional Accessories

- Camera adaptor YS-W150P, YS-W250P
- Auto iris lens VCL-4V8WEA (3.5 to 8.0 mm, F1.4)  
VCL-S02WEAP (2.8 mm, F1.3)
- Aspherical auto iris lens VCL-3ADXE A (3.8 mm, F0.8)

## CCD Colour Video Camera

### SSC-DC14P/DC18P



Lens shown is an option

- Especially designed for surveillance applications
- Digitally-controlled Smart Control function provides intelligent and flexible automatic backlight compensation
- High density 1/3-inch IT Hyper HAD CCD offers a high resolution of 470 TV lines and high sensitivity with a minimum illumination of 1.9 lx at F1.2 (50 IRE)
- Excellent signal-to-noise ratio of 50 dB
- Extra gain with Turbo AGC function, providing 6 dB more gain than conventional AGC
- Aperture/Sharp Mode makes object outlines sharper in the reproduced picture
- Two alternative automatic white balance control modes: ATW (Auto Tracing White Balance)/ATW pro
- New ATWpro mode ensures reliable white balance control based on the absolute colour temperature of the object (The effective operational colour range is 2500 K to 6000 K)
- Accepts 2 types of auto iris lenses (DC servo type/Video servo type)
- Accepts C/CS-mount lenses
- External synchronization with AC Line Lock
- Selection of power source: AC 24 V for SSC-DC14P  
AC 220 to 240 V for SSC-DC18P



SSC-DC14P



SSC-DC18P

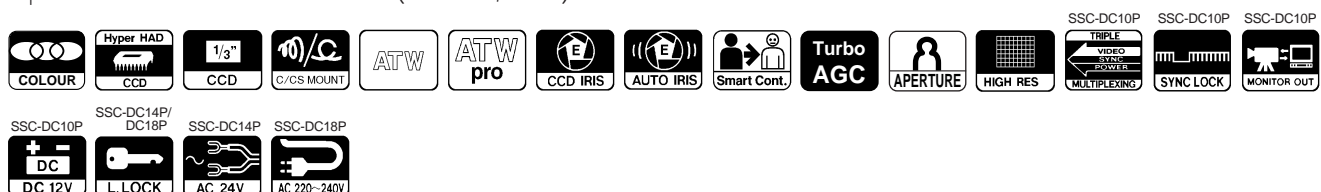
Rear Panel

#### SSC-DC14P/DC18P Supplied Accessories

- Lens connector (1)
- Lens mount cap (1)
- Operation manual (1)

#### SSC-DC14P/DC18P Optional Accessories

- Auto iris lens VCL-4V8WEA (3.5 to 8.0 mm, F1.4)  
VCL-S02WEAP (2.8 mm, F1.3)
- Aspherical auto iris lens VCL-3ADXE A (3.8 mm, F0.8)





# COLOUR VIDEO CAMERAS

CCD Colour Video Camera

## SSC-C108P/C104P



- Especially designed for surveillance applications
- 1/3-inch IT Hyper HAD CCD offers extremely high sensitivity with a minimum illumination of 0.9 lx at F1.2 (50 IRE)
- Excellent signal-to-noise ratio of 52 dB
- Automatic backlight compensation
- Turbo AGC function gives extra gain for low light conditions
- CCD IRIS function allows use of inexpensive manual iris lenses
- ATW (Auto Tracing White Balance) control for white balance adjustment
- Accepts 2 types of auto iris lenses (DC servo type/Video servo type)
- Accepts both C/CS-mount lenses
- External synchronization with AC Line Lock
- AC power operation: AC220 to 240 V, 50 Hz (SSC-C108P)/AC 24 V (SSC-C104)



SSC-C108P



SSC-C104P

Rear Panel

### Supplied Accessories

- Lens connector (1)
- Lens mount cap (1)
- Operation manual (1)

### Optional Accessories

- Auto iris lens VCL-4V8WEA (3.5 to 8.0 mm, F1.4)
- VCL-S02WEAP (2.8 mm, F1.3)
- Aspherical auto iris lens VCL-3ADXEA (3.8 mm, F0.8)



## CCD Colour Video Camera

### SSC-C370P



Lens shown is an option



Rear Panel

- Especially designed for surveillance applications
- High density 1/2-inch IT Hyper HAD CCD offers a high resolution of 470 TV lines and high sensitivity with a minimum illumination of 2.5 lx at F1.2 (50 IRE)
- Excellent signal-to-noise ratio of 48 dB
- CCD IRIS function allows use of inexpensive manual iris lenses
- Two alternative automatic white balance control modes: AWB (Auto White Balance)/ATW (Auto Tracing White Balance)
- Variable speed electronic shutter  
Shutter speeds – 1/50, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 (seconds)
- Accepts C-mount lenses
- External synchronization with VS
- Single cable operation (video/sync/power triple multiplex transmission) for easy installation with the optional YS-W150P/W250P Camera Adaptor (Mode A)
- Monitor out function for on-the-spot camera positioning (Mode A)
- 12 V DC power supply can also be used (Mode B)

#### Supplied Accessories

- Lens connector (1)
- Lens mount cap (1)
- Operation manual (1)

#### Optional Accessories

- |                  |  |
|------------------|--|
| Camera adaptor   | YS-W150P, YS-W250P   |
| Manual iris lens | VCL-S03XM (3.6 mm, F1.6)<br>VCL-S06XM (6.0 mm, F1.2)<br>VCL-S12XM (12 mm, F1.2)    |
| Auto iris lens   | VCL-S03XEA (3.6 mm, F1.6)<br>VCL-S06XEA (6.0 mm, F1.2)<br>VCL-S12XEA (12 mm, F1.2) |

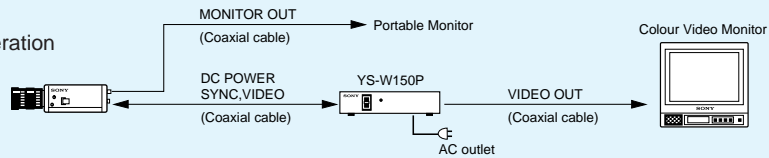


## Colour Cameras Typical System (SSC series)

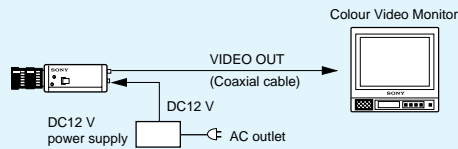
### SSC-DC50AP/DC10P/C370P

#### 1. Single camera operation

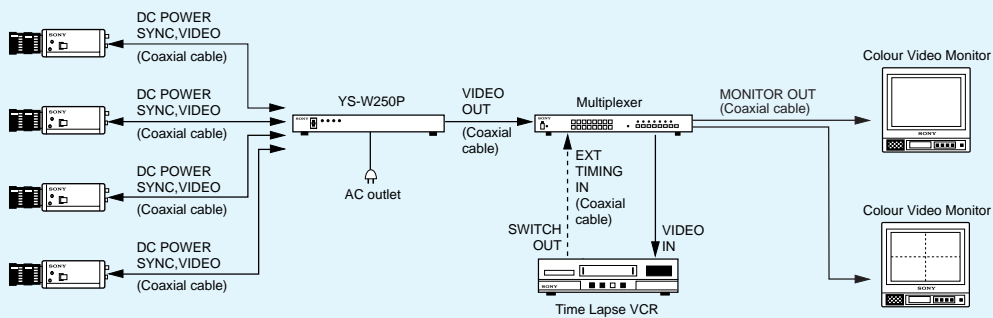
(a) Mode A: Triple multiplexing operation



(b) Mode A: DC 12 V operation

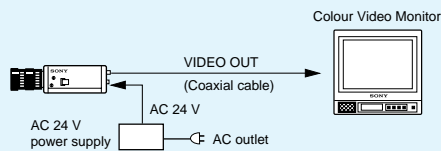


#### 2. Multiple camera operation

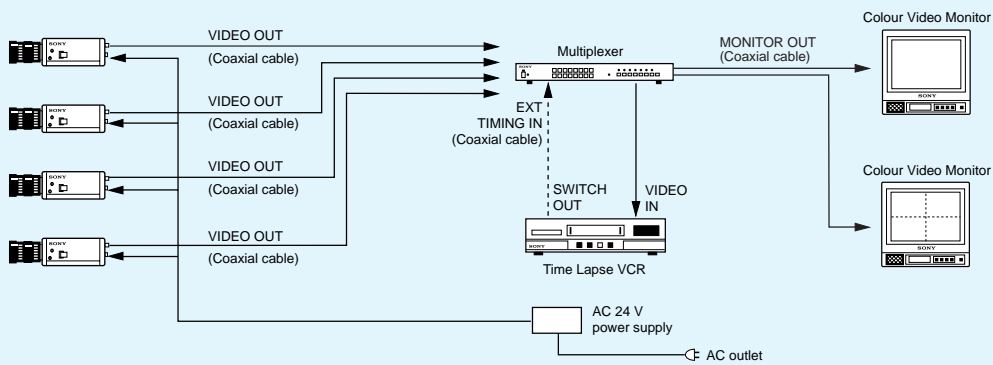


### SSC-DC54AP/DC14P/C104P

#### 1. Single camera operation

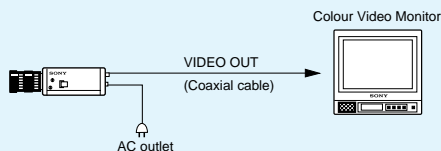


#### 2. Multiple camera operation

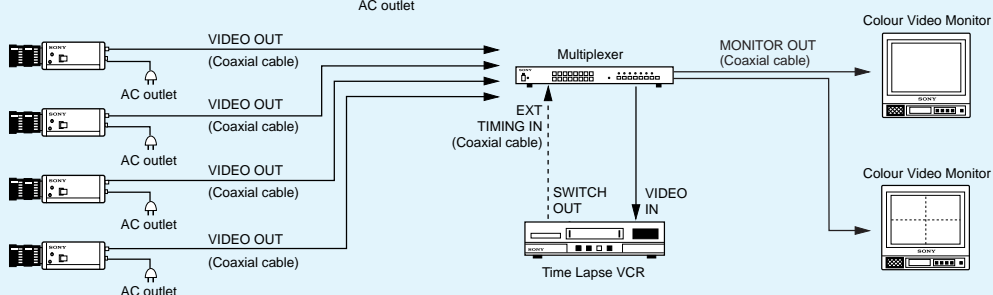


### SSC-DC58AP/DC18P/C108P

#### 1. Single camera operation



#### 2. Multiple camera operation






# COLOUR VIDEO CAMERAS

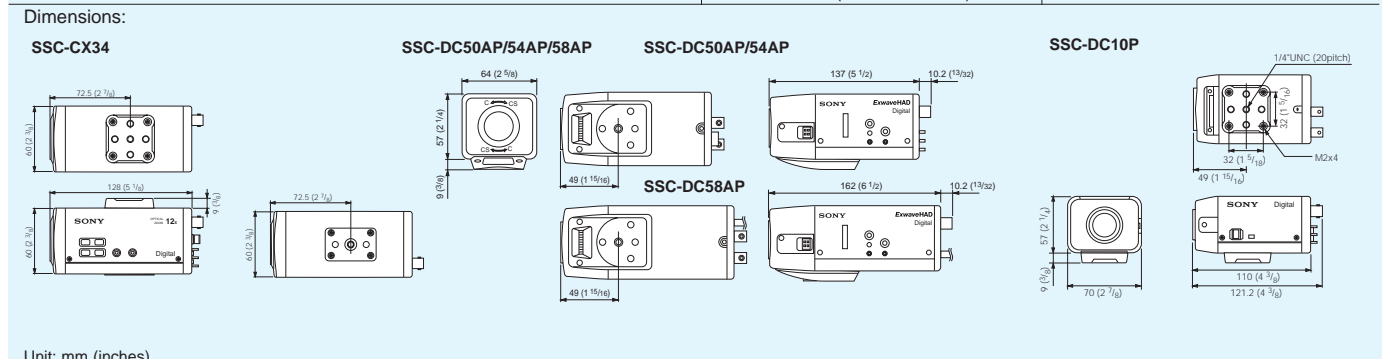
## Colour Camera Specifications (SSC series)

	SSC-CX34P	SSC-DC50AP/54AP/58AP	SSC-DC10P
Image device:	1/3-inch Interline Transfer Hyper HAD CCD	1/2-inch Interline Transfer Exwave HAD CCD	1/3-inch Interline Transfer Hyper HAD CCD
Picture elements:	752 (H) x 582 (V)		
Sensing area:	4.4 x 3.3 mm	6.3 x 4.7 mm	4.4 x 3.3 mm
Signal system:	PAL standard		
Sync system:	Internal or external with AC line lock	DC50AP: Internal or external with VBS/VS or MPX-VS DC54AP/58AP: Internal or external with VBS/VS or AC line lock	Internal or external with VS/VBS* or MPX-VS
Phase control:	V phase adjustment ( $\pm 90^\circ$ )	H/SC phase adjustment (H phase: $\pm 0.12$ H, SC phase: $360^\circ$ with 0/180° switch) V phase adjustment ( $\pm 90^\circ$ ) for AC line lock (SSC-DC54AP/58AP only)	H phase adjustment ( $\pm 0.25$ H)
Horizontal resolution:	470 TV lines		
Lens mount:	Built-in 12x zoom lens	C/CS-mount adjustable	
Minimum illumination:	AGC ON (TURBO mode) 2.4 lx at F1.8 (30 IRE) 4.5 lx at F1.8 (50 IRE) 15 lx at F1.8 (100 IRE) *Equivalent with 1.1 lx at F1.2 fixed lens (30 IRE), 2.0 lx at F1.2 (50 IRE), 6.7 lx at F1.2 (100 IRE)	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)	AGC ON (TURBO mode) 1.1 lx at F1.2 (30 IRE) 1.7 lx at F1.2 (50 IRE) 10 lx at F1.2 (100 IRE)
Aperture sharp mode:	SHARP/NORMAL switchable		
Automatic gain control (AGC):	TURBO/NORMAL/OFF switchable		
Electronic shutter:	Not applicable	1/50, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 (seconds)	Not applicable
CCD IRIS control:	— ON/OFF switchable, 1/50 to 1/100000 (second)		
White balance:	ATWpro/ATW/AWB (one-push) switchable	ATWpro/ATW/AWB (one-push)/ 5600 K switchable	ATWpro/ATW switchable
Backlight compensation:	Smart Control (Digital BLC ON/OFF switchable)	Smart Control (Digital BLC ON/OFF switchable, eight AE spot is selectable)	Smart Control (Digital BLC ON/OFF switchable)
Signal-to-noise ratio:	50 dB (Weight ON, AGC OFF)		
Video out:	BNC, 1.0 Vp-p, 75 $\Omega$ , sync negative	BNC: 1.0 Vp-p, 75 $\Omega$ , sync negative Y/C: Y: 1.0 Vp-p, 75 $\Omega$ , sync negative C: 0.3 Vp-p, at burst level, 75 $\Omega$	BNC, 1.0 Vp-p, 75 $\Omega$ , sync negative
Operating temperature:	-10 to 50°C (14 to 122°F)		
Storage temperature:	-40 to 60°C (-40 to 140°F)		
Power requirements:	AC 24 V, 50 Hz	DC50AP: 1) Multiplexing with YS-W150P/W250P 2) DC 12 V from DC 12 V power supply DC54AP: AC 24 V, 50 Hz DC58AP: AC 220 to 240 V, 50 Hz	1) Multiplexing with YS-W150P/W250P 2) DC 12 V from DC 12 V power supply
Power consumption:	4.8 W	DC50AP: 1) 5.5 W supplied from YS-W150P/W250P 2) 4.5 W at DC 12 V DC54AP: 6.0 W DC58AP: 5.5 W	1) 4.0 W supplied from YS-W150P/W250P 2) 3.0 W at DC 12 V
Mass:	520 g (1 lb 2 oz)	DC50AP/54AP: 600 g (1 lb 5 oz) DC58AP: 900 g (2 lb)	430 g (15 oz)
Auto iris type:	— DC/MIDEO servo type		
Connectors:	AC 24 V terminals, LENS CONTROL (Mini DIN 8-pin), VIDEO OUT (BNC), GND	DC50P: DC 12 V terminals, LENS (4-pin) 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) DC54P: AC 24 V terminals, LENS (4-pin), VBS/VS IN (BNC), VIDEO OUT (BNC), S-VIDEO OUT (Mini DIN 4-pin), GND DC58AP: LENS (4-PIN) VBS/VS IN (BNC), VIDEO OUT (BNC), S-VIDEO OUT (Mini DIN 4-PIN)	DC 12 V terminals, LENS (4-pin) Mode A (Triple multiplexing operation): DC IN/VS IN/VIDEO OUT (BNC), MONITOR OUT (BNC) Mode B (DC 12 V operation): VIDEO OUT (BNC), VS IN (BNC)

**Lens (4-pin)**



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



\* The Burst signal is not locked

# COLOUR VIDEO CAMERAS

## Colour Camera Specifications (SSC series)

	SSC-DC14P/DC18P	SSC-C108P/C104P	SSC-C370P
Image device:	1/3-inch Interline Transfer Hyper HAD CCD		1/2-inch Interline Transfer Hyper HAD CCD
Picture elements:	752 (H) x 582 (V)	500 (H) x 582 (V)	752 (H) x 582 (V)
Sensing area:	4.4 x 3.3 mm		6.3 x 4.7 mm
Signal system:	PAL standard		
Sync system:	Internal or external with AC line lock	External with AC line lock	Internal or external with VS/VBS* or MPX-VS
Phase control:	V phase adjustment ( $\pm 90^\circ$ )		H phase adjustment
Horizontal resolution:	470 TV lines	330 TV lines	470 TV lines
Lens mount:	C/CS-mount adjustable		C-mount
Minimum illumination:	AGC ON (TURBO mode) 1.2 lx at F1.2 (30 IRE) 1.9 lx at F1.2 (50 IRE) 13 lx at F1.2 (100 IRE)	AGC ON (TURBO mode) 0.9 lx at F1.2 (40 IRE) 1.2 lx at F1.2 (50 IRE)	AGC ON 2.5 lx at F1.2 (50 IRE)
Aperture sharp mode:	SHARP/NORMAL switchable	Not applicable	
Automatic gain control (AGC):	TURBO/NORMAL/OFF switchable		ON/OFF switchable
Electronic shutter:	Not applicable		1/50, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 (seconds)
CCD IRIS control:	ON/OFF switchable, 1/50 to 1/100000 (second)		
White balance:	ATWpro/ATW switchable	ATW	ATW/AWB switchable
Backlight compensation:	Smart Control (Digital BLC ON/OFF switchable)	Analog BLC ON/OFF switchable	—
Signal-to-noise ratio:	50 dB (Weight ON, AGC OFF)	52 dB (Weight ON, AGC OFF)	48 dB (AGC OFF)
Video out:	BNC, 1.0 V <sub>p-p</sub> , 75 $\Omega$ , sync negative		
Operating temperature:	-10 to 50°C (14 to 122°F)		
Storage temperature:	-40 to 60°C (-40 to 140°F)		
Power requirements:	DC14P: AC 24 V, 50 Hz DC18P: AC 220 to 240 V, 50 Hz	SSC-C108P: AC 220 to 240 V, 50 Hz SSC-C104P: AC 24 V, 50 Hz	1) Multiplexing with YS-W150P/W250P 2) DC 12 V from DC 12 V power supply
Power consumption:	DC14P: 4.5 W DC18P: 5.5 W	SSC-C108P: 4.0 W SSC-C104P: 3.5 W	1) 4.0 W supplied from YS-W150P/W250P 2) 2.8 W at DC 12 V
Mass:	DC14P: 550 g (1 lb 3 oz) DC18P: 770 g (1 lb 11 oz)	SSC-C108P: 760 g (1 lb 11 oz) SSC-C104P: 550 g (1 lb 3 oz)	660 g (1 lb 7 oz)
Auto iris type:	DC/VIDEO servo type		VIDEO servo type
Connectors:	DC14P: AC 24 V terminals, LENS (4-pin), VIDEO OUT (BNC), GND DC18P: VIDEO OUT (BNC), LENS (4-pin)	VIDEO OUT (BNC), LENS (4-pin)	DC 12 V terminals, LENS (4-pin) Mode A (Triple multiplexing operation): DC IN/VS IN/VIDEO OUT (BNC), MONITOR OUT (BNC) Mode B (DC 12 V operation): VIDEO OUT (BNC), VS IN (BNC)

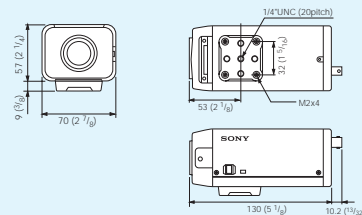
### Lens (4-pin)



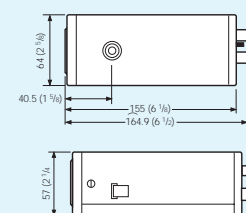
Pin	DC servo	VIDEO servo
1	Control (-)	Power (DC 9 V, 50 mA)
2	Control (+)	Not connected
3	Drive (+)	Video
4	Drive (-) (GND)	(GND)

### Dimensions:

SSC-DC14P/DC18P/C104P/C108P



SSC-C370P



Unit: mm (inches)

\* The Burst signal is not locked

## COLOUR VIDEO MONITORS

Colour Monitor

### SSM-9040P



- Trinitron colour monitor especially designed for surveillance applications
- 9-inch CRT size
- Beam current feedback for stable colour temperature
- Automatic 75  $\Omega$  termination facility
- EIA standard rack mountable using optional MB-507 rack mounting bracket
- Metal cabinet for high immunity to external electrical and magnetic interference

Colour Monitor

### SSM-14N5E/14N5A



- Trinitron colour monitor especially designed for surveillance applications
- 14-inch CRT size
- High resolution of 500 TV lines
- Beam current feedback for stable colour temperature
- Loop-through Y/C and composite video input terminals available
- Automatic 75  $\Omega$  termination facility
- EIA standard rack mountable using optional MB-502B rack mounting bracket
- Metal cabinet for high immunity to external electrical and magnetic interference
- Built-in speaker



Rear Panel



Rear Panel



## COLOUR VIDEO MONITORS

---

Colour Monitor

### SSM-20N5E/20N5A



- Trinitron colour monitor specially designed for surveillance applications
- 20-inch CRT size
- High resolution of 500 TV lines
- Beam current feedback for stable colour temperature
- Loop-through Y/C and composite video input terminals available
- Automatic 75  $\Omega$  termination facility
- On-screen menu with a choice of five languages
- EIA standard rack mountable using optional SLR-103A slide rail kit
- Metal cabinet for high immunity to external electrical and magnetic interference
- Built-in speaker



Rear Panel

# COLOUR VIDEO MONITORS

## Specifications

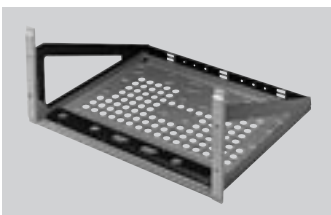
	SSM-9040P	SSM-14N5E/14N5A	SSM-20N5E/20N5A
Video signal system:	CCIR 625 lines, 50 fields	CCIR 625 lines, 50 fields/EIA 525 lines, 60 fields	
Colour system:	PAL	PAL/NTSC/SECAM/NTSC <sup>4.43</sup> (automatically selected)	
Picture tube:	22 cm (9-inch) Trinitron tube, visible picture size 19.7 cm (8-inch) measured diagonally, 70 degree deflection, AG pitch 0.5 mm	37.1 cm (14-inch) Trinitron tube, visible picture size 33.2 cm (13-inch) measured diagonally, 90 degree deflection, AG pitch 0.25 mm	52.2 cm (20-inch) Trinitron tube, visible picture size 48.1 cm (19-inch) measured diagonally, 90 degree deflection, AG pitch 0.4 mm
Horizontal resolution:	250 TV lines at centre	500 TV lines at centre	
Frequency response:	6.0 MHz (+1.5 dB -3.0 dB)	6.0 MHz (±3.0 dB)	
Normal scan:	6% overscan	7% overscan	
H linearity:	Less than 5%	Less than 8%	
V linearity:	Less than 5%	Less than 7%	
Colour temperature:	D65		
Power requirements:	AC 100 V to 240 V, 50/60 Hz		
Power consumption:	39 W	80 W	100 W
Mass:	7.8 kg (17 lb 3 oz)	15 kg (33 lb 1 oz)	28 kg (61 lb 11 oz)
VIDEO: LINE* <sup>1</sup>	Loop-through BNC 1.0 Vp-p, sync negative, automatic 75 Ω termination* <sup>2</sup>	Loop-through BNC 1.0 Vp-p, sync negative, automatic 75 Ω termination* <sup>2</sup> Loop-through 4-pin mini DIN Y: 1.0 Vp-p, sync negative, automatic 75 Ω termination* <sup>2</sup> C: 0.3 Vp-p (PAL) or 0.286 Vp-p (NTSC), automatic 75 Ω termination* <sup>2</sup>	
AUDIO: LINE	—	Loop-through Phono -5 dBu, high impedance	
Dimensions:			

0 dBu=0.775 Vrms

\*<sup>1</sup> The Y/C input has priority over the Composite video input.

\*<sup>2</sup> 75 Ω termination is automatically set to OFF when connection is made to the OUT connector.

## SSM-9040P Optional Accessories



Rack mounting bracket  
**MB-507**

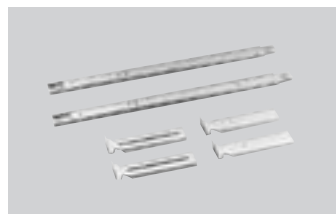


Blank panel  
**MB-509**

## SSM-14N5E/14N5A Optional Accessories

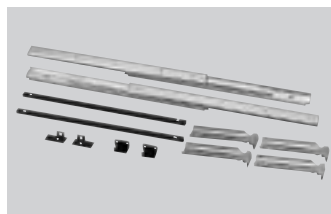


Rack mounting bracket  
**MB-502B**



Slide rail kit  
**SLR-102**

## SSM-20N5E/20N5A Optional Accessory



Slide rail kit  
**SLR-103A**

# BLACK & WHITE CAMERAS AND MONITORS

Sony offers a comprehensive line-up of black and white cameras and monitors, including the new 17-inch quad monitor with a sequential switcher function.

## Black & White Cameras



### SPT-M308CE/M304CE

1/3-inch Hyper HAD CCD  
High resolution  
Analog backlight compensation (BLC)  
AC220 to 240 V, 50Hz (SPT-M308CE)  
AC 24 V, 50 Hz (SPT-M304CE)



### SPT-M122CE/M124CE/M128CE

1/3-inch Hyper HAD CCD  
Analog backlight compensation (BLC)  
DC12 V (SPT-M122CE)  
AC 24 V, 50 Hz (SPT-M124CE)  
AC220 to 240 V, 50 Hz (SPT-M128CE)



### SSC-M370CE

1/2-inch Hyper HAD CCD  
High resolution  
DC12 V or multiplexing from YS-W150P/W250P

## Black & White Monitors



### SSM-930CE

9-inch monitor



### SSM-125CE

12-inch monitor



### SSM-175CE

17-inch monitor



### SSM-Q177CE

17-inch quad monitor  
Sequential switcher function  
Alarm IN/OUT



# BLACK & WHITE VIDEO CAMERAS

CCD B/W Video Camera

## SPT-M308CE/M304CE



- Especially designed for surveillance applications
- 1/3-inch IT Hyper HAD CCD offers extremely high sensitivity with a minimum illumination of 0.25 lx at F1.2 (50 IRE)
- Outstanding horizontal resolution of 570 TV lines
- CCD IRIS function allows use of inexpensive manual iris lenses
- AGC (Automatic Gain Control)
- Backlight compensation is possible with the LEVEL and BLC (Back Light Control) volume controls (When using auto iris lenses or the CCD IRIS function)
- Accepts both C/CS-mount lenses
- 4-pin auto iris connector (DC driven auto-iris lens only)
- External synchronization with AC line lock
- AC power operation: AC220 to 240 V, 50 Hz (SPT-M308CE)/AC 24 V (SPT-M304CE)



SPT-M308CE



SPT-M304CE

Rear Panel

### Supplied Accessories

- Lens connector (1)
- Lens mount cap (1)
- Operation manual (1)

### Optional Accessories

- VCL-4V8WEA (3.5 to 8.0 mm, F1.4)
- VCL-S02WEAP (2.8 mm, F1.3)

### SPT-M308CE/M304CE



### SPT-M122CE/M124CE/M128CE



CCD B/W Video Camera

## SPT-M122CE/M124CE/M128CE



- Especially designed for surveillance applications
- 1/3-inch IT Hyper HAD CCD offers extremely high sensitivity with a minimum illumination of 0.1 lx at F1.2 (50 IRE)
- High signal-to-noise ratio of 45 dB
- CCD IRIS function allows use of inexpensive manual iris lenses
- Backlight compensation is possible with the LEVEL and BLC volume controls (only when using auto iris lenses or the CCD IRIS function)
- Accept both DC servo and VIDEO servo auto iris lenses
- Accepts both CS and C-mount lenses
- Alternative power source operation (DC 12 V for the SPT-M122CE, AC 24 V for the SPT-M124CE, AC 220 to 240 V for the SPT-M128CE)
- External synchronization with AC line lock (for the SPT-M124/M128CE)
- Low power consumption



SPT-M122CE



SPT-M124CE



SPT-M128CE

Rear Panel

### Supplied Accessories

- Lens connector (1)
- Lens mount cap (1)
- Operation manual (1)

### Optional Accessories

- VCL-4V8WEA (3.5 to 8.0 mm, F1.4)
- VCL-S02WEAP (2.8 mm, F1.3)
- VCL-3ADXEA (3.8 mm, F0.8)

## BLACK & WHITE VIDEO CAMERAS

CCD B/W Video Camera

### SSC-M370CE



Lens shown is an option

- Especially designed for surveillance applications
- High density 1/2-inch IT Hyper HAD CCD offers extremely high resolution of 570 TV lines and high sensitivity with a minimum illumination of 0.3 lx at F1.2 (50 IRE)
- Excellent signal-to-noise ratio of 50 dB
- CCD IRIS function allows use of inexpensive manual iris lenses
- Variable speed electronic shutter  
Shutter speeds — 1/50, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 (seconds)
- Accepts C-mount lenses
- External synchronization with VS
- Single cable operation (video/sync/power triple multiplex transmission) for easy installation with the optional YS-W150P/W250P Camera Adaptor (Mode A)
- Monitor out function for on-the-spot camera positioning (Mode A)
- 12 V DC power supply can also be used (Mode B)

#### Supplied Accessories

- Lens connector (1)
- Lens mount cap (1)
- Operation manual (1)

#### Optional Accessories

- |                  |  |
|------------------|--|
| Camera adaptor   | YS-W150P, YS-W250P   |
| Manual iris lens | VCL-S03XM (3.6 mm, F1.6)<br>VCL-S06XM (6.0 mm, F1.2)<br>VCL-S12XM (12 mm, F1.2)    |
| Auto iris lens   | VCL-S03XEA (3.6 mm, F1.6)<br>VCL-S06XEA (6.0 mm, F1.2)<br>VCL-S12XEA (12 mm, F1.2) |



Rear Panel

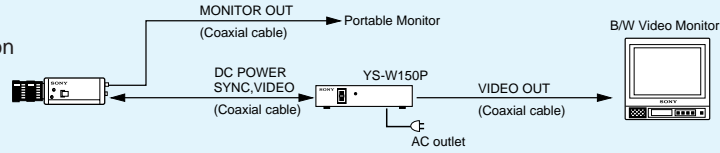


## B/W Cameras Typical System

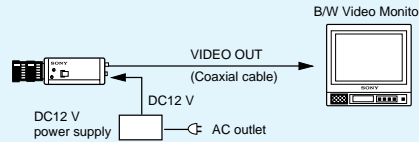
### SSC-M370CE

#### 1. Single camera operation

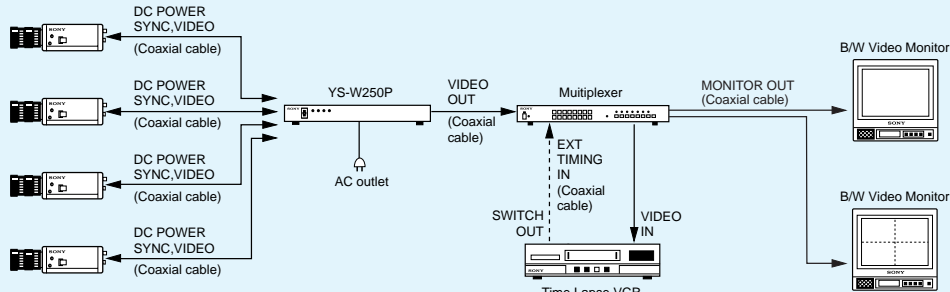
(a) Mode A: Triple multiplexing operation



(b) Mode B: DC 12 V operation

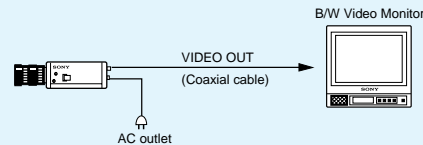


#### 2. Multiple camera operation

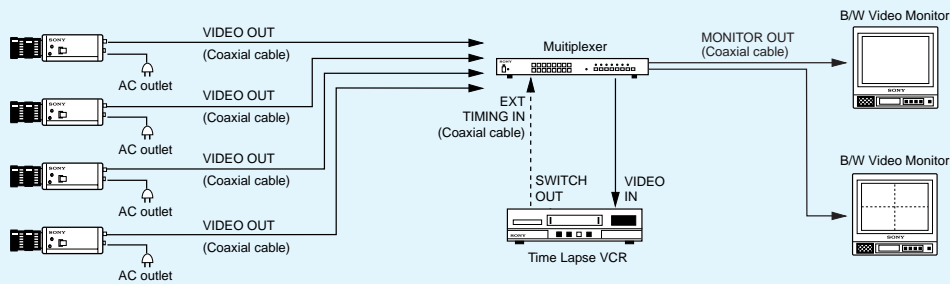


### SPT-M308CE/M128CE

#### 1. Single camera operation



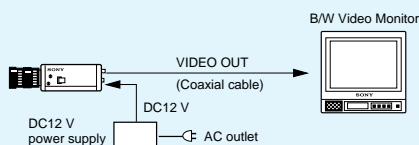
#### 2. Multiple camera operation



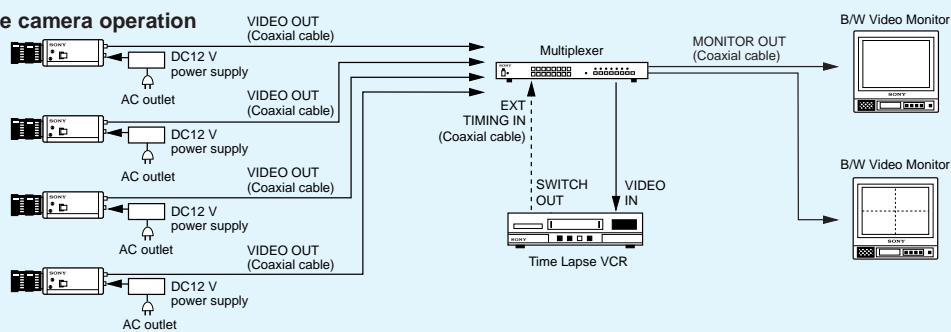
# BLACK & WHITE VIDEO CAMERAS

## SPT-M122CE

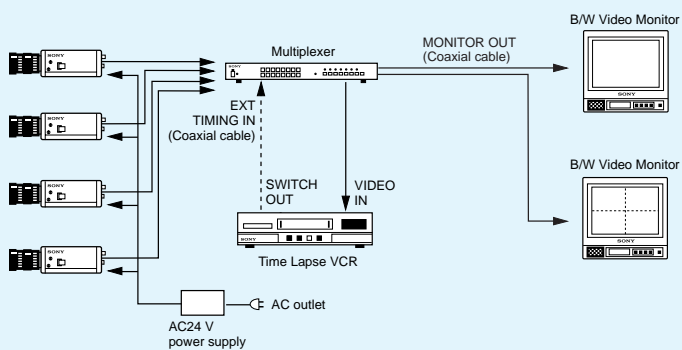
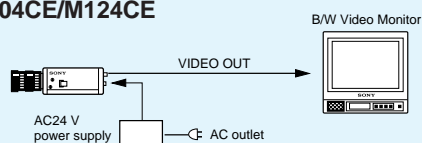
### 1. Single camera operation



### 2. Multiple camera operation



## SPT-M304CE/M124CE



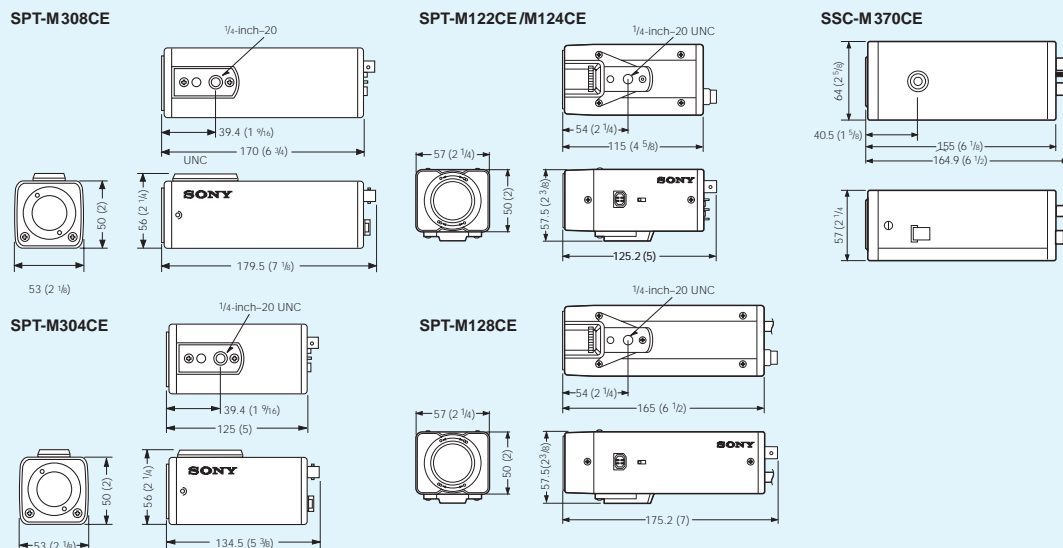


# BLACK & WHITE VIDEO CAMERAS

## B/W Camera Specifications

	SPT-M308CE/M304CE	SPT-M122CE/M124CE/M128CE	SSC-M370CE
Image device:	1/3-inch Interline Transfer Hyper HAD CCD		1/2-inch Interline Transfer Hyper HAD CCD
Picture elements:	752 (H) x 582 (V)	500 (H) x 582 (V)	752 (H) x 582 (V)
Sensing area:	4.4 x 3.3 mm		6.3 x 4.7 mm
Signal system:	CCIR standard		
Sync system:	External with AC line lock	M122CE: Internal M124CE/M128CE: AC line lock	Internal or external with VS/VBS* or MPX-VS
Phase control:	V phase adjustment ( $\pm 90^\circ$ )	M122CE: - M124CE/M128CE: V phase adjustment ( $+/-90^\circ$ )	H phase adjustment (6 positions)
Horizontal resolution:	570 TV lines	380 TV lines	570 TV lines
Lens mount:	C/CS mount adjustable		C mount
Minimum illumination:	AGC ON, 0.25 lx at F1.2 (50 IRE)	AGC ON, 0.1 lx at F1.2 (50 IRE)	AGC ON, 0.3 lx at F1.2 (50 IRE)
Automatic gain control (AGC):	Always ON		ON/OFF switchable
Electronic shutter:	Not applicable		1/50, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 (seconds)
CCD IRIS control:	ON/OFF switchable, 1/50 to 1/50000 (seconds)	ON/OFF switchable	
Backlight compensation:	Variable - user adjustable		—
Signal-to-noise ratio:	45 dB (AGC ON)		50 dB (AGC OFF)
Video out:	BNC, 1.0 Vp-p, 75 $\Omega$ , sync negative		
Operating temperature:	-10 to 50°C (14 to 122°F)		
Storage temperature:	-40 to 60°C (-40 to 140°F)		
Power requirements:	SPT-M308CE: AC 220 to 240 V, 50 Hz SPT-M304CE: AC 24 V, 50 Hz	M122CE: DC 12 V, 50 Hz M124CE: AC 24 V, 50 Hz M128CE: AC 220 to 240 V	1) Multiplexing with YS-W150P/W250P 2) DC 12 V from DC 12 V power supply
Power consumption:	SPT-M308CE: 6.0 W SPT-M304CE: 4.5 W	M122CE: 2.4 W (0.2A) M124CE: 2.5 W M128CE: 3.5 W	1) 4.0 W supplied from YS-W150P/W250P 2) 2.8 W at DC 12 V
Mass:	SPT-M308CE: 700 g (1 lb 8 oz) SPT-M304CE: 350 g (12 oz)	M122CE: 320 g (11 oz) M124CE: 320 g (11 oz) M128CE: 750 g (1 lb 10 oz)	660 g (1 lb 7 oz)
Auto iris type:	DC servo type	DC/Video servo type	Video servo type
Connectors:	SPT-M308CE: VIDEO OUT (BNC), LENS (4-pin) SPT-M304CE: VIDEO OUT (BNC), AC 24 V terminals, GND, LENS (4-pin)	M122CE: DC 12 V terminals, VIDEO OUT (BNC), LENS (4-pin) M124CE: AC 24 V terminals, GND VIDEO OUT (BNC), LENS (4-pin) M128CE: VIDEO OUT (BNC), LENS (4-pin)	DC 12 V terminals, LENS (4-pin) Mode A (Triple multiplexing operation): DC IN/VS IN/VIDEO OUT (BNC), MONITOR OUT (BNC) Mode B (DC 12 V operation): VIDEO OUT (BNC), VS IN (BNC)

### Dimensions:



Unit: mm (inches)

\* The Burst signal is not locked

## Lens (4-pin) Specifications



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

## B/W Monitor

### SSM-930CE

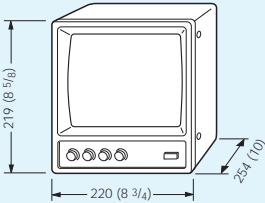


- CCIR standard
- 9-inch CRT size
- Excellent picture quality with more than 750 TV lines horizontal resolution
- Loop-through video input, with switchable 75 Ω termination
- DC clamp switch provides a stable reference for the black level
- 19-inch EIA standard rack mountable for dual monitor configuration
- Front controls: Power, H-hold, V-hold, contrast and brightness
- High immunity to external electrical and magnetic interference
- Suitable for many monitoring applications



Rear Panel

## Specifications

SSM-930CE	
Video signal system:	CCIR 625 lines, 50 fields
Picture tube:	9-inch B/W measured diagonally, 90° deflection
Video input:	Impedance 75 Ω/high switchable Level 0.5 to 2.0 Vp-p/75 Ω, sync negative, BNC-type
Video output:	Impedance more than 10 kΩ, loop-through, BNC-type
Horizontal resolution:	More than 750 TV lines at centre
Power requirements:	AC 230 V, 50/60 Hz
Power consumption:	30 W
Operating temperature:	0°C to 35°C (32°F to 95°F)
Storage temperature:	-10°C to 40°C (14°F to 104°F)
Mass:	5.8 kg (13 lb)
Dimensions:	
	
Unit: mm (inches)	

## B/W Monitor

### SSM-125CE

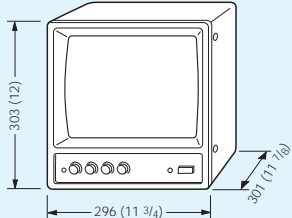


- CCIR standard
- 12-inch CRT size
- Excellent picture quality with more than 750 TV lines horizontal resolution
- Dual loop-through video inputs, with switchable 75 Ω termination
- DC clamp switch provides a stable reference for the black level
- Front controls: Power, INPUT select, H-hold, V-hold, contrast and brightness
- High immunity to external electrical and magnetic interference
- Suitable for many monitoring applications



Rear Panel

## Specifications

SSM-125CE	
Video signal system:	CCIR 625 lines, 50 fields
Picture tube:	12-inch B/W measured diagonally, 90° deflection
Video input:	Impedance 75 Ω/high switchable Level 0.5 to 2.0 Vp-p/75 Ω, sync negative, BNC-type (x 2)
Video output:	Impedance more than 10 kΩ, loop-through, BNC-type (x 2)
Horizontal resolution:	More than 750 TV lines at centre
Power requirements:	AC 230 V, 50/60 Hz
Power consumption:	30 W
Operating temperature:	0°C to 35°C (32°F to 95°F)
Storage temperature:	-10°C to 40°C (14°F to 104°F)
Mass:	9.2 kg (20 lb 5 oz)
Dimensions:	
	
Unit: mm (inches)	

## B/W Monitor

### SSM-175CE

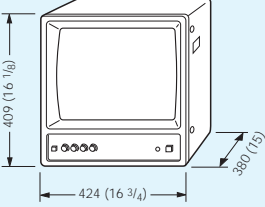


- CCIR standard
- 17-inch CRT size
- Excellent picture quality with more than 850 TV lines horizontal resolution
- Dual loop-through video inputs, with switchable 75  $\Omega$  termination
- DC clamp switch which provides a stable black level reference
- Front controls: Power, INPUT select, H-hold, V-hold, contrast and brightness
- 19-inch EIA standard rack mountable
- High immunity to external electrical and magnetic interference
- Suitable for many monitoring applications



Rear Panel

### Specifications

SSM-175CE	
Video signal system:	CCIR 625 lines, 50 fields
Picture tube:	17-inch B/W measured diagonally, 90° deflection
Video input:	Impedance 75 $\Omega$ /high switchable Level 0.5 to 2.0 Vp-p/75 $\Omega$ , sync negative, BNC-type (x 2)
Video output:	Impedance more than 10 k $\Omega$ , loop-through, BNC-type (x 2)
Horizontal resolution:	More than 850 TV lines at centre
Power requirements:	AC 220 V to 240 V, 50/60 Hz
Power consumption:	37 W
Operating temperature:	0°C to 35°C (32°F to 95°F)
Storage temperature:	-10°C to 40°C (14°F to 104°F)
Mass:	17.5 kg (38 lb 9 oz)
Dimensions:	

Unit: mm (inches)

### SSM-175CE/Q177CE Optional Accessory

#### Rack Mounting Bracket RMM-171



## B/W Quad Monitor

### SSM-Q177CE

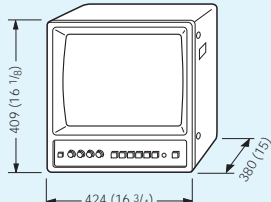


- CCIR standard
- Quad Screen Display permits up to four compressed, split pictures to be displayed simultaneously and recorded on a single VCR
- High quality compressed images with 8-bit signal processing for clearer pictures
- Sequential Switcher Function provides automatic switching between up to four cameras, with a selectable dwell time; SKIP channel also selectable
- Newly developed flyback transformer provides the high voltage stability required to minimise picture zooming
- Freeze Picture Function can freeze each picture in quad mode, as well as freeze a VCR playback picture
- Alarm IN/OUT with audible alarm and flashing LED
- Video Loss Detection with on-screen notification
- On-screen menus display Date, Time and Camera ID
- 19-inch EIA standard rack mountable



Rear Panel

### Specifications

SSM-Q177CE	
Video signal system:	CCIR standard
Picture tube:	17-inch CRT, measured diagonally, 90° deflection
Resolution:	More than 850 lines (full screen)
Camera input/VCR input:	Composite: 1.0 Vp-p, sync negative, 75 $\Omega$
Video output/VCR output:	Composite: 1.0 Vp-p, sync negative, 75 $\Omega$
Power requirements:	AC 230 V, 50/60 Hz
Power consumption:	Approx. 45 W
Operating temperature:	0 to 35°C (32 to 95°F)
Storage temperature:	-10 to 40°C (14 to 104°F)
Operating humidity:	0 to 90% (no condensation)
Storage humidity:	0 to 90% (no condensation)
Dimensions:	
Mass:	18.8 kg (41 lb 6 oz)
Regulation compliance:	EN 60 065 (TÜV), CE (EMC, LVD), C-Tick Mark

Unit: mm (inches)

# CAMERA OPTIONAL ACCESSORIES

## Camera Adaptors



### YS-W250P

Transmit DC power/video/sync to  
SSC-DC50AP/DC10AP/C370P/M370CE  
Up to four cameras can be connected



### YS-W150P

Transmits DC power/Video/Sync to  
SSC-DC50AP/DC10AP/C370P/M370CE

## Lenses



Auto Iris type for 1/3 inch  
CS-mount camera

**VCL-4V8WEA**  
**VCL-S02WEAP**



Auto Iris type for 1/2 inch  
CS-mount camera

**VCL-S03XEA**  
**VCL-S06XEA**  
**VCL-S12XEA**



Manual Iris type for 1/2 inch  
CS-mount camera

**VCL-S03XM**  
**VCL-S06XM**  
**VCL-S12XM**



Aspherical auto iris type for 1/2-inch  
CS-mount cameras

**VCL-3ADXEA**

## Coaxial Cables

**RG-59B/U, RG-6A/U, RG11A/U**

## Mounting brackets

**YT-B21, T-301/305/307**



# CAMERA ADAPTORS

## Camera Adaptor

### YS-W250P for SSC-DC50AP/DC10P/C370P/M370CE



- Transmits DC power and video/sync signal between the adaptor and the camera over a single coaxial cable
- Up to four cameras can be connected
- Internal or external synchronization with VS or AC line lock
- Maximum cable length:  
SSC series cameras – 600 m with RG-11A/U (7C-2V) coaxial cable



Rear Panel

## Camera Adaptor

### YS-W150P for SSC-DC50AP/DC10P/C370P/M370CE



- Transmits DC power and video/sync signal between the adaptor and the camera over a single coaxial cable
- Internal or external synchronization with VS or AC line lock
- Maximum cable length: 600 m with RG-11A/U (7C-2V) coaxial cable



Rear Panel

## Specifications

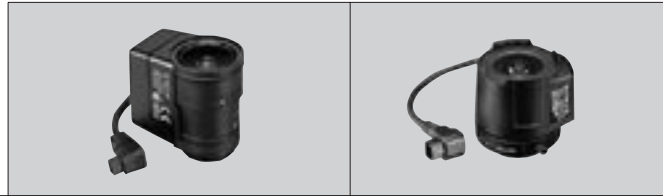
Models	YS-W250P	YS-W150P
Specifications		
Power requirements	AC 220 to 240 V, 50 Hz	
Power consumption	48 W	15 W
Operating temperature	-10°C to 50°C (14°F to 122°F)	
Connectors	CAMERA IN 1 to 4 (BNC x 4) VIDEO OUT A: 1 to 4 (BNC x 4) VIDEO OUT B: 1 to 4 (BNC x 4) SYNC IN/OUT (BNC, loop-through, 75 Ω ON/OFF)	CAMERA IN (BNC) VIDEO OUT (BNC x 2) SYNC IN/OUT (BNC, loop-through, 75 Ω ON/OFF)
DC out	—	
Maximum cable length	300 m using RG-59B/U (3C-2V) 500 m using RG-6A/U (5C-2V) 600 m using RG-11A/U (7C-2V)	
Dimensions		
Mass	3.6 kg (7 lb 15 oz)	1.9 kg (4 lb 3 oz)

Unit: mm (inches)

## Lenses for 1/3-inch CS-mount cameras

### 1) Auto Iris Type

(DC/VIDEO servo type/Non-EE amplifier type/Non-ALC type)



Models	VCL-4V8WEA	VCL-S02WEAP
Mount	CS	CS
Focal length	3.5 to 8.0 mm	2.8 mm
Iris control	Auto	Auto
Maximum aperture ratio	1 : 1.4	1 : 1.3
Minimum object distance	0.3 m	0.2 m
Filter size	---	M30.5 x 0.5 mm
Mass	72 g (3 oz)	41 g (1.4 oz)
Dimensions (dia. x H x L)	ø35.0 x 54.0 x 46.0 mm (1 7/16 x 2 1/4 x 1 13/16 inches)	ø32.0 x 39.8 x 33.0 mm (1 5/16 x 1 5/8 x 1 5/16 inches)
Cable length	100 mm (4 inches)	310 mm (12 1/4 inch)

## Lenses for 1/2-inch C-mount cameras

### 1) Auto Iris Type

(Video servo type/EE amplifier type/ALC 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 x 0.75 mm	M43 x 0.75 mm
Mass	88 g (3.1 oz)	128 g (4.5 oz)	126 g (4.4 oz)
Dimensions (dia. x H x L)	ø45 (dia.) x 32.9 (L) mm (1 13/16 x 1 5/16 inches)	ø45.5 (dia.) x 48.5 (L) mm (1 13/16 x 1 15/16 inches)	ø45.5 (dia.) x 48.5 (L) mm (1 13/16 x 1 15/16 inches)
Supply voltage	DC 8 - 16 V	DC 8 - 16 V	DC 8 - 16 V

### 2) Manual Iris Type



Models	VCL-S03XM	VCL-S06XM	VCL-S12XM
Mount	C	C	C
Focal length	3.6 mm	6.0 mm	12 mm
Iris control	Manual	Manual	Manual
Maximum aperture ratio	1 : 1.6	1 : 1.2	1 : 1.2
Filter size	M35.5 x 0.5 mm	M35.5 x 0.5 mm	M35.5 x 0.5 mm
Mass	66 g (2.3 oz)	74 g (2.6 oz)	60 g (2.1 oz)
Dimensions (dia. x H x L)	ø38 (dia.) x 28.6 (L) mm (1 1/2 x 1 3/16 inches)	ø38 (dia.) x 36.4 (L) mm (1 1/2 x 1 7/16 inches)	ø38 (dia.) x 30.8 (L) mm (1 1/2 x 1 1/4 inches)

## Aspherical auto iris lens for 1/2-inch CS-mount cameras

(DC servo type/Non-EE amplifier type/Non-ALC type)



Model	VCL-3ADXEA
Mount	CS
Focal length	3.8 mm
Iris control	Auto
Maximum aperture ratio	1 : 0.8
Minimum object distance	0.15 m
Filter size	M43 x 0.75 mm
Mass	150 g (5.3 oz)
Dimensions (dia. x H x L)	ø45.0 x 56.8 x 52.5 mm (1 13/16 x 2 1/4 x 2 1/8 inches)
Cable length	90 mm (3 5/8 inch)

## CABLES

### CAMERA/CAMERA ADAPTOR/CONNECTING CABLE COMBINATION CHART

	YS-W250P	YS-W150P
<b>SSC-DC50AP</b>	YES (Coaxial cable)	YES (Coaxial cable)
<b>SSC-DC10P</b>	YES (Coaxial cable)	YES (Coaxial cable)
<b>SSC-C370P</b>	YES (Coaxial cable)	YES (Coaxial cable)
<b>SSC-M370CE</b>	YES (Coaxial cable)	YES (Coaxial cable)

### Coaxial Cables (by Fujikura)

Cable	Mass	Cable loss (dB)	
	(100 m)	(dB/100 m, at 4 MHz)	(dB/100 m, at 200 MHz)
RG-59B/U (3C-2V)	5 kg	2.6	19.6
RG-6A/U (5C-2V)	8 kg	1.8	12.5
RG-11A/U (7C-2V)	14 kg	1.3	10.5

## MOUNTING BRACKETS



Mounting Bracket  
**YT-B21**

- For indoor use

Maximum load: 2 Kg  
 Length: 136.6 mm  
 Mass: 200 g



Mounting Bracket  
**T-301/305/307**

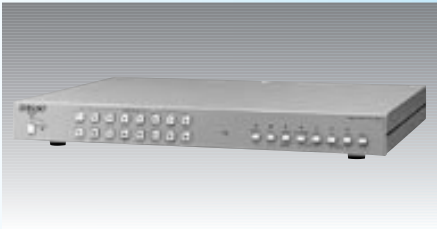
- T-301- suitable for mounting housed or unhoused cameras
- T-305/307- only accept unhoused cameras for installation

Maximum load: 10Kg  
 Length: T-301: 260 mm+150 mm  
 T-305: Min.275 mm/Max.405 mm  
 T-307: 160 mm  
 Mass: T-301/305: 0.7 Kg  
 T-307: 0.6 Kg

# MULTIPLEXERS AND SWITCHERS

Sony multiplexers and switchers facilitate efficient control in multiple camera monitoring systems. Four different multiplexers, two duplex and two simplex, allow up to 16 and 10 channels respectively to be displayed on a single monitor. These multiplexers also provide sequential switching, picture zoom and freeze, and powerful alarm functions. The line-up of switchers includes a versatile quad switcher and a 6-channel sequential switcher.

## Multiplexers



**YS-DX316P/DX216CE**  
16 channel colour duplex multiplexer (YS-DX316P)  
16 channel B&W duplex multiplexer (YS-DX216CE)



**YS-SX310P/SX210CE**  
10 channel colour simplex multiplexer (YS-SX310P)  
10 channel B&W simplex multiplexer (YS-SX210CE)

## Switchers



**YS-S6**  
6-channel sequential switcher



**YS-Q440P**  
Quad switcher



## Multiplexer

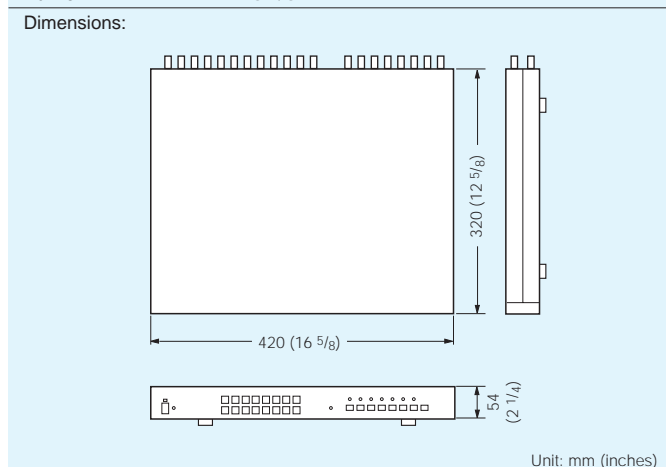
# YS-DX316P/YS-DX216CE



- Full duplex video multiplexer with up to 16 camera inputs
- Either asynchronous or synchronous cameras can be connected
- Multiplex recording to one VCR while switching between each camera by a field (1/50 sec.) for precise surveillance of multiple points
- Long time recording with Time Lapse VCR
- Video loop through for up to 16 cameras
- Live pictures can be displayed in full screen, sequence, quad, multi-screen (7/10/13/16) while simultaneously recording
- Auto sequential switching in quad mode in addition to full screen sequence switching
- Recorded images can be played back in the bottom right screen of the 13 or 16-picture display simultaneously with live images
- Playback can be reviewed in full screen, sequence, quad, and multi-screen (7/10/13/16)
- Live images can be displayed in the bottom right screen of the 13 or 16-picture display simultaneously with recorded images
- MONITOR 2 can be used for spot monitoring
- Freeze picture function in both live and playback mode
- Electronic zoom (x2) function in both live and playback mode
- An S-VHS VCR can be connected via the S-video output/input connector (YS-DX316P only)
- Built in time/date and camera title generator
- Easy on screen setup
- 16 alarm inputs, each corresponding to a camera input
- Programmable freeze, zoom and buzzer functions in 16-picture split mode for alarm inputs
- Alarm monitor function automatically provides independent monitoring of channels in which alarms occur on MONITOR 2
- Programmable alarm recording time mode
- Alarm memory function can store up to 100 alarm events (camera number, date and time)
- Video loss detection function
- Remote control capability via a D-sub 25-pin
- Compact 1U height unit and rack mount capability

## Specifications

	YS-DX316P	YS-DX216CE
<b>General</b>		
Video signal system:	PAL standard	CCIR standard
Power requirements:	AC 220 to 240 V, 50 Hz	
Power consumption:	22 W	16 W
Operating temperature:	0 to 45°C (32 to 113°F)	
Storage temperature:	-20 to 60°C (-4 to 140°F)	
Dimensions:	420 (W) x 54 (H) x 320 (D) mm (16 5/8 x 2 1/4 x 12 5/8 inches)	
Mass:	Approx. 4.2 kg (9 lb 4 oz)	
<b>Video inputs</b>		
Camera input 1 to 16:	BNC type, VS or VBS, 1.0 Vp-p, 75 Ω	
VCR input:	BNC type, VS or VBS, 1.0 Vp-p, 75 Ω	
S-VHS Y/C inputs:	Din Connector Y: 1.0 Vp-p, 75 Ω C: 0.286 Vp-p, 75 Ω	-
<b>Video outputs</b>		
Monitor 1 output:	BNC type x 1, VS or VBS	BNC type x 1, VS
Monitor 2 output:	BNC type x 1, VS or VBS	BNC type x 1, VS
VCR output:	BNC type, VS or VBS, 1.0 Vp-p, 75 Ω	BNC type, VS, 1.0 Vp-p, 75 Ω
S-VHS Y/C output:	Din Connector Y: 1.0 Vp-p, 75 Ω C: 0.286 Vp-p, 75 Ω	-
Alarm output:	DC 5 V 5.7 kΩ	
Alarm duration:	10, 20, 30, 40, 50, 60, CC* sec.	
Switch input from VCR:	Low active (100 kΩ pull-up)	
Control terminal:	D-sub: 25-pin Alarm input: contact close (x 16) Remote control input	
Sequence time:	0.5 to 30 sec. (0.5 sec. increments)	
On-screen display:	8 character title, date/time	
Buzzer:	ON/OFF	

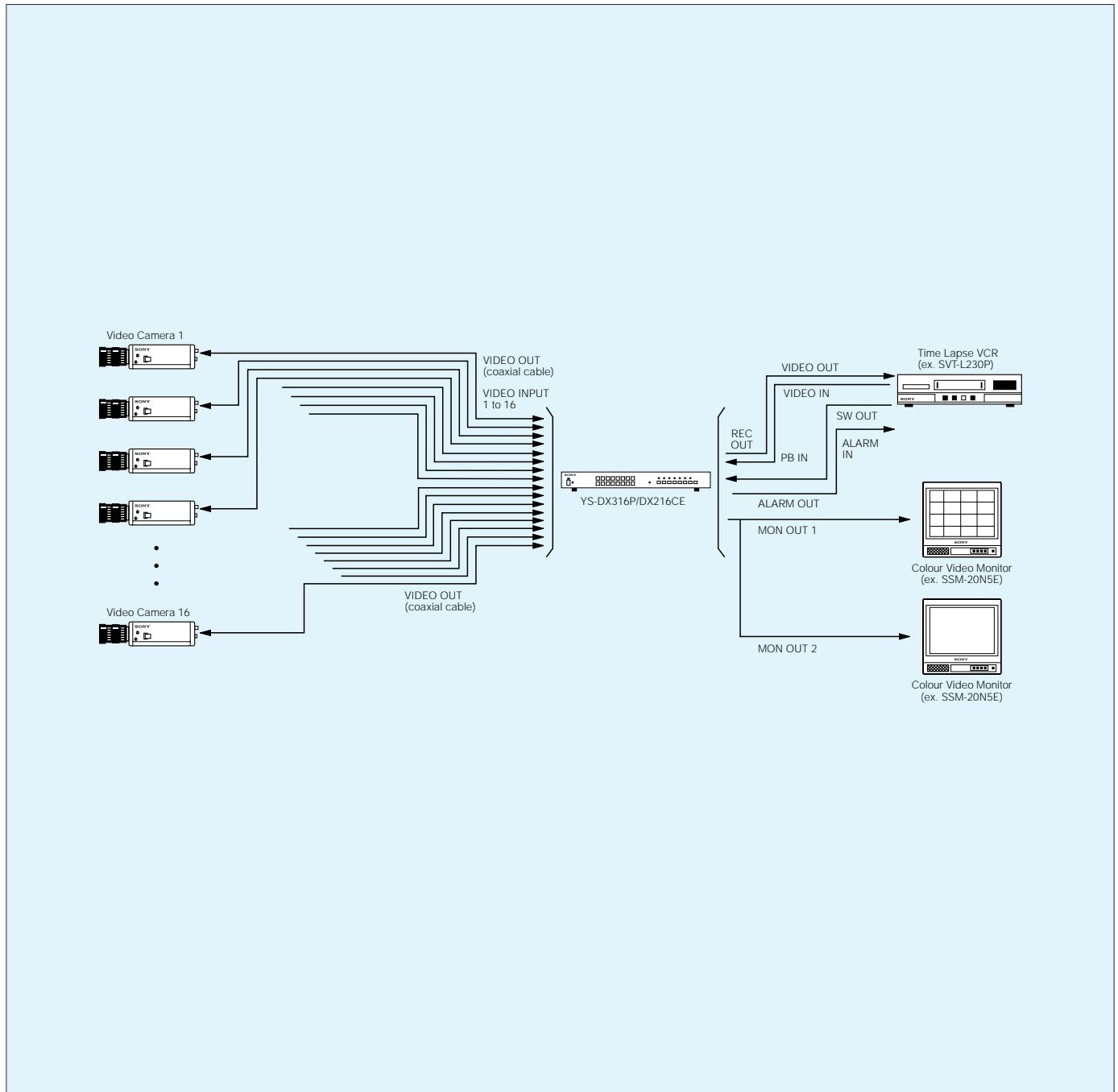


\* Stays in alarm mode for as long as alarm input remains active

## Supplied Accessories

- Rack mount kit (for EIA standard rack) (1 set)
- D-sub 25-pin plug components (1 set)
- Operation manual (1)

YS-DX316P/DX216CE Typical System



YS-DX316P



YS-DX216CE

Rear Panel

## Multiplexer

# YS-SX310P/YS-SX210CE



- Simplex video multiplexer with up to 10 camera inputs
- Either asynchronous or synchronous cameras can be connected
- Multiplex recording to one VCR while switching between each camera by a field (1/50 sec.) for precise surveillance of multiple points
- Long time recording with Time Lapse VCR
- Video loop through for up to 10 cameras
- Live pictures can be displayed in full screen or sequence while simultaneously recording
- Quad or multi-screen (7/10) can be displayed\*
- Playback can be reviewed in full screen, sequence, quad, and multi-screen (7/10)
- Freeze picture function in play back mode
- Electronic zoom (x2) function in play back mode
- Built in time/date and camera title generator
- Easy on screen setup
- 10 alarm inputs, each corresponding to a camera input
- Alarm monitor function automatically provides independent monitoring of channels on which alarms occur
- Programmable alarm recording time mode
- Alarm memory function can store up to 100 alarm events (camera number, date and time)
- Video loss detection function
- Remote control capability via a D-sub 25-pin
- Compact 1U height unit and rack mount capability

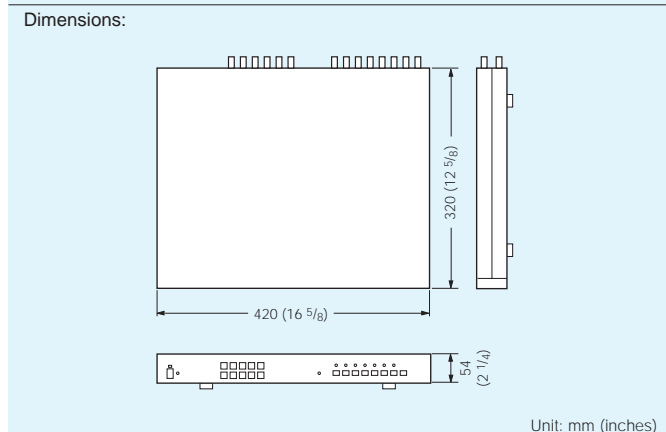
\* This feature is not applicable when unit recording with a VTR

## Supplied Accessories

- Rack mount kit (for EIA standard rack) (1 set)
- D-sub 25-pin plug components (1 set)
- Operation manual (1)

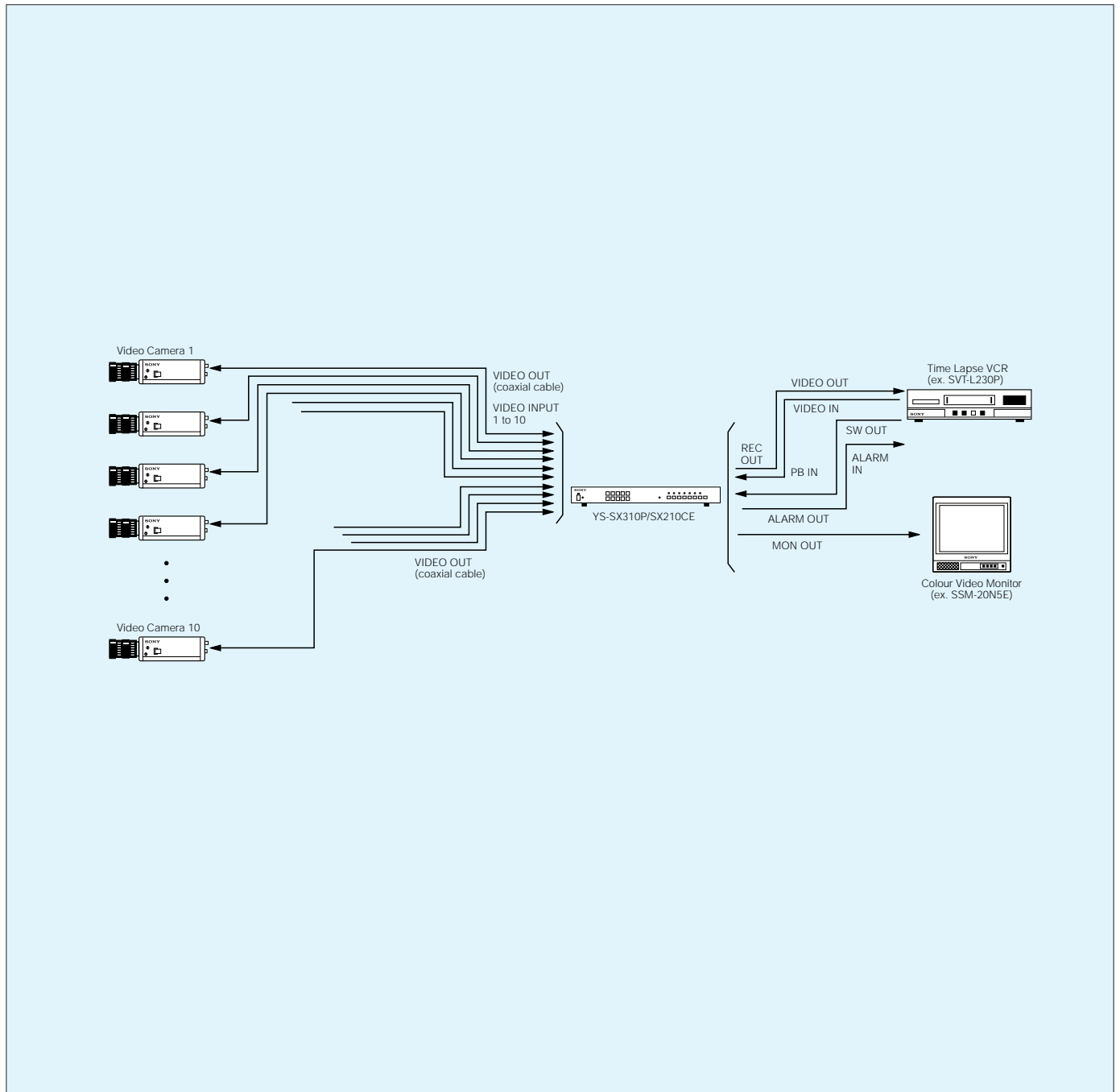
## Specifications

	YS-SX310P	YS-SX210CE
<b>General</b>		
Video signal system:	PAL standard	CCIR standard
Power requirements:	AC 220 to 240 V, 50 Hz	
Power consumption:	14 W	12 W
Operating temperature:	0 to 45°C (32 to 113°F)	
Storage temperature:	-20 to 60°C (-4 to 140°F)	
Dimensions:	420 (W) x 54 (H) x 320 (D) mm (16 5/8 x 2 1/4 x 12 5/8 inches)	
Mass:	Approx. 4.2 kg (9 lb 4 oz)	
<b>Video inputs</b>		
Camera input 1 to 10:	BNC type, VS or VBS, 1.0 Vp-p, 75 Ω	
VCR input:	BNC type, VS or VBS, 1.0 Vp-p, 75 Ω	
<b>Video outputs</b>		
Monitor output:	BNC type x 1, VS or VBS	BNC type x 1, VS
VCR output:	BNC type, VS or VBS, 1.0 Vp-p, 75 Ω	BNC type, VS, 1.0 Vp-p, 75 Ω
Alarm output:	DC 5 V 5.7 kΩ	
Alarm duration:	10, 20, 30, 40, 50, 60, CC* sec.	
Switch input from VCR:	Low active (100 kΩ pull-up)	
Control terminal:	D-sub: 25-pin Alarm input: contact close (x 10) Remote control input	
Sequence time:	0.5 to 30 sec. (0.5 sec. increments)	
On-screen display:	8 character title, date/time	
Buzzer:	ON/OFF	



\* Stays in alarm mode for as long as alarm input remains active

## YS-SX310P/SX210CE Typical System



YS-SX310P/SX210CE  
Rear Panel



## 6-channel Sequential Switcher

### YS-S6



- Compact-size sequential switcher for small surveillance systems
- Six VIDEO INPUTs with loop-through capability
- The pictures from up to six video cameras can be monitored sequentially on a monitor via the SELECT VIDEO OUT
- The use of DWELL dial enables various dwell time (displayed time) settings per each monitor from 1 second to 30 seconds
- Both Auto/Manual switching modes are available  
 Auto: Pressing the AUTO button provides automatic sequential monitoring of all camera inputs  
 Manual: The INPUT SELECT buttons allow users manually select a specific camera input and view it continuously
- Pictures from connected camera which don't have to be monitored can be skipped by the use of SKIP buttons 1 through 6
- Accepts also NTSC/EIA signal

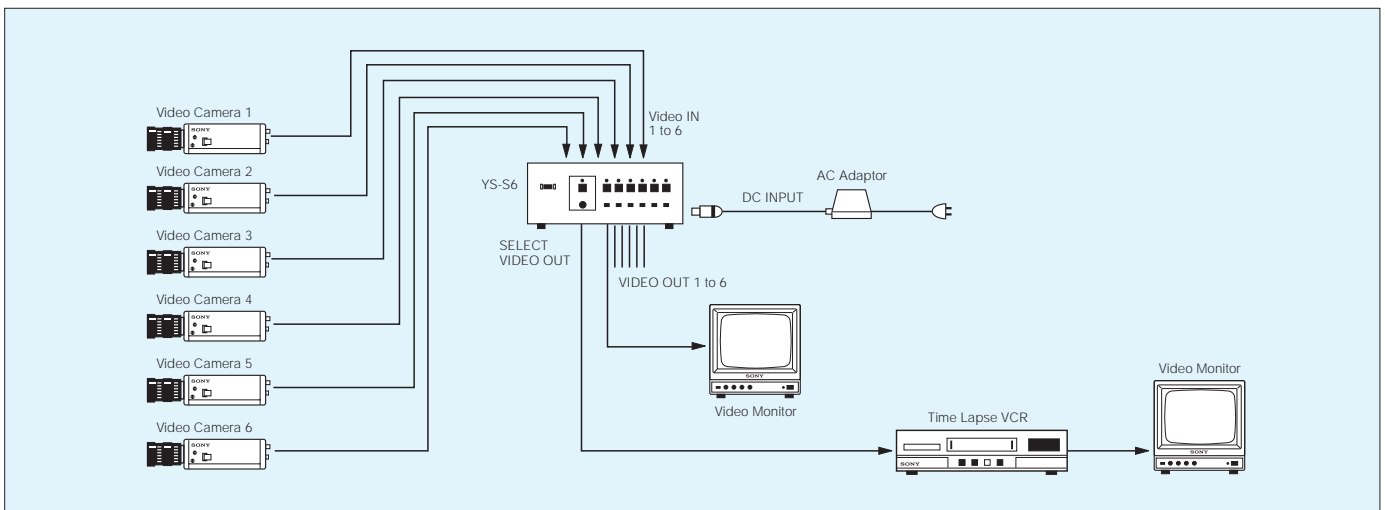
### Supplied Accessory

Operation manual (1)



Rear Panel

### YS-S6 Typical System



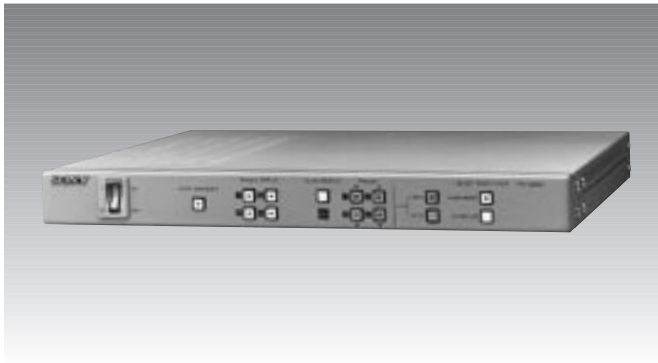
### Specifications

YS-S6	
<b>General</b>	
Power requirements:	DC 9 V
Power consumption:	Approx. 2.3 W
Operating temperature:	0°C to 40°C (32°F to 104°F)
Storage temperature:	-20°C to 60°C (-4°F to 140°F)
Mass:	Approx. 2.1 kg (4 lb 10 oz)
<b>Input signals</b>	
VIDEO INPUT 1 to 6:	BNC type, 1.0 Vp-p, 75 Ω, unbalanced, sync negative
DC IN:	DC jack type DC 9 V (DC 7 V to 15 V is allowed)
<b>Output signals</b>	
VIDEO OUTPUT 1 to 6:	BNC type, loop-through output of VIDEO INPUT, 75 Ω termination ON/OFF switchable
SELECT VIDEO OUT:	BNC type, 1.0 Vp-p, 75 Ω, unbalanced, sync negative
<b>Dimensions:</b>	
Unit: mm (inches)	

NOTE: AC Adaptor is an option.

# SWITCHERS

## Quad Switcher YS-Q440P



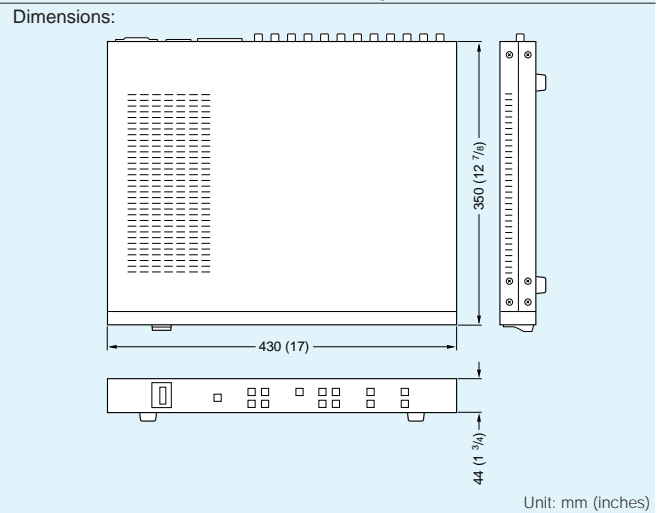
- High performance Quad Image Splitter with an auto sequential switcher
- Up to four compressed, split pictures can be simultaneously displayed on a single monitor and recorded on a single VCR
- Automatic switching between up to four cameras can also be performed on a monitor and the switching interval can be selected in one-second increments from 1 to 30 seconds
- Either asynchronous or synchronous, colour or black & white cameras can be connected
- 8-bit signal processing and four field memories provide high picture quality compressed images
- Up to eight characters can be superimposed onto each of the four compressed pictures
- The built-in date and time generator allows time and date information to be displayed
- Freeze picture function (Quad mode only)
- Alarm function
- Video loss detection
- RS-232 remote control port

### Supplied Accessories

- Rack mounting bracket (for EIA standard rack) (1)
- AC power cord (1)
- Operating instruction manual (1)

## Specifications

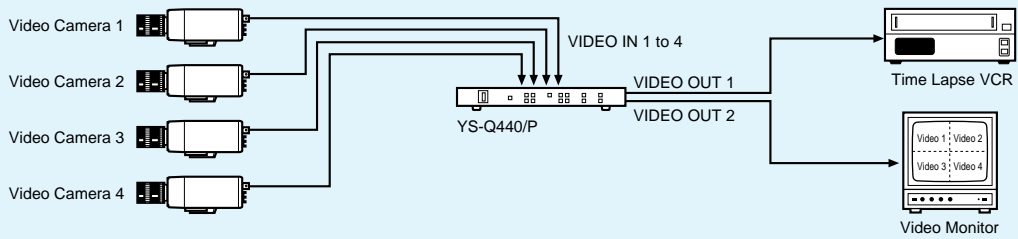
YS-Q440P	
<b>General</b>	
Video signal system:	CCIR/PAL standard
Power requirements:	AC 220 to 240 V
Power consumption:	Less than 10 W
Operating temperature:	0 to 40°C (32 to 104°F)
Storage temperature:	-20 to 60°C (-4 to 140°F)
Mass:	Approx. 3.8 kg (8 lb 4 oz)
<b>Video input/output</b>	
Video input:	VIDEO INPUT CH1 to CH4, 1.0 Vp-p, 75 Ω automatic termination Input (BNC type) x 4 Loop through output (BNC type) x 4
Video output:	VIDEO OUT (BNC type) x 1 Quad-picture image signal 1.0 Vp-p, 75 Ω VIDEO OUT (BNC type) x 1 Quad, Sequential, Full screen signal (selectable) 1.0 Vp-p, 75 Ω
<b>Sync</b>	
External SYNC IN	1.0 Vp-p, 75 Ω VBS or VS signal
External SYNC OUT	1.0 Vp-p, 75 Ω VBS or VS signal
<b>Control</b>	
Remote connector:	REMOTE (D-sub 9 pin RS-232C port)
Alarm input:	ALARM IN terminal x 4 CMOS "L" level or MAKE
Alarm output:	ALARM OUT terminal x 1 Relay Out, switching DC 30 V at up to 2 A RESET OUT terminal x 1 Open Collector Output up to 12 V 20 mA
<b>Other</b>	
Alarm hold duration:	1 to 30 s (one second increments) 30 to 180 s (ten second increments)
<b>Manual</b>	
Auto sequential duration:	1 to 30 s (one second increments)
Picture tone:	8-bit video (256 gradations)



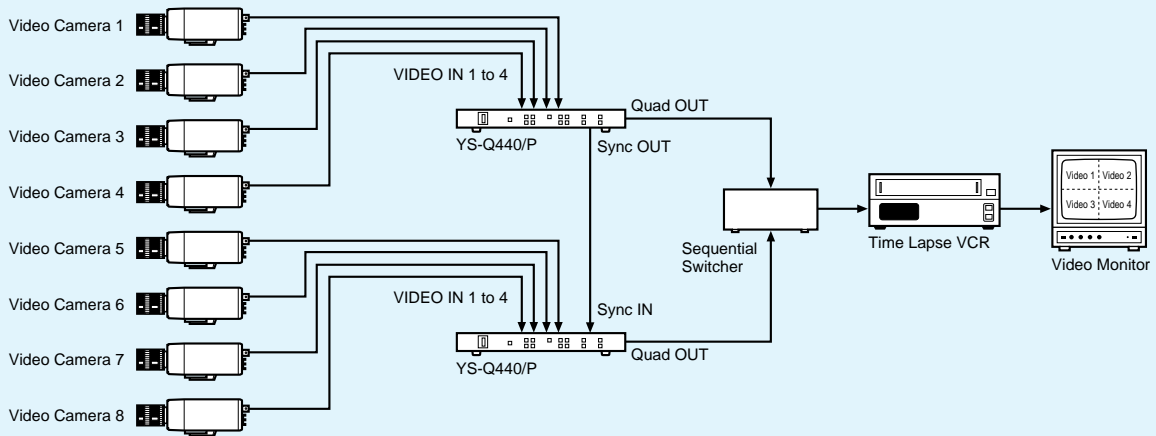
Rear Panel

YS-Q440P Typical System

1. Single YS-Q440P operation



2. YS-Q440P operation with sequential switcher



# TIME-LAPSE VIDEO RECORDERS

Keeping a permanent record of events and alarms requires specialized VCRs, and the expanding range of Sony surveillance products now includes six models. The family of VCRs divides into two categories: analog time-lapse and digital time-lapse. The five analog models each have a unique set of features to suit different surveillance applications. The digital time-lapse recorder, the HSR-1P, uses the advantages of digital recording to provide outstanding functionality and enhanced picture quality.

## Analog time-lapse VCRs



**SVT-L230P**  
VHS  
RealAction recording  
Max. 96 hour recording with E-240 tape



**SVT-124P**  
VHS  
compact  
Max. 24 hour recording with E-180 tape



**SVT-1000P**  
VHS  
Max. 72 hour recording with E-180 tape



**SVT-S3050P**  
S-VHS  
Max. 168 hour recording with E-180 tape



**SVT-5050P**  
VHS  
Max. 960 hour recording with E-180 tape

## Digital time-lapse VCR



**HSR-1P**  
Hybrid recording using hard disk drive and DV tape  
Built-in multiplexer  
Pre-alarm recording

# TIME LAPSE VIDEO RECORDERS

## Time Lapse Videocassette Recorder

### SVT-L230P



- Sony's RealAction technology allows high density recording of 16.6 fields per second
- Maximum 96-hour time lapse recording mode is available with a 240-minute tape

TIME MODE (h)	8	24	40	64	96
INTERVAL (s)	1/50	0.06	0.1	0.18	0.26

- Maximum 72-hour time lapse recording mode is available with a 180-minute tape

TIME MODE (h)	6	18	30	48	72
INTERVAL (s)	1/50	0.06	0.1	0.18	0.26

- Adaptive Picture Control (APC) delivers optimum picture quality to the recording image
- Audio recording and playback are possible in 8, 24, 40-hour modes (E-240) and in 6, 18, 30-hour modes (E-180)
- Built-in time and date generator allows time and date information to be displayed along with the Alarm count and Recording/Playback speed
- Various recording modes such as Auto Repeat Recording, Timer Recording, Alarm Recording and Series Recording for versatile situations
- Dalight Saving Time setting function
- Holiday setting function
- Camera switcher interface
- Quick recording check function
- By using alarm recall, scan and search functions, pictures recorded during alarm mode can be easily checked
- Field-by-field picture playback capability
- External timer input capability
- Automatic clock adjusting is possible when several VTRs are used
- On-screen display permits easy-to-follow operation
- Auto head cleaning function
- Tape before-end/Tape-end signal output capabilities
- Warning signal output capability
- Buzzer function
- Power-failure protection for up to 30 days
- Security lock function for avoiding accidental operation errors
- Loop-through capability enables video and audio to be output through to the monitor automatically
- Clog detection function
- Remote control capability of basic operational functions through ø3.5mm mini jack
- External control capability via an optional RS-232C interface

## Specifications

SVT-L230P	
<b>General</b>	
Mass:	5.8 kg (12 lb 9 oz)
Dimensions:	420 (W) x 100 (H) x 349 (D) mm (16 5/8 x 4 x 13 1/2 inches)
Power requirements:	AC 220 to 240 V, 50 Hz
Power consumption:	17 W
Operating humidity:	Less than 80%
<b>System</b>	
Video signal:	CCIR standard (monochrome)/PAL (colour)
Recording/playback system:	Rotary four-head helical scanning system
Tape speed:	11.70 mm/second (6 or 8-hour mode)
Recording/Playback mode:	8, 24, 40, 64, 96 hours (with a E-240 tape) 6, 18, 30, 48, 72 hours (with a E-180 tape)
Fast forward/Rewind time:	Approx. 2.5 minutes (with an E-180 tape)
<b>Video</b>	
Input:	1.0 Vp-p, 75 Ω, unbalanced (BNC type)
Output:	1.0 Vp-p, 75 Ω, unbalanced (BNC type)
Horizontal resolution:	Colour mode: More than 240 TV lines Black & White mode: More than 320 TV lines
Signal-to-noise ratio:	42 dB
<b>Audio</b>	
Audio recording system:	Monaural
Input:	-7.8 dBu, 47 kΩ (phono jack)
Output:	-7.8 dBu, 600 Ω (phono jack)
Microphone input:	-60 dBu, 600 Ω (ø3.5 mm mini jack)
Distortion:	Less than 4%
Audio signal-to-noise ratio:	40 dB
<b>Others</b>	
Alarm input:	Low level, Terminal trip x 1
Alarm output:	+5 V, 5.7 kΩ (Low active), Terminal trip x 1
Switch output:	+5 V, 5.7 kΩ, Terminal trip x 1
Tape end output:	+5 V, 5.7 kΩ (Low active), Terminal trip x 1
Warning output:	+5 V, 5.7 kΩ (Low active), Terminal trip x 1
Timer output:	+5 V, 5.7 kΩ (High active), Terminal trip x 1
External timer input:	Low level, Terminal trip x 1
Clock set output:	+5 V, 5.7 kΩ (Low active), Terminal trip x 1
Clock set input:	Low level
Series output:	+5 V, 5.7 kΩ (Low active), Terminal trip x 1
Remote control input:	ø3.5 mm mini jack (x 1)

## Supplied Accessories

- AC power cable (1)
- Operation manual (1)

## Optional Accessories

- SVT-RM10 Remote Control Unit
- RSE-232C interface board SVT-RS1A
- TLV parts kit TPK-888P



Rear Panel



# TIME LAPSE VIDEO RECORDERS

## Time Lapse Videocassette Recorder

### SVT-124P



- Two different time lapse recording/playback modes are available in addition to the standard mode (3 hours time mode) with a normal 180-minute tape

TIME MODE (h)	3	12	24
INTERVAL (s)	1/50	0.1	0.18

- Compact body with a 240 mm width
- Adaptive Picture Control (APC) delivers optimum picture quality to the recording image
- Audio recording and playback are possible in 3, 12 and 24-hour modes
- Built-in time and date generator allows time and date information to be displayed along with the Alarm count and Recording/Playback speed
- Various recording modes such as Auto Repeat Recording, Timer Recording and Alarm Recording for versatile situations
- Holiday setting function
- Daylight Saving Time setting function
- Camera switcher interface
- Quick recording check function
- By using alarm recall and scan functions, pictures recorded during alarm mode can be easily checked
- Field-by-field picture playback capability
- External timer input capability
- Automatic clock adjusting is possible when several VCRs are connected
- On-screen display permits easy-to-follow operation
- Auto head cleaning function
- Tape before-end signal output/Tape-end output capability
- Warning signal output capability
- Buzzer setting function
- Power-failure protection for up to 30 days
- Security lock function for avoiding accidental operation errors
- Clog detection function
- Remote control capability of basic operational functions through ø3.5mm mini jack (optional Remote Control Unit SVT-RM10)

## Specifications

SVT-124P	
<b>General</b>	
Tape format:	VHS
Power requirements:	AC 220 to 240 V, 50/60 Hz
Power consumption:	18 W
Operating temperature:	5 to 40°C (41°F to 104°F)
Operating humidity:	Less than 80%
Dimensions:	240 (W) x 96.5 (H) x 333 (D) mm (9 1/2 x 3 7/8 x 13 1/8 inches)
Mass:	Approx. 3.8 kg (8 lb 6 oz)
Tape speed:	23.39 mm/sec (3-hour mode)
Recording/Playback time:	3, 12, 24 hours (with an SE/E-180 tape)
Alarm recording speed:	3-hour mode
Alarm recording duration:	20 s, 40 s, 1 m, 2 m, 3 m, 5 m, CC*, TRIG
Fast forward/rewind time:	Approx. 2.5 minutes (with an SE/E-180 tape)
<b>Video</b>	
Recording system:	Rotary two-head helical scanning system
Input:	BNC: 1.0 Vp-p, 75 Ω, unbalanced
Output:	BNC: 1.0 Vp-p, 75 Ω, unbalanced
Horizontal resolution:	Colour mode: More than 240 TV lines Black & White mode: More than 320 TV lines
Signal-to-noise:	43 dB
<b>Audio</b>	
Audio recording system:	Monoaural
Audio recording mode:	3, 12 and 24-hour mode
Input:	-7.8 dBu, 47 kΩ (phono jack)
Output:	-7.8 dBu, 600 Ω (phono jack)
Microphone input:	-60 dBu, 600 Ω (ø3.5 mm minijack)
Distortion:	Less than 4%
Audio signal-to-noise:	42 dB
<b>Others</b>	
Alarm input:	Low level
Alarm output:	+5 V, 5.7 kΩ (Low active)
Switch output:	+5 V, 5.7 kΩ (Low active)
Tape end output:	+5 V, 5.7 kΩ (Low active)
Warning output:	+5 V, 5.7 kΩ (Low active)
External timer input:	Low level
Remote/Tally:	Stereo mini pin
AC input:	3-pin inlet

Notes: \* Stays an alarm for as long as the alarm input remains active.  
0 dBu = 0.775 Vrms

## Supplied accessories

- AC power cord (1)
- Operation manual (1)

## Optional accessory

- SVT-RM10 Remote Control Unit
- TLV parts kit TPK-953P



Rear Panel

# TIME LAPSE VIDEO RECORDERS

## Time Lapse Videocassette Recorder

### SVT-1000P



- 4 different time lapse recording/playback modes are available in addition to the standard mode (3 hours time mode) with a normal 180-minute tape

TIME MODE (h)	3	12	24	48	72
INTERVAL (s)	1/50	0.1	0.18	0.34	0.5

Note: In time lapse modes, it is possible to additionally record three hours longer than the original modes.

- Adaptive Picture Control (APC) delivers optimum picture quality to the recording image
- A tape recorded in the 3-hour mode can be played back by any VHS VCR
- Audio recording and playback are possible in 3, 12 and 24-hour modes
- Built-in time and date generator allows time and date information to be displayed along with the Alarm count and Recording/Playback speed
- Various recording modes such as Auto Repeat Recording, Timer Recording and Alarm Recording for versatile situations
- By using alarm recall and scan functions, pictures recorded during alarm mode can be easily checked
- Holiday setting function
- Daylight Saving Time setting function
- Quick recording check function
- Field-by-field picture playback capability
- External timer input capability
- On-screen display permits easy-to-follow operation
- Auto head cleaning function
- Tape before-end signal output capability
- Warning signal output capability
- Buzzer setting function
- Power-failure protection for up to 30 days
- Security lock function for avoiding accidental operation errors
- External control capability via an optional RS-232C interface
- Remote control capability of basic operational functions through  $\varnothing 3.5$  mm mini jack



Rear Panel

## Specifications

SVT-1000P	
<b>General</b>	
Power requirements:	AC 220 to 240 V, 50/60 Hz
Power consumption:	18 W
Operating temperature:	5 to 40°C (41 to 104°F)
Operating humidity:	Less than 80%
Dimensions:	420 (W) x 100 (H) x 349 (D) mm (16 5/8 x 4 x 13 3/4 inches)
Mass:	Approx. 5.5 kg (12 lb 2 oz)
Tape speed:	23.39 mm/sec (3-hour mode)
Recording/playback time:	3, 12, 24, 48 and 72 hours (with an E-180 tape)
Alarm recording speed:	3, 12-hour mode, NC*1
Alarm recording duration:	20 s, 1 m, CC*2
Fast forward/rewind time:	Approx. 4 minutes (with an E-180 tape)
<b>Video</b>	
Recording Playback system:	Rotary four-head helical scanning system
Luminance signal:	FM recording
Colour signal:	Low-pass band-pass transformation direct recording
Input:	1.0 Vp-p, 75 $\Omega$ , unbalanced, sync negative (BNC type)
Output:	1.0 Vp-p, 75 $\Omega$ , unbalanced, sync negative (BNC type)
Horizontal resolution:	Colour mode: More than 240 TV lines Black & White mode: More than 320 TV lines
Signal-to-noise ratio:	43 dB
<b>Audio</b>	
Audio recording mode:	3, 12 and 24-hour mode
Input:	-7.8 dBu, 47 k $\Omega$ , unbalanced (phono jack)
Output:	-7.8 dBu, 600 $\Omega$ , unbalanced (phono jack)
Microphone input:	-60 dBu, 600 $\Omega$ ( $\varnothing 3.5$ mm minijack)
<b>Others</b>	
Alarm input:	Low level
Alarm output:	+5 V, 5.7 k $\Omega$ (Low active)
Switch output:	+5 V, 5.7 k $\Omega$ (Low active)
Tape end output:	+5 V, 5.7 k $\Omega$ (Low active)
Warning output:	+5 V, 5.7 k $\Omega$ (Low active)
External timer input:	Low level
Control terminals:	$\varnothing 3.5$ mm mini jack Optional RS-232C interface (D-sub 9-pin)

Notes: \*1 No change of recording speed

\*2 Stays an alarm for as long as the alarm input remains active.  
0 dBu=0.775 Vrms

## Supplied accessories

AC power cord (1)

Operation manual (1)

## Optional accessory

SVT-RM10 Remote Control Unit

RS-232C interface board SVT-RS1A

TLV parts kit TPK-887P

# TIME LAPSE VIDEO RECORDERS

## S-VHS Time Lapse Videocassette Recorder

### SVT-S3050P



- High horizontal resolution of 400TV lines using S-VHS format
- Excellent signal-to-noise ratio of 45 dB
- 7 different time lapse recording/playback modes are available in addition to the standard mode (3 hours time mode) with a normal 180-minute tape

TIME MODE (h)	3	12	24	48	72	96	120	168
INTERVAL (s)	1/50	0.1	0.18	0.34	0.5	0.66	0.82	1.14

Note: In time lapse modes, it is possible to additionally record three hours longer than the original modes.

- Adaptive Picture Control (APC) delivers optimum picture quality to the recording image
- A tape recorded in the 3-hour mode can be played back by any S-VHS or VHS VCR
- Audio recording and playback are possible in 3, 12 and 24-hour modes
- Built-in time and date generator allows time and date information to be displayed along with the Alarm count and Recording/Playback speed
- Various recording modes such as Auto Repeat Recording, Timer Recording and Alarm Recording for versatile situations
- Holiday setting function
- Daylight Saving Time setting function
- Quick recording check function
- By using alarm recall and scan functions, pictures recorded during alarm mode can be easily checked
- Field-by-field picture playback capability
- External timer input capability
- Automatic clock adjusting is possible when several VCRs are connected
- On-screen display permits easy-to-follow operation
- Auto head cleaning function
- Tape before-end signal output capability
- Warning signal output capability
- Buzzer setting function
- Power-failure protection for up to 30 days
- Security lock function for avoiding accidental operation errors
- External control capability via an optional RS-232C interface
- Remote control capability of basic operational functions through ø3.5mm mini jack



Rear Panel

## Specifications

SVT-S3050P	
<b>General</b>	
Tape format:	S-VHS or VHS
Power requirements:	AC 220 to 240 V, 50/60 Hz
Power consumption:	18 W
Operating temperature:	5 to 40°C (41 to 104°F)
Operating humidity:	Less than 80%
Dimensions:	420 (W) x 100 (H) x 349 (D) mm (16 5/8 x 4 x 13 1/2 inches)
Mass:	Approx. 5.8 kg (12 lb 9 oz)
Tape speed:	23.39 mm/sec (3-hour mode)
Recording/playback time:	3, 12, 24, 48, 72, 96, 120 and 168 hours (with an SE/E-180 tape)
Alarm recording speed:	3, 12-hour mode, NC*1
Alarm recording duration:	20 s, 1 m, CC*2
Fast forward/rewind time:	Approx. 4 minutes (with an SE/E-180 tape)
<b>Video</b>	
Recording Playback system:	Rotary four-head helical scanning system
Luminance signal:	FM recording
Colour signal:	Low-pass band-pass transformation direct recording
Input:	BNC: 1.0Vp-p, 75 Ω, unbalanced S-VIDEO: Mini DIN 4-pin Y: 1.0Vp-p, 75 Ω, sync negative C: 0.3 Vp-p, at burst level, 75 Ω
Output:	BNC: 1.0 Vp-p, 75 Ω, unbalanced S-VIDEO: Mini DIN 4-pin Y: 1.0 Vp-p, 75 Ω, sync negative C: 0.3 Vp-p, at burst level, 75 Ω
Horizontal resolution:	Colour mode: More than 400 TV lines (S-VHS) Black & White mode: More than 400 TV lines (S-VHS)
Signal-to-noise ratio:	45 dB (S-VHS)
<b>Audio</b>	
Audio recording mode:	3, 12 and 24-hour mode
Input:	-7.8 dBu, 47 kΩ (phono jack)
Output:	-7.8 dBu, 600 Ω (phono jack)
Microphone input:	-60 dBu, 600 Ω (ø3.5 mm minijack)
<b>Others</b>	
Alarm input:	Low level
Alarm output:	+5 V, 5.7 kΩ (Low active)
Switch output:	+5 V, 5.7 kΩ (Low active)
Tape end output:	+5 V, 5.7 kΩ (Low active)
Warning output:	+5 V, 5.7 kΩ (Low active)
Timer output:	+12 V, 5.7 kΩ (high active)
External timer input:	Low level
Clock set output:	+5 V, 5.7 kΩ (Low active)
Clock set input:	Low level
Series output:	+5 V, 5.7 kΩ (Low active)
Series input:	Low level
Control terminals:	ø3.5 mm mini jack Optional RS-232C interface (D-sub 9-pin)

Notes: \*1 No change of recording speed  
\*2 Stays an alarm for as long as the alarm input remains active.  
0 dBu = 0.775 Vrms

## Supplied accessories

- AC power cord (1)
- Operation manual (1)

## Optional accessory

- SVT-RM10 Remote Control Unit
- RS-232C interface board SVT-RS1A
- TLV parts kit TPK-885P

# TIME LAPSE VIDEO RECORDERS

## Time Lapse Videocassette Recorder

### SVT-5050P



- 12 different time lapse recording/playback modes are available in addition to the standard mode (3 hours time mode) with a normal 180-minute tape

TIME MODE (h)	3	12	24	48	72	96	120	168	240	360	480	720	960
INTERVAL (s)	1/50	0.1	0.18	0.34	0.5	0.66	0.82	1.14	1.62	2.42	3.22	4.82	6.42

Note: In time lapse modes, it is possible to additionally record three hours longer than the original modes.

- Adaptive Picture Control (APC) delivers optimum picture quality to the recording image
- A tape recorded in the 3-hour mode can be played back by any VHS VCR
- Audio recording and playback are possible in 3, 12 and 24-hour modes
- Built-in time and date generator allows a required scene to be easily searched by presetting the desired time and date
- Multiple recording modes such as Auto Repeat Recording, Timer Recording, Alarm Recording, One-shot Recording and Series Recording for versatile situations
- Holiday setting function
- Daylight Saving Time setting function
- Quick recording check function
- By using alarm recall/scan/search functions, pictures recorded during alarm mode can be easily checked
- Field-by-field picture playback capability
- External timer input capability
- Automatic clock adjusting is possible when several VCRs are connected
- On-screen display permits easy-to-follow operation
- Auto head cleaning function
- Tape before-end signal output capability
- Warning signal output capability
- Buzzer setting function
- Power-failure protection for up to 30 days
- Security lock function for avoiding accidental operation errors
- External control capability via an optional RS-232C interface
- Remote control capability of basic operational functions through ø3.5 mm mini jack



Rear Panel

## Specifications

SVT-5050P	
<b>General</b>	
Power requirements:	AC 220 to 240 V, 50/60 Hz
Power consumption:	18 W
Operating temperature:	5 to 40°C (41 to 104°F)
Operating humidity:	Less than 80%
Dimensions:	420 (W) x 100 (H) x 349 (D) mm (16 5/8 x 4 x 13 3/4 inches)
Mass:	Approx. 5.5 kg (12 lb 2 oz)
Tape speed:	23.39 mm/sec (3-hour mode)
Recording/playback time:	3, 12, 24, 48, 72, 96, 120, 168, 240, 360, 480, 720 and 960 hours (with an E-180 tape) (One shot mode is also available)
Alarm recording speed:	3, 12-hour mode, NC*1
Alarm recording duration:	20 s, 40 s, 1 m, 2 m, 3 m, 4 m, 5 m, CC*2
Fast forward/rewind time:	Approx. 4 minutes (with an E-180 tape)
<b>Video</b>	
Recording Playback system:	Rotary four-head helical scanning system Luminance signal: FM recording Colour signal: Low-pass band-pass transformation direct recording
Input:	1.0 Vp-p, 75 Ω, unbalanced (BNC type)
Output:	1.0 Vp-p, 75 Ω, unbalanced (BNC type)
Horizontal resolution:	Colour mode: More than 240 TV lines Black & White mode: More than 350 TV lines
Signal-to-noise ratio:	43 dB
<b>Audio</b>	
Audio recording mode:	3, 12 and 24-hour mode
Input:	-7.8 dBu, 47 kΩ (phono jack)
Output:	-7.8 dBu, 600 Ω (phono jack)
Microphone input:	-60 dBu, 600 Ω (ø3.5mm mini jack)
<b>Others</b>	
Alarm input:	Low level
Alarm output:	+5 V, 5.7 kΩ (Low active)
Switch output:	+5 V, 5.7 kΩ (Low active)
Tape end output:	+5 V, 5.7 kΩ (Low active)
Warning output:	+5 V, 5.7 kΩ (Low active)
Timer output:	+12 V, 5.7 kΩ (high active)
External timer input:	Low level
Clock set output:	+5 V, 5.7 kΩ (Low active)
Clock set input:	Low level
Series output:	+5V, 5.7 kΩ (Low active)
Series input:	Low level
One-shot input:	Low level
Alarm reset:	Low level
Control terminals:	ø3.5 mm mini jack Optional RS-232C interface (D-sub 9-pin)

Notes \*1 No change of recording speed

\*2 Stays an alarm for as long as the alarm input remains active.

0 dBu=0.775 Vrms

## Supplied Accessories

AC power cord (1)

Operation manual (1)

## Optional Accessory

SVT-RM10 Remote Control Unit

RS-232C interface board SVT-RS1A

TLV parts kit TPK-887P

**ANALOG TIME LAPSE VCR FEATURE COMPARISON CHART**

	<b>SVT-L230P</b>	<b>SVT-124P</b>	<b>SVT-1000P</b>	<b>SVT-S3050P</b>	<b>SVT-5050P</b>
Format	VHS	VHS	VHS	S-VHS/VHS	VHS
Recording Speed	up to 72 (E-180)/up to 96 (E-240)	up to 24 (E-180)	up to 72 (E-180)	up to 168 (E-180)	up to 960 (E-180)
Adaptive Picture Control	YES	YES	YES	YES	YES
Audio Playback	6, 18, 30	3, 12, 24	3, 12, 24	3, 12, 24	3, 12, 24
Horizontal Resolution	B/W: 320 CLR: 240	B/W: 320 CLR: 240	B/W: 320 CLR: 240	B/W: 400 CLR: 400	B/W: 350 CLR: 240
RS-232C IF (option)	YES	NO	YES	YES	YES
Video S/N	42 dB	44 dB	43 dB	45 dB	43 dB
FF/REW Time	Approx. 2.5 min (E-180)	Approx. 2.5 min (E-180)	Approx. 4 min (E-180)	Approx. 2.5 min (E-180)	Less than 4 min (E-180)
Dimensions (mm)	420 x 100 x 349	240 x 96.5 x 333	420 x 100 x 349	420 x 100 x 349	420 x 100 x 349
Mass (kg)	5.8	3.8	5.8	5.8	5.8
Timer REC	Daily, Weekly	Daily, Weekly	Daily, Weekly	Daily, Weekly	Daily, Weekly
Auto Repeat REC	YES	YES	YES	YES	YES
Series REC	YES	NO	NO	YES	YES
One Shot REC	NO	NO	NO	NO	YES
Field Advance	YES (±)	YES (+)	YES (±)	YES (+)	YES (±)
Reverse Playback	Standard Only	NO	Standard Only	Standard Only	Standard Only
Alarm Search	YES	NO	NO	NO	YES
Alarm Scan/Recall	YES	YES	YES	YES	YES
Time Date Search	YES	NO	NO	NO	YES
Memory Back-up	30 days (Lithium batt.)	30 days (Lithium batt.)	30 days (Lithium batt.)	30 days (Lithium batt.)	30 days (Lithium batt.)
REC Check	YES	YES	YES	NO	NO
Clog derection	YES	YES	NO	NO	NO
Daylight	YES (Auto)	YES (Auto)	YES (Manual)	YES (Manual)	YES (Manual)
Holiday Set	YES	YES	YES	YES	YES
Series In/Out	YES	NO	NO	YES	YES
Timer OUT	YES	NO	YES	YES	YES
Warning OUT	YES	YES	YES	YES	YES
Tape Before End/End	YES	YES	YES	YES	YES
Clock Adjusting	YES	NO	NO	YES	YES



## Digital Surveillance Recorder

### HSR-1P



- Hybrid configuration of HDD and DV tape drive
- Four alternative quality modes: Super, High, Middle and Low modes
- Excellent picture quality provided by super mode with a horizontal resolution of more than 500 TV lines (Super mode)
- Large storage capacity (more than 60 GB) and long recording time by using DV cassette tape (270-minute tape) as a storage medium
- High refresh rate for recording of each camera
- High reliability on tape transport mechanism and heads offered by the hybrid configuration of HDD and DV tape drive.
- Compact body which matches that of a 14-inch monitor
- Compact storage medium which requires less space
- Up to 16 camera inputs provided by installing optional HSRA-11
- Built-in duplex multiplexing capability which allows recording and monitoring of up to 16 camera inputs independently.
- A variety of monitoring patterns
- Two monitoring outputs for simultaneous playback on the first monitor and monitoring on the second monitor
- Five preset recording modes to be flexibly combined with picture quality mode, tape length, recording time, number of camera inputs and the recording cycle of each camera.
- Flexible camera assignment
- RS-232C interface for PC control
- Freely configurable 37-pin parallel port
- Flexibility in alarm mode
- Continuous recording function without breaks even while changing or rewinding the tape
- Sophisticated security functions
- Water mark
- Intelligent search functions: time/date search, alarm search, specific user data search and noiseless picture search
- Pre Alarm recording capability for event recording
- Power On recording capability
- Frame recording in hyper mode

## Specifications

HSR-1P	
<b>General</b>	
Mass	10 kg (22 lb 1 oz)
Dimensions	355 (W) x 125 (H) x 410 (D) mm (14 x 5 x 16 1/4 inches)
Power requirements	AC 220 V ~ 240 V, 50/60 Hz
Power consumption	80 W (without options) 115 W (with full options)
Operating temperature	5°C ~ 40°C (41°F ~ 104°F)
Operating humidity	Less than 80%
Usable tape	DV*1 or DVCAM*2 cassette tape (standard size, mini size)
HDD capacity	More than 4.3 GB
<b>System</b>	
Video signal	CCIR standard, PAL colour
Recording system	Rotary two-head helical scanning system Digital components
Quantization	8-bit
Sampling frequency	13.5 MHz (4:2:0 components)
Recording/Playback time	Maximum 9999 hours (Approx. 400 days)
Fast forward/Rewind time	Less than 3 min. (with a DV270 tape)
<b>Video</b>	
Input	VBS, VS (BNC type): 1.0 Vp-p, 75 Ω, unbalanced
Output	VBS (BNC type): 1.0 Vp-p, 75 Ω, unbalanced S-VIDEO (DIN 4-pin): Y: 1.0 Vp-p, 75 Ω, sync negative C: 0.3 Vp-p, 75 Ω, at burst level
Quality mode	SUPER, HIGH, MIDDLE and LOW mode (selectable) (Field-by-field recording) HYPER mode (Frame-by-frame recording with a trigger signal)
Horizontal resolution	More than 500 TV lines (HYPER and SUPER mode)
Signal-to-noise ratio	More than 48 dB
<b>Built-in Multiplexer</b>	
Input	4 inputs (up to 16 inputs with optional boards)
Output	2 outputs
Split screen display	9 patterns
<b>Connectors</b>	
Parallel input/output	D-SUB 37-pin (1)
Input:	24 terminals to be freely assigned (Alarm, Clock set, Series rec, Alarm cancel, etc.)
Output:	8 terminals to be freely assigned (Auto off, Tape end, Series rec, Rec tally, ect.)
Power output:	+12 V (max 100 mA)
Control S	Stereo mini (1)

Notes: \*1 The recorded tape by the HSR-1P cannot be played back on DV equipment.

\*2 A DVCAM 184-minute tape can be used with the HSR-1P. It has the same storage capacity as that of a DV 270-minute tape.

## Supplied accessories

- AC power cord (1)
- Operation manual (1)

## Optional accessory

- HSRA-11 (Input Board)
- SVRM-100A (Remote Control Unit)



Rear Panel

## TIME LAPSE VCR OPTIONAL ACCESSORIES

### Remote Control Unit SVT-RM10



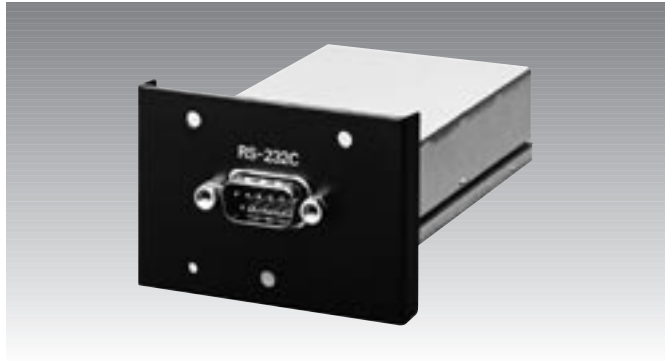
- Works with all Sony time lapse VCRs
- Provides wired remote control operation for REC/PLAY/STOP/REW/ FF/REV/PLAY/PAUSE
- MENU button and REC/PLAY speed button are also available
- Cable length: 2.4 m

### TLV Parts kit

- Parts kit for all SVT time lapse VCRs
- Includes all the parts required for a 10,000 hour maintenance service, including VCR cylinder and brake assembly

SVT- Series VCR	TLV Parts Kit
SVT-L230P	TPK-888P
SVT-124P	TPK-953P
SVT-1000P	TPK-887P
SVT-5050P	TPK-887P
SVT-S3050P	TPK-S885P

### RS-232C Interface Board SVT-RS1A



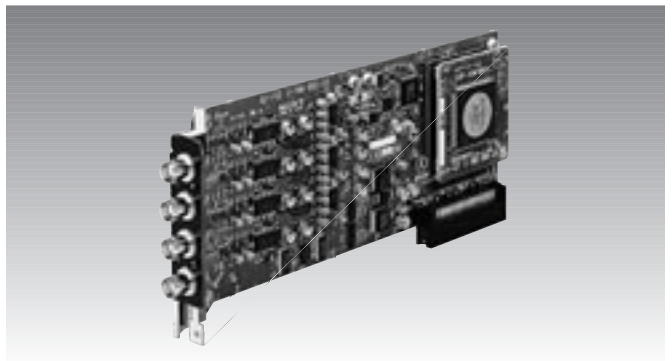
- When installed in the SVT-5050P, SVT-3050P, SVT-1000P, and SVT-L230P, this board allows these recorders to be remotely controlled from computers
- Connectable with common RS-232C cable (male type)
- REC CHECK function is available

### Remote Control Unit SVRM-100A



- Provides wired remote control operation for HSR-1P
- STOP/REC/PAUSE/REW/PLAY/FFWD/JOE/SHUTTLE operation

### Input Board HSRA-11



- Up to 16 camera inputs available when three optional input board, each having four inputs, are installed (The HSR-1P has one input board pre-installed)



# MONITORING CODECS AND SYSTEM CONTROLLER

## Monitoring Codecs

*The PMS (Picture Monitoring System) monitoring codecs have been designed especially for remote site surveillance applications. The PMS-500P transceiver and PMS-400P transmitter take advantage of the latest advances in ISDN telecommunications and image processing technology. Instead of still pictures, these codecs deliver smooth, clear, full colour video at a maximum of 15 frames per second together with audio and control data.*



## **PMS-500P/400P**

Tranceiver (PMS-500P)  
Transmitter (PMS-400P)

## System Controller

*The CSP-5000E is a highly programmable, easy-to-use CCTV matrix controller. It is designed for middle to large-scale surveillance systems and supports up to 128 camera inputs and 32 monitor outputs. Versatile camera switching and support of coaxial and twisted pair telemetry makes it the ideal choice for shopping centres, banks, office building and traffic control applications.*



## **CSP-5000E with CSPK-5000E Keyboard**

## Monitoring Codec

# PMS-500P/400P\*



PMS-500P (Receiver/Transmitter)  
PMS-400P (Transmitter)



PMS-500P



PMS-400P  
Rear Panel

### • PMS-500P and PMS-400P Comparison

	Video		Voice		Control data	
	Send	Receive	Send	Receive	Send	Receive
<b>PMS-500P</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>PMS-400P</b>	Yes	No	Yes	Yes	Yes	Yes

(Both PMS-500P/400P)

- Transmission of smooth and clear, video at a maximum of 15 frames per second via ISDN line
- Selectable video mode (Fast/Normal/Fine) in monitoring
- Accepts 8 camera inputs which are selectable from a control centre or local terminals
- I/O port to control camera pan/tilt and zoom lens
- Relay output port to control external devices (ie; door, light)
- Transmission and receiving capability of audio which allows conversation between two sites
- When an alarm signal is input to a terminal, it automatically activates the control centre to switch the monitor to watch that terminal
- Easy connection, just by connecting to an ISDN modular jack
- Compatible with a wide range of cameras, monitors, and TLV equipment
- Remote control with the RM-R500 Remote Control Unit
- Password protection
- An RS-232C serial interface for PC control
- Remote diagnostics

\*These models are available only in Europe. For details, please contact your nearest Sony office.

### Supplied Accessories

- Operating instructions (1)
- AC power cord (1)

### Optional Accessory

RM-R500 remote control unit (for PMS-500P only)



RM-R500 Remote Control Unit



## Specifications

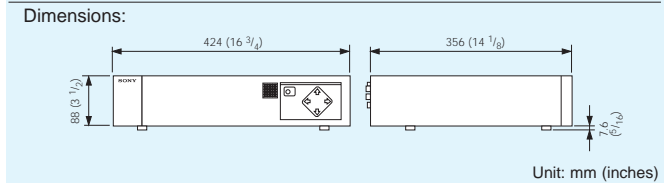
PMS-500P/400P		
<b>Video</b>		
Coding	H.261 (ITU-T recommendation)	
Operating bandwidth	56 kbps/64 kbps/112 kbps/128 kbps... 384 kbps	
Frame rate	Max. 15 frames per second	
Picture elements	CIF: Luminance (Y) 352 pixels x 288 lines Colour difference (B-Y, R-Y) 176 pixels x 144 lines	
Colour system	PAL (mutually connectable with NTSC)	
PinP	PMS-500P only	
<b>Input</b>		
Video In/Ext. Video In	1 Vp-p, 75 Ω, sync negative (BNC type)	
Video Out/Through Out	1 Vp-p, 75 Ω, sync negative (BNC type)	
Monitor Out	1 Vp-p, 75 Ω, sync negative (BNC type)	
<b>Input connectors</b>	<b>PMS-500P</b>	<b>PMS-400P</b>
Video In	8	8
Ext. Video In	1	1
Video Out	1	-
Monitor Out	1	1
<b>Audio</b>		
Coding	G.728 (ITU-T recommendation)	
Transfer rate	16 kbps	
Bandwidth	3.4 kHz	
<b>Input</b>		
Mic In	-60 dBu/600 Ω, balanced (4-pin round connector)	
Headphone Mic In	-60 dBu/4.7 kΩ, unbalanced (minijack)	
Line Out	Variable, 4.7 kΩ (phono)	
Headphone SP Out	Variable, 72 Ω (minijack)	
<b>Input connectors</b>	<b>PMS-500P</b>	<b>PMS-400P</b>
Mic In	1	1
Headphone Mic In	1	1
Line Out	1	1
Headphone SP Out	1	1
<b>Control procedure coding standards</b>		
H.242 System for Establishing Communication		
H.320 Overall System		
H.230 Control and Indication Signal		
H.221 Framing and Signalling Structure		
<b>Communications interface</b>		
<b>Network</b>		
Multiplexing	Video, audio, data	
Transmission rate	ISDN interface, 1B/2B V35 with RS-366 (56 k - 384 k)	
<b>Network connectors</b>		
ISDN BRI	RJ45	
V35 with RS-366	36-pin half-pitch connector (x2)	

Computer Control Port	
Interface	RS-232C
Baud rate	1200/2400/4800/9600/19200/38400 bps
<b>User data I/O</b>	
<b>I/O parallel</b>	
Alarm input	D-sub 9-pin TTL input, pull-up resistance 10 kΩ
Relay control	D-sub 9-pin Output mode: Open collector (40 V, 40 mA) Input mode: TTL input, pull-up resistance 10 kΩ
Camera control	Output mode: Open collector (40 V, 40 mA) Input mode: TTL input, pull-up resistance 10 kΩ
Remote control input	Minijack, SIRCS format
<b>I/O Serial</b>	
Baud rate	1200/2400/4800/9600/19200/38400 bps
Interface	RS-232C or RS-422 x 1 RS-232C or RS-485 x 1 RS-232C x 1

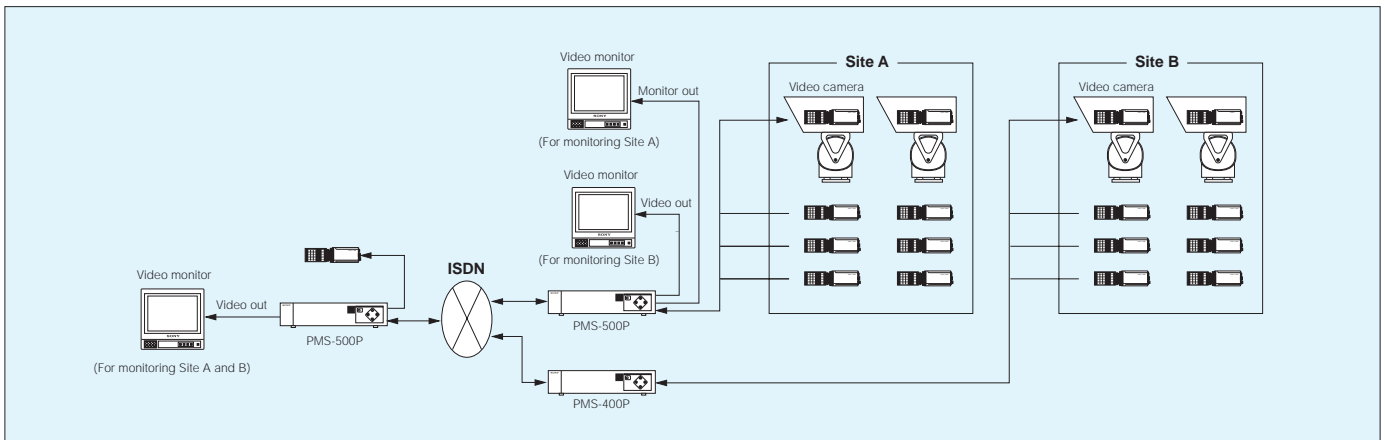
	PMS-500P	PMS-400P
RS-232C	3 (switchable with RS422/485)	3 (switchable with RS-422/485)
Alarm input	8	8
Relay output	8	8
Camera P I/O	12	12
SIRCS input	1	1
RS-485	(1)	(1)
Operation keys	Main unit keys Remote control (option)	Main unit keys Remote control (option)

Menu display memory	
Screen size	Max. 24 characters x 12 lines (288 characters)
Character font	24 x 32 pixels

General	
Power requirements	AC 220 to 240 V, 50/60 Hz
Power consumption	0.35 A
Operating temperature	0°C to 40°C
Operating humidity	20% to 80% (no condensation)
Storage temperature	-20°C to 55°C
Storage humidity	20% to 75% (no condensation)
Mass	7.0 kg



## PMS-500P/400P Typical System



# SYSTEM CONTROLLER

## System Controller CSP-5000E\*



- Up to 128 inputs and 32 outputs matrix switcher
- Flexible modular configuration for easy system expansion
- Versatile switching patterns of cameras are programmable
  - Up to 128 steps of switching for each monitor
  - Up to 8 tours (= sequence mode) are programmable
  - Each tour automatically changes according to time/date schedule
- Easy control of camera pan/tilt and zoom lens thanks to ergonomic keyboard and joyball
- Preset capability of camera pan/tilt and zoom lens position
- RS-422 ports for up to 7 keyboards, for multiple operators
- System partitioning capability for efficient management
- Password protection
- 256 alarm inputs and flexible alarm activation
- Twisted pair connection to each telemetry receiver

### Optional Accessories

#### CSPB-510VC Input Board

Input: 8 per input board  
 Video level: 1.0 Vp-p composite, 75 Ω  
 Cable compensation: Built-in, up to 1,200 m on RG-6A/U (5C-2V)

#### CSPB-520VC Output Board

Outputs: 8 per output board  
 Video level: 1.0 Vp-p composite, 75 Ω

\*This model is available only in Europe. For details, please contact your nearest Sony office.

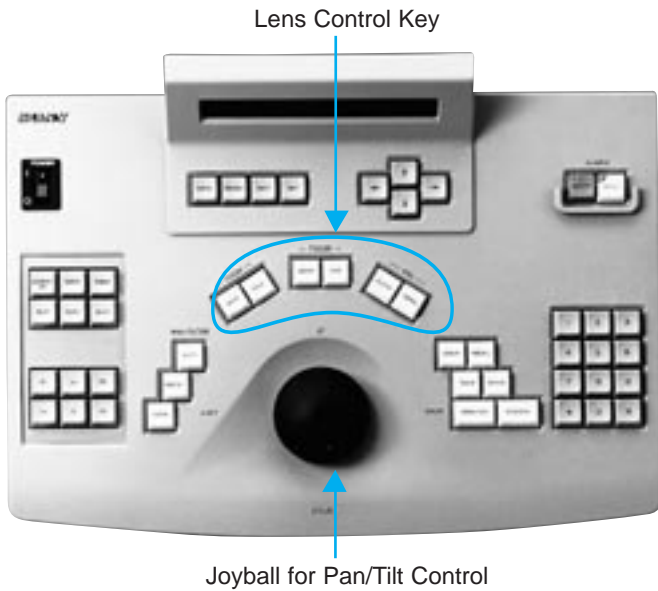
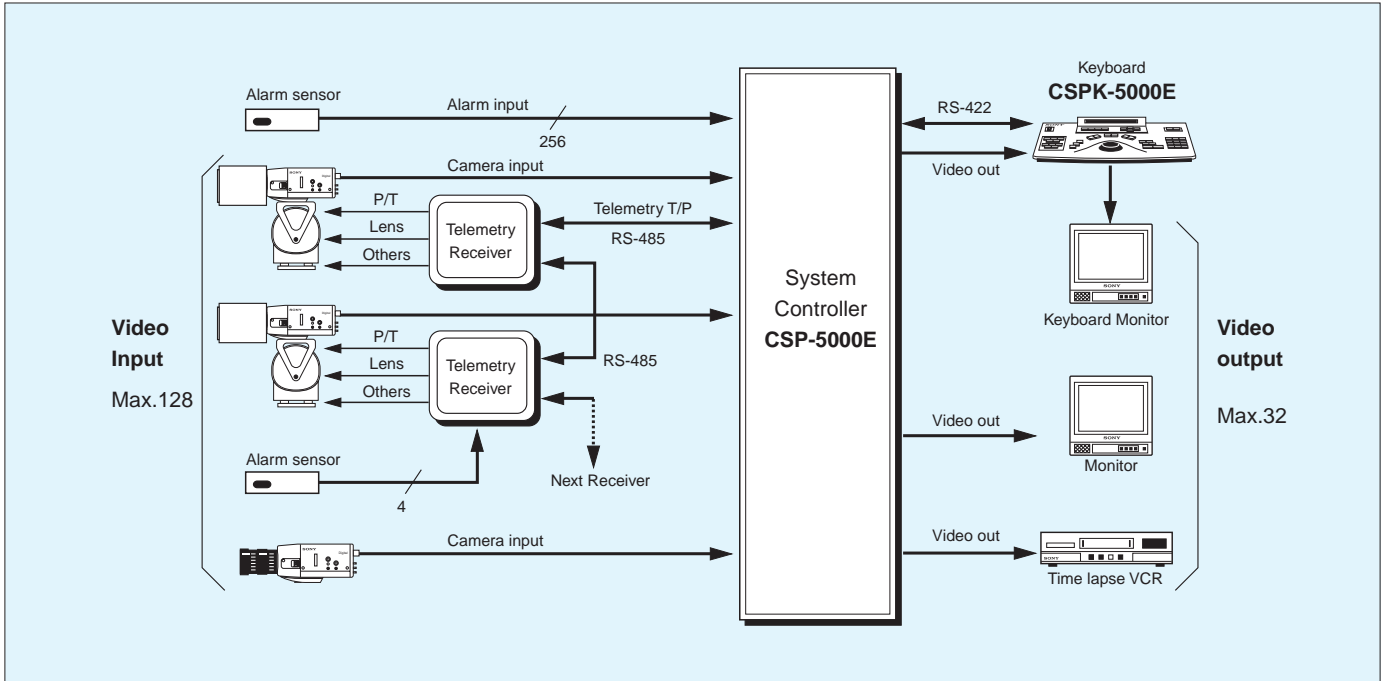
## Specifications

CSP-5000E (System Controller)	
<b>Video</b>	
Video inputs:	8 to 128 (max. 16 input boards) (BNC type x 128)
Video outputs:	8 to 32 (max. 4 output boards) (BNC type x 32)
<b>Control ports</b>	
Receiver interface:	RS-485 (8-pin modular twisted pair x 1)
Keyboard interface:	RS-422 (8-pin modular x 7)
<b>Alarm</b>	
Inputs:	256 inputs (50-pin, female x 8) 4 inputs x 128 Telemetry receiver (RS-485)
Outputs:	32 (50-pin, female x 1)
<b>Programming</b>	
Sequence steps:	128 steps per monitor
Switching dwell time:	1 to 30 seconds, external trigger
Tour sequences:	8
Time events:	8 steps per day
Event programs:	8 types (day of week, calendar date)
Alarm duration:	1 to 120 seconds
Alarm events:	Up to 512
Camera IDs:	Up to 12 alphanumeric characters
<b>General</b>	
Power requirements:	AC 220 to 240 V, 50 Hz
Power consumption:	Less than 300 W (fully configured)
Operating temperature:	0°C to 40°C
Mass:	32.5 kg (fully configured)
Dimensions:	

CSPK-5000E (System Keyboard)	
<b>Video</b>	
Input:	1.0 Vp-p composite, 75 Ω (BNC type x 1)
Output:	1.0 Vp-p composite, 75 Ω (BNC type x 1)
<b>Control ports</b>	
Keyboard interface:	RS-422 (8-pin modular x 1)
<b>Functions and keys</b>	
Camera switching:	Numeric keypad, camera key, monitor key
P/T control:	Pan (right/left), Tilt (up/down) using joyball
Lens control:	Zoom (tel/wide), Focus (near/far), Iris (open/close)
Camera and enclosure:	Camera power on/off, wiper, AUX key x 3
<b>Display</b>	
	LCD displaying selected camera number, monitor, tour number
<b>General</b>	
Power requirements:	AC 220 to 240 V, 50 Hz
Power consumption:	Less than 3 W
Operating temperature:	0°C to 40°C
Mass:	3.5 kg
Dimensions:	

# SYSTEM CONTROLLER

## CPS-5000E Typical System



CSPK-5000E Front Panel



CSP-5000E Rear Panel



# PRINTERS

*Sony UP series video printers allow the quick printing of video images in hard copy, making them especially useful in surveillance applications for identification and archiving. The range of printers offers copies in color or B/W, in different sizes and with high resolution and quality. A range of ID card printers are also available. The UP-D6500 provides smart card recording and both the UP-D6400 and UP-D6500 provide magnetic stripe recording.*

## Colour Video Printers



### UP-5600MDP

A5 size  
300 dpi resolution



### UP-2850P/2800P

A6 size  
310 dpi resolution



### UP-2300P/2100P

A6 size  
310 dpi (UP-2300P)  
182 dpi (UP-2100P)

## Black & White Video Graphic Printers



### UP-960CE

190 x 142 mm or 181 x 243 mm picture size



### UP-890CE

90 x 68 mm picture size

## Digital Colour Printer



### UP-D6500/D6400/D6300

Digital ID card printer  
300 dpi resolution  
Magnetic stripe encoding (UP-D6500/D6400)  
Smart card encoding (UP-D6500)



## FEATURE COMPARISON CHARTS

### Colour Video Printers

Models	UP-5600MDP (PAL/NTSC)	UP-2850P	UP-2800P	UP-2300P	UP-2100P
Specifications					
Printing method	Dye transfer sublimation thermal printing				
Picture size (mm)	Max. 165.1 x 124.8 Max. 176.1 x 132.1 (Digital printing with optional UPK-5500 and UPC-5502SC)	Max. 110 x 88			
Picture elements (dots)	Max. 1920 x 1176 Max. 2048 x 1536 (Digital printing with optional UPK-5500 and UPC-5502SC)	Max. 976 x 860			Max. 720 x 564
Gradations	256 levels process (Yellow, Magenta, Cyan) Over 16 million colours per dot				
Frame memory	4 frame memories 8 frame memories (with optional UPK-5500)	4 frame memories	1 frame memory		
Printing time (seconds)	34	35			60
Input signals	RGB (BNC), Y/C (D-sub 4-pin), Composite video (BNC)			Y/C (D-sub 4-pin), Composite video (BNC)	
Output signals	RGB (BNC), Y/C (D-sub 4-pin), Composite video (BNC)			Y/C (D-sub 4-pin), Composite video (BNC)	
Video signal	CCIR/PAL or EIA/NTSC standard	CCIR/PAL standard			
Multiple Print Mode	2/4/8/16 split, 2/4/8/16 duplicate, 2/4/8/16 strobe, Caption setting	2/2H/4/16 split, 4/16 duplicate, Sticker prints, Caption setting	2H/4/16 split, 4/16 duplicate, Sticker prints, Caption setting		2H/4/16 split, 4/16 duplicate, Caption setting
Aspect ratio	4 : 3				

### Monochrome Video Graphic Printers

Models	UP-960CE (CCIR/EIA)	UP-890CE (CCIR/EIA)
Specifications		
Printing method	Direct thermal printing	
Picture size (mm) (aspect ratio 4:3, CCIR)	Max. 190 x 142	Max. 100 x 74
Picture elements (dots) (CCIR)	---	Max. 1024 x 608
Gradations	256 grey levels	256 grey levels (quasi)
Frame memory	1 frame memory	
Printing time (seconds)	12	4
Input signals	Composite video (BNC)	
Output signals	Composite video (BNC)	
Video signal	CCIR/EIA standard	
Print modes	Negative, Reverse, Side, Wide scan, mirror	Negative, Reverse, Side, Zoom, Wide scan, mirror
Aspect ratio	1 : 1 / 4 : 3	

## Colour Video Printer UP-5600MDP



- Four frame memories capability or eight frame memories capability with the optional UPK-5500
- High quality pictures: high resolution of 300 dpi, 1920 (H) x 1176 (V) dots in PAL full print mode
- 8 bit/256 gradations in yellow, magenta and cyan
- A5 size (210 x 148 mm / 8 3/8 x 5 7/8 inches) print in approx. 34 seconds
- Easy-to-use operation menu displayed in the unit's LCD panel or a monitor
- Wireless or wired remote control operations with the optional RM-5500
- RS-232C port for external remote control from PCs
- Accepts both CCIR/PAL and EIA/NTSC signals
- Digital printing is possible with the optional UPK-5500 and SCSI interface board UPK-5502SC which includes the A/D and D/A conversion
- Multiple video inputs of RGB, Y/C and composite video signals
- Versatile print modes
- Picture-in-picture function
- Alarm display for easy maintenance



Rear Panel

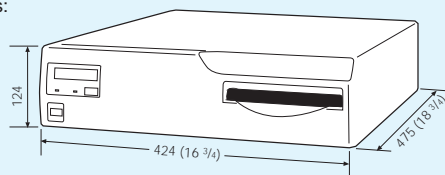
with UPK-5502SC

### Supplied Accessories

- Ink ribbon holder (1)
- Colour printing pack (for 20 prints) (1)
- Paper tray (1)
- Paper cover (1)
- AC power cable (1)
- Operation manual (1)

### Specifications

UP-5600MDP	
Printing method:	Dye transfer sublimation thermal printing
Thermal head:	2048 elements (300 dpi)
Printing paper size:	A5 size, 210 x 148 mm (8 3/8 x 5 7/8 inches)
Picture size:	165.1 x 124.8 mm (6 1/2 x 5 inches) - PAL, Full Print Mode 165.1 x 125.8 mm (6 1/2 x 5 inches) - NTSC, Full Print Mode 176.1 x 132.1 mm (7 x 5 1/4 inches) - Digital Printing (with optional UPK-5500 and UPK-5502SC)
Picture elements:	1920 (H) x 1176 (V) dots - PAL, Full Print Mode 1920 (H) x 976 (V) dots - NTSC, Full Print Mode 2048 (H) x 1536 (V) dots - Digital Printing (with optional UPK-5500 and UPK-5502SC)
Gradations:	256 levels process (Yellow, Magenta, Cyan) over 16 million colours per dot
Picture memory:	4 frame memories, 2048 x 1024 x 8 bits x 3 8 frame memories with optional UPK-5500, 2048 x 2048 x 8 bits x 3
Printing time:	Approx. 34s - PAL, Full size Print Mode Approx. 30s - NTSC, Full size Print Mode Approx. 38s - Digital Printing (with optional UPK-5500 and UPK-5502SC)
Input terminals:	625 or 525 RGB analogue* (BNC x 4, R/G/B/Sync) RGB: 0.7 Vp-p, 75 Ω, unbalanced Sync: 0.3 to 4.0 Vp-p, sync negative, 75 Ω, unbalanced S-Video (Y/C Separate, 4-pin S terminal) CCIR/PAL or EIA/NTSC** Y: 1.0 Vp-p, sync negative, 75 Ω, unbalanced C: 0.3 Vp-p, 75 Ω, unbalanced Composite video (BNC) CCIR/PAL or EIA/NTSC** 1.0 Vp-p, sync negative, 75 Ω unbalanced
Output terminals:	625 or 525 RGB analogue* (BNC x 4, R/G/B/Sync) RGB: 0.7 Vp-p, 75 Ω, unbalanced Sync: 1.0 Vp-p, sync negative, 75 Ω, unbalanced S-Video (Y/C Separate, 4-pin S terminal) CCIR/PAL or EIA/NTSC** Y: 1.0 Vp-p, sync negative, 75 Ω, unbalanced C: 0.3 Vp-p, 75 Ω, unbalanced Composite video (BNC) CCIR/PAL or EIA/NTSC** 1.0 Vp-p, sync negative, 75 Ω, unbalanced
Interface:	With optional UPK-5502SC, SCSI 1 channel, 50-pin amphenol (2)
Control terminals:	Remote control jack (Special mini) for optional RM-5500 Foot switch-1 (stereo mini) for optional FS-20/RM-91 Foot switch-2 (D-sub 9-pin) for optional FS-30 RS-232C interface port (D-sub 25-pin)
Power requirements:	AC 220 to 240 V, 50/60 Hz
Power consumption:	Max. 1.2 A
Mass:	14 kg (30 lb 14 oz)
Dimensions:	



Unit: mm (Inches)

\* The UP-5600MDP can accept sync-on-G or external sync automatically.  
\*\* CCIR/PAL or EIA/NTSC signals are selected using the input selector on the unit's rear panel.

### Optional Accessories

- Four Frame Memory Board UPK-5500
- Digital Interface Board UPK-5502SC
- Wired/Wireless Remote Commander RM-5500
- Remote Control Unit RM-91
- Foot Switch FS-30, Foot Switch FS-20
- Colour Printing Pack UPC-5510\*/5UPC-5510\*/UPC-5510C
- Cassette for UPC-5510/5UPC-5510 UPA-5500

\*The UPC-5510/5UPC-5510 are not supplied with a cassette.



with UPK-5500



## Colour Video Printer

### UP-2850P/2800P



- UP-2850P: four frame memories, UP-2800P: one frame memory
- High quality pictures: high resolution of 310 dpi, 860 (H) x 976 (V) dots in normal mode
- 8 bit/256 gradations in yellow, magenta and cyan
- Near A6 size print (130 x 88 mm/5 1/8 x 3 1/2 inches) in approx. 35 seconds
- Easy-to-use operation menu displayed on the built-in LCD or the connected monitor
- Wireless or wired remote control operations
- Multiple video inputs of RGB, Y/C and composite CCIR/PAL video signals
- Versatile print modes



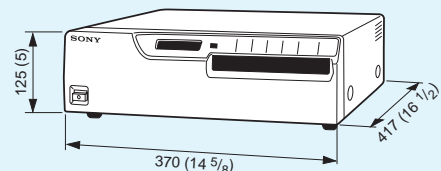
Rear Panel

### Supplied Accessories

- Colour printing pack (for 10 prints) (1)
- Paper tray (1)
- Paper cover (1)
- AC power cable (1)
- Operation manual (1)

### Specifications

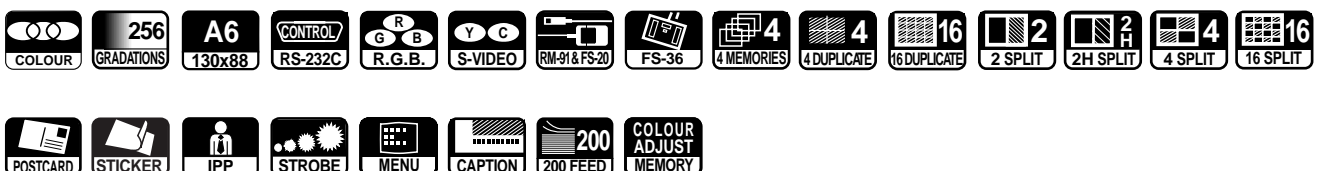
UP-2850P/2800P	
Printing method:	Dye transfer sublimation thermal printing
Thermal head:	1024 elements (12.2 dots/mm)
Printing paper size:	130 x 88 mm (5 1/8 x 3 1/2 inches)
Picture size:	Max. 110 x 80 mm (4 3/8 x 3 1/4 inches)
Picture elements:	Max. 860 (H) x 976 (V) dots
Gradations:	256 levels process (Yellow, Magenta, Cyan) over 16 million colours per dot
Picture memory:	UP-2850P: Four frame memories UP-2800P: One frame memory
Printing time:	Approx. 35 seconds
Input terminals:	RGB analogue (BNC x 4, R, G, B, Sync) RGB: 0.7 Vp-p, 75 Ω, unbalanced Sync: 0.2 to 4.0 Vp-p, negative, 75 Ω, unbalanced Y/C separate (4-pin S terminal) Y: 1.0 Vp-p, sync negative, 75 Ω, unbalanced C: 0.3 Vp-p, 75 Ω, unbalanced Composite video (BNC) CCIR/PAL: 1.0 Vp-p, sync negative, 75 Ω, unbalanced
Output terminals:	RGB analogue (BNC x 4, R, G, B, Sync) RGB: 0.7 Vp-p, 75 Ω, unbalanced Sync: 1.0 Vp-p, negative, 75 Ω, unbalanced Y/C separate (4-pin S terminal) Y: 1.0 Vp-p, sync negative, 75 Ω, unbalanced C: 0.3 Vp-p, 75 Ω, unbalanced Composite video (BNC) CCIR/PAL: 1.0 Vp-p, sync negative, 75 Ω, unbalanced
Control terminals:	Control (for the optional foot switch FS-36/20 and remote control unit RM-91): stereo mini jack Control (for the supplied remote control unit): special mini jack RS-232C interface port (D-sub 25-pin)
Power requirements:	AC 220 to 240 V, 50/60 Hz
Power consumption:	Max. 1.0 A
Mass:	Approx. 10.5 kg (23 lb 2 oz)
Dimensions:	



Unit: mm (inches)

### Optional Accessories

- Wired/Wireless Remote Commander RM-5500
- Remote Control Unit RM-91
- Foot Switch FS-36
- Foot Switch FS-20
- Colour Printing Pack UPC-2010 (for 200 prints)
- Black and White Printing Pack UPC-2020 (for 200 prints)
- Colour Postcard Printing Pack UPC-2070E (for 150 prints)
- Self-adhesive Colour Printing Pack UPC-20S01 (for 200 prints)
- 16-split Self-adhesive Pre-cut Color Printing Pack UPC-20S16 (for 200 prints)
- 4-split Self-adhesive Pre-cut Color Printing Pack UPC-20S04 (for 200 prints)
- Paper Ejector UPA-2001
- Paper Tray for UPC-2070E: UPA-2002



## Colour Video Printer

# UP-2300P/2100P



- One frame memory capability
- UP-2300P: 310 dpi resolution  
UP-2100P: 182 dpi resolution
- 8 bit/256 gradations in yellow, magenta and cyan
- Near A6 size print (130 x 88/5 1/8 x 3 1/2 inches) in approx. 35 seconds (UP-2300P) or 60 seconds (UP-2100P)
- Easy-to-use operation menu displayed on the monitor
- Wireless or wired remote control operations
- Multiple video inputs of Y/C and composite CCIR/PAL video signals
- Versatile print modes



UP-2300P Rear Panel

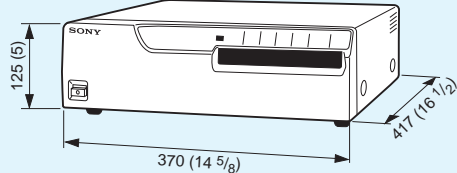


UP-2100P Rear Panel

### Supplied Accessories

- Colour printing pack (for 10 prints) (1)
- Paper tray (1)
- Paper cover (1)
- AC power cable (1)
- Operation manual (1)

### Specifications

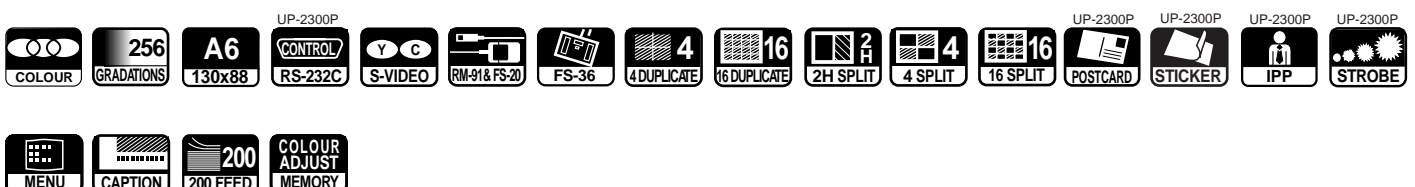
UP-2300P/2100P	
Printing method:	Dye transfer sublimation thermal printing
Thermal head:	UP-2300P: 1024 elements (12.2 dots/mm) UP-2100P: 608 elements (7.2 dots/mm)
Printing paper size:	130 x 88 mm (5 1/8 x 3 1/2 inches)
Picture size:	110 x 80 mm (4 3/8 x 3 1/4 inches)
Picture elements:	UP-2300P: 860 (H) X 976 (V) dots UP-2100P: 720 (H) X 564 (V) dots
Gradations:	256 levels process (Yellow, Magenta, Cyan) over 16 million colours per dot
Picture memory:	One frame memory
Printing time:	UP-2300P: 35 seconds UP-2100P: 60 seconds
Input terminals:	Y/C separate (4-pin S terminal) Y: 1.0 Vp-p, sync negative, 75 Ω, unbalanced C: 0.3 Vp-p, 75 Ω, unbalanced Composite video (BNC), Phono CCIR/PAL: 1.0 Vp-p, sync negative, 75 Ω, unbalanced
Output terminals:	Y/C separate (4-pin S terminal) Y: 1.0 Vp-p, sync negative, 75 Ω, unbalanced C: 0.3 Vp-p, 75 Ω, unbalanced Composite video (BNC) CCIR/PAL: 1.0 Vp-p, sync negative, 75 Ω, unbalanced
Control terminals:	Control (for the optional foot switch FS-36/20): stereo mini jack Control (for the supplied remote control unit): special mini jack RS-232C interface port (D-sub 25-pin)*
Power requirements:	AC 220 to 240 V, 50/60 Hz
Power consumption:	Max. 1.0 A
Mass:	UP-2300P: 10 kg (22 lb 1 oz) UP-2100P: 9 kg (19 lb 13 oz)
Dimensions:	

Unit: mm (inches)

### Optional Accessories

- Wired/Wireless Remote Commander RM-5500
- Remote Control Unit RM-91
- Foot Switch FS-36
- Foot Switch FS-20
- Colour Printing Pack UPC-2010 (for 200 prints)
- Black and White Printing Pack UPC-2020\* (for 200 prints)
- Colour Postcard Printing Pack UPC-2070E\* (for 150 prints)
- Self-adhesive Colour Printing Pack UPC-20S01 (for 200 prints)
- 16-split Self-adhesive Pre-cut Color Printing Pack  
UPC-20S16\* (for 200 prints)
- 4-split Self-adhesive Pre-cut Color Printing Pack  
UPC-20S04\* (for 200 prints)
- Paper Ejector UPA-2001\*
- Paper Tray for UPC-2070E: UPA-2002\*

\* UP-2300P ONLY



## B/W Video Graphic Printer

### UP-960CE

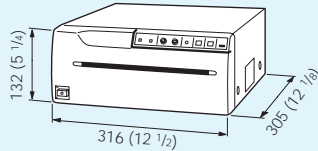


- Thermal video graphic printer with 256 steps of gradation grey level
- Large print size of 190 x 142 mm in standard mode
- High speed printing (approx. 12 seconds)
- Frame/Field memory selectable
- Printing direction selectable: Standard/Side/Reverse
- Positive/Negative printing
- Normal/Wide scan selectable
- 4:3/1:1 aspect ratio selectable
- CCIR/EIA automatic selection
- Multiple copy function by pressing the "COPY" button



Rear Panel

## Specifications

UP-960CE	
Printing method:	Direct thermal printing
Thermal head:	1280 elements
Picture size:	(CCIR) Standard mode: 190 x 142 mm (7 1/2 x 5 5/8 inches) Side mode: 181 x 243 mm (7 1/4 x 9 5/8 inches) (EIA) Standard mode: 190 x 144 mm (7 1/2 x 5 3/4 inches) Side mode: 184 x 243 mm (7 1/4 x 9 5/8 inches)
Gradients:	256 grey levels
Picture memory:	2048 x 1024 x 8 bit
Printing time: (at aspect ratio 4:3)	Approx. 12 seconds/screen
Input terminal:	VIDEO IN (BNC), CCIR/EIA Composite video signal 1.0 Vp-p, 75 Ω/high impedance (switchable)
Output terminal:	VIDEO OUT (BNC) Loop through
Control terminal:	REMOTE (for the optional FS-20 foot switch or RM-91 remote control unit): Stereo mini jack
Power requirements:	AC 220 to 240 V, 120 V, 50/60 Hz
Power consumption:	220 to 240 V: 1.3 A, 120 V: 2.4 A
Mass:	Approx. 8 kg (17 lb 10 oz)
Dimensions:	

Unit: mm (inches)

## Supplied Accessories

- AC power cord (1)
- Printing Paper Roll (UPP-210HD) (1)
- Head cleaning sheet (1)
- BNC cable (1.5m) (1)
- Operation manual (1)

## Optional Accessories

- Foot Switch FS-20
- High Density Printing Paper Roll UPP-210HD
- Normal Density Printing Paper Roll UPP-210SE
- Remote Control Unit RM-91





# MONOCHROME VIDEO GRAPHIC PRINTERS

B/W Video Graphic Printer

## UP-890CE



- Thermal video graphic printer with quasi 256 steps of gradation grey level
- Small size and light weight body
- A fast printing speed of approx. four seconds
- High resolution printing of 1024 x 608 dots (in Wide 2 scan mode)
- Wide scanning function (Normal/Wide 1/Wide 2 selectable)
- Multiple copy function
- Economy print mode offers maximum 270 prints from one paper roll (230 prints in normal print mode)
- Frame/Field memory selectable
- 4:3/1:1 aspect ratio selectable
- Positive/negative printing
- Standard/side print mode selectable
- Normal/reverse direction printing
- CCIR/EIA automatic selection



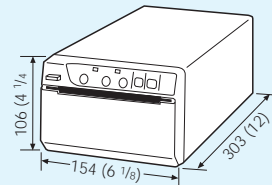
Rear Panel

### Supplied Accessories

- AC power cord (1)
- Printing Paper Roll (UPP-110HA) (1)
- Head cleaning sheet (1)
- BNC-BNC connecting cable (1.5m) (1)
- Operation manual (1)

### Specifications

UP-890CE	
Printing method:	Direct thermal printing
Thermal head:	Thin-film thermal head (with built-in drive IC) 1024-dot drive
Picture size : (Standard print mode, at aspect ratio 4:3)	(CCIR) Normal size: 90 x 68 mm (3 5/8 x 2 3/4 inches) Wide 1 size: 95 x 71 mm (3 3/4 x 2 7/8 inches) Wide 2 size: 100 x 74 mm (4 x 3 inches) (EIA) Normal size: 90 x 69 mm (3 5/8 x 2 3/4 inches) Wide 1 size: 95 x 72 mm (3 3/4 x 2 7/8 inches) Wide 2 size: 100 x 74 mm (4 x 3 inches)
Picture elements:	(CCIR) Normal size: 922 (H) x 560 (V) dots Wide 1 size: 970 (H) x 582 (V) dots Wide 2 size: 1024 (H) x 608 (V) dots (EIA) Normal size: 922 (H) x 472 (V) dots Wide 1 size: 970 (H) x 490 (V) dots Wide 2 size: 1024 (H) x 508 (V) dots
Gradations:	256 grey levels (quasi)
Picture memory:	6 bits frame memory (1024 x 768 x 6 bits)
Printing time: (at aspect ratio 4:3)	4 seconds/screen - Standard print mode 7 seconds/screen - Side print mode
Input terminal:	VIDEO IN (BNC), CCIR/EIA Composite video signal 1.0 Vp-p, 75 Ω/high impedance (switchable)
Output terminal:	VIDEO OUT (BNC) Loop through or E.E switchable
Control terminal:	REMOTE (for the optional FS-20 foot switch or RM-91 remote control unit): Stereo mini jack
Power requirements:	AC 220 to 240 V, 50/60 Hz
Power consumption:	Max. 0.8 A
Mass:	Approx. 3.5 kg (7 lb 11 oz)
Dimensions:	



Unit: mm (inches)

### Optional Accessories

- High Quality Printing Paper (Type I) UPP-110S
- High Density Printing Paper (Type II) UPP-110HD
- Superior Density Printing Paper (Type III) UPP-110HA
- Foot Switch FS-20
- Remote Control Unit RM-91





## VIDEO PRINTER OPTIONAL ACCESSORIES

### Wired/Wireless Remote Commander

**RM-5500** (for UP-5600MDP/2850P/2800P/  
2300P/ 2100P)

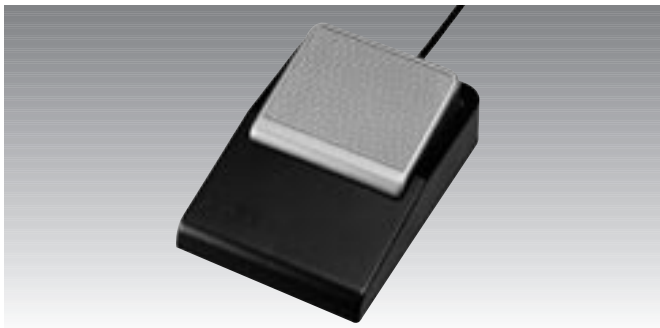


#### Specifications

Power requirement:	DC 3 V
Dimensions:	62 (W) x 20 (H) x 175 (L) mm (2 1/2 x 27/32 x 7 inches)
Mass:	95 g (3 oz)

### Foot Switch

**FS-20** (for UP-5600MDP/2850P/2800P/2300P/  
2100P/960CE/890CE)



#### Specifications

Connector:	Stereo mini
Cable length:	5 m

### Foot Switch

**FS-36** (for UP-2850P/2800P/2300P/2100P)



#### Specifications

Terminal:	Stereo mini
Cable length:	5 m
Dimensions:	175 (W) x 53 (H) x 105 (D) mm (7 x 2 1/8 x 4 1/4 inches)

### Remote Control Unit

**RM-91** (for UP-5600MDP/2850P/2800P/2300P/  
2100P/960CE/890CE)

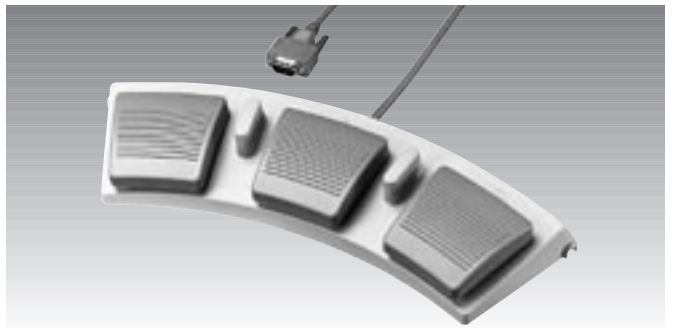


#### Specifications

Connector:	Stereo mini
Cable length:	5 m

### Foot Switch

**FS-30** (for UP-5600MDP)



#### Specifications

Terminal:	D-sub 9-pin
Dimensions:	337.3 (W) x 46.1 (H) x 128.0 (D) mm (13 3/8 x 1 7/8 x 5 1/8 inches)
Mass:	900 g (1 lb 15 oz)

## Digital Colour Printer

# UP-D6500/D6400/D6300



UP-D6500 with the optional UPA-6003 Auto Card Feeder

- High resolution of 300 dpi and over 16 million colours reproduction
- High speed YMC print and thermal lamination process - 45 seconds in 256 gradations (YCML, SCSI)
- Dual-side printing (ISO 7810 Standard Card)
- Acceptable card thickness is from 0.3 mm to 1.5 mm
- Magnetic stripe encoding (UP-D6500/D6400)
- Smart card encoding (UP-D6500)\*
- SCSI-2 interface for high volume applications (UP-D6500)
- IEEE 1284 interface for easy setup
- Holds up to 125 cards (UP-D6500: Max. 250 cards)
- Template memory function for quick data download (UP-D6500/D6400)\*
- Anti-forgery security lamination\*
- Compatibility with Windows® 95/98 and Windows NT® OS

\*Separate software necessary

## Supplied Accessories

- Floppy Disk (1)
- AC Power Cable (1)
- Card Tray (1)
- Operational Manual (1)
- Ink Ribbon Holder (1)
- Cleaning Roller Holder Set (1)

## Specifications

UP-D6500/D6400/D6300	
Printing Method:	Dye transfer sublimation thermal printing
Resolution:	300 dpi
Acceptable Card Length:	85.47 to 93.00 mm (3 3/8 X 3 21/32 inches)
Acceptable Card Height:	53.92 to 60.00 mm (2 1/8 X 2 11/32 inches)
Acceptable Card Thickness:	0.3 to 1.5 mm (12 X 59 mils)
Card Holder Capacity:	125 cards (UP-D6500: Max. 250 cards)
Printing Time:	Approx. 45 seconds (YCML, SCSI)
Interface:	SCSI-2 (UP-D6500 only), IEEE standard 1284
Card Supply:	125 cards with the optional UPA-6003 Auto Card Feeder (UP-D6500: 250 cards when using two of the optional UPA-6003 Auto Card Feeder)
Card Stack:	125 cards with the supplied card tray (UP-D6500: Max. 250 cards with the optional UPA-6002 Auto Card Stacker)
Power Requirements:	AC 220 to 240 V
Mass:	11.5 kg (25 lb 6 oz)
Dimensions:	350 x 260 x 257 mm (13 7/8 x 10 1/4 x 10 1/8 inches)



UP-D6500 Rear Panel



UP-D6400/D6300 Rear Panel

## Optional Accessories

- Colour Ink Ribbon (YMCL) 5UPR-6040 (250 prints x 5 rolls)
- Colour Ink Ribbon (YMCKL) 5UPR-6080 (200 prints x 5 rolls)
- Black and White Ribbon (K) UPR-6025 (1000 prints x 1 roll)
- Auto Card Stacker UPA-6002
- Auto Card Feeder UPA-6003
- Thermal Head UPU-D65H



# AUTOMOTIVE CAMERA AND MONITORS

*The combination of the SSC-534AM and SSM-504AM/724AMR is an extremely useful and comprehensive camera/monitor system for diverse mobile applications. This system is ideal for any vehicle for applications such as monitoring the rear when reversing.*

## B&W Camera



**SSC-534AM**  
Exterior camera for vehicles

## B&W Monitors



**SSM-504AM/724AMR**  
5-inch monitor (SSM-504AM)  
7-inch monitor (SSM-724AM)

# AUTOMOTIVE CAMERA AND MONITORS

## CCD B/W Video Camera SSC-534AM

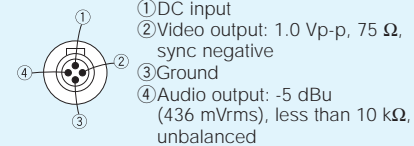
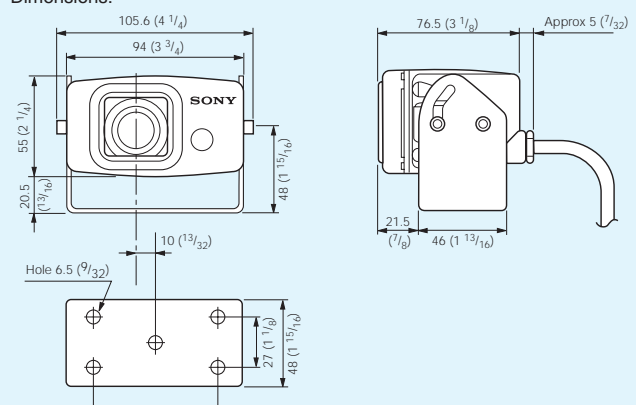


- Compact, lightweight and rugged construction
- 1/2-inch IT Hyper HAD CCD provides extremely high sensitivity with a minimum illumination of 0.3 lx
- Wide angle view - a full 100 degrees horizontally, 80 degrees vertically
- Built-in electret condenser microphone
- Only single 4-pin Multiple Cable required between the SSC-534AM and the SSM-504AM/724AMR to transmit video and audio signals, together with DC power

### Supplied Accessories

- Camera bracket (1)
- Rubber cap (1)
- Adhesive (1)
- Self-fusing tapes (2)
- 3 mm Allen key (1)
- 4 mm washers (4)
- Angle adjusting screws (4)
- 5 mm hexagon head bolts (5)
- 5 mm washers (5)
- Rubber nuts (5)
- Operation manual (1)

### Specifications

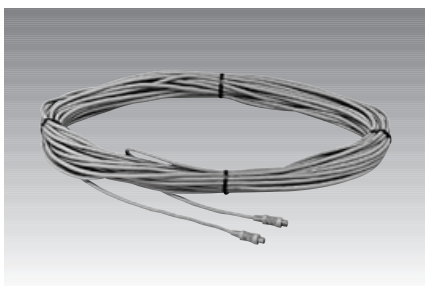
SSC-534AM	
Image device:	1/2-inch Interline Transfer Hyper HAD CCD
Picture elements:	500 (H) x 582 (V)
Sensing area:	6.3 mm x 4.7 mm
Lens:	f = 3.0 mm, F1.6 with auto-iris
Signal system:	CCIR standard
Scanning system:	625 lines, 2:1 interlace
Synchronization:	Internal
Horizontal resolution:	380 TV lines
Minimum illumination:	0.3 lx
Signal-to-noise ratio:	50 dB (AGC OFF)
Video/audio output:	4-pin Multi-connector (for connection to the SSM-504AM/724AMR)
	
Power requirements:	DC 12 V
Power consumption:	1.2 W (at DC 12 V)
Operating temperature:	-20°C to 70°C (-4°F to 158°F)
Storage temperature:	-30°C to 85°C (-22°F to 185°F)
Mass:	550 g (1 lb 3 oz)
Dimensions:	

0 dBu = 0.775 Vrms

## AUTOMOTIVE CAMERA AND MONITOR SYSTEM OPTIONAL ACCESSORIES

### Camera Cable (4-pin) VK-110A/120A

(10 m/20 m)



- 4-pin Multi (male)  
↔ 4-pin Multi (male)

### Water-resistant Extension Cable (4-pin) VK-305

(5 m)



- 4-pin Multi (male)  
↔ 4-pin (female)

### Water-resistant Camera Cable (4-pin) VK-310A/318A/320A

(10 m/18 m/20 m)



- 4-pin Multi (male)  
↔ 4-pin Multi (male)

## 5-inch/7-inch B/W Monitor

# SSM-504AM/724AMR



SSM-724AMR

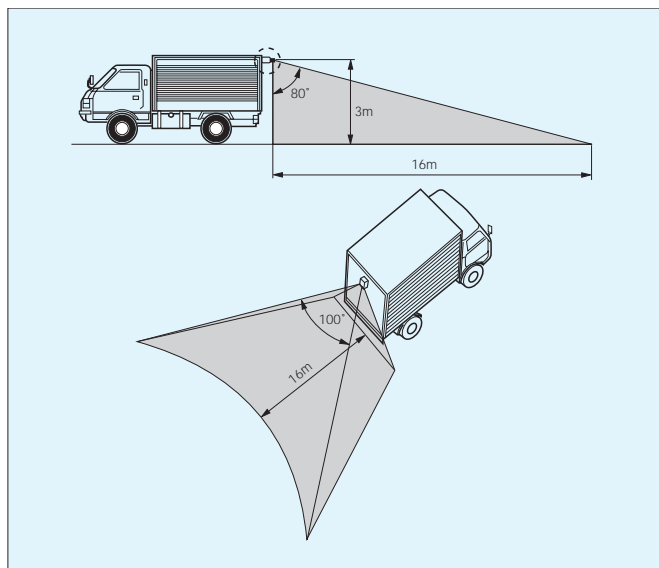
SSM-504AM

- Offers bright, clear and high-contrast pictures
- Semi-flat square/non-glare CRT (SSM-724AMR only)
- Compact, lightweight and rugged construction
- Built-in speaker
- Audio output connection for an optional external speaker (SSM-724AMR only)
- Day/Night switch adjusts picture brightness for normal or low-light conditions
- Automatic operation when reversing
- Dual camera inputs (SSM-724AMR only)
- Alternative power supply mode (DC 12/24V, SSM-724AMR only)
- Only a single 4-pin Multiple Cable required between the SSC-534AM and the SSM-504AM/724AMR to transmit video and audio signals, together with DC power


### Supplied Accessories

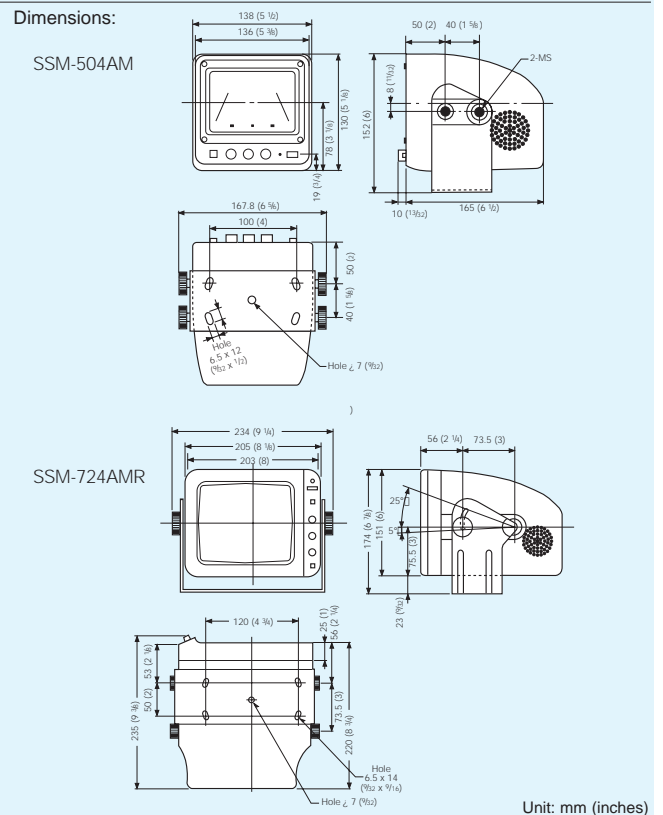
- Mounting bracket (1)
- Bolts (4)
- Spring washers (8)
- Power supply cable (1 set)
- Operation manual (1)
- Monitor scale (1) (SSM-724AMR only)
- Screws (4)
- Washers (12)
- Nuts (4)
- Bracket holder (1 set)

### Field of View



### Specifications

SSM-504AM/724AMR	
Video signal system:	CCIR standard
Picture tube:	5-inch/7-inch B/W measured diagonally, 90° deflection
Resolution:	SSM-504AM: 550 TV lines SSM-724AMR: 650 TV lines
Power connector:	White: Positive 12 V/24 V input Black: Ground Green: Reverse gear 12 V/24 V input
Speaker:	ø50 mm (2 inches) Impedance 8 Ω SSM-504AM: 0.3 W output (max.) SSM-724AMR: 0.5 W output (max.)
Video/audio input:	4-pin Multi-connector (for connection to the SSC-534AM)  <ol style="list-style-type: none"> <li>DC 12 V output</li> <li>Video input: 1.0 Vp-p, 75 Ω, sync negative</li> <li>Ground</li> <li>Audio input: -5 dBu (436 mVrms), more than 30 kΩ, unbalanced</li> </ol>
Output:	External speaker jack (mini jack) (SSM-724AMR only) Impedance 8 Ω
Front controls:	Power, Audio volume, Brightness, Contrast, DAY/NIGHT select, Camera input select (SSM-724AMR only)
Power requirements:	SSM-504AM: DC 12 V SSM-724AMR: DC 12 V or 24 V
Power consumption:	SSM-504AM: 8 W SSM-724AMR: 23 W
Operating temperature:	-15°C to 60°C (5°F to 140°F)
Storage temperature:	-25°C to 85°C (-13°F to 185°F)
Mass:	SSM-504AM: Approx. 1.5 kg (5 lb 8 oz) SSM-724AMR: Approx. 3.2 kg (7 lb)



0 dBu = 0.775 Vrms



SSM-504AM



SSM-724AMR

Rear Panel



## GLOSSARY

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<b>AGC</b>	Automatic gain control. Amplifies existing video to help camera reproduce a video signal at very low light levels.
<b>Analog backlight compensation (BLC)</b>	Picture brightness adjusted automatically depending on lighting conditions. Overcomes the problem of strong backlight which often causes the subject of the picture to be cast into shadow.
<b>APC</b>	Adaptive picture control. Automatically detects the condition of the recording head and video cassette tape, then sets the optimum recording head current. Available on all SVT time lapse VCRs.
<b>Aperture/sharp mode</b>	Makes object outlines in the picture appear sharper. Ideal for situations where an object merges into the scene with a similar shade.
<b>Aspherical type lens</b>	Lens that allows for a wider viewing area with very little distortion.
<b>ATW</b>	Auto tracing white balance. Adjusts the white balance automatically in response to varying light conditions.
<b>ATWPro</b>	Ideal for frequently changing light conditions and applications where the operator needs to see objects as they appear to the eye. Effective operational colour range is 2500 to 6000K.
<b>Auto iris</b>	Automatically adjusts the iris element as the light level changes.
<b>AWB</b>	Auto white balance. Automatically memorizes adjusted white balance values
<b>Backlight compensation</b>	See Smart Control (Digital) See Analog backlight compensation (Analog)
<b>C mount</b>	Type of camera mount which measures 17.5 mm from the lens rear mounting surface to the camera's CCD.
<b>CS mount</b>	Type of camera mount which measures 12.5 mm from the lens rear mounting surface to the camera's CCD. CS mount lenses can be used with C mount cameras by adding a 5 mm spacer.
<b>DC servo auto iris lens</b>	Lens that relies on DC power from the camera to control the iris.
<b>DSP (Digital signal processing)</b>	Converts the analog signal from a CCD image sensor into a digital signal through an internal A/D converter. The signal is then broken down into luminance and chrominance components for processing, adjustment and feature enhancement enabling many digital features such as backlight compensation.
<b>Duplex</b>	Type of multiplexer allowing simultaneous live monitoring or playback as images are being recorded.
<b>Exwave HAD CCD</b>	HAD sensor with a nearly gap-less OCL (On-chip-lens) located over each pixel on the CCD resulting in more than twice the sensitivity and 1/50 the smear compared to the Hyper HAD CCD. Used in SSC-DC50AP/54AP/58AP cameras.
<b>Hybrid recording</b>	Original Sony recording method of the HSR-1P, which uses both a Hard Disk Drive and DV tape. Images are first recorded to HDD, then transferred to DV tape.
<b>Hyper HAD CCD</b>	HAD sensor with an OCL (On-chip-lens) located over each pixel on the CCD which helps increase sensitivity and reduce smear. Used in most Sony security cameras.

## GLOSSARY

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<b>RealAction recording</b>	LP recording mode which allows three times as many frames/s to be recorded in 24 H mode. (SVT-L230P only)
<b>Sensitivity</b>	The amount of light falling on a scene measured in lux.
<b>Simplex</b>	Type of multiplexer which allows the user to choose between live monitoring, recording or playback.
<b>Smart Control</b>	Digital circuit within the camera providing automatic backlight compensation by automatically adjusting iris and gain. See DSP also.
<b>Smear</b>	Vertical streaks above and below a brightly lit object or light source when observed on the monitor. Vertical lines on the screen are caused by the leakage of unwanted light onto the vertical shift register of the CCD.
<b>Synchronization</b>	Used in multi-camera installations where automatic switching is employed and allows roll-free switching from camera to camera.
<b>Trinitron CRT</b>	Sony CRT which allows for high resolution and the best possible picture reproduction. The completely flat, straight vertical surface of the Trinitron CRT provides very low purity imperfection.
<b>Triple multiplexing</b>	Video, sync and power transmitted over a single coaxial cable.
<b>Turbo AGC</b>	Powerful automatic gain control function. Increases range of video gain compared to conventional AGC resulting in greater sensitivity.
<b>Video servo auto iris lens</b>	Lens that relies on video input to control the iris opening. When the video level is high, the lens iris closes. When the video level is low, it opens.
<b>5600K mode</b>	White balance mode recommended for outdoor daytime shooting

## PRODUCT INDEX

<b>C</b>	
CSP-5000E	56
CSPK-5000E	56

<b>F</b>	
FS-20	66
FS-30	66
FS-36	66

<b>H</b>	
HSR-1P	50
HSRA-11	51

<b>M</b>	
MB-507	22
MB-509	22
MB-502B	22

<b>P</b>	
PMS-500P/400P	54

<b>R</b>	
RMM-171	30
RM-R500	54
RM-5500	66
RM-91	66

<b>S</b>	
SLR-102	22
SLR-103A	22
SPT-M122CE/M124CE/M128CE	24
SPT-M308CE/M304CE	24
SSC-534AM	70
SSC-C108P/C104P	15
SSC-C370P	16
SSC-CX34P	10
SSC-DC10P	14
SSC-DC18P/DC14P	14
SSC-DC50AP/54AP/58AP	12
SSC-M370CE	25
SSM-125CE	29
SSM-14N5E	20
SSM-175CE	30
SSM-20N5E	21
SSM-504AM/724AMR	71
SSM-9040P	20
SSM-930CE	29
SSM-Q177CE	30
SVRM-100A	51
SVT-1000P	46
SVT-124P	45
SVT-5050P	48
SVT-L230P	44
SVT-RM10	51
SVT-RS1A	51
SVT-S3050P	47

<b>T</b>	
T-301/305/307	34
TLV parts kit	51

<b>U</b>	
UP-2100P	63
UP-2300P	63
UP-2800P	62
UP-2850P	62
UP-5600MDP	61
UP-890CE	65
UP-960CE	64
UP-D6500/D6400/D6300	67

<b>V</b>	
VCL-3ADXEA	33
VCL-4V8WEA	33
VCL-S02WEAP	33
VCL-S03XEA	33
VCL-S03XM	33
VCL-S06XEA	33
VCL-S06XM	33
VCL-S12XEA	33
VCL-S12XM	33
VK-110A/120A	70
VK-305	70
VK-310A/318A/320A	70

<b>Y</b>	
YS-DX316P/DX216CE	36
YS-Q440P	41
YS-S6	40
YS-SX310P/SX210CE	38
YS-W150P	32
YS-W250P	32
YT-B21	34

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