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SONY

EXWAVE HAD™ CCD BLACK & WHITE CAMERA

SPT-M320/ SPT-M324

1/3" HIGH RESOLUTION DSP EXWAVE HAD CCD BLACK & WHITE CAMERA

- 1/3" High resolution Exwave HAD CCD
- 570 TV lines of horizontal resolution
- Excellent sensitivity - 0.04 lux at F1.2 (30 IRE)
- Low smear of - 115 dB; 1/28 compared to Hyper HAD CCD
- Excellent S/N of 50 dB (Weight ON)
- CCD Iris® range of 1/60 to 1/100,000 sec.
- C/CS Mount, easy back focus with thumbwheel adjustment
- Accepts video or DC auto iris lenses
- Variable backlight compensation with level adjustment
- AC 24V line lock with ±90° V-Phase adjustment (SPT-M324)
- DC 12V or video/power/sync multiplex via optional YS-W150/YS-W250 power adapters (SPT-M320)



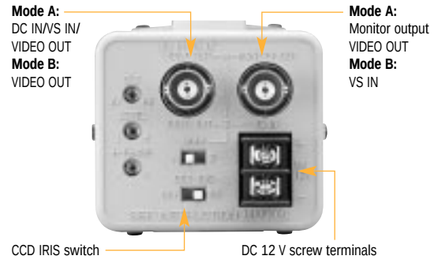
EXWAVE HAD CAMERA

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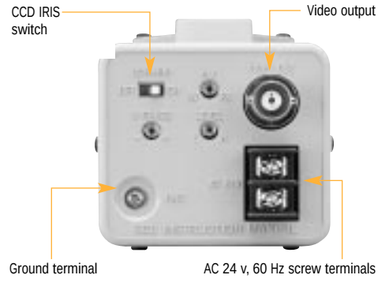
SPT-M320/ SPT-M324

1/3" HIGH RESOLUTION EXWAVE HAD CCD BLACK & WHITE CAMERA

SPT-M320 Rear View

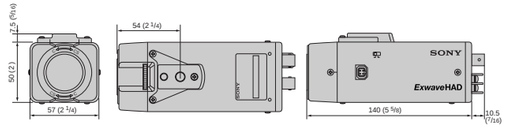


SPT-M324 Rear View

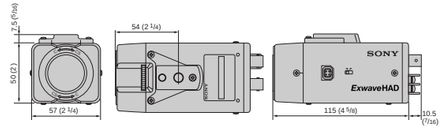


Dimensions: **Unit: mm (inches)**

SPT-M320



SPT-M324



SONY

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Printed in U.S.A. 10/99 S-SPTM320/M324

SPECIFICATIONS

SPT-M320/SPT-M324

Image device: 1/3-inch Interline Transfer EXWAVE HAD CCD

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

Sensing area: 4.8 x 3.6 mm

Signal system: EIA

Sync system: **SPT-M320:** Internal or external with VS or multiplex VS
SPT-M324: External AC line lock

Phase control: **SPT-M320:** H-phase adjustment ±1.2H
SPT-M324: V-phase adjustment ±90°

Horizontal resolution: 570 TV lines

Lens mount: C/CS mount adjustable

Minimum illumination: 0.07 lux at F1.2 (50 IRE, AGC Turbo)
0.04 lux at F1.2 (30 IRE, AGC Turbo)
0.3 lux at F1.2 (100 IRE, AGC Turbo)

Automatic Gain Control (AGC): Always Turbo AGC ON

CCD Iris Control: ON/OFF Switchable, 1/60 to 1/100,000 sec.

Auto Iris: Video or DC type

Backlight compensation: Adjustable

Signal-to-noise ratio: Over 50 dB (AGC OFF)

Video out: BNC: 1.0V p-p, 75-Ohm, sync negative

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

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

Power requirements:
SPT-M320: Multiplexing with YS-W150/YS-W250 or DC 12V
SPT-M324: AC 24V, 60 Hz

Power consumption:
SPT-M320: 2.8W supplied from YS-W150/YS-W250
2.4W at DC 12V
SPT-M324: 2.6W

Mass: **SPT-M320:** 14 oz (410 grams)
SPT-M324: 12 oz (340 grams)

Connectors:

SPT-M320: DC 12 V terminals
Mode A: (multiplex operation):
DC IN/VIDEO OUT, BNC x1
MONITOR OUT, BNC x1
Mode B: VIDEO OUT, BNC x1
VS IN, BNC x1
4 pin auto iris connector

SPT-M324: AC 24 V terminals
VIDEO OUT, BNC x1
4 pin auto iris connector

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

Optional accessories: YS-W150 Single camera adapter
YS-W250 Four (4) camera adapter

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All non-metric weights and measures are approximate.
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EXWAVE HAD CCD BLACK & WHITE CAMERA

SPT-M320/SPT-M324

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

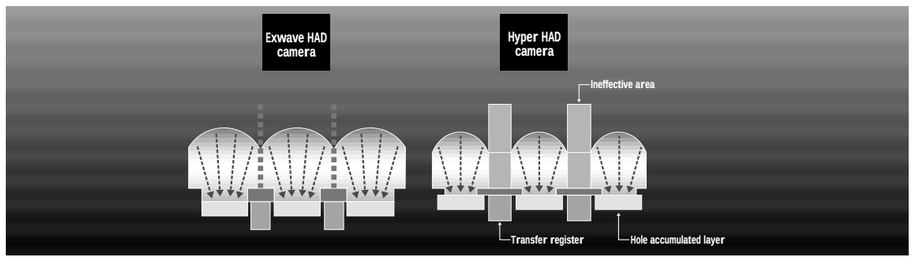
HIGHER SENSITIVITY
The sensitivity of the SPT-M320/324 is well over twice that of the current SPT-M314 surveillance cameras. The conventional Sony Hyper HAD® camera has an OCL (on chip lens) located over each pixel on the CCD. The result is that light is concentrated on the photosensor areas and the sensitivity of the camera is improved. The Exwave HAD takes the Hyper HAD technology a giant step further. The OCL of the Exwave HAD camera is a nearly gapless structure, eliminating the ineffective areas between the microlenses. This enables the hole accumulation layer to receive the maximum amount of light (See Fig. 1).

The SPT-M320/324 can also be used as a near-infrared camera when used with a near-infrared illuminator. This is because the Exwave HAD camera has higher sensitivity in near-infrared wavelengths.

LOWER SMEAR
Smear is caused by the leakage of unwanted light on to the vertical shift register. The smear level of the Exwave HAD camera is reduced to 1/28th compared to the Hyper HAD camera. This leakage is dramatically reduced because the improvement of the unit cell structure minimizes the unnecessary reflection of the light onto the CCD surface.

SUPERIOR PICTURE QUALITY
The SPT-M320/324 incorporates a 1/3-inch IT (Interline Transfer) CCD with more than 380,000 effective picture elements and a horizontal resolution of 570 TV lines. Sony Exwave HAD technology allows very high sensitivity with a minimum illumination of 0.07 lux at F1.2 (50 IRE, Turbo Gain® mode), or 0.04 lux at F1.2 (30 IRE, Turbo Gain® mode) producing clear, crisp images.

CCD Structure (Figure 1)



Smear level comparison between SPT-M324 and SPT-M314*



SPT-M324



SPT-M314

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

CCD IRIS® FUNCTION
This function allows the use of inexpensive manual iris lenses instead of a more costly automatic iris lens. As the illumination level of the scene changes, the camera responds by automatically reducing or increasing the exposure time of the photosensors. This is achieved by changing the electronic shutter speed of the CCD, in the range of 1/60 of a second to 1/100,000 of a second.

FLEXIBLE CHOICE OF AUTO IRIS LENS
An auto iris lens is often ideal for shooting in environments where illumination levels vary greatly, such as outdoors. The SPT-M320/324 accepts both DC servo and Video servo auto iris lenses. The auto iris lens 4-pin connector is conveniently located on the side of the camera.

BACKLIGHT COMPENSATION FUNCTION
Strong Backlight can often cause the subject of the picture to be cast into shadow. The Backlight Compensation (BLC) function helps to overcome this problem. The picture brightness can be adjusted to automatically allow for changes in lighting conditions. The contrast ratio can be adjusted with the BLC while the amount of overall picture brightness can be adjusted with the level control.

SIMPLE SINGLE CABLE WIRING AND AC LINE LOCK CAPABILITY
The SPT-M320 features optional Triple Multiplexing operation. Using a single coaxial cable, the video and sync signals can be transmitted together with DC power from an optional YS-W150/W250 Camera Adapter. The SPT-M320 can also be operated from a local DC 12 V power source. A secondary video output is also available when the camera is powered by the YS-W150/W250 allowing easy access for positioning and focus at the camera site.

The SPT-M324 features external sync capability utilizing AC line lock. This makes camera installation and synchronization easy for both new and existing camera systems.

C/CS-MOUNT LENS COMPATIBILITY
The SPT-M320/324 can be used with C-mount or CS-mount lenses, and precise back-focus adjusment can be easily accomplished. This broadens your choice of lenses.

Sensitivity comparison between SPT-M324 and SPT-M314



SPT-M324



SPT-M314

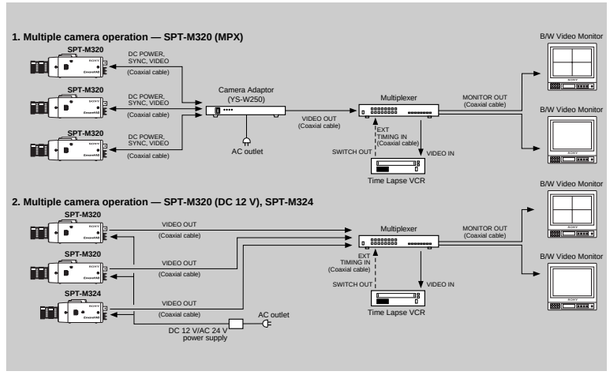


SPT-M324 (w/near-infrared illuminator)



SPT-M314 (w/near-infrared illuminator)

System Connections



Low Power Consumption
These two cameras have significantly lower power consumption than earlier models:

Model	Power Source	Power Consumption
SPT-M320	DC 12 V	2.4 W
SPT-M320	Multiplexing from YS-W150/250	2.8 W
SPT-M324	AC 24 V	2.6 W

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