

Color CCTV Camera
WV-CP100

Operating Instructions



(Lens : optional)

Panasonic®

Before attempting to connect or operate this product,
please read these instructions completely.

**CAUTION**RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



SA 1965

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



SA 1966

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

For U.S.A.

Warning:

This equipment generates and uses radio frequency energy and if not installed and used properly, i.e., in strict accordance with the instruction manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

For CANADA

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

The serial number of this product may be found on the bottom of the unit.

You should note the serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid identification in the event of theft.

Model No. _____

Serial No. _____

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PREFACE

Panasonic's WV-CP100 Color CCTV Camera introduce a new low end color camera through the use of 1/3 inch interline transfer CCD.

Minimum illumination is achieved 0.06 footcandle (0.6 lux) with the use of newly developed aspherical high speed lenses.

In addition, ability to shoot indoor scenes with a fixed iris lens by use of Electronic Light Control (ELC) function.

FEATURES

- Minimum illumination of 0.06 footcandle (0.6 lux) at F0.75 [equivalent 0.2 footcandle (2 lux) at F1.4] and Signal-to Noise ratio of 46 dB by employing a 1/3 inch interline transfer CCD image sensor with 512 (H) x 492 (V) pixels.
- 330 lines of horizontal resolution.
- Optional C-mount lens can be used together with optional Lens Mount Converter WV-AD20.
- Selectable automatic gain control (AGC) ON or OFF.
- Selectable automatic tracing white balance control (ATW) or automatic white balance control (AWC).
- Adjustable auto iris control level or electronic light control level.

PRECAUTIONS

- **Do not attempt to disassemble the camera.**

To prevent electric shock, do not remove screws or cover. There are no user-serviceable parts inside.

Refer servicing to qualified service personnel.

- **Handle the camera with care.**

Do not abuse the camera. Avoid striking or shaking it. The camera could be damaged by improper handling or storage.

- **Do not expose the camera to rain or moisture, or try to operate it in wet areas.**

Do take immediate action if ever the camera do becomes wet. Turn power off and refer servicing to qualified service personnel. Moisture can damage the camera and also create the danger of electric shock.

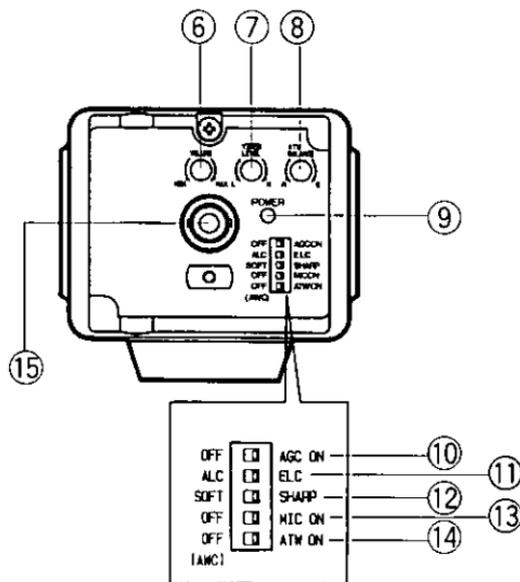
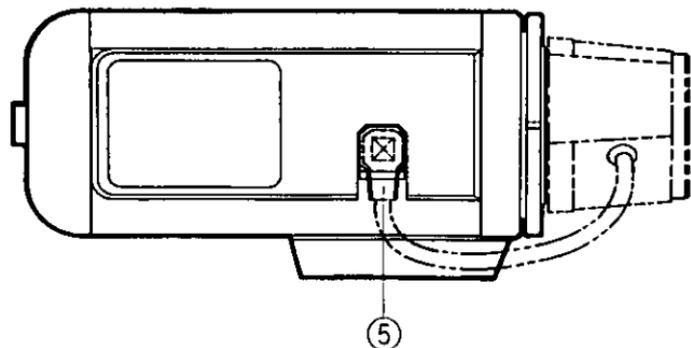
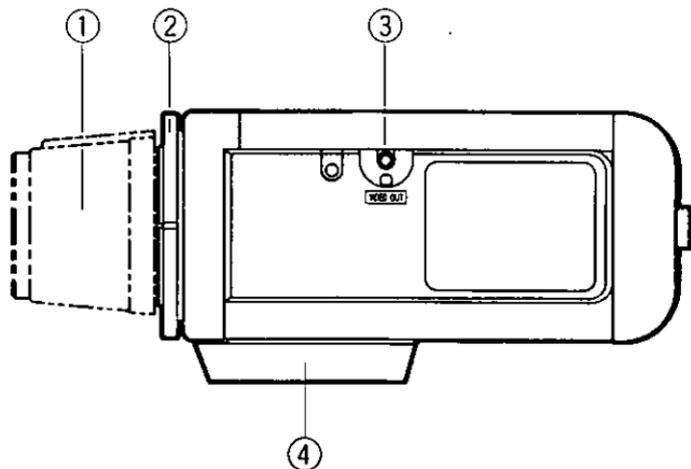
- **Never face the camera toward the sun.**

Whether the camera is in use or not, never face it toward the sun. Do use caution when operating the camera in the vicinity of spot lights or other bright lights and light reflecting objects.

- **Do not operate the camera beyond its temperature or humidity**

Do not use the camera in an extreme environment where high temperature or high humidity exist. Use the camera under conditions where temperatures are within 14°F - 122°F (-10°C - +50°C), and humidity is below 90%.

MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS



(1) Lens (Option)

See page 8, 9, 10, 11 and 12 for detail on lens selection. Standard C-mount lens can be used with the camera by use of optional lens mount converter (C-mount adapter) WV-AD20.

(2) Focus Adjusting Ring

This ring is used to adjust the picture focus by rotating this ring.

(3) Video Output Jack

This jack is used to adjust the angular field of view or focus while observing the picture on the monitor.

(4) Camera Mounting Screw Hole

This threaded hole (1/4" - 20) is used to mount the camera onto a mounting bracket or tripod.

(5) Auto Iris Lens Connector

This 4-pin connector supplies the power and DC control signal to the auto iris lens.

(6) Volume Control (VOLUME MIN/MAX)

The volume control is preset in the Center position at the factory. Adjust this control to prevent the howling.

(7) Video level Control (VIDEO LEVEL, L/H)

This control adjusts the level of auto iris control when the Electronic Light Control/Automatic Light Control Selection Switch (11) is set to ALC position, or the level of electronic light control when the Electronic Light Control / Automatic Light Control Selection Switch (11) is set to ELC position.

(8) ATW Control (ATW BALANCE R/B)

This control adjusts the level of red and blue color balance when ATW ON/OFF Switch (1) is set to ON position. It is preset at the center position which usually provides accurate color reproduction.

(9) Power Indicator

(10) AGC ON/OFF Switch (AGC, ON/OFF)

This switch is used to select the gain of the video amplifier as follows.

ON: When the lens iris is fully opened under a low light condition, a clear picture is obtained by automatic increase of the gain.

OFF: A natural and low-noise picture is obtained under a low light condition.

(11) Electronic Light Control/Automatic Light Control Selection Switch (ELC/ALC)

This switch is used to select the lens as follows.

ALC: Choose this position when using an auto iris lens.

ELC: Choose this position when using a fixed or manual iris lens.

(12) Detail level Selection Switch (SOFT/SHARP)

The detail/aperture level can be selected by this switch. Set the switch to the desired position while observing the picture on the monitor.

Note: Usually set this switch to SHARP position. When Quad System is connected to this camera, set this switch to SOFT position.

(13) Microphone ON/OFF Switch (MIC ON/OFF)

Select this switch in need of on or off.

(14) Automatic Tracing White Balance Control ON/OFF Switch (ATW, ON/OFF (AWC))

The white balance setting can be selected as;

ON: The white balance is automatically and continuously set by detecting the characteristic/color temperature of light source through the lens and controlling the gain of red and blue signal even if the characteristic/color temperature varies.

OFF: The white balance is automatically set and fixed by detecting the characteristic/color temperature of light source through the lens and controlling the gain of red and blue signal.

(15) Video Output Connector

This connector is used to connect a coaxial cable to the CAMERA INPUT of specified monitor or camera drive unit, and accept DC power and vertical drive pulse, and supplies audio and video output of the camera.

ELC (Electronic Light Control) Function

In this mode a continuously variable electronic shutter is employed to automatically control exposure times in the CCD Image Sensor, according to the incoming light level.

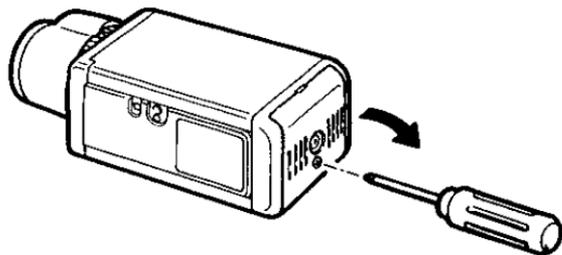
Cautions:

1. Under bright conditions such as outdoors, use an ALC type lens as the ELC control range is not wide enough under these conditions.
2. Under certain unique lighting conditions, the following may appear:
 - Strong smear and/or blooming on high light objects such as spot lights or windows.
 - Noticeable flicker in the picture and/or the color rendition variations.
 - Periodic variance of white balanceShould these phenomena occur, use an ALC lens.
3. When using in the ELC mode with a fixed iris lens, the depth of field of the image may be less than that obtained by using an ALC lens. Depth of field varies inversely with the iris opening. Thus, using this camera in the ELC mode with the fixed iris lens fully opened will result in less depth of field than if an ALC lens was used. (And distant objects in the picture might not be in focus.)

CAMERA SETUP

Remove the rear cover fixing screw and pull the rear cover out as shown below.

To improve performance, select function switches located on the back.



CONNECTIONS

Caution: Keep the Power Switch of Specified monitor, Camera Extension Unit and Camera Drive Unit in OFF position during connections. If the power of these units are ON during connections, the camera does not function due to protect circuit in case of misconnection

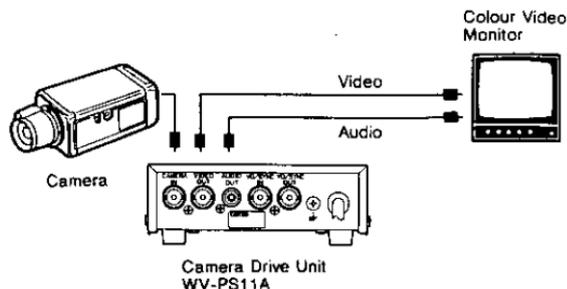
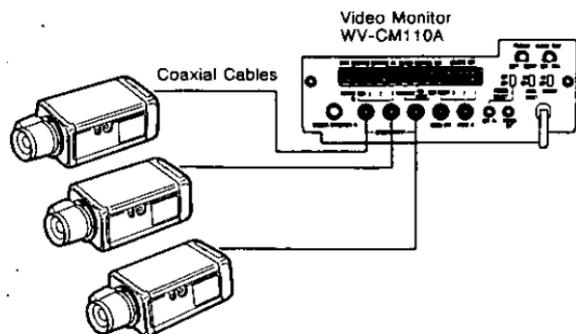
• Basic System

Connect the single coaxial cables between the Camera and Camera Input Terminal of Specified monitor or Camera Drive Unit. The approx. maximum cable length is as:

Coaxial Cable Type	Maximum Cable Length	DC R/1000 ft. of Inner Conductor
RG-59/U	660 ft (200 m)	Less than 30 ohms
RG-6/U	1,650 ft (500 m)	Less than 12 ohms

The maximum DC resistance between the camera and these unit is 20 ohms.

• Connection Diagram



LENSES

1. Selection of Lens

<Auto Iris Lenses>

Models Specifications	WV-LA2.8' (Wide Angle)	WV-LA6A (Wide Angle)	WV-LA12A (Standard)	WV-LA18 (Telephoto)	WV-LA36 (Telephoto)
Image Size	1/2" (6.4 (H) x 4.8 (V) mm)				
Focal Length	2.8 mm	6 mm	12 mm	18 mm	36 mm
Maximum Aperture Ratio	1: 1.4	1: 1.4	1: 1.4	1: 1.4	1: 1.8
Angular Field of View 1/3"	H	87.5°	43.5°	22.2°	7.7°
	V	69.2°	32.9°	16.7°	11.5°
Focusing Range	Adjusted by Camera			0.89 ft - ∞ (0.27 m - ∞)	3.3 ft - ∞ (1 m - ∞)
Mount	CS-mount, 1"-32UN				
Filter Size	None	M37.5 mm P = 0.5	M37.5 mm P = 0.5	M37.5 mm P = 0.5	M37.5 mm P = 0.5
Dimensions	ø1-11/16" x 1-1/4" (ø43 x 32 mm)	2-1/16"(W) x 1-11/16" (H) x 1-5/8"(D) [53(W) x 43(H) x 41.5(D) mm]	2-1/16"(W) x 1-11/16" (H) x 1-5/8"(D) [53(W) x 43(H) x 41.5(D) mm]	ø1-11/16" x 1-5/8" (ø43 x 41 mm)	ø1-11/16" x 1-5/8" (ø43 x 41 mm)
Weights	0.09 lbs. (40g)	0.10 lbs. (45g)	0.09 lbs. (40g)	0.15 lbs. (70g)	0.18 lbs. (80g)

- Dimensions and weights indicated are approximate.
- Specifications are subject to change without notice.

<Auto Iris Lenses>

Models Specifications	WV-LZ81/6A (Motorized Zoom)	WV-LZ81/10 (Motorized Zoom)	WV-LA4R5C3A (Wide Angle)	WV-LA9C3A (Standard)	WV-LZ61/10 (Motorized Zoom)	
Image Size	1/2" (6.4 (H) x 4.8 (V) mm)		1/3" (4.8 (H) x 3.6 (V) mm)			
Focal Length	8.5 - 51 mm (6X)	8 - 80 mm (10X)	4.5 mm	9 mm	6 - 60 mm (10X)	
Maximum Aperture Ratio	1: 1.2 (Wide) 1: 1.3 (Tele)	1: 1.4 (Wide) 1: 1.7 (Tele)	1: 1.2	1: 1.2	1: 1.6 (Wide) 1: 2.6 (Tele)	
Angular Field of View 1/3"	H	Wide: 31.4° Tele: 5.5°	Wide: 33.5° Tele: 3.5°	56.4°	29.6°	Wide: 43.7° Tele: 4.6°
	V	Wide: 23.5° Tele: 4.1°	Wide: 25.2° Tele: 2.6°	43.3°	22.2°	Wide: 33.0° Tele: 3.5°
Focusing Range	3.3 ft - ∞ (1m - ∞)	3.6 ft - ∞ (1.1m - ∞)	Adjusted by Camera		4.0 ft - ∞ (1.2m - ∞)	
Mount	CS-mount, 1"-32UN					
Filter Size	M49 mm, P = 0.75	M55 mm, P = 0.75	None		M35.5 mm, P = 0.5	
Dimensions	3-3/8"(W) x 2-7/16"(H) x 4"(D) [86(W) x 62(H) 102(D) mm]	3-3/16"(W) x 2-5/8"(H) x 4-5/8"(D) [81(W) x 66(H) 117.5(D) mm]	ø1-11/16" x 1-1/2" (ø43 x 38.5 mm)	ø1-11/16" x 1-1/2" (ø43 x 38.5 mm)	2-13/16"(W) x 2-1/16" (H) x 2-3/4"(D) [71(W) x 52(H) 70.5(D) mm]	
Weights	0.93 lbs. (420g)	0.97 lbs. (440g)	0.09 lbs. (42g)	0.09 lbs. (40g)	0.46 lbs. (210g)	

- Dimensions and weights indicated are approximate.
- Specifications are subject to change without notice.

<Auto Iris Lenses>

Models		WV-LA4510 (Wide Angle)	WV-LA608 (Wide Angle)	WV-LA1208 (Standard)	WV-LZ83/6 (Motorized Zoom)
Specifications					
Image Size		1/2" (6.4 (H) x 4.8 (V) mm)			
Focal Length		4.5 mm	6 mm	12 mm	8.5 - 51 mm (6X)
Maximum Aperture Ratio		1: 1.0	1: 0.75	1: 0.8	1: 0.8 (Wide) 1: 1.0 (Tele)
Angular Field of View 1/3"	H	56.9°	43.8°	23.8°	Wide: 31.3° Tele: 5.5°
	V	43.6°	33.1°	17.6°	Wide: 23.4° Tele: 4.1°
Focusing Range		Adjusted by Camera			4.0 ft - ∞ (1.2m - ∞)
Mount		CS-mount, 1"-32UN			
Filter Size		None	M46 mm, P = 0.75	M46 mm, P = 0.75	M67 mm, P = 0.75
Dimensions		2-1/8"(W) x 1-11/16"(H) x 1-1/16"(D) [54.5(W) x 43(H) x 43 (D) mm]	2-1/2"(W) 2-1/16"(H) x 2-3/16"(D) [64(W) x 52(H) x 55 (D) mm]	2-7/8"(W) x 2-5/8"(H) x 2-7/8"(D) [73(W) x 66(H) x 72.5(D) mm]	3-1/2"(W) x 3"(H) x 4-13/16"(D) [90(W) x 77(H) 123(D) mm]
Weights		0.19 lbs. (85g)	0.34 lbs. (155g)	0.56 lbs. (255g)	1.63 lbs. (740g)

- **When using the above lenses with the camera, be sure to read instruction manual of lenses.**
- Dimensions and weights indicated are approximate.
- Specifications are subject to change without notice.

<Auto Iris Lenses>

Specifications	Models	WV-LA210C3 (Wide angle)	WV-LA408C3 (Wide angle)	WV-LA908C3 (Standard)
Image Size		1/3" (4.8(H) x 3.6(V) mm)		
Focal Length		2.1 mm	4.5 mm	9 mm
Maximum Aperture Ratio		1: 1.0	1: 0.75	1: 0.75
Angular Field of View	H	107.6°	57.2°	31.3°
	V	88.0°	43.7°	23.5°
Focusing Range		Adjusted by Camera		
Mount		CS-mount, 1"-32UN		
Filter Size		None	M40.5 mm, P=0.5	M40.5 mm, P=0.5
Dimensions		2-7/16"(W) x 2-1/16"(H) x 1-5/8"(D) [62.5(W) x 52(H) x 41(D) mm]	2-7/16"(W) x 2-1/16"(H) x 2-1/4"(D) [62.5(W) x 52(H) x 57.5(D) mm]	2-7/16"(W) x 2-1/16"(H) x 2-1/4"(D) [62.5(W) x 52(H) x 57.5(D) mm]
Weight		0.24 lbs. (110g)	0.31 lbs. (140g)	0.30 lbs. (135g)

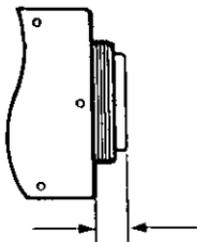
- **When using the above lenses with the camera, be sure to read instruction manual of lenses.**
- Dimensions and weights indicated are approximate.
- Specifications are subject to change without notice.

<Manual and Fixed Iris Lenses>

Models Specifications	WV-LM4R5A (Wide Angle)	WV-LF6 (Wide Angle)	WV-LF12 (Standard)	WV-LF4R5C3A (Wide Angle)	WV-LF9C3A (Standard)	
Image Size	1/2" (6.4 (H) x 4.8 (V) mm)			1/3" (4.8 (H) x 3.6 (V) mm)		
Focal Length	4.5 mm	6 mm	12 mm	4.5 mm	9 mm	
Maximum Aperture Ratio	1: 1.4	1: 1.4	1: 1.4	1: 1.2	1: 1.2	
Angular Field of View 1/3"	H	56.9°	43.5°	22.2°	56.4°	29.6°
	V	43.6°	32.9°	16.7°	43.3°	22.2°
Iris	Manual	Fixed	Fixed	Fixed	Fixed	
Focusing Range	Adjusted by Camera					
Mount	CS-mount, 1"-32UN					
Filter Size	M37.5 mm, P = 0.5	M34 mm, P = 0.5	M34 mm, P = 0.5	M30.5 mm, P = 0.5	M30.5 mm, P = 0.5	
Dimensions	ø1-3/4" x 1-5/8" (ø44 x 41 mm)	ø1-1/2" x 1-5/8" (ø38 x 41 mm)	ø1-1/2" x 1-5/8" (ø38 x 41 mm)	ø1-3/8" x 1-7/16" (ø34.4 x 36 mm)	ø1-3/8" x 1-7/16" (ø34.4 x 36 mm)	
Weights	0.20 lbs. (93g)	0.08 lbs. (38g)	0.07 lbs. (33g)	0.06 lbs. (29g)	0.05 lbs. (23g)	

- Dimensions and weights indicated are approximate.
- Specifications are subject to change without notice.

When you use the lens other than those listed on page 8, 9, 10, 11 and 12, lens mount should be C-mount or CS-mount and lens weight should be less than 0.99 lbs. (450g). If not, both the lens and camera should be secured. The protrusion of the rear of the lens should be as shown below.



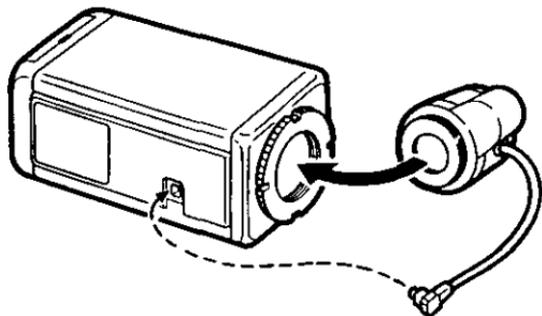
C-mount: Less than $7/16"$ (11.5 mm)
CS-mount: Less than $1/4"$ (7.2 mm)

Caution: To use the C-mount lens, the Lens Mount Converter (C-mount adapter) WV-AD20 should be used with the camera.

2. Mounting the Lens

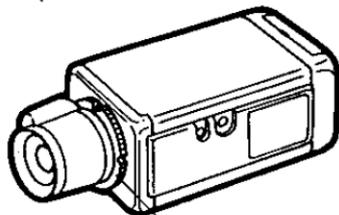
Caution: Always set the Flange-back Adjusting Ring to fully clockwise by loosening the screws on the ring before mounting the lens otherwise the inner glass and CCD image sensor could be damaged by the lens.

- (1) Mount the lens by turning it clockwise onto the lens mount of the camera.
- (2) Connect the lens cable to the Auto Iris Lens Connector on the camera when the Auto Iris Lens is used.



FOCUS ADJUSTMENT

1. Loosen the screws on the Focus Adjusting Ring.



Flange-back Adjusting Ring

2. Turn the Focus Adjusting Ring to the desired position.

Caution: Do not turn this ring counterclockwise too much as this could damage the inner glass and CCD image sensor.

3. Tighten the screw on the Focus Adjusting Ring tenderly (less than 0.5 kg. cm of torque).

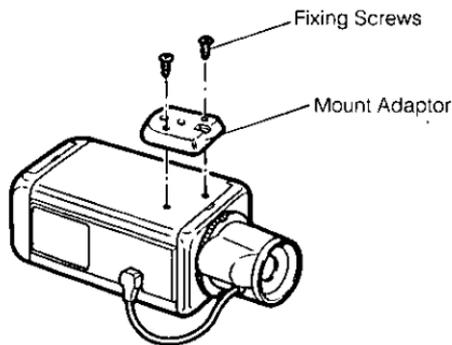
INSTALLATION OF CAMERA

The mounting bracket can be fixed either on top or the bottom cover of the camera.

- **Mounting from the top**

Remove the mount adapter from the bottom of the camera as shown. The hole is the standard photographic pan-head screw size (1/4" - 20).

Make sure that two original screws are used when mounting the mount adapter; longer type screws may damage inner components.



• Installation on the wall

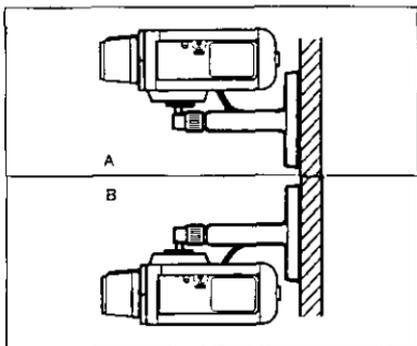


Fig. A, B

• Installation on the ceiling

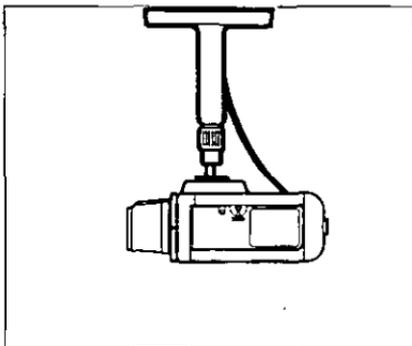


Fig. C

• Installation on the shelf or stand

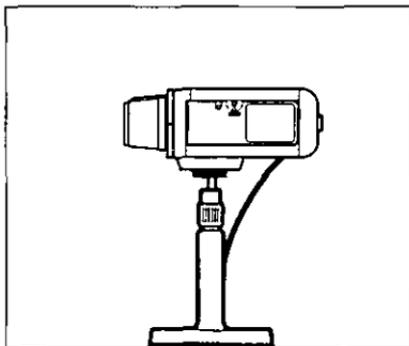


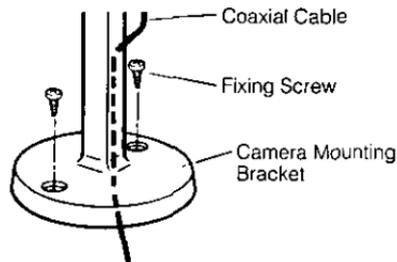
Fig. D

INSTALLING PROCEDURE

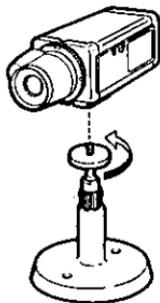
The explanation is for the Fig. A, however the same is applied for the Figs, B, C and D.

1. Install the camera mounting bracket to the wall with 2 screws.

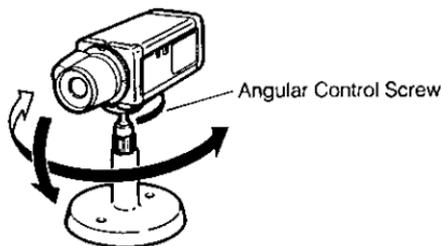
Note: Coaxial cable can be passed through the center hole of the camera mounting bracket.



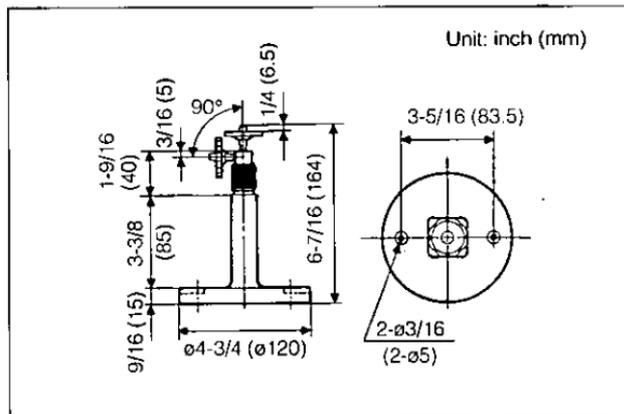
2. Insert the camera fixing screw of the camera mounting bracket into the camera mounting hole and tighten the screw firmly.



3. Connect the camera and monitor with the coaxial cable and turn on the power switch of the monitor.
4. While viewing the monitor picture, loosen the angular control screw slightly. Adjust the camera's angle to the desired position, and then tighten the screw firmly.



DIMENSION OF MOUNTING BRACKET

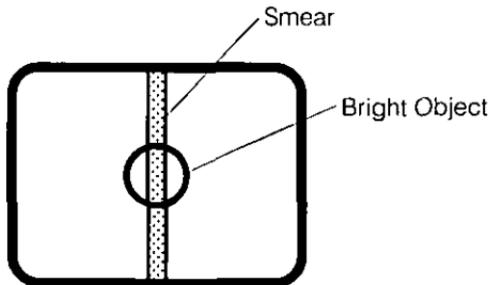


Cautions on installation

Use wood screws with the camera mounting bracket that are suitable for installation into a wood base of appropriate dimensions and strength. For the installation into a material other than wood, refer servicing to qualified service personnel.

PREVENTION OF BLOOMING AND SMEAR

When the camera is faced toward spot lights or other bright lights and light reflecting objects, smear or blooming may appear. Therefore, the camera should be operated carefully in the vicinity of extremely bright objects to avoid smear or blooming.



SPECIFICATIONS

Pick-up Device:	512 (H) x 492 (V) pixels, Interline Transfer CCD
Scanning Area:	4.8 (H) x 3.6 (V) mm (Equivalent to scanning area of 1/3 pick-up tube)
Synchronization:	Multiplexed vertical drive (VD2) by use of specified camera drive unit.
Scanning System:	2: 1 interlace
Scanning:	525 lines / 60 fields / 30 frames
Horizontal:	15.734 KHz
Vertical:	59.94 Hz
Horizontal Resolution:	330 lines
Video Output:	1.0 Vp-p composite 75 ohms / BNC connector
Signal-to-Noise Ratio:	46 dB (AGC OFF, weight ON)
Electronic Light Control:	Equivalent to continuous variable shutter speed between 1/60 sec. and 1/15,700 sec.
Minimum Illumination:	0.06 footcandle (0.6 lux) at F0.75 [Equivalent to 0.2 footcandle (2 lux) at F1.4 or 0.15 footcandle (1.5 lux) at F1.2]
Gain Control:	Selectable AGC ON or OFF
White Balance:	Selectable ATW ON or OFF (AWC)
Detail:	Selectable SHARP or SOFT
Audio:	Selectable ON or OFF
Lens Mount:	CS-mount
Ambient Operating Temperature:	14°F - 122°F (-10°C - +50°C)
Ambient Operating Humidity:	Less than 90%
Power Source:	From the WV-PS11A / WV-PS104B

Dimensions (without lens): 2-13/16"(W) x 2-9/16"(H) x 4-15/16"
[71(W) x 65 (H) x 125.5(D) mm]
Weights (without lens): 1.0 lbs. (460g)

Weights and dimensions indicated are approximate.
Specifications are subject to change without notice.

STANDARD ACCESSORY

Body Cap 1 pc.
Camera Mounting Bracket 1 pc.

OPTIONAL ACCESSORIES

Lenses: WV-LA2.8, WV-LA6A, WV-LA12A, WV-LA18, WV-LA36, WV-LA4510, WV-LA608, WV-LA1208,
WV-LA4R5C3A, WV-LA9C3A, WV-LA210C3, WV-LA408C3, WV-LA908C3, WV-LZ81/6A, WV-LZ81/10,
WV-LZ83/6, WV-LZ61/10, WV-LM4R5A, WV-LF6, WV-LF12, WV-LF4R5C3A, WV-LF9C3A
Lens Mount Converter (C-mount Adapter): WV-AD20

Panasonic

Broadcast & Television Systems Company

Division of Matsushita Electric Corporation of America

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