

Operating Instructions

Color CCTV Camera
WV-CF254



Panasonic®

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

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
<p>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.</p>		


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.

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.

The serial number of this product may be found on the top 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. _____

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

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PREFACE

Panasonic's WV-CF254 color digital camera introduces a new level of high picture quality and high resolution through the use of a 1/3-inch interline transfer CCD image sensor having 771 horizontal pixels (picture elements), and digital signal processing LSIs. This model offers cutting-edge technology for advanced video surveillance.

FEATURES

1. The following functions are built in.
 - (1) Auto Light Control (ALC)/Electronic Light Control (ELC)
 - (2) The SUPER-D function eliminates interference by strong background lighting which makes the camera picture dark, such as a spotlight.
Dynamic range of 40 dB.
 - (3) Auto/Manual White Balance Function
 - (4) Electronic Shutter Function
2. Signal-to-noise ratio of 50 dB
3. Minimum illumination of 5 lux (0.5 footcandle).
4. 480 lines of horizontal resolution
5. High quality picture:
 - (a) 2H type vertical enhancer for greater picture sharpness
 - (b) Chroma averaging circuit for better color signal to noise ratio
 - (c) Minimum of aliasing on fine objects
 - (d) Expanded dynamic range by use of knee circuit
 - (e) Highlight aperture correction for greater picture detail of bright object

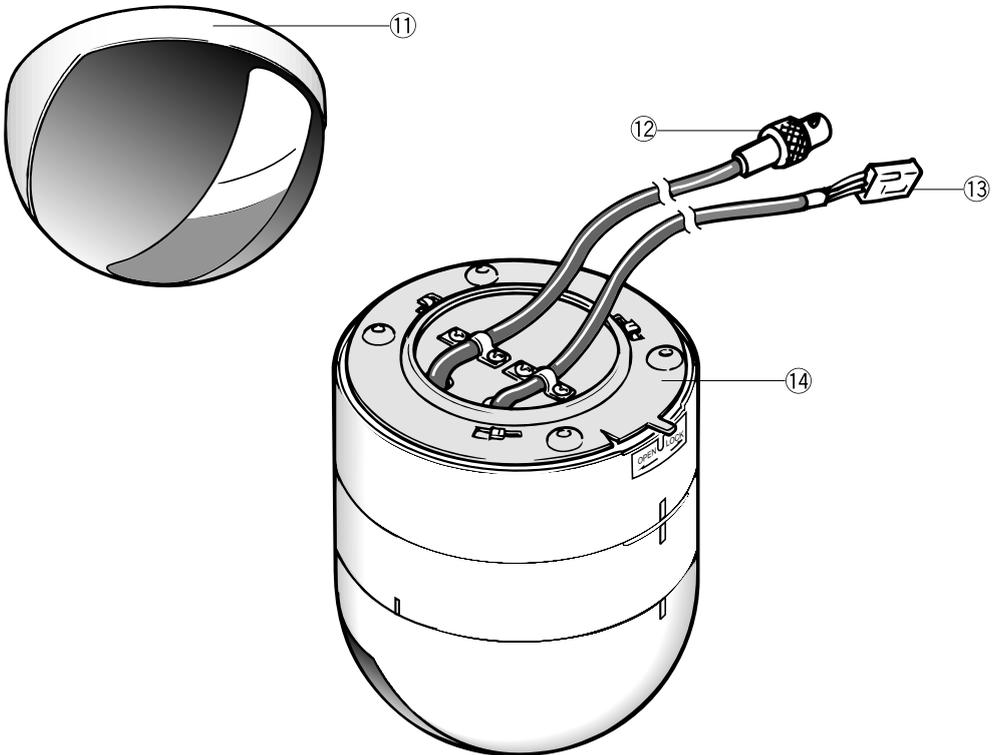
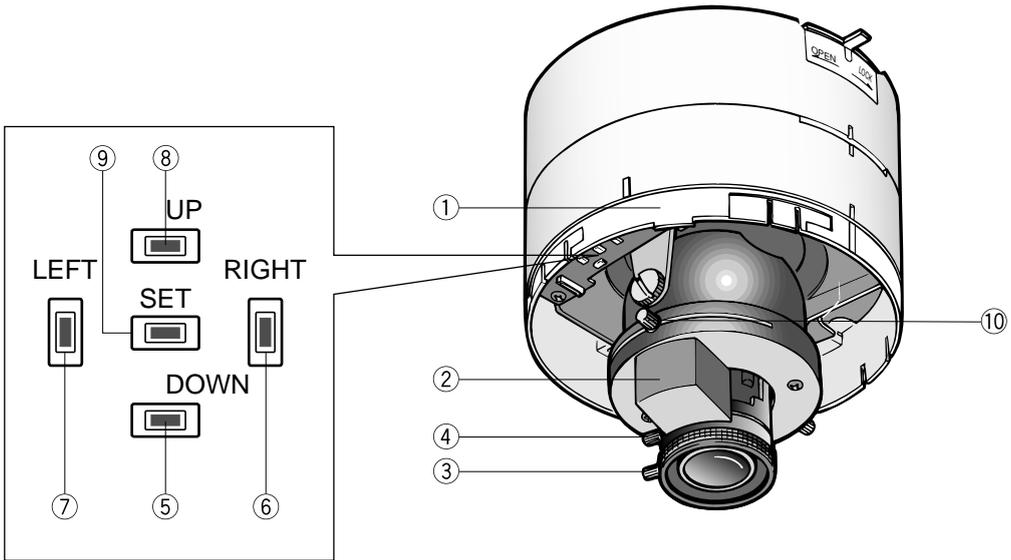
PRECAUTIONS

- 1. Do not attempt to disassemble the camera.**
To prevent electric shock, do not remove screws or covers.
There are no user serviceable parts inside. Ask a qualified service person for servicing.
- 2. Handle the camera with care.**
Do not abuse the camera. Avoid striking, shaking, etc. The camera could be damaged by improper handling or storage.
- 3. Do not expose the camera to rain or moisture, or try to operate it in wet areas.**
Turn the power off immediately and ask a qualified service person for servicing. Moisture can damage the camera and also create the danger of electric shock.
- 4. Do not use strong or abrasive detergents when cleaning the camera body.**
Use a dry cloth to clean the camera when dirty.
In case the dirt is hard to remove, use a mild detergent and wipe gently.
- 5. Never face the camera towards the sun.**
Do not aim the camera at bright objects. Whether the camera is in use or not, never aim it at the sun or other extremely bright objects. Otherwise, blooming or smear may be caused.
- 6. Do not operate the camera beyond the specified temperature, humidity or power source ratings.**
Use the camera under conditions where temperature is between -10°C - $+50^{\circ}\text{C}$ (14°F - 122°F), and humidity is below 90%. The input power source is AC 24 V.

Caution:

To prevent fire or electric shock hazard, a UL listed wire (VW-1, style 1007) should be used for AC 24 V Input Terminals.

MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS



① **Panning Table**
This adjusts the panning angle of the camera.

② **Camera Head**
This adjusts the tilting angle of the camera.

③ **Focus Ring**
This adjusts the focus.

④ **Zoom Ring**
This adjusts the angle of view.

⑤  **(D) (Down Button)**
This button moves the cursor downward. It also selects items in the CAM SETUP menu.

⑥  **(R) (Right Button)**
This button moves the cursor to the right. It also selects the mode and adjusts some levels.

⑦  **(L) (Left Button)**
This button moves the cursor to the left. It also selects the mode and adjusts some levels.

⑧  **(U) (Up Button)**
This button moves the cursor upward. It also selects items in the CAM SETUP menu.

⑨  **(S) (Set Button)**
This button activates a selected item in the CAM SETUP menu.

⑩ **Lens Holders**
These holders bring the picture in an upright position on the monitor screen.

⑪ **Dome Cover**
This protects the camera head.

⑫ **Video Output Cable with BNC Connector**
This connector is used to connect with the VIDEO IN connector of the monitor.

⑬ **Power Cable with MOLEX Connector**
This cable is for connecting the 24 V AC power supply cable.

⑭ **Camera Fixing Bracket**
This bracket holds the camera on the ceiling or the wall.

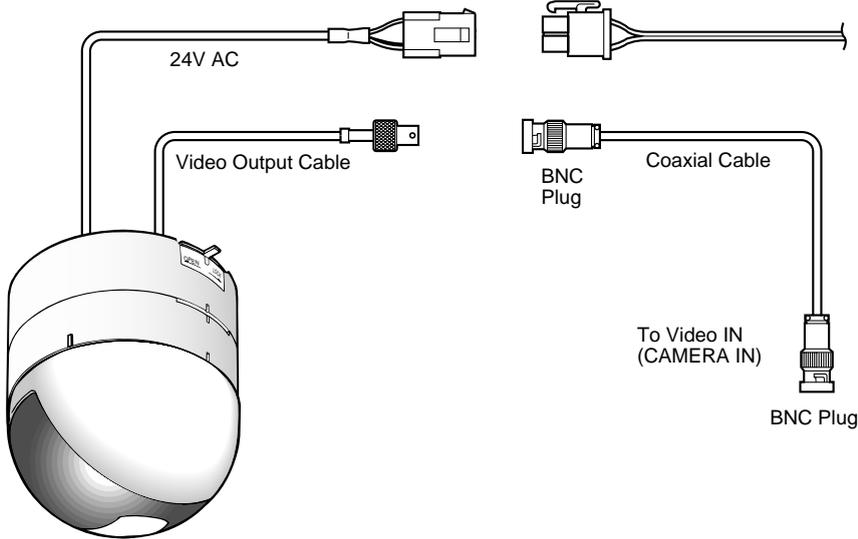
Cautions:

1. Connect to 24 V AC (19.5 V-28 V) class 2 power supply only. Make sure to connect the grounding lead to the GND terminal when the power is supplied from a 24 V AC power source.
2. To prevent fire or electric shock hazard, use a UL listed wire VW-1, style 1007 cable for the Input Terminal.

CONNECTION

Precaution:

The following connections should be made by qualified service personnel or system installers in accordance with NEC 725-51.



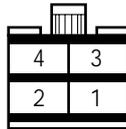
• **Power supply connection**

Recommended wire gauge sizes for 24 V AC line.

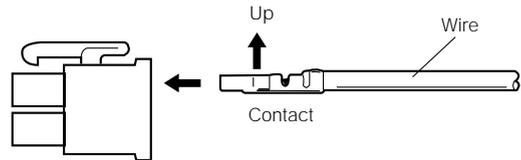
Copper wire size (AWG)		#24 (0.22mm ²)	#22 (0.33mm ²)	#20 (0.52mm ²)	#18 (0.83mm ²)
Length of Cable (Approx.)	(m)	20	30	45	75
	(ft)	65	100	160	260

Accessory Connector Information

Pin No.	Power Source
1 :	24 V AC LIVE
2 :	24 V AC NEUTRAL
3 :	Ground
4 :	Not used

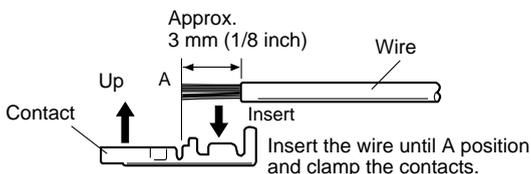


Prepare the individual conductors for clamping. Use MOLEX band tool part number 57027-5000 (for UL-Style Cable UL1015) or 57026-5000 (for UL-Style Cable UL-1007) for clamping the contacts. After clamping the contacts, push them into the proper holes in the accessory connector of this camera until they snap in place.



How to assemble the cable with the accessory connector

Strip back the cable jacket approx. 3 mm (1/8 inch) and separate the individual conductors.



CAUTIONS

1. Shrinking the cable-entry seal is a one-time procedure. Do not shrink the cable-entry seal until it has been ascertained that the unit is functioning. **CONNECT THIS TO 24V AC CLASS 2 POWER SUPPLY ONLY.**
2. To prevent fire or electric shock hazard, the UL listed wire VW-1 style 1007 should be used for the cable for 24V AC Input Terminals.

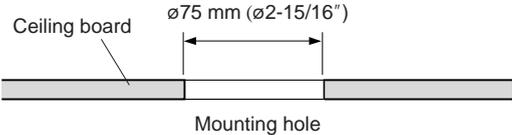
INSTALLATION

Important Notices:

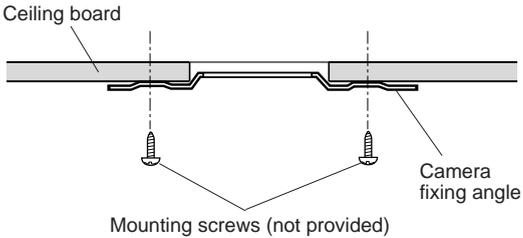
- The following installation should be made by qualified service personnel or system installers and should confirm to all local codes.
- Be sure to use a ceiling board having enough strength to support this camera.

1. Mounting the camera fixing bracket

1-1. Make a hole (diameter 75mm) in the ceiling board in the desired location.



1-2. Fix the camera fixing bracket onto the ceiling board by using four camera fixing bracket mounting screws (not provided).

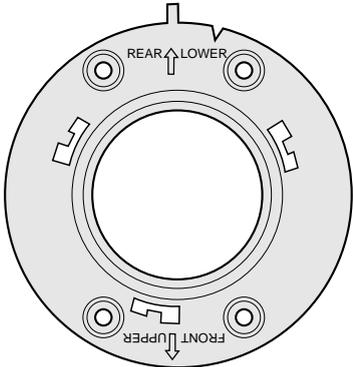


Note:

Before fixing the bracket with screws, confirm the direction of the camera by checking the position of signs "FRONT ↑ UPPER" and "REAR ↑ LOWER" on the camera fixing bracket.

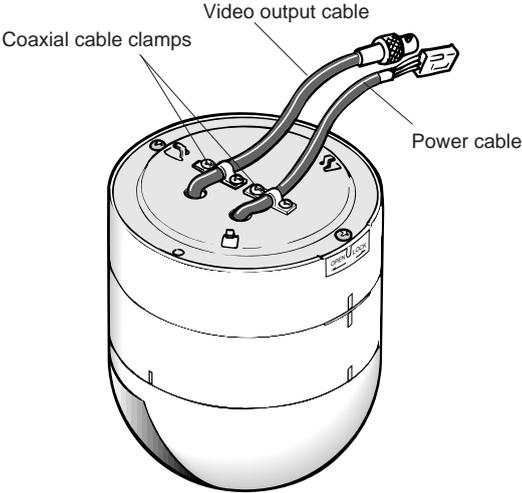
"FRONT ↑ UPPER" sign indicates the direction of the camera head.

"REAR ↑ LOWER" sign indicates the direction opposite to the camera head.

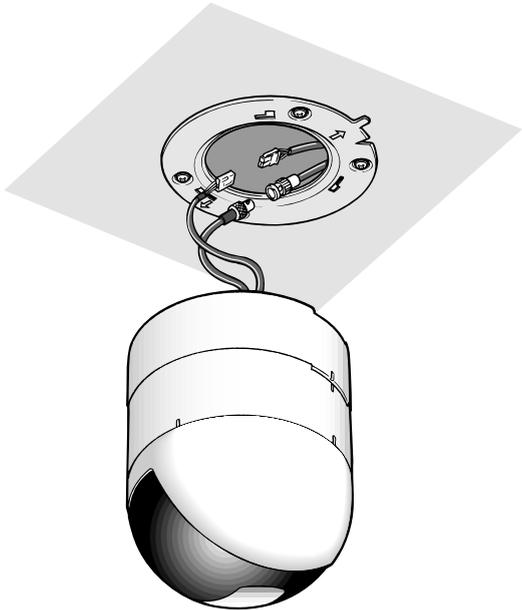


2. Mounting the camera onto the camera fixing bracket

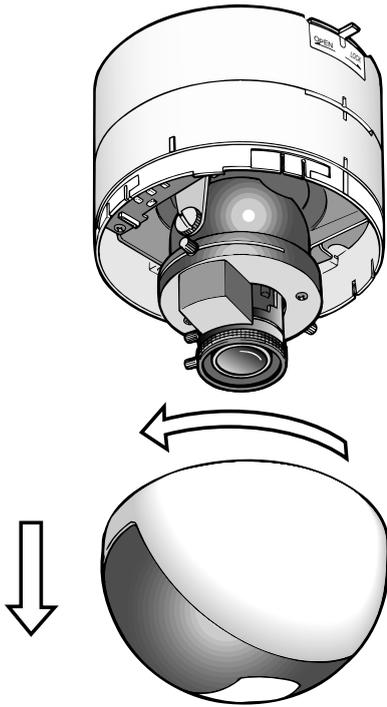
2-1. Make sure the video output cable and power cable are fixed by the coaxial cable clamps.



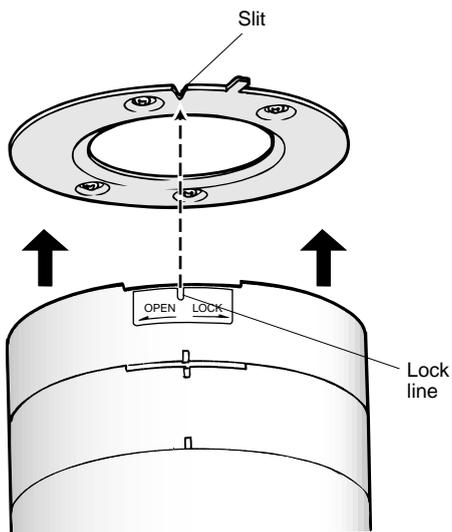
2. Pass the video output cable and power cable through the hole in the camera fixing bracket, and connect as described in the previous section "CONNECTION."



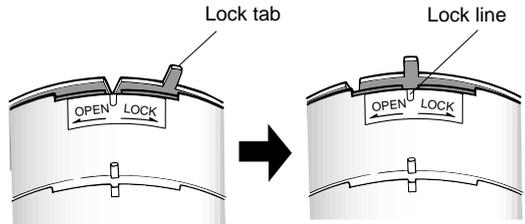
2-3. Remove the dome cover from the camera by turning it counterclockwise.



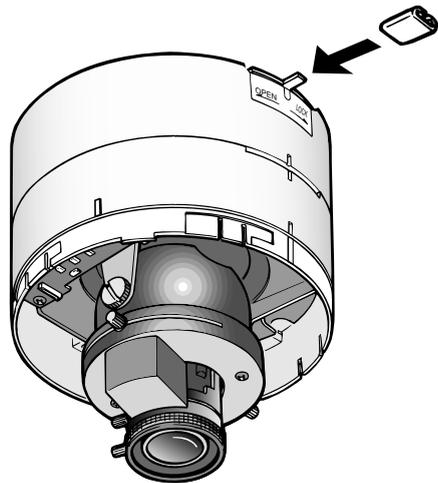
2-4. Match the slit in the camera fixing bracket with the lock line on the camera, and mount the camera onto the camera fixing bracket.



2-5. Turn the camera in the LOCK direction until the lock tab of the camera fixing bracket meets the lock line of the camera.



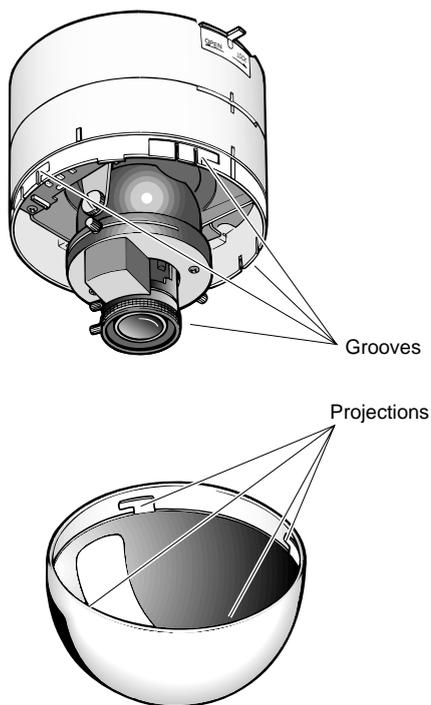
2-6. Attach the fall prevention cap on the lock tab of the camera fixing bracket as shown below to prevent the camera from falling down.



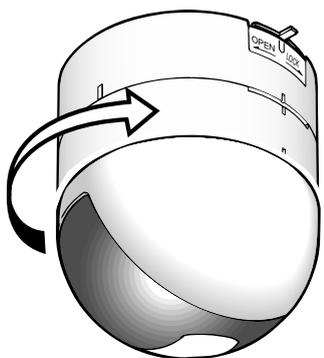
Notes:

- If the camera body is not installed correctly in the camera fixing bracket, the fall prevention cap cannot be inserted.
- The camera body cannot be moved after the fall prevention cap is installed.
- When you need to remove the camera body, first remove the fall prevention cap.

2-7. Match the four grooves on the camera with the four projections on the dome cover.



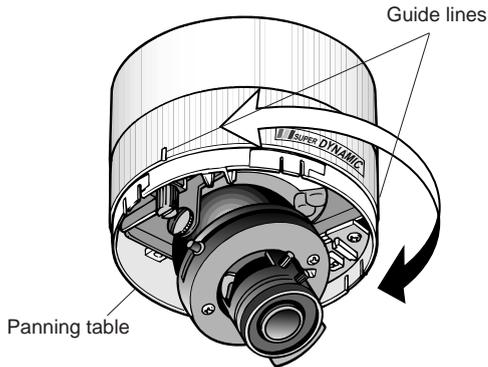
2-8. Attach the dome cover to the camera by turning this cover clockwise so that the window in the dome cover matches the camera head.



ADJUSTMENT

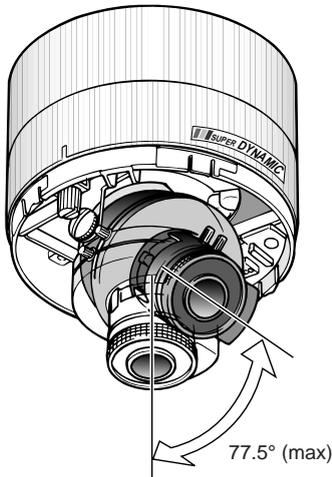
1. Panning

The Panning table can be moved between the guide lines.



2. Tilting the camera

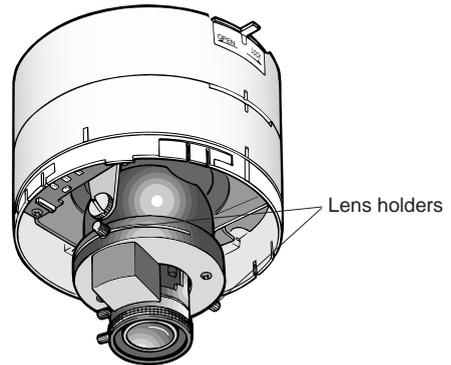
The tilting angle is shown below.



Note: Uprighting the picture on the monitor screen is usually necessary. (Refer to 3. Uprighting the picture.)

3. Uprighting the picture

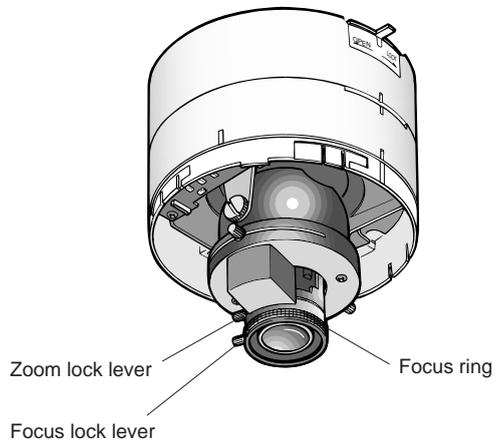
Loosen the 2 lens holders and bring the picture in an upright position on the monitor screen by turning the camera head.



4. Focusing

Precaution:

The focus adjustment should be done at the same time as the camera angle adjustment.



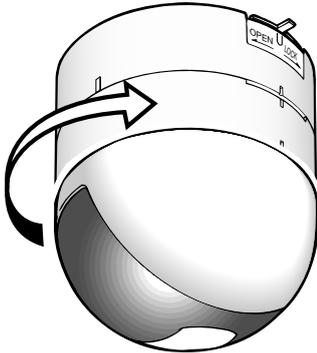
4-1. Loosen the zoom lock lever.

4-2. Set the angular field of view according to the scene desired.

4-3. After setting the angular field of view, tighten the zoom lock lever.

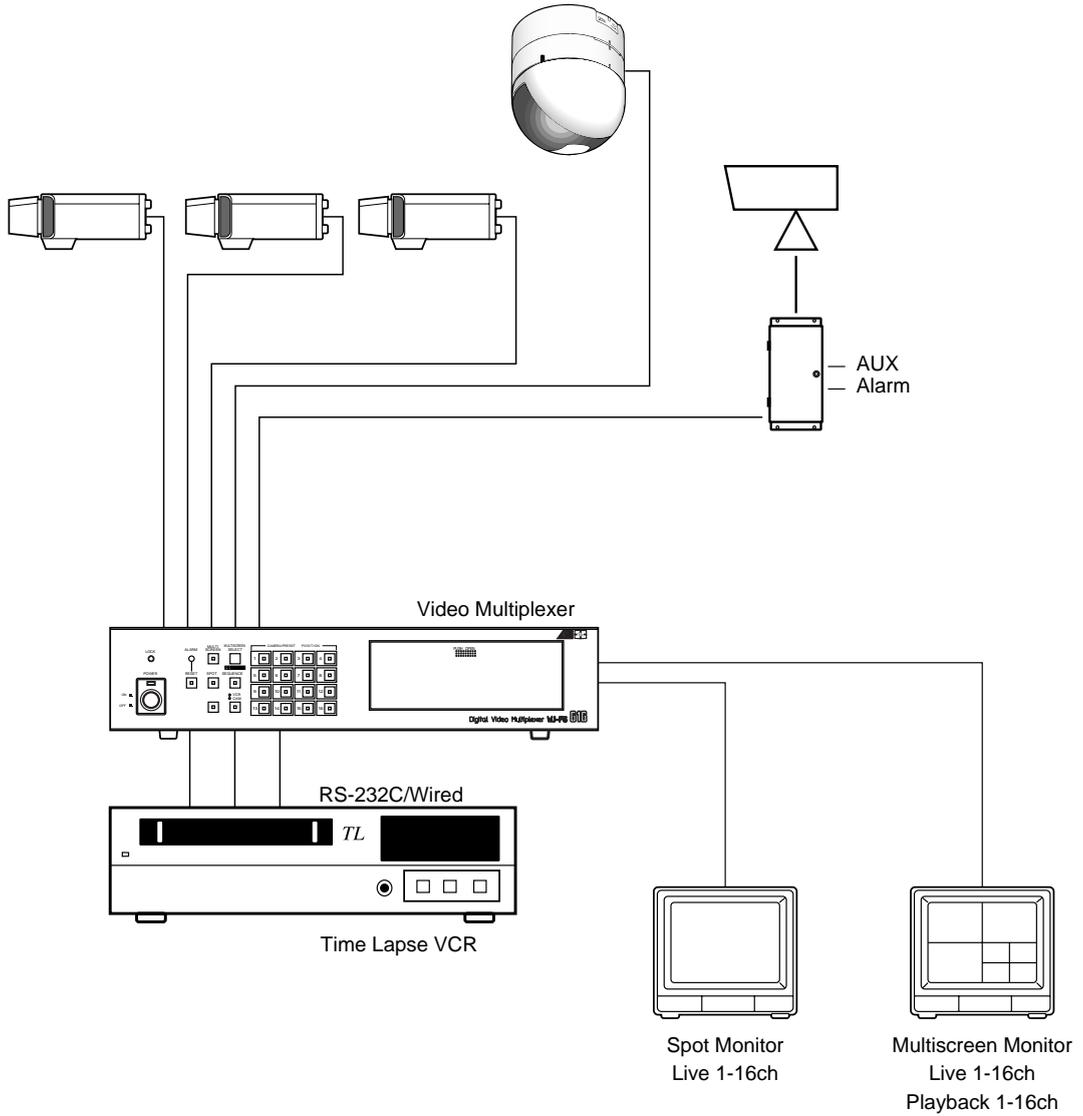
4-4. Loosen the focus lock lever.

- 4-5. Set the correct focus by turning the focus ring.
- 4-6. After setting the correct focus, tighten the focus lock lever.
- 4-7. After adjusting the angular field of view and focus, attach the dome cover to the camera body.



SYSTEM CONNECTION

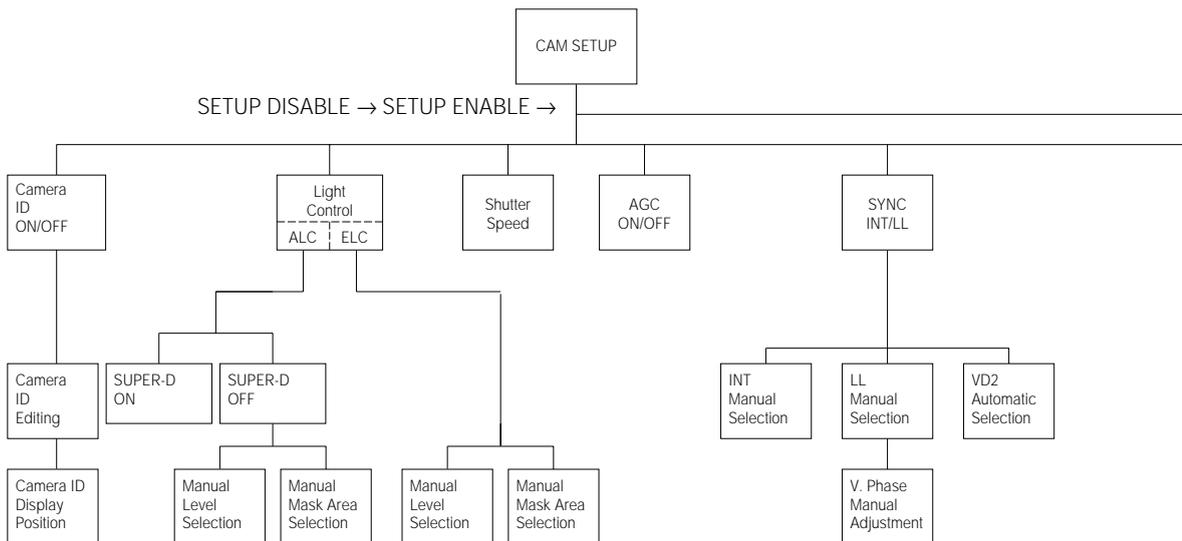
Shown below is an example of a basic system connection.



SETUP

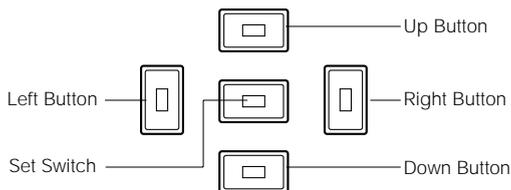
1. CAMERA SETUP MENU

This camera utilizes a user setup menu that is displayed on-screen. The setup menu contains various items that form a tree-type structure as shown below. It is described in the following section : "2. SETUP OPERATION."



2. SETUP OPERATION

This camera utilizes a user setup menu (CAM SETUP) that is displayed on the monitor. To set items on the CAM SETUP menu, use the following buttons on the side panel.



⏏ (U) (Up Button):

This button is used to move the cursor upwards. Use this button to select an item or adjust the parameters.

⏏ (D) (Down Button):

This button is used to move the cursor downwards. Use this button to select an item or adjust the parameters.

⏏ (R) (Right Button):

This button is used to move the cursor to the right. Use this button to select or adjust

the parameters of the selected item. The parameter changes each time this button is pressed.

⏏ (L) (Left Button):

This button is used to move the cursor to the left. Use this button to select or adjust the parameters of the selected item. The parameter changes each time this button is pressed.

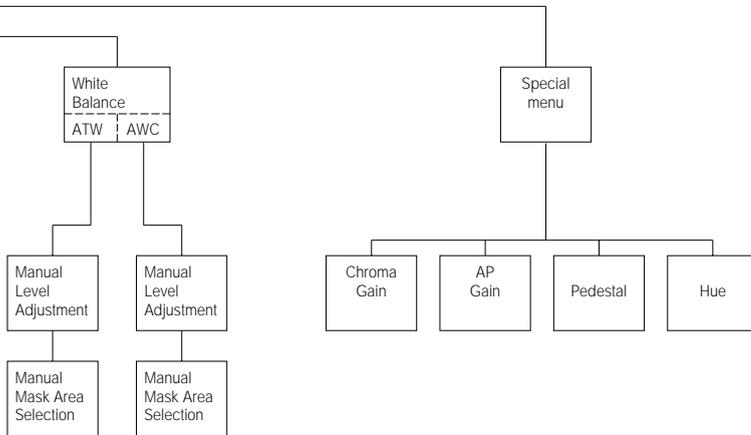
⏏ (S) (Set Button):

This button is used to set the determined parameter. If the item has its own setting menu (as indicated by ↴), press this button to display the setting menu.

• All Reset Operation

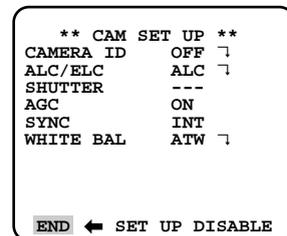
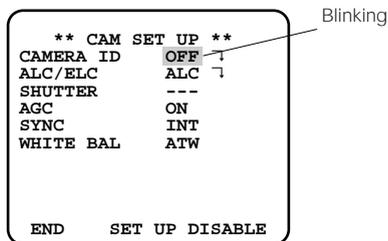
All Reset allows you to reset all setup menu items to the factory settings if you are unsure about the correct settings. Proceed as follows:

- (1) Make sure that the CAM SETUP menu is not displayed (a camera picture is displayed).
- (2) While pressing both ⏏ (L) and ⏏ (R), press ⏏ (S) for a few seconds. The words ALL RESET momentarily appear on the monitor. At this time all adjustments and parameters are reset to the factory default settings.



• Opening the Setup Menu

Press and hold down (S) for a second or longer.



The CAM SETUP menu appears on the monitor as shown above.

Check the current settings on the menu.

Refer to the sections below for a detailed description of menu items. If you decide not to make any changes after checking the current settings, move the cursor to END at the start of the bottom line, and press (S) to close the CAM SETUP menu and return to normal camera picture mode.

Note: If no button is pressed for 6 minutes while the CAM SETUP menu or any other setting menu is displayed, displaying the menu is automatically canceled and the mode returns to the normal camera picture.

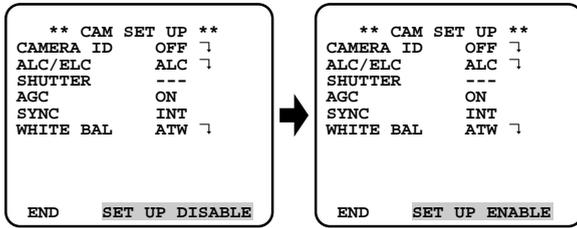
• Editing the CAM SETUP Menu

Important Notice:

When the words SETUP DISABLE appear on the bottom line of the CAM SETUP menu, you cannot change the currently active settings. This is to prevent accidental changing of the settings.

To edit the CAM SETUP menu (change settings), use (U) and (D) or (L) and (R) to move the cursor to SETUP DISABLE in the bottom line.

Press (S). SETUP DISABLE changes to SETUP ENABLE. Move the cursor to END, then to the item(s) you want to change.

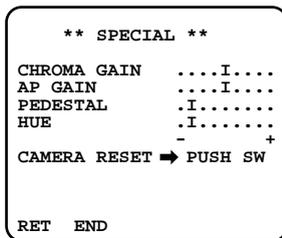


• Editing the SPECIAL menu

To edit the SPECIAL menu (change settings), proceed as for editing the CAM SETUP menu above.

Move the cursor to END after the words SETUP ENABLE appear. Then press (L) and (R) simultaneously for 2 seconds or longer.

The SPECIAL menu appears on the monitor. Select the item to be changed and change the setting as described for the CAM SETUP menu.



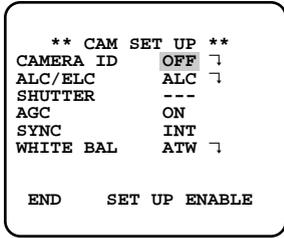
Important Notice:

When the cursor is moved to END and the CAM SETUP menu closed after changing the parameters, the new values are stored in the EEPROM (Electric Erasable and Programmable Read Only Memory). These values remain valid until new values are stored, even if the power of the camera is off.

SETTING PROCEDURES

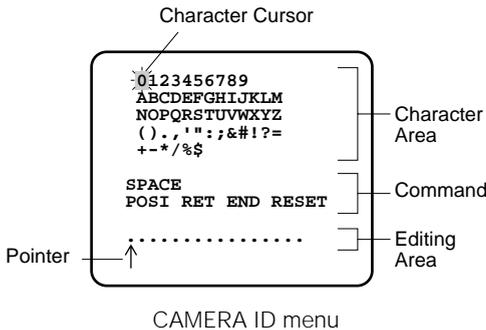
1. Camera Identification (CAMERA ID) Setting

You can use the camera identification (CAMERA ID) to assign a name to the camera. The camera ID consists of up to 16 alphanumeric characters. You can select whether to have the camera ID displayed on the monitor screen or not.



To edit the CAMERA ID

1. Move the cursor to the CAMERA ID parameter.
2. Press **[S]**. The CAMERA ID menu appears. The cursor on the letter "0" starts blinking.



3. Move the cursor to the character you want to change by pressing **[L]**/**[R]**/**[U]**/**[D]**.
4. After selecting the character, press **[S]**. The selected character appears in the editing area. (The pointer in the editing area moves to the right automatically at this moment.)
5. Repeat the steps above until all characters are edited.

To enter a blank space in the CAMERA ID

Move the cursor to SPACE and press **[S]**.

To edit a specific character in the CAMERA ID

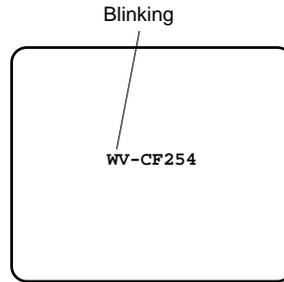
1. Move the cursor to the editing area by pressing **[S]**.
2. Move the pointer to the character to be edited by pressing **[L]** or **[R]**. Then move the cursor to the character area and select a new character.
3. Press **[S]** to determine the CAMERA ID.

To erase all characters in the editing area

Move the cursor to RESET and press **[S]**. All characters in the editing area disappear.

To determine the display position of the CAMERA ID

1. Move the cursor to POSI, and press **[S]**. The display shown below appears and the CAMERA ID starts blinking.



2. Move the CAMERA ID to the desired position by pressing **[L]**/**[R]**/**[U]**/**[D]**.
3. Press **[S]** to fix the position of the CAMERA ID. The mode returns to the previous CAMERA ID menu.

Notes:

- The CAMERA ID stops at the edges of the monitor screen.
- The CAMERA ID moves faster if any of **[L]**/**[R]**/**[U]**/**[D]** is kept pressed for a second or longer.

To return to the CAM SETUP menu

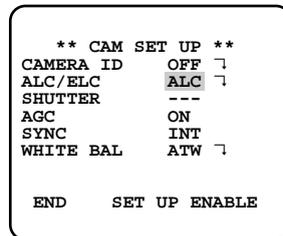
Move the cursor to RET and press **[S]**. The CAM SETUP menu appears.

2. Light Control Setting (ALC/ELC)

You can select one of the following light control modes:

ALC: This camera has an ALC lens..

ELC: If you select this mode, the iris is kept open. Select a SHUTTER parameter to control the brightness.

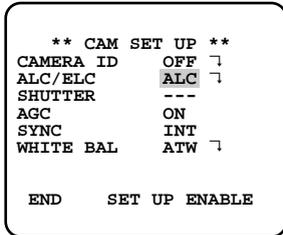


1. Move the cursor to the ALC/ELC parameter.
2. Select ALC or ELC.

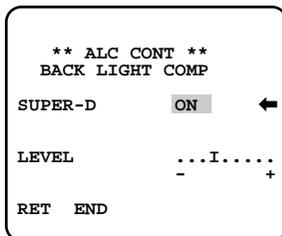
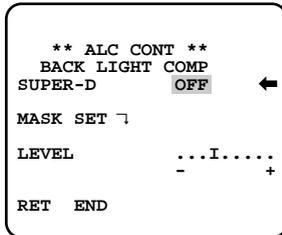
2-1. ALC Mode with SUPER-D ON

Super Dynamic Function (SUPER-D)

The important object in a scene is usually placed in the center of the monitor's screen. In SUPER-D mode, more photometric weight is given to the center of the screen (where the important object is located) than to the edge of the picture (where a bright backlight would most likely be located). You can use the SUPER-D function if you select ALC. It eliminates interference by strong background lighting which makes the camera picture dark, such as a spotlight.



1. Press (S) after selecting ALC. The ALC CONT menu appears.
2. Move the cursor to the SUPER-D parameter and select ON.

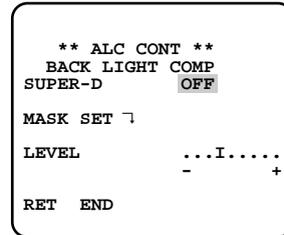


3. If you want to adjust the video output level, move the cursor to the "I" position. Adjust to the desired level by pressing (L) or (R).
4. Move the cursor to RET and press (S) to return to the CAM SETUP menu. (To return to the camera picture, move the cursor to END and press (S).)

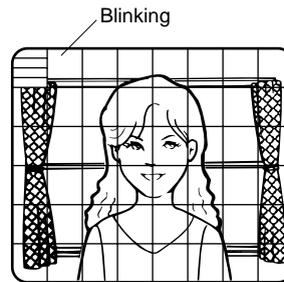
2-2. ALC Mode with SUPER-D OFF and ELC Mode

Note: If ELC is selected, set MASK SET according to this procedure.

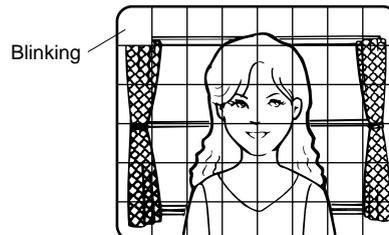
1. Move the cursor to the SUPER-D parameter and select OFF. (When you select ELC, SUPER-D is not available.) The item MASK SET appears on the menu.



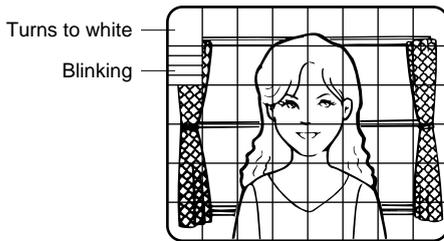
2. Move the cursor to MASK SET and press (S). The 48 mask areas appear on the monitor screen. The cursor is blinking in the top left corner of the screen.



3. Move the cursor to the area where backlight is bright and press (S) to mask that area. The mask turns white. (When the cursor is moved on an area that has already been masked, the mask and cursor start blinking.)



- Repeat step 1 to 3 to mask the desired areas. To cancel masking, move the cursor to that area and press  (S).

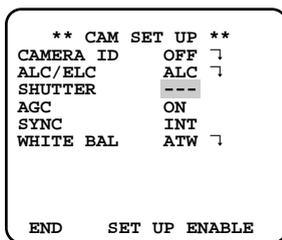


- After masking is completed, press  (S) for 2 seconds or longer. The ALC CONT menu appears.
- If you want to change the video output level (picture contrast), move the "I" cursor to LEVEL and adjust the level.
- Move the cursor to RET and press  (S) to return to the CAM SETUP menu. (To return to the camera picture, move the cursor to END and press the set button.)

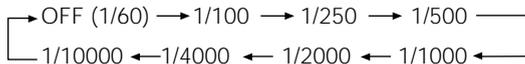
3. Shutter Speed Setting (SHUTTER)

Note: When ON is selected for SUPER-D on the ALC CONT menu, this item is not available. To select electronic shutter speed, select OFF for SUPER-D in the menu.

You can select an electronic shutter speed of 1/60 (OFF), 1/100, 1/250, 1/500, 1/1 000, 1/2 000, 1/4 000, or 1/10 000 seconds.

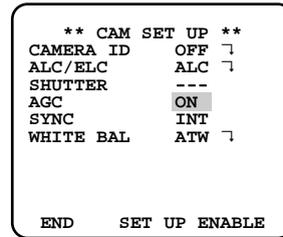


Move the cursor to the SHUTTER parameter and select the electronic shutter speed. The preset values for SHUTTER (electronic shutter speed) change by pressing  (L) or  (R) as follows:



4. Gain Control Setting (AGC ON/OFF)

You can set the gain (brightness level portion of an image) to automatic level adjustment (ON) or fixed level (OFF).



Move the cursor to the AGC parameter and select automatic level adjustment (ON) or fixed level (OFF).

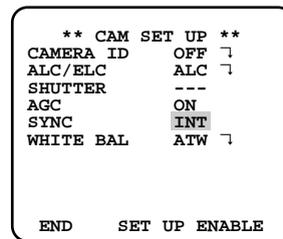
5. Synchronization Setting (SYNC)

You can select internal sync mode (INT) or line-lock mode (LL). The VD2 signal (multiplexed vertical drive signal) with the composite video output signal from external equipment such as a Matrix Switcher is also acceptable.

Whenever the VD2 signal is supplied to this camera, the camera automatically switches to the VD2 sync mode.

- Move the cursor to the SYNC parameter and select line-lock (LL) or internal (INT).
- Press  (S).

If LL is selected, the SYNC menu appears. (If INT is selected, the synchronization mode is automatically set to internal sync pulse, and the menu is not displayed.)



Important Notices:

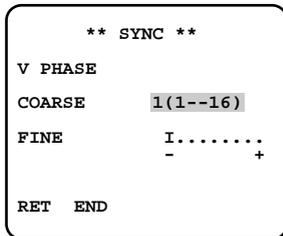
- The priority for the sync modes is as follows.
 - Multiplexed Vertical Drive (VD2) (Highest priority)
 - Line-lock (LL)
 - Internal Sync (INT) (Lowest priority)
- The line-lock mode has its own menu for line-lock vertical phase adjustment. If the camera installation is relocated, check the vertical phase adjustment again since the AC line phase may be different.

5-1. Line-lock Sync Mode (LL)

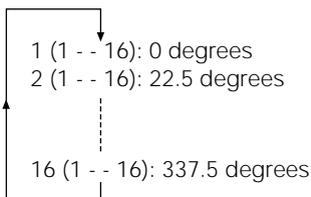
1. Move the cursor to the SYNC parameter and select LL.

Note: The settings in this menu can be made only when the multiplexed vertical drive signal (VD2) is not supplied to the camera.

2. After confirming the cursor is on LL, press  (S). The vertical phase adjustment menu appears on the monitor.



3. Move the cursor to COARSE. The cursor starts blinking.
4. Supply the video output signal of the camera to be adjusted and the reference camera video output signal to a dual-trace oscilloscope.
5. Set the oscilloscope to the vertical rate and expand the vertical sync portion on the oscilloscope.
6. Press  (L) or  (R) to match the vertical phase for both video output signals as closely as possible. (COARSE adjustment can be incremented in 16 steps by 22.5 degrees by pressing  (L) or  (R).)



Note: After the sixteenth step, the adjustment returns to the first step.

7. Move the cursor to FINE. The cursor starts blinking.

8. Press  (L) or  (R) to match the vertical phase for both video output signals as closely as possible. (FINE adjustment can be made up to 22.5 degrees by pressing  (L) or  (R).)

Notes:

- When the "I" cursor reaches the "+" end, it jumps back to "-". At the same time, COARSE is incremented by one step to enable a continuous adjustment. The reverse takes place when the "I" cursor reaches the "-" end.
- When  (L) or  (R) is kept pressed for a second or longer, the "I" cursor moves faster.
- To reset COARSE and FINE to the values preset at the factory, press  (L) or  (R) simultaneously. COARSE and FINE adjustments are preset at the factory to zero-crossing of the AC line phase.
- If the AC line contains noise (spike noise, etc.), the stability of the vertical phase of the camera video output signal may be disturbed.

6. White Balance Setting (WHITE BAL)

You can select one of two modes for white balance adjustment as follows:

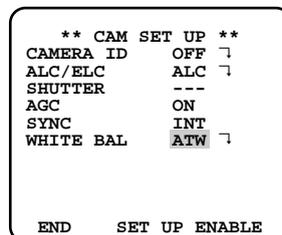
• ATW (Auto Tracing White Balance)

In this mode, the color temperature is monitored continuously and thereby white balance is set automatically. The color temperature range for the proper white balance is approximately 2 600 - 6 000K. Proper white balance may not be obtained under the following conditions:

1. The color temperature is out of the 2 600 - 6 000K range.
2. When the scene contains mostly high color temperature objects, such as a blue sky or sunset.
3. When the scene is dim.

In these cases, select the AWC mode.

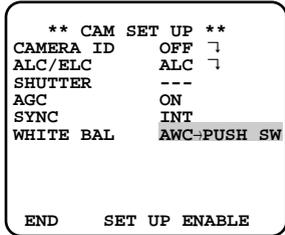
Move the cursor to the WHITE BAL parameter and select ATW. The white balance of the camera is automatically set.



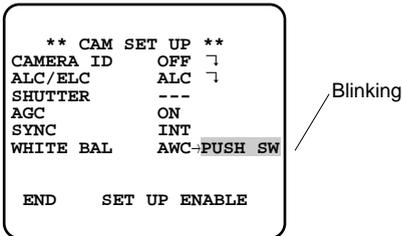
- **AWC (Automatic White Balance Control)**

In this mode, accurate white balance is obtained within a color temperature range of approximately 2 300-10 000K.

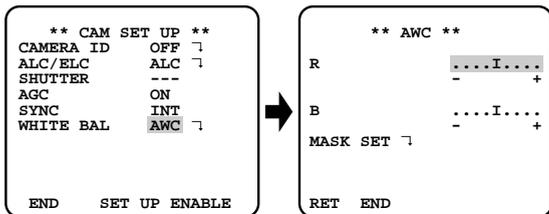
1. Move the cursor to the WHITE BAL parameter and select AWC → PUSH SW.



2. Press [S] to start the white balance setup. The words PUSH SW start blinking to indicate that the white balance is being set.



3. When the white balance setting is completed, the words PUSH SW stop blinking.
4. When you want to adjust the white balance manually, press [R] to select AWC and press [S]. The AWC menu appears on the monitor. (When ATW is selected, pressing [S] displays the ATW menu.)



Manual Fine Adjustment of AWC (ATW)

You can set details for white balance manually.

1. To set MASK SET, proceed as described in steps 1 to 4 of "ALC mode with SUPER-D OFF and ELC mode" on page 16.
2. Move the cursor to R.
3. Press [L] or [R] to obtain the optimum amount of red gain.
4. Move the cursor to B.

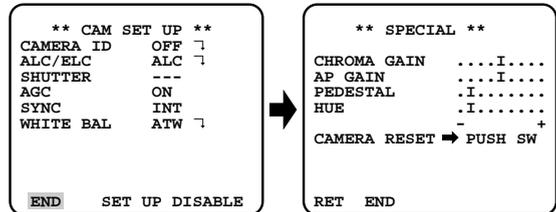
5. Press [L] or [R] to obtain the optimum amount of blue gain.

Note: When you need to set MASK SET, re-adjust to obtain the optimum amount of red and blue gain.

7. Special Menu (SPECIAL)

This menu lets you adjust and set up the video signal of the camera to meet your requirements.

Move the cursor to END on the bottom line of the CAM SETUP menu and press [L] or [R] simultaneously for 2 seconds or longer. The SPECIAL menu appears on the monitor as shown below.



7-1. Chroma Level Setting (CHROMA GAIN)

1. Move the cursor to the CHROMA GAIN parameter.
2. While observing the vectorscope or color video monitor, move the "I" cursor to adjust the chroma level.

7-2. Aperture Gain Setting (AP GAIN)

1. Move the cursor to the AP GAIN parameter.
2. While observing the vectorscope or video monitor, move the "I" cursor to adjust the aperture gain level.

7-3. Pedestal Level Setting (PEDESTAL)

1. Move the cursor to the PEDESTAL parameter.
2. While observing the waveform monitor/oscilloscope or video monitor, move the "I" cursor to adjust the pedestal level (black level).

7-4. Chroma Phase (Hue) Setting (HUE)

1. Move the cursor to the HUE parameter.
2. While observing the vectorscope or color video monitor, move the "I" cursor to adjust the hue (chroma phase) level.

To reset to the factory settings

1. Move the cursor to the CAMERA RESET parameter. The words PUSH SW start blinking.
2. While holding down [L] and [R], press [S] for 2 seconds or longer. The camera is reset to the factory settings.

To close the SPECIAL menu and return to the CAM SETUP menu

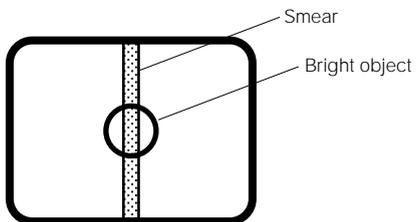
Move the cursor to RET and press  (S).

To close the SPECIAL menu and return to the camera picture

Move the cursor to END and press  (S).

PREVENTION OF BLOOMING AND SMEAR

When the camera is aimed at a bright light, such as a spotlight, or a surface that reflects bright light, 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:	771 (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)
Scanning:	525 lines / 60 fields / 30 frames
Horizontal:	15.734 kHz
Vertical:	59.94 Hz
Synchronization:	Internal, Line-locked, Multiplexed Vertical Drive (VD2) Selectable
Video Output:	1.0 V[p-p] NTSC composite 75 Ω / BNC connector
Horizontal Resolution:	480 lines
Signal-to-Noise Ratio:	50 dB (AGC OFF, weight ON)
Dynamic Range:	40 dB
Minimum Illumination:	5 lx (0.5 footcandle) at WIDE end
Angular Field of View:	Horizontal; 41.5° (TELE) - 76.7° (WIDE) Vertical; 31.9° (TELE) - 59.8° (WIDE)
Gain Control:	Selectable AGC ON or OFF (SETUP MENU)
White Balance:	Selectable ATW or AWC (SETUP MENU)
Aperture:	Variable (SETUP MENU)
Electronic Light Control:	Equivalent to continuously variable shutter speed between 1/60 second and 1/10 000 second
Super-D:	Selectable On or Off (SETUP MENU)
Electronic Shutter Speed:	Selectable 1/60 (OFF), 1/100, 1/250, 1/500, 1/1 000, 1/2 000, 1/4 000, 1/10 000 second
Ambient Operating Temperature:	-10°C - +50°C (14°F - 122°F)
Ambient Operating Humidity:	Less than 90%
Power Source:	24V AC 60 Hz, 4.6 W
Dimensions:	143.5 (H) x 121 (D) mm [5-5/8" (H) x 4-3/4" (D)]
Weights:	1.1 kg (2.4 lbs.)

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

STANDARD ACCESSORIES

Camera Fixing Bracket.....1

Panasonic

Video Imaging Systems Company

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A Unit of Matsushita Electric Corporation of America**

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