

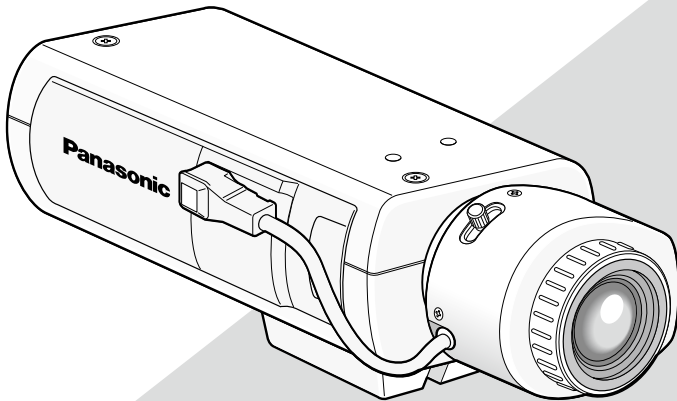
# Panasonic<sup>®</sup>

## Installation Guide

### Color CCTV Camera

Model Nos. **WV-CP500**

**WV-CP504**




This illustration represents WV-CP500.  
Lens: Option

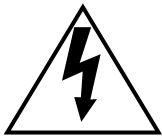
Before attempting to connect or operate this product, please read these instructions carefully and save this manual for future use.

No model number suffix is shown in this manual.

**WARNING:**

- This apparatus must be earthed.
- Apparatus shall be connected to a mains socket outlet with a protective earthing connection.
- The mains plug or an appliance coupler shall remain readily operable.
- To prevent fire or electric shock hazard, do not expose this apparatus to rain or moisture.
- The apparatus should not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, should be placed on the apparatus.
- All work related to the installation of this product should be made by qualified service personnel or system installers.
- The connections should comply with local electrical code.

	<b>CAUTION</b> 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>		



The lightning flash with arrow-head 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.



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.

Power disconnection. Unit with or without ON-OFF switches have power supplied to the unit whenever the power cord is inserted into the power source; however, the unit is operational only when the ON-OFF switch is in the ON position. Unplug the power cord to disconnect the main power for all units.

For Canada

This Class A digital apparatus complies with Canadian ICES-003.

For U.S.A

**NOTE:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**FCC Caution:** To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

For U.S.A

The model number and serial number of this product may be found on the surface of the unit. You should note the model number and 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. \_\_\_\_\_

## Important safety instructions

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

## Limitation of liability

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THIS PUBLICATION COULD INCLUDE TECHNICAL INACCURACIES OR TYPOGRAPHICAL ERRORS. CHANGES ARE ADDED TO THE INFORMATION HEREIN, AT ANY TIME, FOR THE IMPROVEMENTS OF THIS PUBLICATION AND/OR THE CORRESPONDING PRODUCT (S).

## Disclaimer of warranty

IN NO EVENT SHALL Panasonic Corporation BE LIABLE TO ANY PARTY OR ANY PERSON, EXCEPT FOR REPLACEMENT OR REASONABLE MAINTENANCE OF THE PRODUCT, FOR THE CASES, INCLUDING BUT NOT LIMITED TO BELOW:

- (1) ANY DAMAGE AND LOSS, INCLUDING WITHOUT LIMITATION, DIRECT OR INDIRECT, SPECIAL, CONSEQUENTIAL OR EXEMPLARY, ARISING OUT OF OR RELATING TO THE PRODUCT;
- (2) PERSONAL INJURY OR ANY DAMAGE CAUSED BY INAPPROPRIATE USE OR NEGLIGENT OPERATION OF THE USER;
- (3) UNAUTHORIZED DISASSEMBLE, REPAIR OR MODIFICATION OF THE PRODUCT BY THE USER;
- (4) INCONVENIENCE OR ANY LOSS ARISING WHEN IMAGES ARE NOT DISPLAYED, DUE TO ANY REASON OR CAUSE INCLUDING ANY FAILURE OR PROBLEM OF THE PRODUCT;

- (5) ANY PROBLEM, CONSEQUENTIAL INCONVENIENCE, OR LOSS OR DAMAGE, ARISING OUT OF THE SYSTEM COMBINED BY THE DEVICES OF THIRD PARTY.

This product is a 1/3-inch type {1/3"} CCD color CCTV camera. Connection of this product to a video monitor allows users to use this product as a monitoring camera.

- WV-CP500: 120 V AC power supply
- WV-CP504: 24 V AC, 12 V DC power supply

## **Introduction of SUPER-D5 (super dynamic function)**

Integration of SUPER-D5 into the CCD and signal processing circuit has achieved approximately 128 times higher dynamic range as compared with conventional camera. Thanks to the integration of the darkness compensation function, a subject on which much illuminance difference exists resulting from bright and dark areas can be naturally displayed in an image.

## **Introduction of newly developed high-resolution CCD**

The introduction of the newly developed CCD with 976 of horizontal pixels has led to the horizontal resolution of as high as 650 TV lines (typ.).

## **Auto back focus function (ABF) equipped**

Moving the CCD inside the camera to an optimal position with the operation button of this unit or the setup menu allows users to automatically adjust the back focus.

The back focus is adjustable with the setup menu through the system controller (option) even after installation of this unit.

The auto back focus function also allows users to correct out of focus when changing between color and black-and-white images.

## **High sensitivity achieved thanks to noise reduction function**

Minimum illumination 0.3 lx (F1.4) has been accomplished for color images thanks to the introduction of low noise circuit design.

## **Night monochrome image activation function equipped**

No operation is required at night because the image automatically changes from the color mode to the black-and-white mode at low illuminance.

## **Intelligent VMD (i-VMD) functions of motion detection and object abandonment/removal detection equipped**

The motion and abandonment/removal of an object are detectable.

The states of covering the camera with a cloth, a cap or others and changing the camera direction notably can be detected (interference detection).

The detection resolution has been significantly improved as compared with a conventional type, and the introduction of the newly developed detection method has improved detection accuracy under the condition that the motion detection is prone to malfunction due to leaves swaying.

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### **Note:**

- The i-VMD function is not the dedicated function to prevent thefts, fires, etc. We are not responsible for any accidents or damages occurring in case.
-

## About the user manuals

The operating instructions of the camera consist of 2 sets: this book and operating instructions (PDF).

This book explains how to install the camera.

Refer to the "Operating Instructions (PDF)" on the provided CD-ROM for descriptions of how to perform the unit settings. Adobe® Reader® is required to read PDF. When the Adobe® Reader® is not installed on the PC, download the latest Adobe® Reader® from the Adobe web site and install it.

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# Precautions

## **This product has no power switch.**

Power is supplied from an external 12 V DC/ 24 V AC (WV-CP504) or 120 V AC (WV-CP500) power-supply device. Refer to service personnel for how to turn on/off the power.

## **Use this product for indoor use only.**

Do not expose this product to direct sunlight for hours and do not install the product near a heater or an air conditioner. Otherwise, it may cause deformation, discoloration and malfunction. Keep this product away from water.

## **To keep on using with stable performance**

- Parts of this product may deteriorate and it may shorten lifetime of this product when using in locations subject to high temperatures and high humidity. Do not expose this product to direct heat sources such as a heater.
- Use this product at temperatures within  $-10\text{ }^{\circ}\text{C}$  to  $+50\text{ }^{\circ}\text{C}$  [ $14\text{ }^{\circ}\text{F}$  to  $122\text{ }^{\circ}\text{F}$ ], and humidity below 90 % (when using this product without turning the power off).

## **Do not rub the edges of metal parts with your hand.**

Failure to observe this may cause injury.

## **Do not attempt to disassemble this product.**

To prevent electric shock, do not remove screws or covers.

There are no user-serviceable parts inside. Ask qualified service personnel for servicing.

## **Handle this product with care.**

Do not abuse this product. Avoid striking, shaking, etc. The product could be damaged by improper handling or storage.

## **Cleaning this product body**

Turn the power off when cleaning the product. Use a dry cloth to clean this product. Do

not use strong abrasive detergent when cleaning this product. When the dirt is hard to remove, use a mild detergent and wipe gently. Then, wipe off the remaining detergent with a dry cloth.

Otherwise, it may cause discoloration. When using a chemical cloth for cleaning, read the caution provided with the chemical cloth product.

## **Noise on monitor**

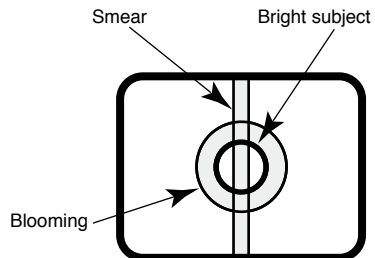
This product is equipped with a super sensitive CCD. Therefore, white dot noise may appear on the monitor. This phenomenon is not trouble.

## **Discoloration on the CCD color filter**

When continuously shooting a bright light source such as a spotlight, the color filter of the CCD may have deteriorated and it may cause discoloration. Even when changing the fixed shooting direction after continuously shooting a spotlight for a certain period, the discoloration may remain.

## **Do not aim this product at strong light sources.**

A light source such as a spot light causes a blooming (light bleeding) or a smear (vertical lines).

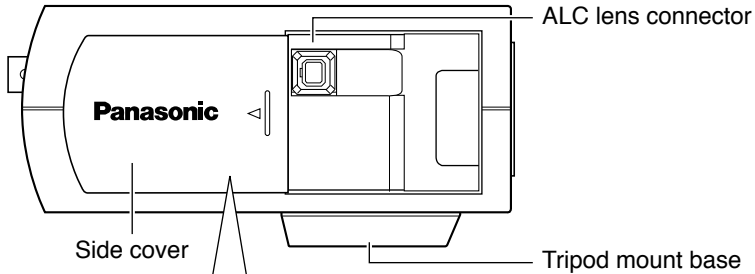


**Turn the circuit breaker off which supplies this product with the power when abnormal conditions are encountered.**

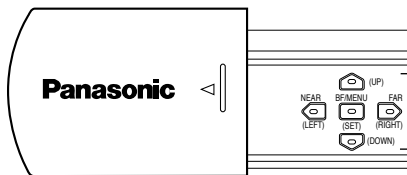


# Major operating controls and their functions

## Side view (WV-CP500)



Inside the side cover  
(Slide the cover leftward to the lock position.)

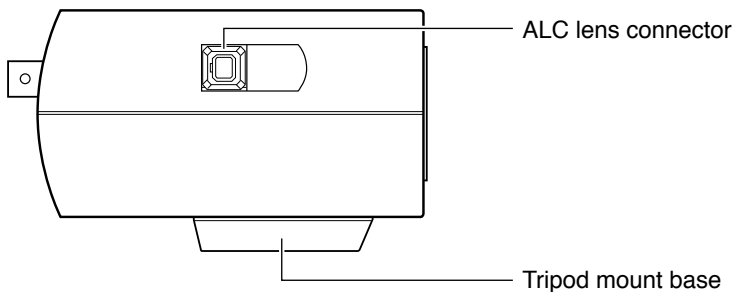


Operation buttons\*

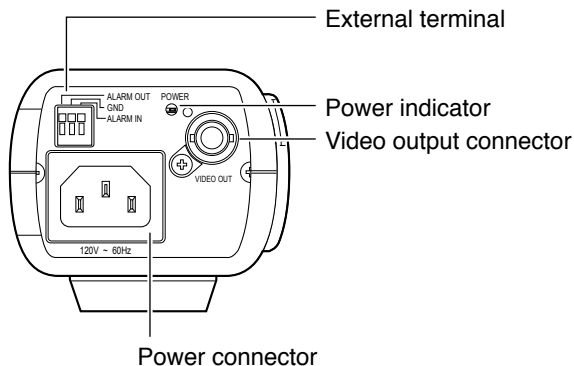
\* The following names are assigned to each button in this book:

- ⬆ : Up button (UP)
- ⬇ : Down button (DOWN)
- ⬅ : Left button (LEFT), NEAR
- ➡ : Right button (RIGHT), FAR
- ⌂ : Setting button (SET), BF/MENU

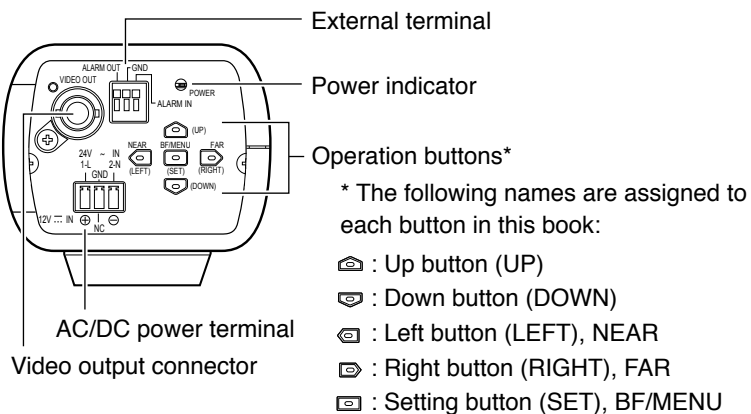
## Side view (WV-CP504)



## Rear view (WV-CP500)



## Rear view (WV-CP504)



**Side cover (only for WV-CP500)**

When the operation buttons are used, the side cover is slide leftward to the lock position.

**ALC lens connector**

The ALC connector is connected to this ALC lens connector.

**Tripod mount base**

This socket is used to mount the camera mount bracket (option). The tripod socket can be mounted on either top or bottom of the camera head.

(Tripod socket hole: 1/4-20 UNC for tripod)

**Operation buttons**

This buttons are used to perform various settings in the setup menu.

**Video output connector**

The Coaxial cable (locally procured) is connected to this video output connector.

**Power indicator**

This indicator lights up when the power is on.

**External terminal (see page 18)****Power connector (only for WV-CP500)**

The included power cord is connected to this power connector.

**AC/DC power terminal  
(only for WV-CP504)**

The power supply of 24 V AC or 12 V DC is connected to this terminal.

# Precautions for installation

**This camera is designed to be used indoors. This camera is not operable outdoors.**

**Do not operate this product beyond the specified temperature, humidity or power source ratings.**

Use this product at temperatures within  $-10\text{ }^{\circ}\text{C}$  to  $+50\text{ }^{\circ}\text{C}$   $\{14\text{ }^{\circ}\text{F}$  to  $122\text{ }^{\circ}\text{F}\}$ , and humidity below 90 %. The input power source is 12 V DC/24 V AC (WV-CP504) or 120 V AC (WV-CP500).

## Installing place

Contact your dealer for assistance if you are unsure of an appropriate place in your particular environment.

- Make sure that the installation area is strong enough to hold the camera, such as a concrete ceiling.
- If a ceiling board such as plaster board is too weak to support the total weight, the area shall be sufficiently reinforced.
- Do not install this product in a humid or dust-laden environment.  
Otherwise, lifetime of the internal parts may be shortened.

## Avoid installing in the following locations.

- Locations where it may get wet from rain or water splash
- Locations where a chemical agent is used such as a swimming pool
- Locations subject to steam and oil smoke such as a kitchen, Locations near flammable gas or vapor
- Locations where radiation or x-ray emissions are produced
- Locations subject to strong magnetic field or radio waves
- Locations where corrosive gas is produced
- Locations where it may be damaged by briny air such as seashores
- Locations where the temperature is not within  $-10\text{ }^{\circ}\text{C}$  to  $+50\text{ }^{\circ}\text{C}$   $\{14\text{ }^{\circ}\text{F}$  -  $122\text{ }^{\circ}\text{F}\}$ .

- Locations subject to vibrations (This product is not designed for on-vehicle use.)
- Locations subject to condensation as the result of severe changes in temperature

## Avoid installing the camera in a place with a high level of noise.

Installation near an air conditioner, an air cleaner, a vending machine, or the like causes noise.

## Avoid connections during a lightning storm.

Otherwise, an electric shock may be caused.

## Be sure to remove this product if it is not in use.

## Keep the camera cable away from the lighting cable.

Failure to observe this may cause noise.

## Radio interference

When the camera is used near TV/radio antenna, strong electric field or magnetic field (near a motor or a transformer), images may be distorted and noise sound may be produced.

## Mounting screws

- Screws are not supplied with this product.
- Prepare them according to the material and strength of the area where the product is to be installed.
- Do not use an impact driver. Use of an impact driver may damage the screws.
- The screws and bolts must be tightened with an appropriate tightening torque according to the material and strength of the installation area.

**Power cord (only for WV-CP500)**

Connect the power cord securely. Run the power cord so that no load is applied to the cord when panning or tilting the camera. (Failure to observe this may disconnect the power cord, and accordingly no image is displayed.)

# Installation and connection

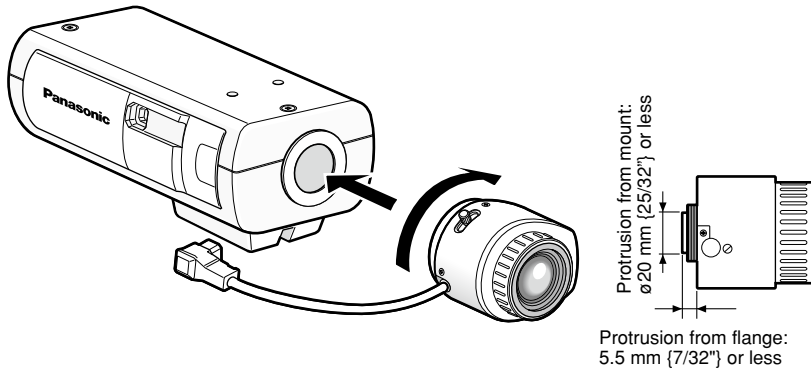
## Cautions:

- ONLY CONNECT WV-CP504 TO 24 V AC OR 12 V DC CLASS 2 POWER SUPPLY.
- Be sure to connect the grounding lead to the GND terminal.

## 1 Rotate the lens (option) clockwise slowly to mount the lens.

### Important:

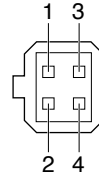
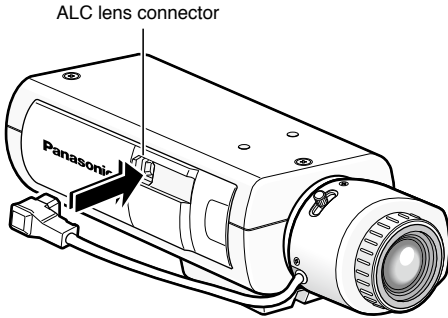
- For use of C-mount lens, use the C-mount adaptor (option).
- For prevention of damage to the camera body, use a lens with protrusion of 5.5 mm {7/32"} or less from the flange surface.



## Optional dedicated lens

Lens type		Model Nos.
ALC lens for 1/3 inch CCD cameras	2x vari-focal	WV-LZA61/2S
		WV-LZA62/2
	8x vari-focal	WV-LZ62/8S
	15x motorized zoom	WV-LZ61/15

## 2 Connect the lens cable to the ALC lens connector of the camera.



Pin No.

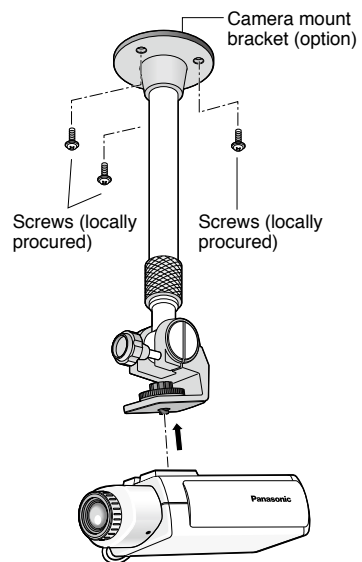
1	Brake ⊖
2	Brake ⊕
3	Drive ⊕
4	Drive ⊖

## 3 Secure the camera mount bracket (option) to an installation position, and mount the camera on the camera mount bracket.

### Important:

- If the total weight of the camera and lens exceeds 1 kg {2.2 lbs.}, use a housing to take measures against camera drop.
  - Prepare mounting screws according to the material of the area where the camera mount bracket (option) is to be installed. The installation method may be different depending on the material of the area where the bracket is to be installed.
    - When installing on steel:  
Fix with bolts and nuts (M6 or M8).
    - When installing on concrete:  
Fix with anchor bolts or AY plug bolts (M6 or M8).
- Recommended tightening torque (M6):  
5.0 N·m {3.69 lbf·ft}
- Recommended tightening torque (M8):  
6.2 N·m {4.57 lbf·ft}

### <Installation sample on a ceiling>

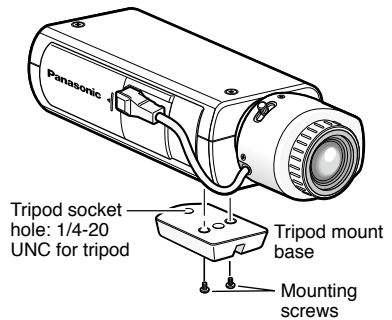


- The mounting conditions of the camera mount bracket are described as follows:

Installation place	Applicable mount bracket	Recommended screw	Number of screw	Minimum pull-out strength (per 1 pc.)
On ceiling	WV-7011	M6	4 pcs.	196 N {44.06 lbf}
	WV-7010	M8	3 pcs.	196 N {44.06 lbf}
	WV-7012	M6	3 pcs.	196 N {44.06 lbf}
On wall	WV-831	M8	4 pcs.	921 N {207.05 lbf}
	WV-7013	M6	3 pcs.	2.25 kN {505.82 lbf}

For some applicable mount brackets, "A" is attached to the model number. The mounting conditions are the same even for the A-attached models.

- When attaching an optional tripod mount base on the bottom of the camera, use the removed screws to attach the tripod mount base. Use of longer or shorter screws may cause drop or damage. Recommended tightening torque: 0.39 N·m {0.29 lbf·ft}



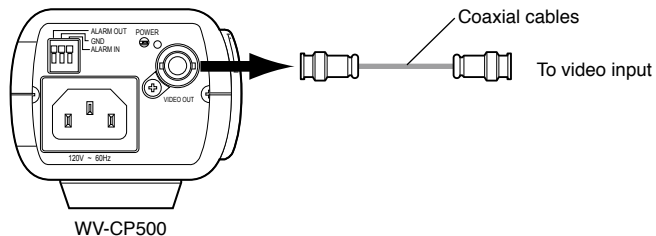


#### 4 The video output cable is connected to this video output connector.

**Important:**

- Be sure to turn off the power of each device before connection.
- Be sure to secure the coaxial cable connectors.

Connect a coaxial cable to the video output connector.

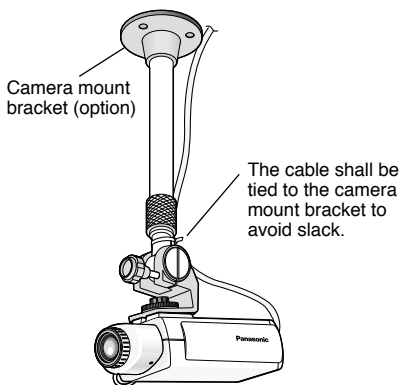


#### 5 Use a cable tie (locally procured) to attach the coaxial cable to the camera mount bracket.

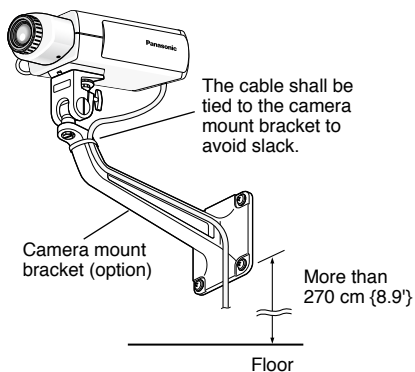
**Important:**

- The cable tie shall be made of metallic or durable material to be strong enough because the tie plays the role of camera drop prevention measures in case.
- When the camera mount bracket is mounted on a wall, be sure to observe the mounting height described on the illustration above.

<Installation sample on a ceiling>



<Installation sample on a wall>



## External synchronization switch

The settings of the alarm input/output are configured on the SETUP menu.  
Refer to the network operating instructions (PDF) for further information.

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### Important:

- Be sure to turn off the power of each device before connection.
- 

### Alarm output

**Input specification:** Open collector output (max. voltage: 16 V DC)

**Off:** Internally pulled up  
2 V to 4 V DC

**On:** Output voltage 1 V DC or less (max. drive current: 100 mA)

**Functions:** Alarm output  
Black-and-white switching output

### Alarm input

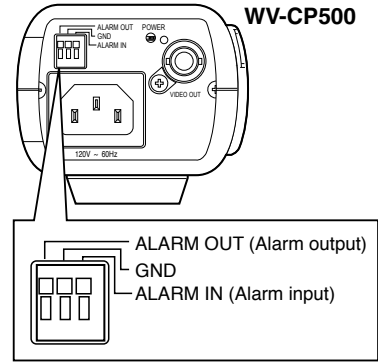
**Input specification:** No-voltage make contact input (3 to 5 V DC, internally pulled up)

**Off:** Open or 3 to 5 V DC

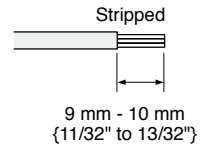
**On:** Make contact with GND (required drive current: 0.2 mA or more)

**Functions:** Alarm input  
VMD enabling input  
Color/BW switching input  
Scene file switching input

- \* When an external device is connected, exercise care to avoid exceeding the rating.
- \* Applicable wire: 22 AWG-28 AWG, solid wire/stranded wire  
Strip the end 9 mm to 10 mm {11/32" to 13/32"} of the wire and insert it.



The external terminal is the same between WV-CP500 and WV-CP504.

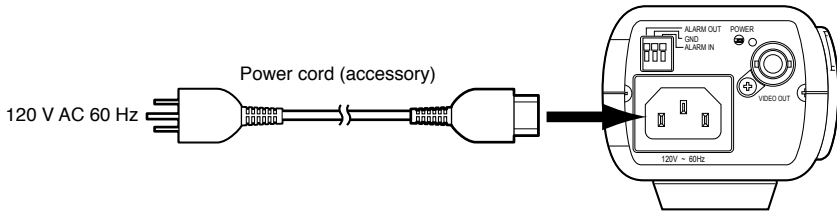


## 6 Turn on the power.

### WV-CP500

The included power cord is connected to this power connector.

Connect between the power connector on the rear side of the camera and a plug socket with the supplied power cord.



### WV-CP504

#### Important:

- The power supply of 24 V AC/12 V DC shall be insulated against 120 V AC.
- The power supply is automatically selected either 24 V AC or 12 V DC. No setting is required with this camera.

- ① Loosen the screw of the power cord plug (accessory).
- ② Connect the power supply (option) of 24 V AC or 12 V DC to the power cord plug. Strip the end of the wire by 3 mm to 7 mm {1/8" to 1/4"}, and twist the stripped part of the wire sufficiently to avoid short circuit.

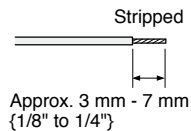
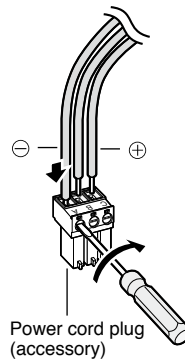
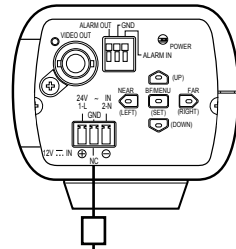
- Specification of cable (wire)  
AWG #16 - #28, Single core, twisted
- \* Check whether the stripped part of the wire is not exposed and is securely connected.

<Ratings>

AC 24 V	DC 12 V
2-N	⊖ (GND)
GND	NC
1-L	⊕

- ③ Tighten the screw of the power cord plug.
- ④ Connect the power cord plug to the AC/DC power terminal on the rear side of the camera.

\* Make sure that the power cord plug is inserted fully into the AC/DC power supply terminal.



## 7 Adjust the camera angle by loosening the screw of the camera mount bracket while viewing the video monitor.

Be sure to loosen the screw of the camera mount bracket when the camera angle is adjusted. If the camera angle is changed when the screw is tight, excessive force is applied to the camera mount bracket and camera, and accordingly they may be damaged. Be sure to tighten the screw securely after camera angle adjustment.

## 8 Adjust the focus.

### To use the varifocal lens/zoom lens

- Reset the back focus position to the CS mount default position before the back focus adjustment (Press the right and left buttons simultaneously for more than 2 seconds, or move the cursor to "MANUAL-ADJ" of "BACK-FOCUS" in the setup menu and press the right and left buttons simultaneously for more than 2 seconds after pressing the setting button.).
- Be aware that the adjustment method varies with varifocal lens or zoom lens models. For further information, refer to the operating instructions for the lens.
- The adjustment procedure for general varifocal lenses is described as follows: For further information, refer to the operating instructions for the lens to be used.
  - ① Display a subject that exists as far as possible to adjust the back focus (10 m {33'} or more recommended).
  - ② For 8-, or 10-fold magnification lenses, adjust the back focus (☞ See below) after setting the zoom to the WIDE end and setting the focus to the FAR end.  
For 2-, or 3-fold magnification lenses, adjust the back focus (☞ See below) after setting the zoom to the TELE end and setting the focus to the FAR end.
  - ③ Adjust the view angle and focus coarsely by adjusting the zoom and focus of the lens to center a subject in the screen, and then perform the main adjustment of the back focus (☞ See below).

### To use a fixed-focal lens

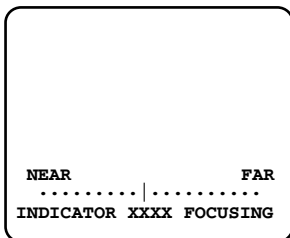
- For a fixed focus lens with focus adjustment, adjust the back focus (☞ See below) after setting the focus of the lens to the FAR end.

### How to adjust the back focus

Use the operation buttons (☞ pages 12 and 13) for this adjustment.

The back focus is also adjustable in the setup menu. Refer to the operating instructions (PDF) for further information.

- ① Press the setting button after adjusting the view angle while viewing the video monitor.
- ② The focus position indicator is displayed in the lower part of the screen, and the back focus is automatically adjusted.



- ③ To perform fine adjustment of the back focus after automatic back focus adjustment, use the right or left button. (No operation for 10 seconds or more closes the setup menu.)

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**Note:**

- When an auto iris lens is used to record a subject, the originally adjusted focus may be slightly off depending on the iris state resulting from the focal depth of the lens. In such a case, open the aperture by darkening the subject as much as possible in the same way of taking picture, and then adjust the focus. Defocus can be prevented.
  - For adjustment according to "How to adjust the back focus", the focus can automatically be adjusted under the optimal follow-up conditions even though the illuminance changes (Note: The adjusted focal point is not necessarily the same as the optimal focal point at a certain illuminance.).
  - The out-of-focus level in the near-infrared light region may be higher than that in the visible light region.  
Setting "C/L ← → B/W" of "BACK-FOCUS SETUP" to "AUTO" or "PRESET" in the setup menu (see the setup instructions (PDF)) allows users to adjust the focus in both the near-infrared light and visible light regions (The variation in illuminance is not followed after focus adjustment.).
  - When a non-Panasonic lens that has an extended range for lens focusing is used, adjust the back focus after setting the focus to a position at a short distance from the FAR end. If adjustment is performed in the extended range, appropriate adjustment
-

## Setup menu

Performing each setting item in the setup menu should be completed in advance to use this unit. Perform the settings for each item in accordance with the conditions of the camera shooting area.

Refer to the operating instructions (PDF) for further information.

### List of setup menu

Setup item	Description
<b>CAMERA ID</b>	This item specifies the camera title. The camera title that indicates the camera location and other information about the camera is created with alphanumeric characters and symbol, and displayed on the screen.
<b>CAMERA</b>	Performs the camera operation settings.
SCENE 1/SCENE 2	Selects a scene file. It is possible to register and save the settings as a scene file in case that it is necessary to change the settings such when shooting at night or on holidays.
ALC/ELC	Selects the method of controlling the quantity of light in accordance with the lens to be used.
SHUTTER	Specifies the electronic shutter speed.
AGC	Specifies gain adjustment.
SENS UP	Specifies electronic sensitivity enhancement.
WHITE BAL	Specifies white balance adjustment.
DNR	Selects the level of the digital noise reduction function.
BW MODE	Performs each setting regarding the black-and-white mode such as switching between color and black-and-white images.
i-VMD	Performs settings regarding intelligent VMD (Video Motion Detector) such as motion detection and object abandonment/removal detection.
<b>SYSTEM</b>	Performs the settings regarding the camera system such as synchronization, alarm input/output, and privacy zone.
SYNC	Specifies the synchronization type.
ALARM IN/OUT	Performs the settings of the ALARM IN connector and the ALARM OUT connector.
PRIVACY ZONE	Hides undesired portions in the camera shooting area.
STABILIZER	Decides whether or not to enable the image stabilizer.
EL-ZOOM	Toggles the electronic zoom on and off.
<b>BACK-FOCUS</b>	Selects the back focus setting type and performs fine adjustment.

Setup item	Description
<b>SPECIAL</b>	
CHROMA GAIN	Adjusts the chroma level.
AP GAIN	Adjusts the aperture level.
PEDESTAL	Adjusts the pedestal (brightness) level.
HUE	Adjusts the chroma phase (hue).
PIX OFF	Corrects image defects such as flaws.
COMMUNICATION	Performs the communication setting of the system with a receiver into which this unit is integrated.
CAMERA RESET	Restores the settings in the setup menu to the default settings.
SER.NO.	Displays the serial number of this unit.
<b>LANGUAGE</b>	
	Selects a language to be used in the setup menu.

# Basic operation

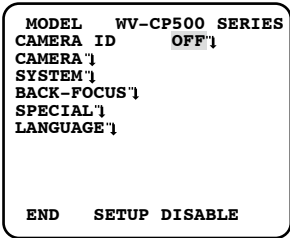
The description below explains how to operate the setup menu basically.

The operations in the setup menu are performed with the operation buttons (☞ pages 9 and 10) after calling up the setup menu on the connected video monitor.

The operations in the setup menu can also be performed through the system controller (option).

## Screenshot 1

Hold down the setting button for approx. 2 seconds to call up the top screen of the setup menu.



## Step 1

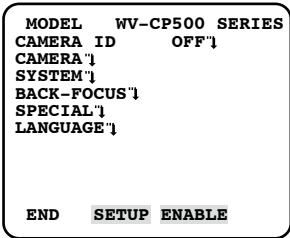
Press the up button or the down button to move the cursor to "END".

## Step 2

Press the right button to move the cursor to "SETUP", and press the setting button to change the setup mode from "DISABLE" to "ENABLE".

## Screenshot 2

The setup mode changes to "ENABLE", and the setup menu becomes ready to be set.



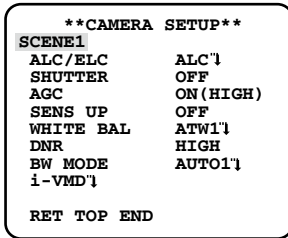
## Step 3

Move the cursor to the item to be set, and press the setting button.



### Screenshot 3

The selected setup screen in the setup menu appears on the screen.



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#### Note:

- If the top screen of the setup menu is called up with the operation buttons while a camera image is displayed, the setup mode is always "DISABLE" to prevent operation errors.  
To perform settings in the setup menu, change the setup mode to "ENABLE".
  - The cursor is a reversely highlighted part.
- 

### Step 4

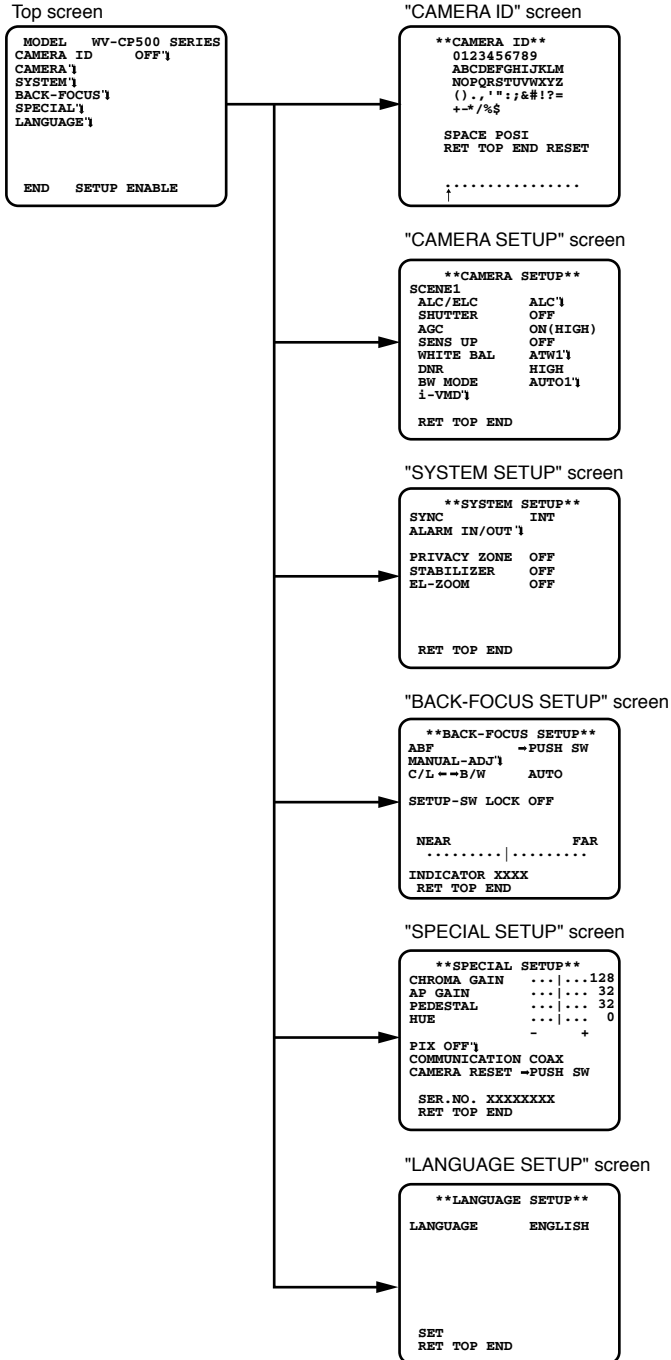
Perform the settings for each item.

- Selection of setting item:  
Press the up button or down button to move the cursor.
- Change of settings:  
Press the right button or left button.
- Display of advanced setup screen:  
Press the setting button when "↓" is attached to the target setting item.
- Return to previous setup screen:  
Move the cursor to "RET" and press the setting button.
- Return to the top screen:  
Move the cursor to "TOP" and press the setting button.

### Step 5

To return to the camera image screen, move the cursor to "END" and press the setting button.

# Screen transition diagram



# Troubleshooting

Before asking for repairs, check the symptoms with the following table.

Contact your dealer if a problem cannot be solved even after checking and trying the solution in the table or a problem is not described below.

Symptom	Cause/solution	Reference pages
No image displayed	<ul style="list-style-type: none"> <li>• Are the power cord and coaxial cable connected appropriately? → Check whether the connection is appropriately established.</li> </ul>	17, 19
	<ul style="list-style-type: none"> <li>• Is the monitor brightness appropriately adjusted, or is the contrast appropriately adjusted? → Check whether the monitor settings are appropriate.</li> </ul>	-
	<ul style="list-style-type: none"> <li>• Is the lens cap detached? → Check whether the lens cap is removed.</li> </ul>	-
Blurred image	<ul style="list-style-type: none"> <li>• Is the lens of the camera soiled with dirt or dust? → Check whether the lens of the camera is clean.</li> </ul>	-
	<ul style="list-style-type: none"> <li>• Is the focus adjusted correctly? → Check if the focus is adjusted correctly.</li> </ul>	20 - 21

Inspect the power cord, power plug and power connectors periodically.

Symptom	Cause/solution	Reference pages
Damaged power cord sheathing	<ul style="list-style-type: none"><li>• The power cord, power connector, or power plug is damaged. Use of the damaged cord, connector, or plug may cause electric shock or fire. Disconnect the power plug immediately and request repair to your dealer.</li></ul>	-
Heated portion of power line consisting of power cord, connector, and power plug during use		
Warmed power cord or loosened connection by bending or stretching during use		

# Specifications

## • General

Power source:	WV-CP500: 120 V AC 60 Hz WV-CP504: 24 V AC 60 Hz, 12 V DC
Power consumption:	WV-CP500: 3.2 W WV-CP504: 24 V AC: 3.6 W, 12 V DC: 310 mA
Ambient operating temperature:	-10 °C to +50 °C {14 °F to 122 °F}
Ambient operating humidity:	Less than 90 % (non condensing)
Video output:	VBS: 1.0 V [p-p]/75 Ω, NTSC, BNC connector
External I/O terminals:	Alarm input, VMD enabling input, Color/BW switching input, Scene file switching input, Alarm output, Black-and-white switching output
Dimensions:	WV-CP500: 75 (W) x 65 (H) x 132.5 (D) mm {2-15/16" (W) x 2-9/16" (H) x 5-7/32" (D)} (Connectors and terminals excluded) WV-CP504: 72 (W) x 65 (H) x 103.5 (D) mm {2-27/32" (W) x 2-9/16" (H) x 4-1/16" (D)} (Connectors and terminals excluded)
Weight:	WV-CP500: Approx. 430g {0.95 lbs} (Power cord excluded) WV-CP504: Approx. 350g {0.77 lbs}
Finish:	Light FL silver

## • Camera

Image sensor:	1/3 inch interline transfer CCD
Effective pixels:	976 (H) x 494 (V)
Scanning area:	4.8 mm (H) x 3.6 mm (V)
Scanning system:	2:1 interlace
Scanning frequency:	Horizontal: 15.734 kHz Vertical: 59.94 Hz
Synchronization:	Internal (INT), multiplexed vertical drive (VD2) or line-lock (LL)* * Phase adjustable
Resolution:	Horizontal: 650 TV lines typ. (color mode) 700 TV lines or more (BW mode) Vertical: 350 TV lines or more (at center)
Minimum illumination:	Color mode: 0.3 lx {0.03 footcandle} (sensitivity up OFF, AGC HIGH: F1.4) 0.01 lx {0.001 footcandle} (sensitivity up 32x, AGC HIGH: F1.4)* BW mode: 0.04 lx {0.004 footcandle} (sensitivity up OFF, AGC HIGH: F1.4) 0.0015 lx {0.00015 footcandle} (sensitivity up 32x, AGC HIGH: F1.4)* * Converted value
Signal-to-noise ratio:	50 dB (AGC OFF)
Dynamic range:	52 dB typ. (Super Dynamic 5 ON)
ALC lens drive:	DC drive
Lens mount:	CS-mount

## Functions:

Camera title:	Up to 16 characters (alphanumeric characters, marks)
Light control mode setting:	ALC/ALC+/ELC
Super Dynamic 5	ON/ON (i-VMD)/OFF
Electronic shutter speed:	OFF (1/60), 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 s
AGC:	ON (HIGH, MID, LOW)/OFF
Sensitivity up:	OFF/AUTO (×2, ×4, ×6, ×10, ×16, ×32)/FIX (×2, ×4, ×6, ×10, ×16, ×32)
White balance:	ATW1/ATW2/AWC
Digital noise reduction:	HIGH/LOW
Color/BW:	AUTO1/AUTO2/ON/OFF
Intelligent VMD (i-VMD):	Video Motion Detection Object Detection (Removal and Left Behind) Scene Change Detection
Number of scene file:	2
Privacy zone:	ON (1)/ON (2)/OFF
Image stabilizer:	ON/OFF
Electronic zoom:	ON (up to 2x)/OFF
Auto back focus:	ABF/MANUAL/switching between color and BW interlocking
Display language:	JAPANESE/ENGLISH/FRANÇAIS/ESPAÑOL/DEUTSCH/ ITALIANO/РУССКИЙ

## Standard accessories

CD-ROM* .....	1 pc.
Operating Instructions (this book) .....	1 pc.
Warranty card .....	1 pc.

\*The CD-ROM contains the operating instructions (PDF).

The following parts are used during installation procedures.

Power connector (only for WV-CP500) .....	1 pc.
Power cord plug (only for WV-CP504) .....	1 pc.



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