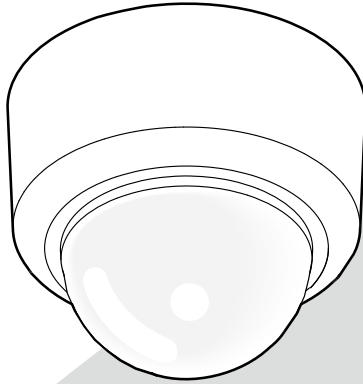


Panasonic

Installation Guide

Color CCTV Camera

Model No. **WV-CF504, WV-CF504E**





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

The model number is abbreviated in some descriptions 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.
- For PERMANENTLY CONNECTED APPARATUS provided neither with an all-pole MAINS SWITCH nor an all-all pole circuit breaker, the installation shall be carried out in accordance with all applicable installation rules.
- The connections should comply with local electrical code.

	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>		



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.

For U.S. and Canada:
WV-CF504
For Europe and other countries:
WV-CF504E

UL listed model No.:
WV-CF504

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. _____

CAUTION:

An ALL-POLE MAINS SWITCH with a contact separation of at least 3 mm in each pole shall be incorporated in the electrical installation of the building.

Turn the power off at the mains to disconnect the main power for all unit.

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY.

WARNING: This apparatus must be earthed.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code.

Green-and-yellow:	Earth
Blue:	Neutral
Brown:	Live

As the colours of the wire in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows.

The wire which is coloured **green-and-yellow** must be connected to the terminal in the plug which is marked with the letter **E** or by the earth symbol \perp or coloured **green** or **green-and-yellow**.

The wire which is coloured **blue** must be connected to the terminal in the plug which is marked with the letter **N** or coloured **black**.

The wire which is coloured **brown** must be connected to the terminal in the plug which is marked with the letter **L** or coloured **red**.

We declare under our sole responsibility that the product to which this declaration relates is in conformity with the standards or other normative documents following the provisions of Directives 2006/95/EC and 2004/108/EC.

Wir erklären in alleiniger Verantwortung, daß das Produkt, auf das sich diese Erklärung bezieht, mit den folgenden Normen oder normativen Dokumenten übereinstimmt. Gemäß den Bestimmungen der Richtlinie 2006/95/EC und 2004/108/EC.

Nous déclarons sous notre propre responsabilité que le produit auquel se réfère la présente déclaration est conforme aux normes spécifiées ou à tout autre document normatif conformément aux dispositions des directives 2006/95/CE et 2004/108/CE.

Nosotros declaramos bajo nuestra única responsabilidad que el producto a que hace referencia esta declaración está conforme con las normas u otros documentos normativos siguiendo las estipulaciones de las directivas 2006/95/CE y 2004/108/CE.

Noi dichiariamo sotto nostra esclusiva responsabilità che il prodotto a cui si riferisce la presente dichiarazione risulta conforme ai seguenti standard o altri documenti normativi conformi alle disposizioni delle direttive 2006/95/CE e 2004/108/CE.

Wij verklaren als enige aansprakelijke, dat het product waarop deze verklaring betrekking heeft, voldoet aan de volgende normen of andere normatieve documenten, overeenkomstig de bepalingen van Richtlijnen 2006/95/EC en 2004/108/EC.

Vi erklærer os eneansvarlige for, at dette produkt, som denne deklaration omhandler, er i overensstemmelse med standarder eller andre normative dokumenter i følge bestemmelserne i direktivene 2006/95/EC og 2004/108/EC.

Vi deklarerar härmed vårt fulla ansvar för att den produkt till vilken denna deklaration hänvisar är i överensstämmelse med de standarder eller andra normativa dokument som framställs i direktiv nr 2006/95/EC och 2004/108/EC.

Ilmoitamme yksinomaisella vastuullamme, että tuote, jota tämä ilmoitus koskee, noudattaa seuraavia standardeja tai muita ohjeellisia asiakirjoja, jotka noudattavat direktiivien 2006/95/EC ja 2004/108/EC säädöksiä.

Vi erklærer oss alene ansvarlige for at produktet som denne erklæringen gjelder for, er i overensstemmelse med følgende normer eller andre normgivende dokumenter som følger bestemmelsene i direktivene 2006/95/EC og 2004/108/EC.

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.

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

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IN NO EVENT SHALL Panasonic System Networks Co., Ltd. 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;
- (6) ANY CLAIM OR ACTION FOR DAMAGES, BROUGHT BY ANY PERSON OR ORGANIZATION BEING A PHOTOGENIC SUBJECT, DUE TO VIOLATION OF PRIVACY WITH THE RESULT OF THAT SURVEILLANCE-CAMERA'S PICTURE, INCLUDING SAVED DATA, FOR SOME REASON, BECOMES PUBLIC OR IS USED FOR ANY PURPOSE;
- (7) LOSS OF REGISTERED DATA CAUSED BY ANY FAILURE.

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Preface

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

This is a model with x2 varifocal lens. Ceiling mount bracket are optional.

Features

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.

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 (ABF) function

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

The introduction of low noise circuit design has achieved excellently high sensitivity resulting in the minimum illuminance of 0.1 lx in the color mode and 0.01 lx in the black-and-white mode.

Night monochrome image activation function

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

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 (Scene change 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.

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

There are 2 sets of operating instructions for the WV-CF504 (NTSC model), WV-CF504E (PAL model) as follows.

- Installation Guide: Explains how to install and connect devices.
- Operating Instructions (PDF): Explains how to perform the settings and how to operate this camera.

Adobe® Reader® is required to read these operating instructions (PDF) on the provided CD-ROM. When the Adobe® Reader® is not installed on the PC, download the latest Adobe® Reader® from the Adobe web site and install it.

"WV-CF504" or "CF504" shown in the instructions and illustrations used in these operating instructions indicates the WV-CF504, WV-CF504E

The screens used in these operating instructions show the cases of NTSC model.

Trademarks and registered trademarks

Adobe and Reader are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

Precautions

The following points as well as the contents of "Warning" and "Caution" shall be observed.

Refer installation work to the dealer.

Installation work requires technique and experiences. Otherwise injury, or damage to this product may result.

Be sure to consult the dealer.

Do not insert any foreign objects.

This could permanently damage this product. Turn the power off immediately and contact qualified service personnel for service.

Do not attempt to disassemble or modify this product.

Failure to observe this may cause fire or electric shock.

Consult the dealer for the repair or inspections.

Stop operation immediately when something is wrong with this product.

When smoke goes up from this product or the smell of smoke comes from this product, continued use will result in fire, injury, or damage to the product.

Turn the power off immediately and contact qualified service personnel for service.

Select an installation area that can support the total weight.

Selecting an inappropriate installation surface may cause the product to fall down or topple over, resulting in injury.

Installation work shall be started after sufficient reinforcement.

Periodic inspections shall be conducted.

Rust on the metal parts or screws may cause the product to fall down resulting in injury or accidents.

Consult the dealer for the inspections.

This product shall be installed in a vibration-free place.

Failure to observe this may cause screws and bolts to be loosened and consequently to fall resulting in injury.

Install this product high enough to ensure that people don't hit their heads.

Failure to observe this may cause a drop resulting in injury or accidents.

Do not strike or give a strong shock to this product.

Failure to observe this may cause injury or fire.

Turn the power off when do wiring of this product.

Failure to observe this may cause electric shock. A short circuit or wrong wiring may cause fire.

Do not use this product in an atmosphere of flammable gases.

Failure to observe this may cause injury by explosion.

Avoid installing this product in locations where it is subject to damage by salt or corrosive gas.

Otherwise the mounting fixtures will deteriorate, causing the product to fall down and leading to accidents.

Use the specified mount bracket.

Failure to observe this may cause a drop resulting in injury or accidents.

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

Failure to observe this may cause injury.

Tighten screws and mounting fixtures to the specified torque.

Failure to observe this may cause a drop resulting in injury or accidents.

[Precautions for use]

This product is designed to be used indoors.

This product is not operable outdoors.

This product has no power switch.

When turning off the power, turn off a circuit breaker.

To keep on using with stable performance

Parts of this product may deteriorate and it may shorten the lifetime of this product when using in locations subject to high temperatures and high humidity. (Recommended operating temperature: +35 °C {95 °F} or lower)

Do not expose this product to direct heat sources such as a heater.

Handle this camera with care.

Do not drop this camera, nor apply shock or vibration to this camera.

Failure to observe this may cause trouble.

Do not touch the dome cover with your bare hands.

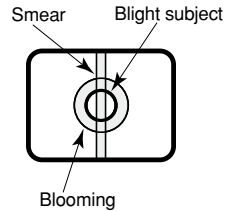
A dirty dome cover causes deterioration of picture quality.

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).



Cleaning this product body

Turn the power off when cleaning this product. Do not use strong abrasive detergent when cleaning this product. Otherwise, it may cause discoloration.

What to do if OVER HEAT appears on the display

This message indicates that the inside of the camera has become extremely hot. Immediately turn off the power of the camera and contact your dealer.

Precautions for installation

The following points as well as the contents of "Warning" and "Caution" shall be observed.

Panasonic assumes no responsibility for injuries or property damage resulting from failures arising out of improper installation or operation inconsistent with this documentation.

Installation work shall be performed in accordance with the technology standard of the electric installation.

This product is designed to be used indoors.

This product is not operable outdoors. Do not expose the 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 the product away from water and moisture.

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 product, such as a concrete ceiling.
- Install the camera in the foundation area of the architecture or where sufficient strength is assured.
- If a ceiling board such as plaster board is too weak to support the total weight, the area shall be sufficiently reinforced.

Avoid installing this product in the following locations.

- Location 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 where corrosive gas is pro-

duced, 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 $+50\text{ }^{\circ}\text{C}$ $\{14\text{ }^{\circ}\text{F}$ to $+122\text{ }^{\circ}\text{F}\}$.
- Locations subject to vibrations (This product is not designed for on-vehicle use.)

Avoid moist or dusty places to install this system.

Otherwise, lifetime of the internal parts may be shortened.

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.

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. In such a case, run the camera cable through specialized steel conduit tubes.

Locally procure the screws

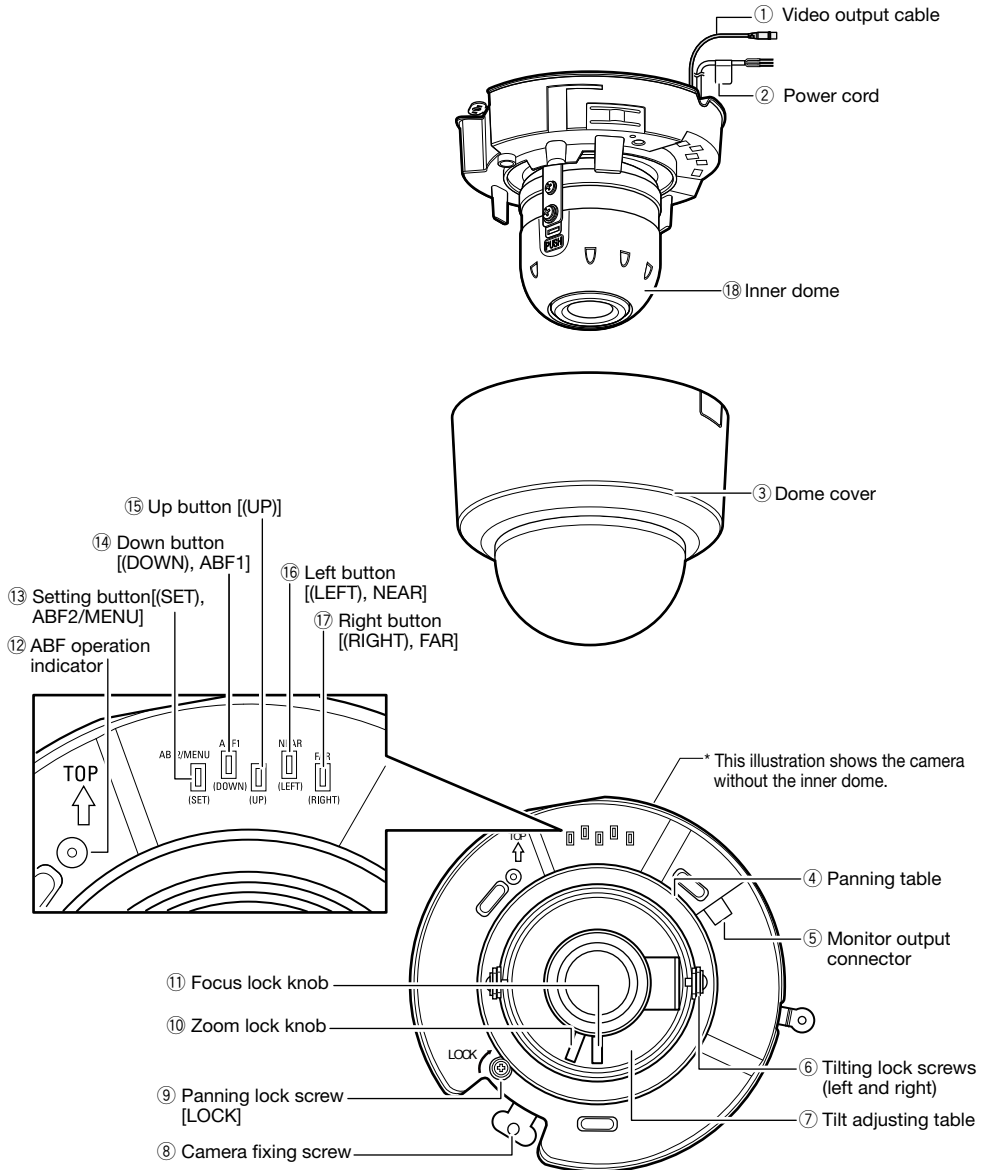
Screws are not supplied with this product. Prepare the screws according to the material, structure, strength and other factors of the

mounting area and the total weight of objects to be mounted.

Screw tightening

- The screws and bolts must be tightened with an appropriate tightening torque according to the material and strength of the installation area.
- Do not use an impact driver. Failure to observe this may cause overtightening and consequently damage to the screws.
- When a screw is tightened, make the screw at a right angle to the surface. After tightening the screws or bolts, perform visual check to ensure tightening is enough and there is no backlash.

Major operating controls and their functions



- ① **Video output cable**
- ② **Power cord**
- ③ **Dome cover**
- ④ **Panning table**
Rotate this table to adjust the panning angle of the camera.
- ⑤ **Monitor output connector**
Connects the monitor for adjustment to this output connector.
- ⑥ **Tilting lock screws (left and right)**
Fixes the tilting position.
- ⑦ **Tilt adjusting table**
Adjusts the azimuth angle of the image.
- ⑧ **Camera fixing screw**
Fixes the attachment on the camera body.
- ⑨ **Panning lock screw [LOCK]**
Fixes the panning table.
- ⑩ **Zoom lock knob**
Locks the zoom point.
- ⑪ **Focus lock knob**
Locks the focal point.
- ⑫ **ABF operation indicator**
Indicates the status of ABF operation.
- ⑬ **Setting button [(SET), ABF2/MENU]**
Confirms the setting contents.
- ⑭ **Down button [(DOWN), ABF1]**
Moves the cursor downward and selects items in the setup menu.
- ⑮ **Up button [(UP)]**
Moves the cursor upward and selects items in the setup menu.
- ⑯ **Left button [(LEFT), NEAR]**
Moves the cursor to the left, selects the mode and adjusts some levels.
- ⑰ **Right button [(RIGHT), FAR]**
Moves the cursor to the right, selects the mode and adjusts some levels.
- ⑱ **Inner dome**

Preparations

When installing the camera on a wall or a ceiling, there are four methods as specified below. (☞ Pages 16 and 17)

- Using the two-gang junction box
- Installing the camera directly on the ceiling or wall
- Using the ceiling mount bracket WV-Q175 (option) (for embedded installation on a ceiling)
- Using the ceiling mount bracket WV-Q105*1 (option) (for direct mounting on a ceiling)

Important:

- Procure 4 screws (M4) to secure the camera to a wall or a ceiling according to the material of the installation area. In this case, wood screws and nails should not be used. For mounting a camera on a concrete wall, use an anchor bolt (for M4) or an AY plug bolt (M4) for securing. (Recommended tightening torque: 1.6 N·m {1.18 lbf·ft})
 - Required pull-out capacity of a single screw/bolt is 196 N {44 lbf} or more.
 - If a ceiling board such as plaster board is too weak to support the total weight, the area shall be sufficiently reinforced or the ceiling mount bracket for the camera, WV-Q105 (option), must be used.
-

The mounting conditions of the camera are described as follows:

Installation place	Applicable mount bracket	Recommended screw	Number of screw	Minimum pull-out strength (per 1 pc.)
Ceiling/wall	Two-gang junction box	M4	4 pcs.	196 N {44 lbf}
Ceiling/wall	(Direct mounting)	M4	4 pcs.	196 N {44 lbf}
Ceiling	WV-Q175 (approx. 700 g {1.55 lbs})	–	–	*2
Ceiling	WV-Q105*1 (approx. 150 g {0.33 lbs})	–	–	*2

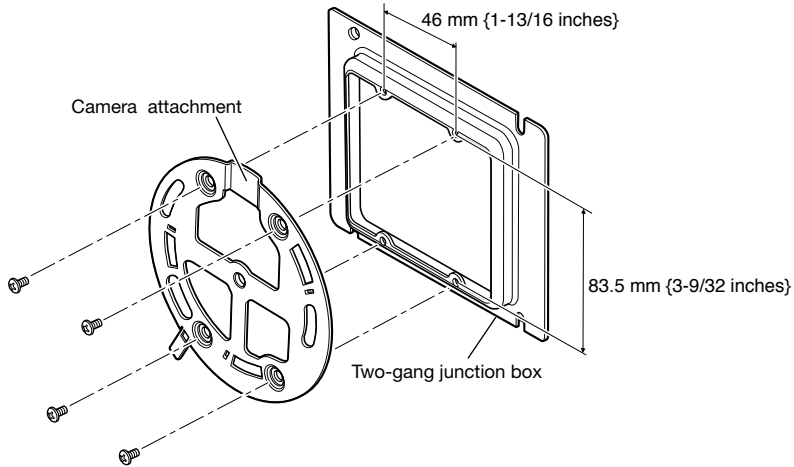
*1 PAL model only

*2 Make sure that the installed mount bracket can support more than 5 times of the weight of the camera.

Method of camera installation

Using the two-gang junction box

Mount the camera on the two-gang junction box by fixing 4 screws (locally procured) (☞ page 15).

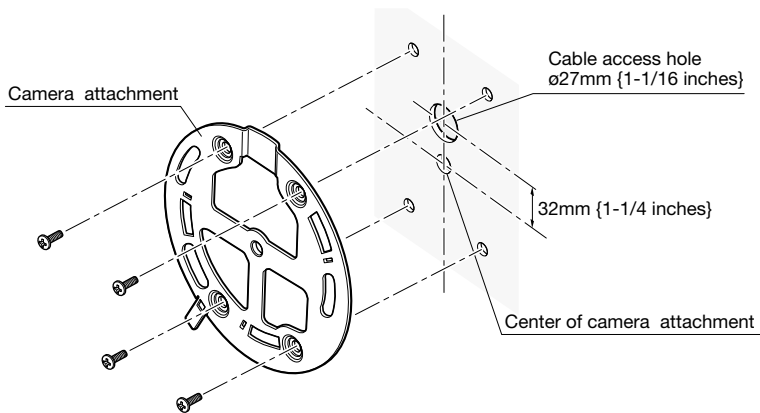


Note:

- For mounting on the wall, mount the attachment with the dent facing upward.
 - For installation on the ceiling, the model No. will be indicated on the opposite side of the dent of the attachment. Make sure the direction for installation.
-

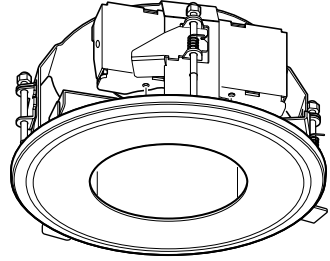
Installing the camera directly on the ceiling or wall

Mount the camera by fixing 4 screws (locally procured) (☞ page 15).



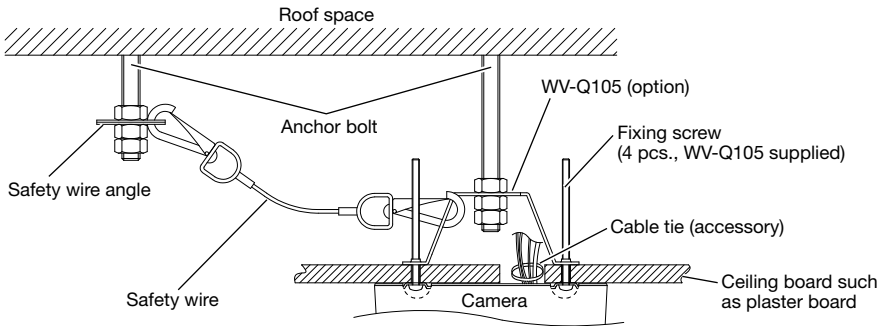
Using the ceiling mount bracket WV-Q175 (option)

It is possible to reduce the exposed portion of the camera body using the ceiling mount bracket (option). Refer to WV-Q175 Operating Instructions or "Camera Installation" (☞ page 20) for how to mount the camera.



Using the ceiling mount bracket WV-Q105 (option) (PAL model only)

Refer to WV-Q105 Operating Instructions and "Camera Installation" (☞ page 20) for how to mount the camera in case of using the ceiling mount bracket (option).

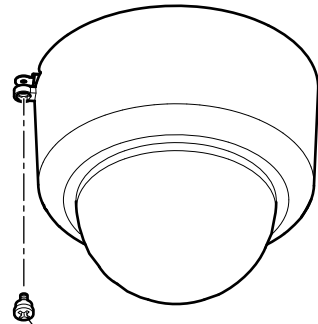


Detaching the dome cover

Important:

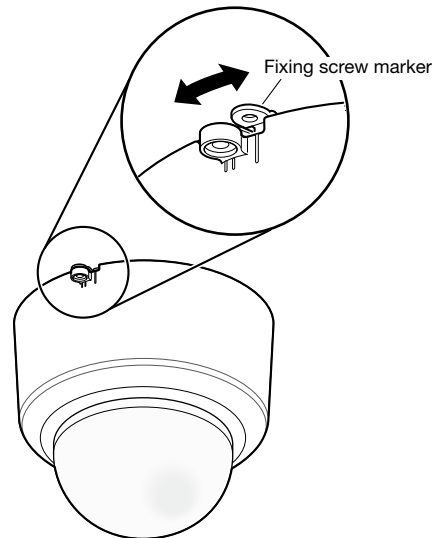
- After removal, retain the dome cover fixing screw so as not to lose. The screw is required when attaching the dome cover. (☞ Page 24)
- Remove the cover film from the dome section of the dome cover after the installation is complete. Do not touch the dome section by hand directly after removing the cover film.

- 1 Remove the dome cover fixing screw (M3, step screw, x1).



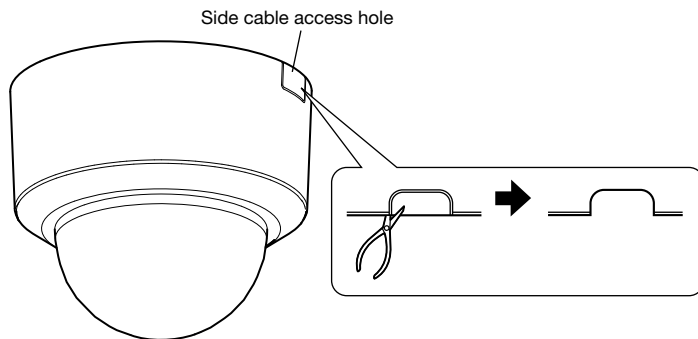
Dome cover fixing screw
(M3, step screw)

- 2 Adjust the fixing screw marker on the camera to "I" on the dome cover, and turn the dome cover counterclockwise to remove it.



Using the side cable access hole

When installing the camera directly on the ceiling or wall with cables exposed, cut out a portion of the dome cover to open a cable access hole.



The above procedure is also required when mounting the camera using the ceiling mount bracket WV-Q175 (option).

Camera installation

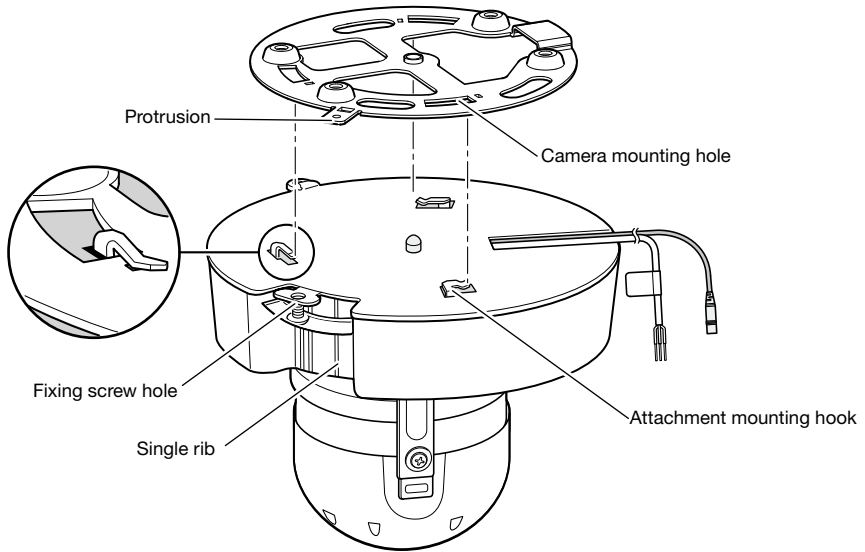
1 Mount the camera.

<To mount the camera on a two-gang junction box or wall/ceiling>

- Connect the power cord and the video output cable (see page 26).
- Align the single rib on the camera with the protrusion on the camera attachment.
- Engage the camera's attachment mounting hooks with the mounting holes on the camera attachment, and then rotate the camera in the direction of the arrow to secure the camera to the camera attachment without any backlash.

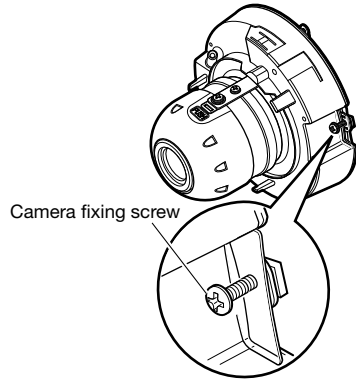
Note:

- When the camera is secured, the camera attachment protrusion is aligned with the camera fixing screw hole and the double rib on the camera.
-

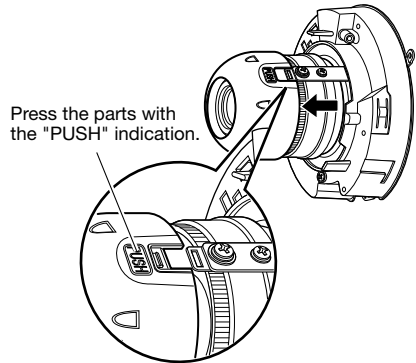


2 Secure the camera to the camera attachment with the camera fixing screw.

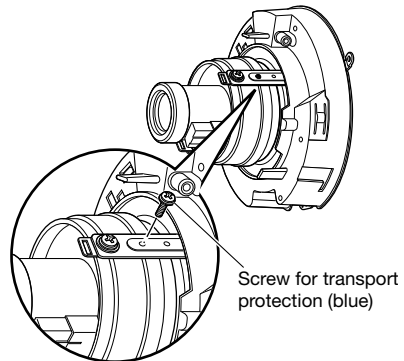
(Recommended tightening torque:
0.78 N·m {0.58 lbf·ft})



3 Remove the inner dome from the main body.



4 Remove the screw (blue, 1 position) for transport protection with a Phillips screw driver.

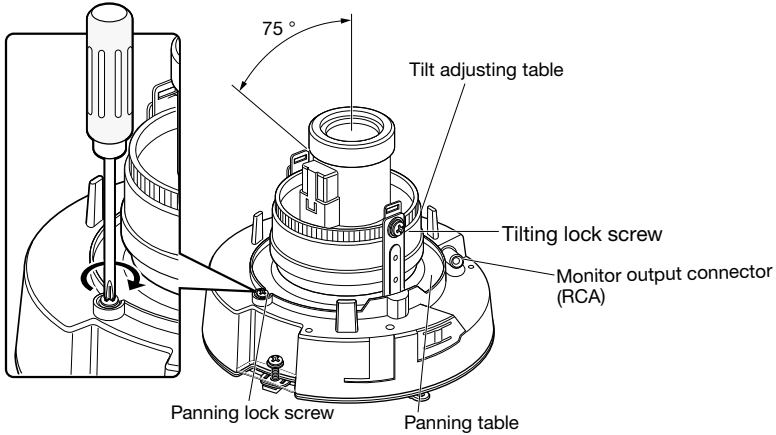


Adjust the camera

1 Be sure to view the monitor for adjustment when the camera angle is adjusted.

Connect the monitor for adjustment (e.g. a small LCD) to the monitor output connector, and adjust the camera angle.

When determining the camera angle, repeat fine follow the adjusting procedure of ①, ②, and ③ shown below.



- ① Loosen the panning lock screw and rotate the camera head horizontally to adjust panning, and tighten the panning lock screw.
- ② Loosen the tilting lock screws and rotate the camera head vertically to adjust tilting, and tighten the tilting lock screws.
- ③ Rotate the tilt adjusting table, and adjust the azimuth angle of the image.

Important:

- The panning lock screw and the tilting lock screw shall be securely tightened.
(Recommended tightening torque: 0.59 N·m {0.44 lbf·ft})
-

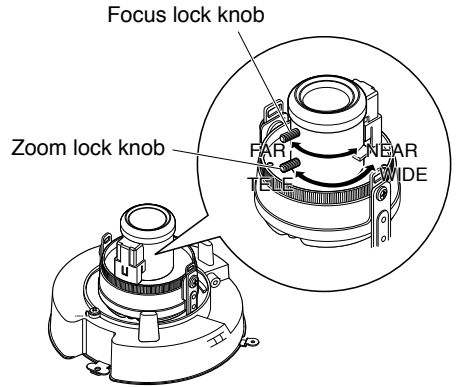
Note:

- The video output to the BNC connector will be interrupted while an adjusting monitor is connected to the monitor output connector.
 - At the same time for the pan and tilt adjustments, make focus adjustments of Step 2.
-

2 Adjusts the focus.

Focus adjustment shall be performed when camera angle adjustment are performed. Adjust the focus by following the adjusting procedure of ①, ②, and ③ shown below.

- ① Loosen the zoom lock knob and move the knob between TELE and WIDE to obtain the appropriate angle of view, and then tighten the zoom lock knob.
- ② Loosen the focus lock knob, make coarse adjustment of the focus, and then tighten the focus lock knob.
- ③ Perform major adjustment of back focus through the setup menu or perform major adjustment by following Steps 3 and 4 below (☞ Operating Instructions (PDF)).

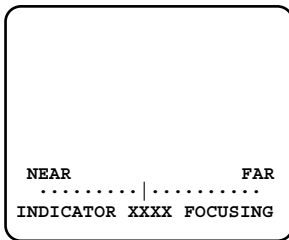


Note:

- Reset the back focus position to the CS mount default position before the back focus adjustment. (Hold down the right and left buttons simultaneously for 2 seconds or more, or move the cursor to "MANUAL-ADJ" of "BACK-FOCUS SETUP" in the setup menu and press the right and left buttons simultaneously for 2 seconds or more after pressing the setting button.)
-

3 Press the [ABF1] button after adjusting the view angle while viewing the monitor for adjustment.

The ABF operation indicator (☞ page 13) lights, the focus position is displayed in the lower part of the screen, and the back focus is automatically adjusted.



4 To perform fine adjustment of the back focus after the ABF operation indicator goes off and automatic back focus is adjusted, use the right or left button.

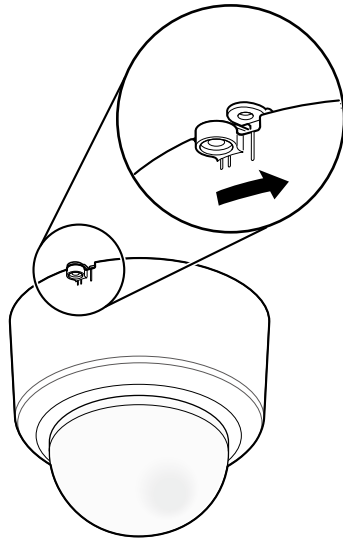
Note:

- No operation for 10 seconds or more automatically clears the focus position indicator.
- To change the angle of view by moving the zoom adjustment ring, also move the focus lock knob to adjust the focus.
- 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.
- Use of "ABF" or "BACK-FOCUS" in the setup menu (☞ Operating Instructions (PDF)) allows users to adjust the focus optimally in the range of the capability to automatically follow the variation in illuminance.
- The out-of-focus level in the near-infrared light region may be higher than that in the visible light region.

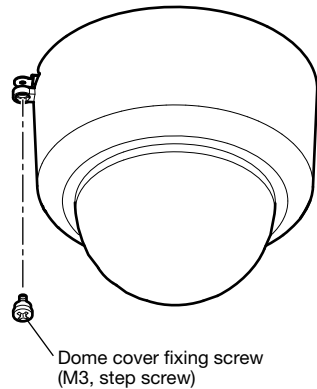
Setting "C/L ↔ B/W" of "BACK-FOCUS SETUP" to "AUTO" or "PRESET" in the setup menu (☞ Operating Instructions (PDF)) allows users to adjust the focus in both the near-infrared light and visible light regions (The variation in illuminance is not followed after focus adjustment.).

5 Mount the dome cover and inner dome.

- ① Align the "I" on the dome cover with the fixing screw marker on the camera, and turn the dome cover clockwise to secure it.



- ② Reinstall the dome cover fixing screw.



Important:

- Attach the inner dome in accordance with the lens direction to not to change the lens direction.
 - Check if the tabs of the inner dome are firmly fit.
 - Remove the cushioning (pink sheet) from the inside of the dome and the protection sheet from the outside of the dome.
-

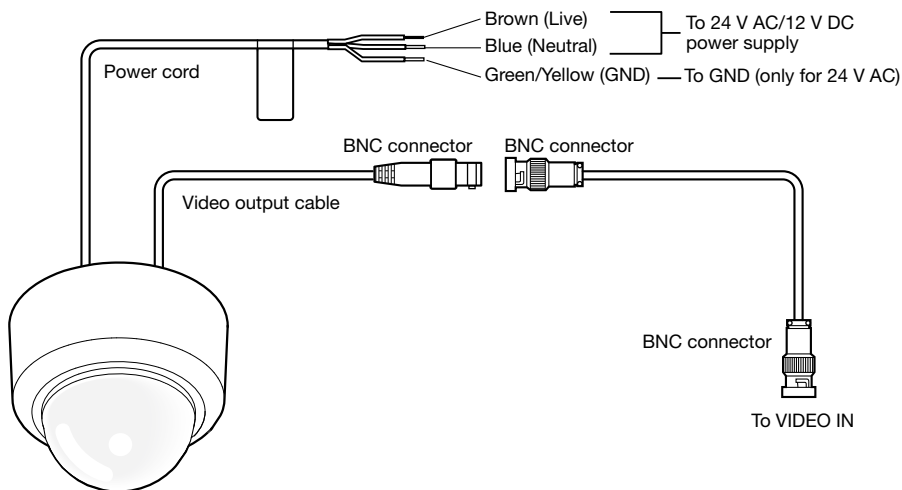
Note:

- Defocus may be caused by the reinstalled dome cover. When using a system controller (option), adjust the back-focus on the setup menu after attaching the dome cover. (☞ Operating Instructions (PDF))
 - When not using a system controller, by using the [ABF2] button back-focus adjustment is available after attaching the dome cover. The procedure for the use of the [ABF2] button is as specified below.
 - ① Press the [ABF2] button. → The ABF operation indicator will start blinking.
 - ② While the indicator is blinking (for around 3 minutes), attach the dome cover to the camera.
 - ③ When the indicator changes to steady light, back-focus will be adjusted automatically. After the back-focus is adjusted, the indicator will go out.
 - * Do not aim the camera to objects continuously moving.
 - * If the indicator blinks again after changing to steady light, back-focus adjustment may have failed. In this case, check the back-focus on the LCD monitor.
To adjust the back-focus again, perform Step ① to ③ again.
-

Make a connection

Cautions:

- FOR UL LISTED MODEL(S), ONLY CONNECT THIS TO 24 V AC OR 12 V DC CLASS 2 POWER SUPPLY.
- Be sure to connect the grounding lead to the GND terminal.



● Video output connection

The video output connector is connected to the monitor or other system devices with a coaxial cable (locally procured).

The maximum extensible length is shown in the table.

Type of coaxial cable		RG-59/U (3C-2V)	RG-6/U (5C-2V)	RG-11/U (7C-2V)	RG-15/U (10C-2V)
Recommended maximum cable length	m	250	500	600	800
	feet	825	1 650	1 980	2 640

● Power connection

Precaution:

The following connections should be made by qualified service personnel or system installers in accordance with local electrical code (NEC 725-51 for NTSC model).

● Wire colors & functions

Camera power cord

Wire color	24 V AC	12 V DC
Brown	24 V AC (L)	Positive
Blue	24 V AC (N)	Negative
Green/yellow	To GND	—

Cautions:

- Be sure to connect the GND (grounding) lead of the camera and grounding terminal of the power supply when using a 24 V AC power source.
- Shrinking the cable-entry seal is a onetime procedure. Do not shrink the cable-entry seal until it has been ascertained that unit is functioning.

• Cord length and wire gauge

24 V AC

The recommended cord length and copper wire size are shown in the table for reference.

The voltage supplied to the camera should be between 19.5 V AC and 28 V AC.

Recommended wire gauge for 24 V AC line.

Copper wire size (AWG)	#24 (0.22 mm ²)	#22 (0.33 mm ²)	#20 (0.52 mm ²)	#18 (0.83 mm ²)	
Length of cable (approx.)	m	20	30	45	75
	feet	66	100	150	250

12 V DC

The recommended resistance and copper wire size are shown in the table for reference.

The voltage supplied to the camera should be between 10.8 V DC and 16 V DC.

Resistance of copper wire [20 °C {68 °F}]

Copper wire size (AWG)	#24 (0.22 mm ²)	#22 (0.33 mm ²)	#20 (0.52 mm ²)	#18 (0.83 mm ²)
Resistance (Ω/m)	0.078	0.050	0.03	0.018
Resistance (Ω/ft)	0.024	0.015	0.009	0.005

Use the formula below to calculate the power cord and power supply.

"L", "R", "V_A", "I" shall satisfy the inequality below.

$$10.8 \text{ V DC} \leq V_A - 2(R \times I \times L) \leq 16 \text{ V DC}$$

L: Cord length (m) {feet}

R: Resistance of copper wire (Ω/m) {Ω/ft}

V_A: DC output voltage of power supply unit

I: DC current consumption (A). See specifications.

About the setup menus

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.

Setup menu list

Setup item	Description
CAMERA ID	This item specifies the camera title. The camera title that indicates the camera location and other information about the camera is created with alphanumerics and symbols, and is displayed on the screen.
CAMERA	Performs the camera operation settings.
SCENE1/SCENE2	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	Selects the method of controlling the quantity of light.
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.
SYSTEM	Performs the settings regarding the camera system such as synchronization and privacy zone.
SYNC	Specifies the synchronization type.
LENS	Performs automatic adjustment of the focus.
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.
UPSIDE-DOWN	Enables the vertical and horizontal flip function.
BACK-FOCUS	Selects the back focus setting type and performs fine adjustment.

Setup item	Description
SPECIAL	
CHROMA GAIN	Adjusts the chroma level.
AP GAIN	Adjusts the aperture level.
PEDESTAL	Adjusts the pedestal (brightness) level.
HUE*1	Adjusts the chroma phase (hue) level.
PIX OFF	Corrects image defects such as flaws.
CAMERA RESET	Restores the settings in the setup menu to the default settings.
SER.NO.	Displays the serial number of this unit.
LANGUAGE	Selects a language to be used in the setup menu.

*1 NTSC model only

Basic operation

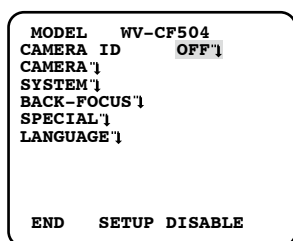
The description below explains how to operate the setup menu basically.

The operations in the setup menu are performed with the operation buttons (☞ page 13) 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 more than 2 seconds to call up the top screen of the setup menu.



Step 1

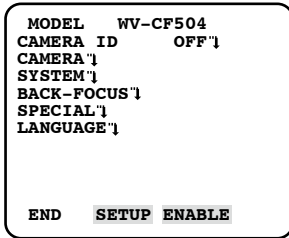
Press the up or down button to move the cursor to "END".

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".

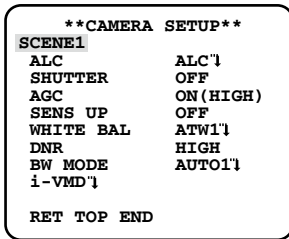
Screenshot 2

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



Screenshot 3

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



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 configure the settings in the setup menu, change the setup mode to "ENABLE".
- The cursor is a reversely highlighted part.

Step 3

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

Step 4

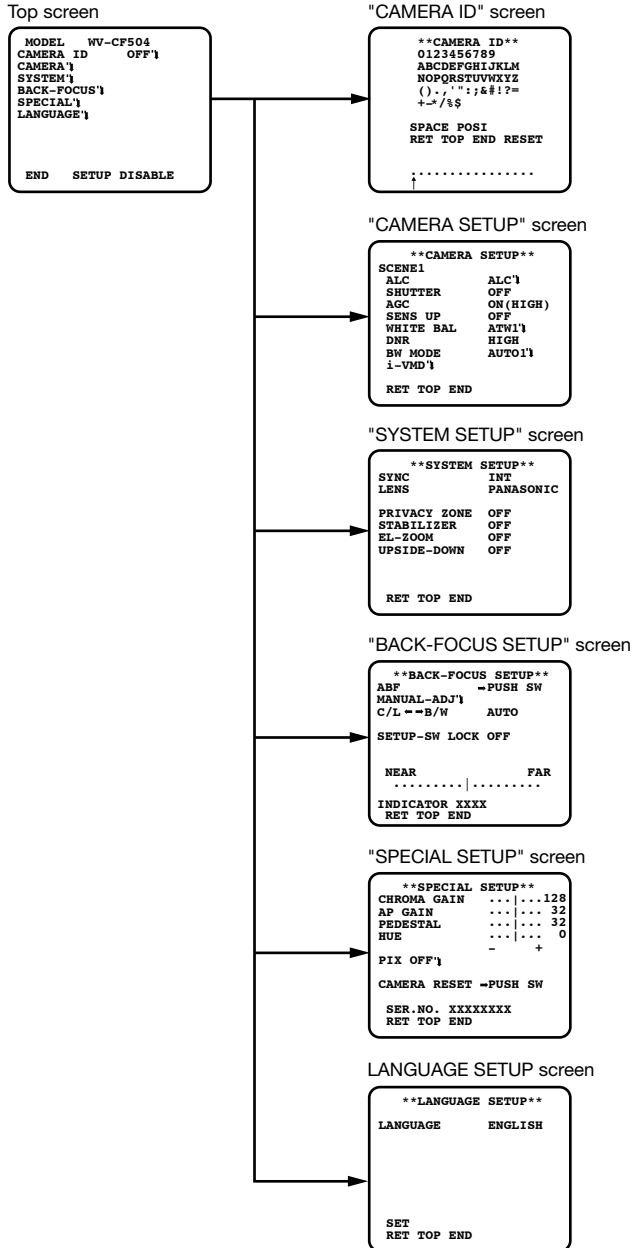
Perform the settings for each item.

- Selection of setting item:
Press the up or down button to move the cursor.
- Change of settings:
Press the right 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"> • Are the power cord and coaxial cable connected appropriately? → Check whether the connection is appropriately established. 	26
	<ul style="list-style-type: none"> • Is the adjusting monitor connected ? → Check whether connection is established. 	22
	<ul style="list-style-type: none"> • Is the monitor brightness appropriately adjusted, or is the contrast appropriately adjusted? → Check whether the monitor settings are appropriate. 	-
	<ul style="list-style-type: none"> • Were the shock absorbers in the dome cover already removed? → Confirm whether the shock absorbers have been already removed. 	-
Blurred image	<ul style="list-style-type: none"> • Is the dome cover free from contamination and/or flaws? → Check the dome cover. 	-
	<ul style="list-style-type: none"> • Is the focus adjusted correctly? → Check if the focus is adjusted correctly. 	23
	<ul style="list-style-type: none"> • Is the lens of the camera soiled with dirt or dust? → Check whether the lens of the camera is clean. 	-
Damaged power cord sheathing	<p>The power cord and connector is damaged. Use of the damaged cord or connector may cause electric shock or fire. Turn off the power immediately and request repair to your dealer.</p>	-
Heated portion of power line consisting of power cord during use		
Warmed power cord or loosened connection by bending or stretching during use		

Specifications

• Basic

Power source:	NTSC: 24 V AC 60 Hz, 12 V DC PAL: 24 V AC 50 Hz, 12 V DC
Power consumption:	24 V AC: 3.4 W 12 V DC: 280 mA
Ambient operating temperature:	-10 °C to +50 °C {+14 °F to +122 °F}
Ambient operating humidity:	Less than 90 % (no condensation)
Video output:	VBS: 1.0 V [p-p]/75 Ω, NTSC/PAL composite, BNC connector
Dimensions:	ø151 mm x 129 mm (H) {ø5-15/16 inches x 5-1/16 inches (H)}
Mass:	Main body: 0.9 kg {2.0 lbs} (including camera attachment 60 g {0.13 lbs})
Finish:	Main body: ABS plastic Dome cover: Clear polycarbonate resin

• Camera

Image sensor:	1/3 type interline transfer CCD
Effective pixels:	NTSC: 976 (H) x 494 (V) PAL: 976 (H) x 582 (V)
Scanning area:	4.8 mm (H) x 3.6 mm (V) {3/16 inches x 5/32 inches}
Scanning system:	2:1 interlace
Scanning frequency:	Horizontal: 15.734 kHz (NTSC) 15.625 kHz (PAL) Vertical: 59.94 Hz (NTSC) 50.00 Hz (PAL)
Synchronization:	INT (internal sync)/VD2/LL* (Power supply synchronization) * Phase adjustable
Resolution:	Horizontal: 650 TV lines typ. (color mode) 700 TV lines or more (BW mode), Vertical: 350 TV lines or more (NTSC, at center) 400 TV lines or more (PAL, at center)
Minimum illumination:	When using clear dome cover: Color Mode: 0.1 lx {0.01 footcandle} at F1.4 WIDE 0.003 lx {0.0003 footcandle} (sensitivity up x32, at F1.4 WIDE)* BW mode: 0.01 lx {0.001 footcandle} at F1.4 WIDE 0.0003 lx {0.00003 footcandle} (sensitivity up x32, at F1.4 WIDE)* When using smoke dome cover (option): Color Mode: 0.2 lx {0.02 footcandle} at F1.4 WIDE 0.006 lx {0.0006 footcandle} (sensitivity up x32, at F1.4 WIDE)* BW mode: 0.02 lx {0.002 footcandle} at F1.4 WIDE 0.0006 lx {0.00006 footcandle} (sensitivity up x32, at F1.4 WIDE)* * Converted value
Signal-to-noise ratio:	50 dB (AGC Off)

Dynamic range:	NTSC: 52 dB typ. (Super Dynamic 5 ON) PAL: 54 dB typ.(Super Dynamic 5 ON)
Monitor output:	VBS: 1.0 V [p-p]/75 Ω, NTSC/PAL composite, RCA jack
Functions:	
Camera title:	Up to 16 characters (alphanumeric characters, marks)
Light control mode setting:	ALC/ALC+
Super Dynamic 5:	ON/ON (i-VMD)/OFF
Electronic shutter speed:	NTSC: OFF(1/60), 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 s PAL: OFF(1/50), 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 s
AGC:	ON (HIGH, MID, LOW)/OFF
Sensitivity up:	OFF/AUTO (x2, x4, x6, x10, x16, x32)/FIX (x2, x4, x6, x10, x16, x32)
White balance:	ATW1/ATW2/AWC
Digital noise reduction:	HIGH/LOW
Color/BW:	AUTO1/AUTO2/ON/OFF
Intelligent VMD (i-VMD):	Motion detection Object abandonment/removal detection 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
Image flip:	ON/OFF
Auto back focus:	ABF/MANUAL/switching between color and BW interlocking
Display language:	JAPANESE/ENGLISH/FRANÇAIS/ESPAÑOL/DEUTSCH/ ITALIANO/РУССКИЙ

• Lens

Type:	2x variable focal lens
Focal length:	3.8 mm - 8.0 mm
F number:	F1.4 (WIDE) - F1.8 (TELE)
Focus range:	∞ - 1.2 m
Angle of view:	Horizontal: 35.6 ° (TELE) - 73.6 ° (WIDE) Vertical: 26.6 ° (TELE) - 53.4 ° (WIDE)
Adjusting angle:	Panning range: ±170 ° Tilting range: ±75 ° Azimuth range: ±100 °

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

Standard accessories

CD-ROM*1	1 pc.
Installation Guide (this book)	1 pc.
Warranty card*2	1 pc.

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

*2 NTSC model only

The following parts are used during installation procedures.

Camera attachment	1 pc.
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Optional accessories

Dome cover	WV-CW4S
Ceiling mount bracket	WV-Q175
Ceiling mount bracket	WV-Q105*1

*1 PAL model only

Information on Disposal for Users of Waste Electrical & Electronic Equipment (private households)



This symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

For proper treatment, recovery and recycling, please take these products to designated collection points, where they will be accepted on a free of charge basis. Alternatively, in some countries you may be able to return your products to your local retailer upon the purchase of an equivalent new product.

Disposing of this product correctly will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

For business users in the European Union

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

Information on Disposal in other Countries outside the European Union

This symbol is only valid in the European Union.

If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

For U.S. and Canada:

Panasonic System Networks Company of America, Unit of Panasonic Corporation of North America

www.panasonic.com/business/
For customer support, call 1.800.528.6747
Three Panasonic Way, Secaucus,
New Jersey 07094 U.S.A.

Panasonic Canada Inc.

5770 Ambler Drive, Mississauga,
Ontario, L4W 2T3 Canada
(905)624-5010
www.panasonic.ca

For Europe and other countries:

Panasonic Corporation

<http://panasonic.net>

Importer's name and address to follow EU rules:

Panasonic Testing Centre
Panasonic Marketing Europe GmbH
Winsbergring 15, 22525 Hamburg F.R.Germany