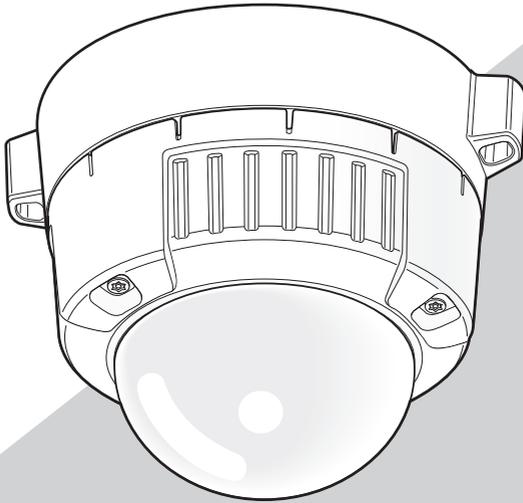


Panasonic

Operating Instructions

Color CCTV Camera

Model No. WV-CW334S, WV-CW334SE
WV-CW364S, WV-CW364SE



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.
- 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.

For U.S. and Canada:
WV-CW334S, WV-CW364S
For Europe and other countries:
WV-CW334SE, WV-CW364SE

UL listed model No.:
WV-CW334S, WV-CW364S

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. _____



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.

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 sääntöksiä.

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) Clean only with dry cloth.
- 6) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 7) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 8) 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.
- 9) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 10) Only use attachments/accessories specified by the manufacturer.
- 11) 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.



- 12) Unplug this apparatus during lightning storms or when unused for long periods of time.

Limitation of liability

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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 surveillance color CCTV camera equipped with a 1/3 type CCD solid-state image sensor with 768 horizontal pixels (NTSC), 752 horizontal pixels (PAL).

This camera can be mounted on a ceiling or a wall without any difficulty.

Features

This product is provided with the adaptive black stretch function, high resolution of 540 TV lines (horizontal), and minimum illuminance of 0.6 lx (C/L), 0.05 lx (B/W) for WV-CW364S, 0.4 lx (B/W) for WV-CW334S, (F1.3(WIDE)) thanks to the adoption of the newly developed digital signal processor.

Optional heater unit can be connected

When using the optional heater unit, the product can be used at temperatures within $-30\text{ }^{\circ}\text{C}$ to $+50\text{ }^{\circ}\text{C}$ $\{-22\text{ }^{\circ}\text{F}$ to $+122\text{ }^{\circ}\text{F}\}$ and humidity below 90 %.

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 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.

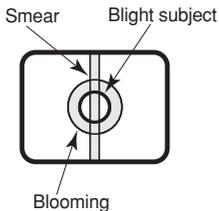
A dirty dome cover causes deterioration of picture quality.

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.

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 installed under eaves.

Keep the product out of direct sunlight.

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.

- 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 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 $+50\text{ }^{\circ}\text{C}$ $\{14\text{ }^{\circ}\text{F}$ to $+122\text{ }^{\circ}\text{F}\}$. (When using the optional heater unit, the product can be used at temperatures within $-30\text{ }^{\circ}\text{C}$ to $+50\text{ }^{\circ}\text{C}$ $\{-22\text{ }^{\circ}\text{F}$ to $+122\text{ }^{\circ}\text{F}\}$ and humidity below 90 %.)
- 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 this product 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.

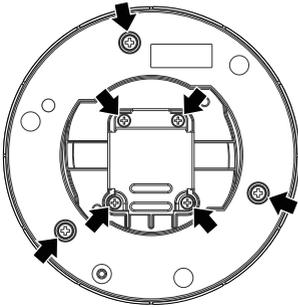
Screw tightening

- 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.

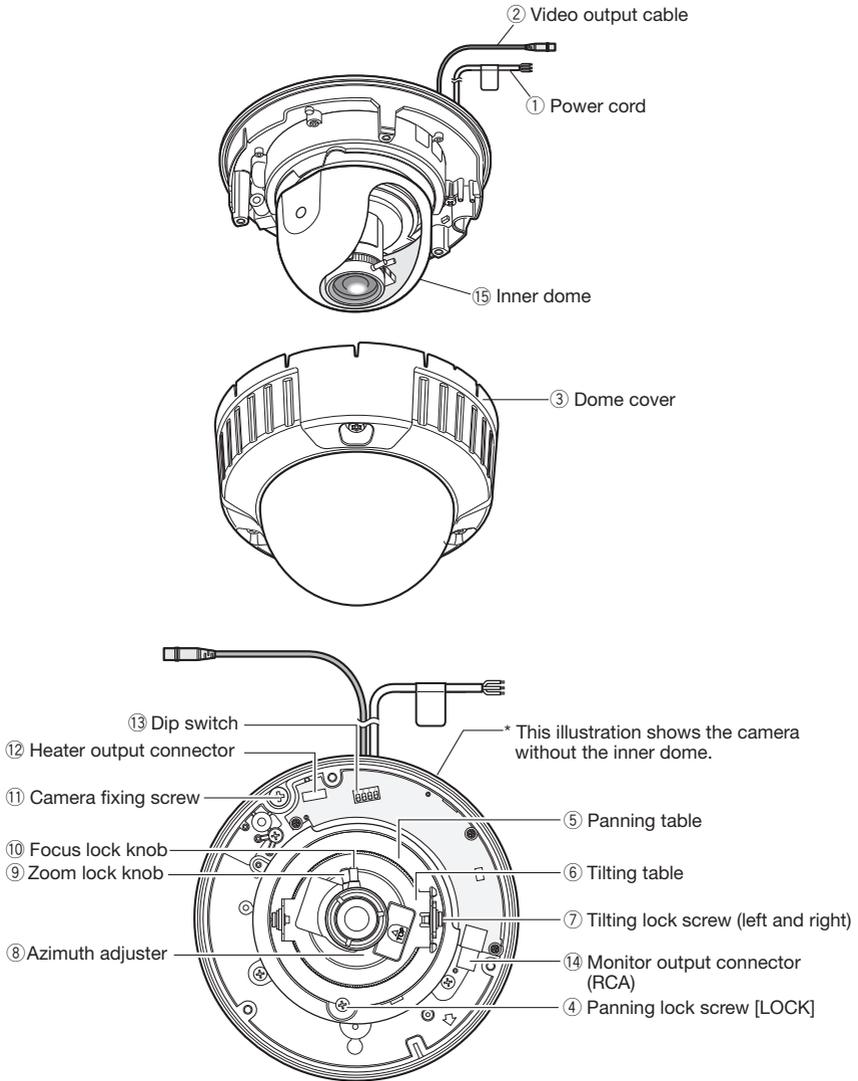
Do not remove or loosen the screws.

Do not remove or even loosen the screws (7 pieces) on the rear of the camera.

Otherwise, water exposure may cause damage or malfunction of camera, or camera dropping may result in injury.

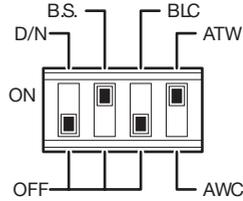


Major operating controls and their functions



- ① **Power cord**
Supplies 24 V AC or 12 V DC from an external power source.
- ② **Video output cable**
Transmits composite video signals. If this unit is connected to the multiplex unit, the multiplexed VD2 that is prioritized over INT is automatically selected.
- ③ **Dome cover**
- ④ **Panning lock screw [LOCK]**
Fixes the panning table.
- ⑤ **Panning table**
Rotate this table to adjust the panning angle of the camera.
- ⑥ **Tilting table**
Adjusts the tilting position of the camera.
- ⑦ **Tilting lock screws (left and right)**
Fixes the tilting position.
- ⑧ **Azimuth adjuster**
Adjusts the azimuth angle of the camera.
- ⑨ **Zoom lock knob**
Fixes the zoom position after adjusting.
- ⑩ **Focus lock knob**
Fixes the focus position after adjusting.
- ⑪ **Camera fixing screw**
Fixes the attachment on the camera body.
- ⑫ **Heater output connector**
Connects to the optional heater unit.

- ⑬ **Dip switch**
Turns ON/OFF the day/night mode, adaptive black stretch, backlight compensation, and white balance.



Simple day/night mode selector [D/N] for WV-CW334S:

- ON:** Selects the black-white mode if the picture is dark; it selects the color mode if the picture is bright enough.
- OFF (default):** Displays the color picture normally.

Note:

- The simple day/night function is established by using the SENSE UP function for black-white images. The IR filter is secured.
-

Day/night mode selector [D/N] for WV-CW364S:

- ON:** Selects the black-white mode if the picture is dark; it selects the color mode if the picture is bright enough. When set to ON, the camera switches from color to black-white images when the ambient brightness (illuminance) of the camera is approximately 0.6 lx or less.
- OFF (default):** Displays the color picture normally.

Note:

- To obtain color images, a sufficient level of illuminance (approximately 30 lx or more) is required.
 - The switching illuminance level varies depending on subjects and light sources.
 - The switching illuminances described above are reference values. The switching illuminance shall be decided based on the actual installation environment.
-

Adaptive black stretch selector [B.S.]:

ON (default): Corrects the dark area of an object automatically to lighten it.

OFF: Does not compensate.

Note:

- When set to "ON", noise may be increased in the dark area of the object. In addition, darkness and brightness may be emphasized in the vicinity of the boundary between the dark and bright areas.
-

Backlight compensation selector**[BLC]:**

ON: Compensates the background automatically if it is brighter than the object.

OFF (default): Uses this mode when the front of the object is extremely bright.

Note:

- Under some conditions, such as extremely strong backlight, the desired compensation effect may not be achieved even if the mode is set to ON to detect the backlight level.
-

White balance selector [ATW/AWC]:

ATW (default): Activates the automatic color temperature tracking mode. The camera continuously measures the color temperature of the light source and automatically adjusts the white balance. The adjustment of the color temperature ranges from approximately 2700 K to 6000 K.

AWC: Activates the automatic white balance control mode. This adjustment is suitable for a location where a light source is stable. The adjustment of the color temperature ranges from approximately 2000 K to 10000 K.

⑭ Monitor output connector (RCA)

Connects the LCD monitor and such devices for checking images.

⑮ Inner dome

Preparations

When installing the camera on a wall or a ceiling, there are two methods as specified below.
(☞ Next page)

- Using a two-gang junction box
- Using the mounting base

Refer to all work related to the installation of this product to qualified service personnel or system installer.

- The mounting base is supplied. Use the screws supplied with this product.

Important:

- Prepare the mounting screw according to the material of the area where the camera attachment (accessory) is to be installed. In this case, wood screws and nails should not be used. For mounting a camera on a concrete ceiling, use an anchor bolt (M4) or an AY plug bolt (M4) for securing.
(Recommended tightening torque M4: 1.6 N·m {1.18 lbf·ft})
 - When using the provided camera attachment, make sure that either of the arrow marks faces upward.
 - Required pull-out capacity of a single screw/bolt is 196 N {44.06 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.
 - When using an optional mounting bracket, refer to the operating instructions of the bracket in use.
-

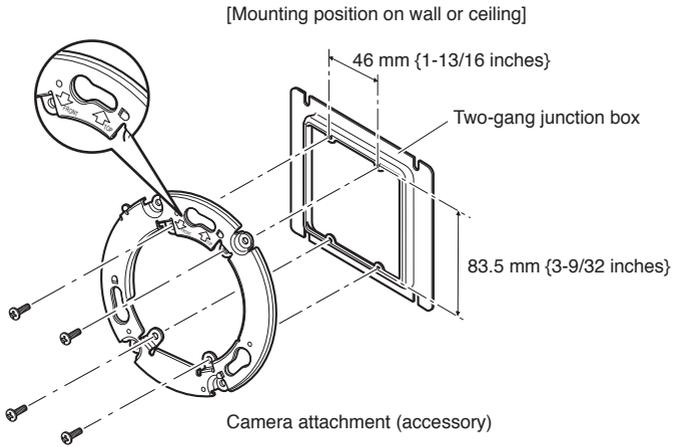
The mounting conditions of the camera mount bracket are described as follows:

Installation place	Applicable mount bracket	Recommended screw	Number of screw	Minimum pull-out strength (per 1 pc.)
Ceiling/wall	Two-gang junction box	M4 or equivalent	4 pcs.	196 N {44.06 lbf}
Ceiling/wall	Mounting base (approx. 350 g {0.77 lbs})	M4 or equivalent	4 pcs.	196 N {44.06 lbf}
Ceiling	WV-Q169 (approx. 700 g {1.55 lbs})	—	—	*

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

Using a two-gang junction box

- When the camera is installed using the two-gang junction box, mount the camera attachment (accessory) to the embedded box installed on the wall or ceiling as a first step.



Note:

- For wall mounting:
Installation shall be performed in such a manner that "↑TOP" of the camera attachment faces upward.
 - For ceiling mounting:
The front side (model number indication face) of the camera shall be aligned in the direction of the arrow in "↓FRONT" on the camera attachment.
-

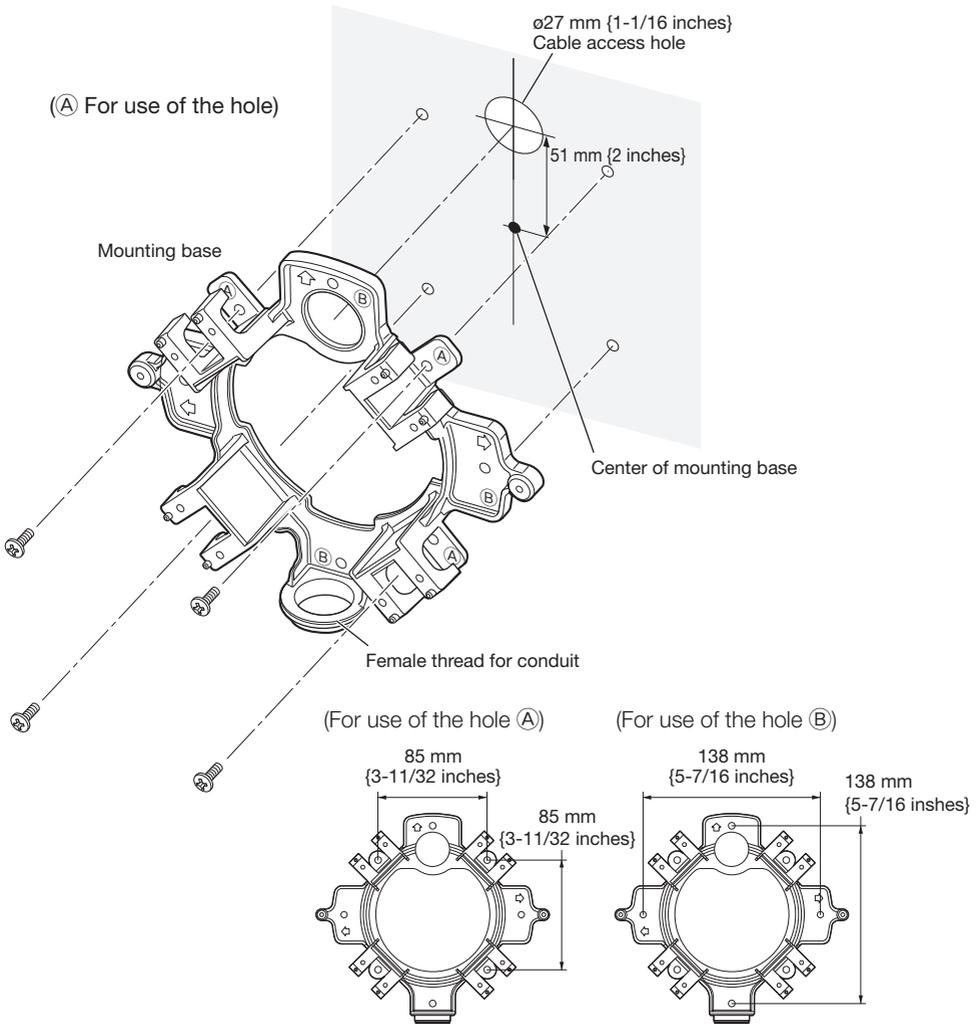
Using the mounting base

- When installing the camera with the mounting base, attach the mounting base to the wall or ceiling in the first place. (☞ next page.)
Mount the camera attachment (accessory) by using the screws supplied with mounting bracket. (☞ next page.)
(Recommended tightening torque: 0.78 N·m {0.58 lbf·ft})
-

Note:

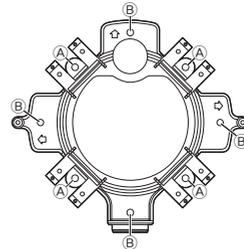
- When installing the camera on the wall or ceiling where cable holes are already provided, or when installing the camera with exposed wiring, the mount bracket shall be used.
 - The female screws for piping conform to ANSI NPSM (parallel pipe threads) 3/4 inches.
The female screws for piping shall be removed with a hexagon wrench.
 - To connect conduit from the top, refer to page 27.
-

1 Install the mounting base on the wall/ceiling.



Note:

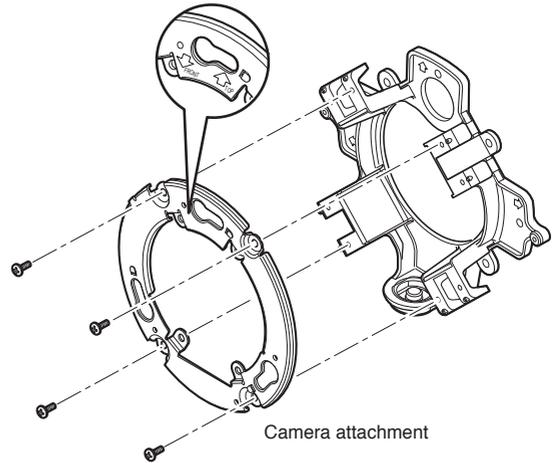
- Only the same type of holes, (A) or (B), shall be used for mounting.



2 Previously run the cables from the wall or ceiling through the cable access hole.

3 Mount the attachment onto the mount bracket.

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



Note:

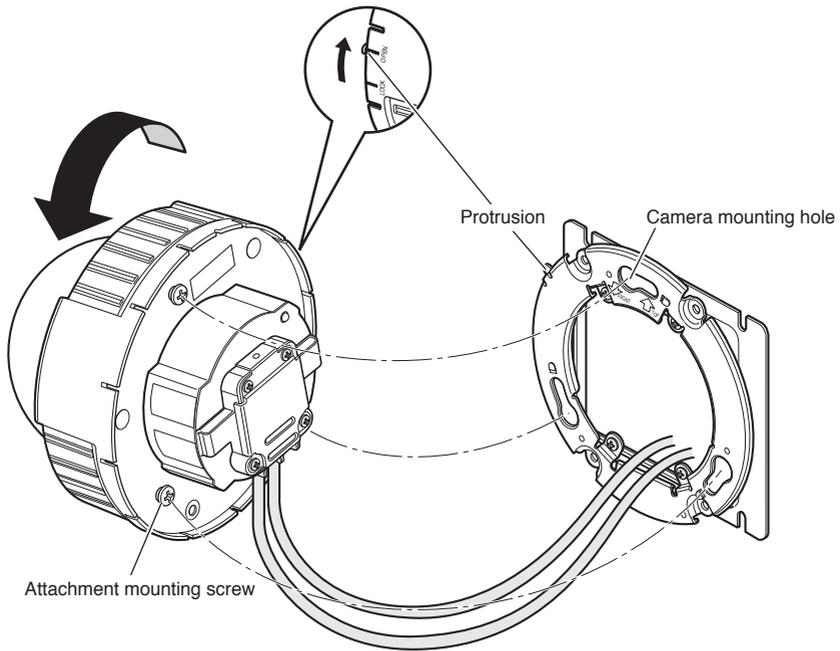
- For wall mounting:
Installation shall be performed in such a manner that "↑TOP" of the camera attachment faces upward. (Except for the case of connecting the conduit from the top. (☞ page 27))
 - For ceiling mounting:
The front side (model number indication face) of the camera shall be aligned in the direction of the arrow in "↓FRONT" on the camera attachment.
 - Ensure that any one of the arrows on the mount bracket is aligned with the arrow of "↑TOP" on the attachment.
-

Camera installation

1 Mount the camera.

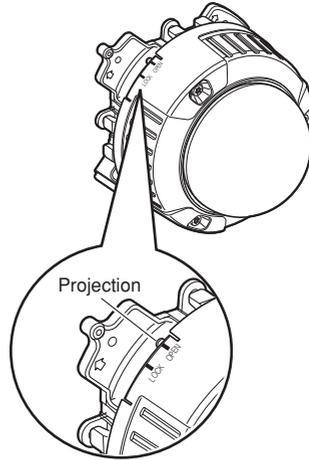
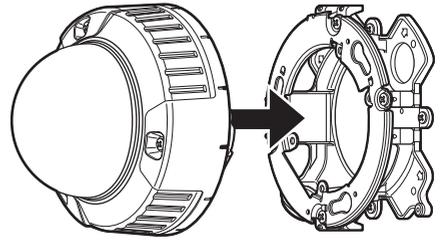
<To mount the camera on a two-gang junction box>

- ① Connect the power cord and the video output cable. (☞ page 28)
- ② Align the "OPEN" mark of the camera with the protrusion of the camera attachment.
- ③ Engage the attachment mounting screw of the camera with the camera mounting hole of the camera attachment and rotate the camera in the direction of the arrow to the "LOCK" position to secure the camera to the camera attachment without any backlash.



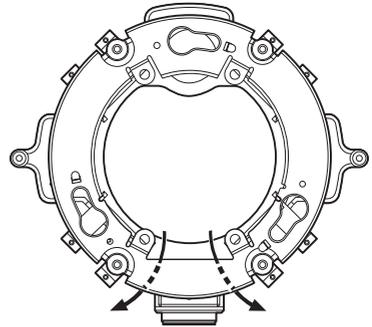
<To use the mounting base>

- ① Attach the camera onto the camera attachment while aligning the "OPEN" mark of the camera with the projection of the camera attachment.

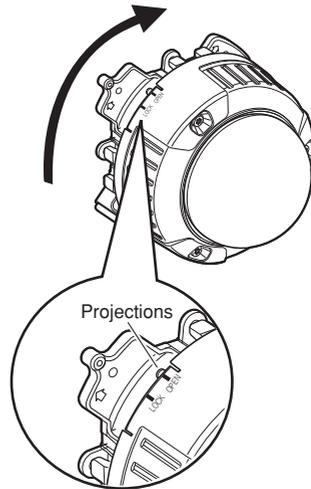


Important:

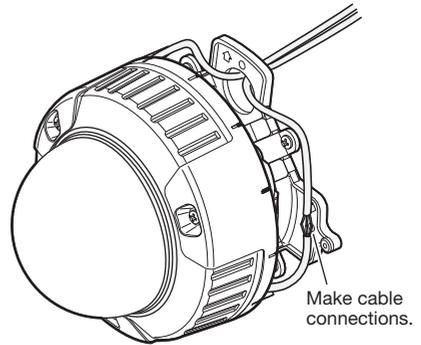
- When mounting the camera body, cables shall be run between the camera attachment and mounting base as indicated by the arrow in the illustration.
- * Cable running as indicated by the arrow is an example. Cable running shall be varied with installation environment.



- ② Engage the attachment mounting screw of the camera with the camera mounting hole of the camera attachment and rotate the camera in the direction of the arrow to the "LOCK" position to secure the camera to the camera attachment without any backlash.



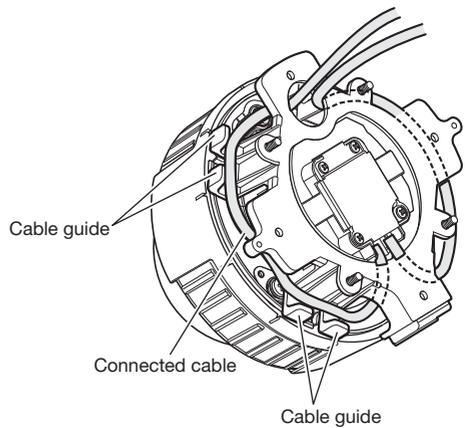
- ③ Connect the power cord and the video output cable at the side of the mounting base. (☞ page 28)
Apply waterproof treatment to the connected section. (☞ page 26)



- ④ Accommodate the connected cables inside the cable guide of the mounting base.

Important:

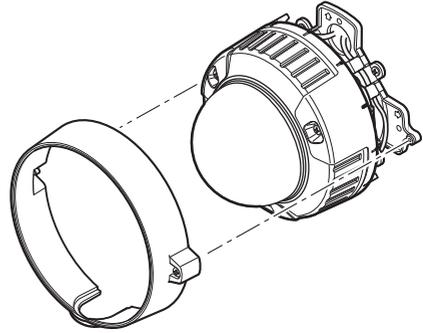
- To prevent the cables from being caught when the cover is attached, keep the cables inside the cable guide.
-



- ⑤ Mount the supplied base cover on the mounting base.

Important:

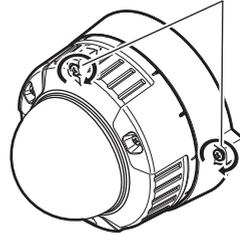
- To prevent the cables from being caught when the base cover is attached, keep the cables inside the cable guide.
-



Base cover

- ⑥ Use the bit for tamperproof screw (accessory) to tighten the fixing screws provided on both sides of the base cover. (Recommended tightening torque: 0.78 N·m {0.58 lbf·ft})

Base cover fixing screw



2 Remove the dome cover from the main body by loosening the three fixing screws.

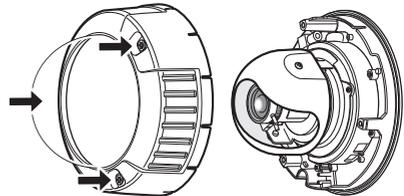
Loosen the three fixing screws by using the provided bit for tamperproof screw.

Important:

- Do not hold the inner dome when carrying the camera. Otherwise, the camera part may fall and it may damage the camera.
-

Note:

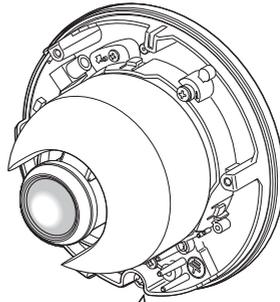
- Perform the same procedure when replacing with the optional dome cover WV-CW4S.
-



3 Secure the camera to the bracket with the camera fixing screw (red, 1 position).

Important:

- The camera fixing screw shall be securely tightened. Otherwise, water exposure may cause damage or malfunction of camera, or camera dropping may result in injury. (Recommended tightening torque: 0.78 N·m {0.58 lbf·ft})
-



*** The camera fixing screw shall be securely tightened.**

Camera fixing screw (red)

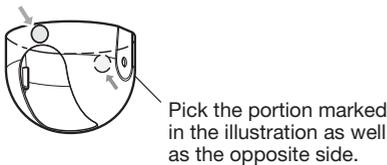
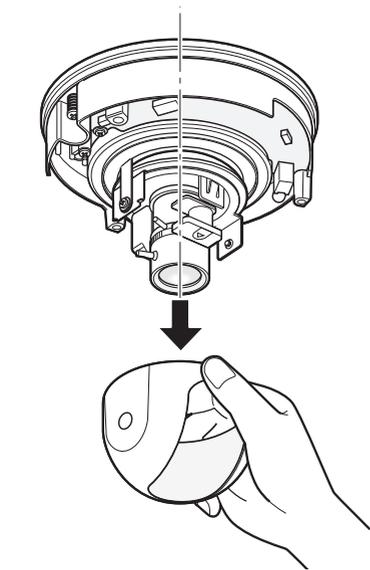
Adjust the camera

1 Pan, tilt and azimuth adjustment

Important:

- Do not touch the iris motor. Failure to observe this may cause trouble.
- Do not hold the camera by the lens unit when adjusting panning, tilting, or azimuth.

Detach the inner dome from the camera by picking the front and rear sides.

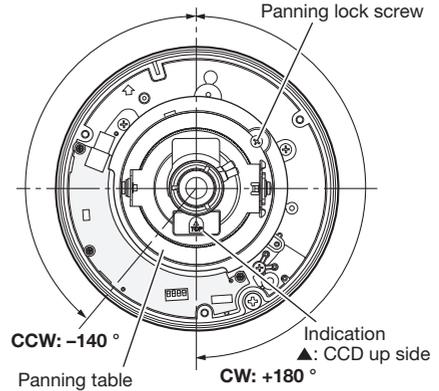


Note:

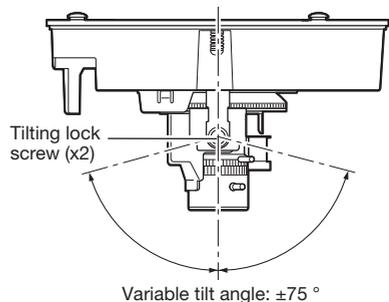
- Do not touch the lens.

At the same time as the pan and tilt adjustments, make the zoom and focus adjustments in Step 2.

- ① Rotate the panning table to adjust the panning position of the camera. (Range: 320°)
 - The adjusting range is from +180° (clockwise) to -140° (counterclockwise).
 - Tighten the panning table lock screw after adjusting



- ② Rotate the tilting table to adjust the tilting position of the camera (Range: ±75°).
 - This lens can also be rotated in the reverse direction, but the image azimuth is reversed. In such a case, turn the panning table to the 180° side to correct the azimuth image.
 - When used at an angle that is close to horizontal, it must be noted that the shadow of the dome cover may be projected.
 - Fasten the tilting lock screws of both sides after adjusting.

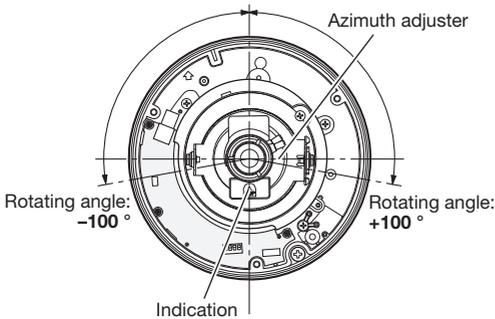


Note:

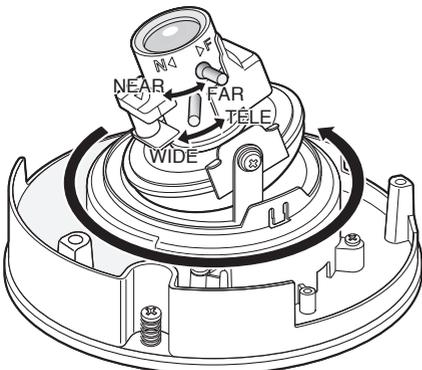
- When the zoom lock knob is adjusted to the WIDE side and the tilt angle is approx. $\pm 75^\circ$, 1/3 part of the screen may be hidden.
-

Important

- Tighten the panning table lock screw and tilting lock screw. (Recommended tightening torque: 0.59 N·m {0.44 lbf·ft})
-
- ③ Rotate the azimuth adjuster to adjust the azimuth angle of the image (Range: $\pm 100^\circ$).

**2 Zoom and focus adjustment**

At the same time as adjusting the pan and tilt (Step 2), adjust the zoom and focus.



This illustration represents WV-CW364S.

- ① Loosen the zoom lock knob and move the knob between TELE and WIDE to obtain the appropriate angle of view. Tighten the zoom lock knob.
 - ② Loosen the focus lock knob and move the knob between FAR and NEAR to obtain the optimum focus. Tighten the focus lock knob.
-

Note:

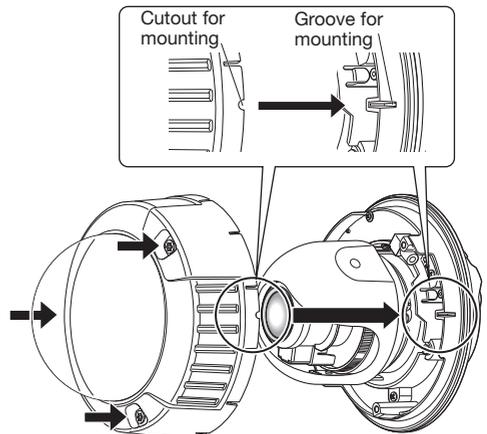
- To change the angle of view by moving the zoom lock knob, also move the focus lock knob to adjust the focus.
-

3 Mount the dome cover and inner dome.

Tighten the screws that have been loosened in Step 2 in page 22 using the supplied driver bit.
(Recommended tightening torque: 0.78 N·m {0.58 lbf·ft})

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 protection sheet from the outside of the dome.
-

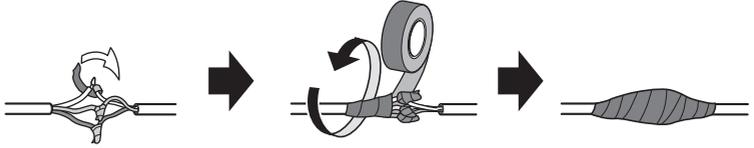


Waterproof treatment for the cable joint sections

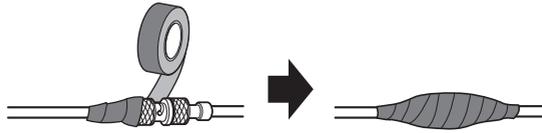
Adequate waterproof treatment is required for the cables when the camera with exposed cables is installed by means of the mounting base or it is installed under the eaves. The camera body is waterproof, but the cable ends are not waterproof.

Be sure to use the supplied butyl tape at the connection parts of the power cord and video output cable to apply waterproof treatment in the following procedure. Failure to observe this may cause water leakage resulting in malfunction.

When using power cord

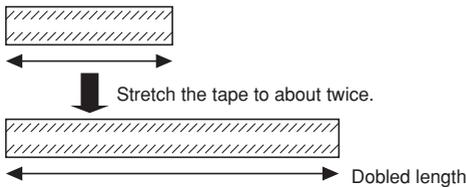


When using video output cable



<How to wind the supplied butyl tape>

Stretch the tape by approx. twice (see the illustration below) and wind it around the cable. Insufficient tape stretch causes insufficient waterproofing.

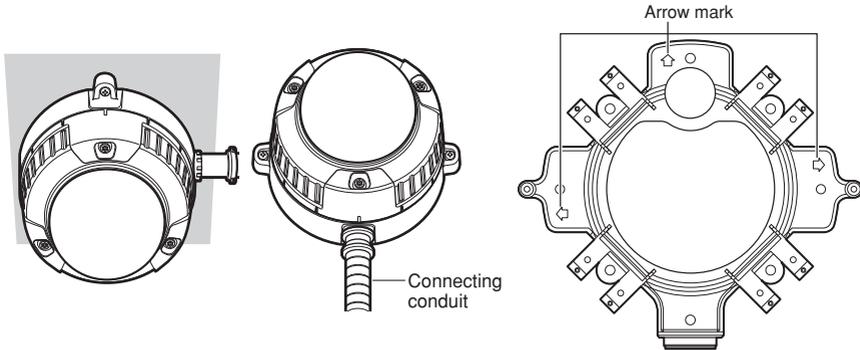
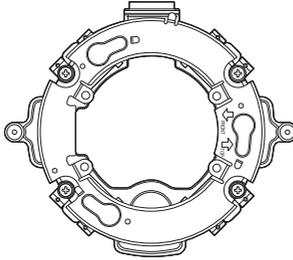


Note:

- To install this product outdoors, be sure to waterproof the cables. The camera body is waterproof (IEC IP66 or equivalent) only when installation specified in this document and appropriate waterproofing are properly performed. The bracket is not waterproof.
 - The cable shall be wound with butyl tape in a half-overlapping manner.
-

Important:

- If open wiring is conducted, be sure to use conduits and run the cables inside the tubes to protect the cables from direct sunlight.
- When the conduit is connected at the lateral or bottom position, either of the arrow marks on the bracket shall be the top position.
- When the conduit is connected from the top, the arrow mark on the attachment shall be either of the right or left position.

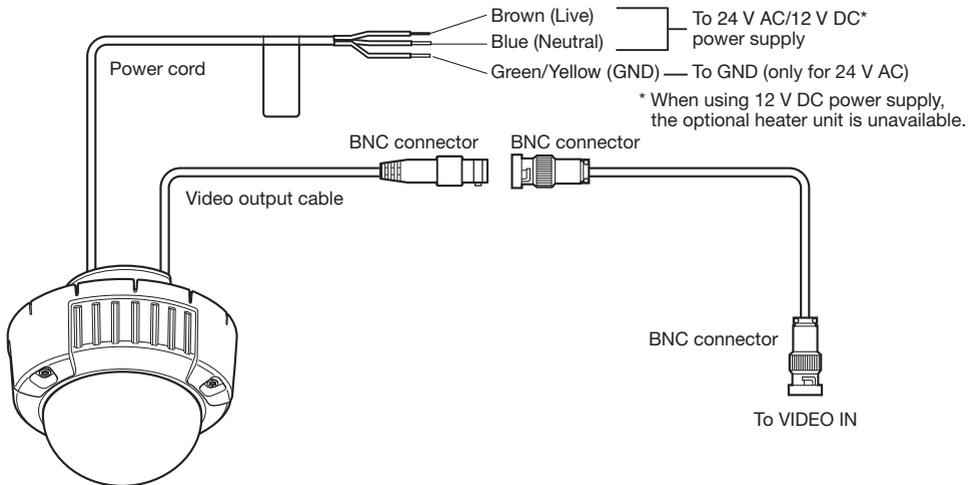
<To connect conduit from the side or bottom>**<To connect conduit from the top>**

- For installation on the wall, do not connect the dehumidifying device at the upper side to prevent water from being stored in the dehumidifying device.
If water remains inside, the dehumidifying device cannot function properly.
 - Installation work shall be such that there is no intrusion of water into the architecture through the conduits having been joined.
-

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.

Important:

- When using 12 V DC power supply, the heater is unavailable.
-

Optional Heater Unit WV-CW5H (option)

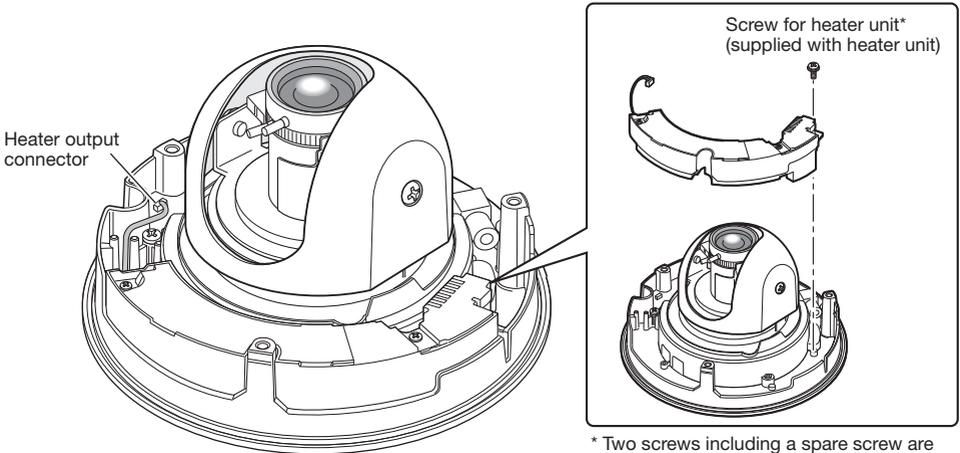
Installing the heater unit enables the camera to operate in a low-temperature environment below $-30\text{ }^{\circ}\text{C}$ $\{-22\text{ }^{\circ}\text{F}\}$. The heater turns on automatically when the temperature inside the camera drops below $+10\text{ }^{\circ}\text{C}$ $\{50\text{ }^{\circ}\text{F}\}$ and turns off when the temperature rises. A small fan inside the unit will minimize condensation on the surface of the dome cover caused by changes in ambient temperature unless temperatures change too rapidly.

Important:

- When using 12 V DC power supply, the optional heater unit is unavailable.
 - Turning the heater on and off may disturb the camera images.
 - The power supply of the camera shall be turned off when mounting or dismantling the heater.
- When servicing, pay attention to high temperature on the surface of the heater unit. Disconnect the harness and wait until the heater unit cools.
- When the camera is installed and operated in low temperatures below $-10\text{ }^{\circ}\text{C}$ $\{14\text{ }^{\circ}\text{F}\}$, normal images may not be obtained immediately after startup. In such a case, wait around 60 minutes or more.
-

How to install the heater unit

- ① Remove the camera's dome cover and mount it in the specified position with the supplied screw.
- ② Connect the heater unit cable to the connector of the camera.



* Two screws including a spare screw are provided as the standard accessories.

Important:

- After mounting the heater unit, arrange the harness cable as shown in the drawing so as not to be tangled around the dome cover, safety wire, and equipment inside the camera.
-

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. 	28
	<ul style="list-style-type: none"> • Is the adjusting monitor connected ? → Check whether connection is established. 	24
	<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. 	-
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. 	25
	<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: 2.9 W (without heater unit) 13.1 W (with heater unit) 12 V DC: 250 mA*
Ambient operating temperature:	With Heater**: -30 °C to 50 °C (-22 °F to 122 °F) Without Heater: -10 °C to 50 °C (14 °F to 122 °F)
Ambient operating humidity:	Less than 90 % (no condensation)
Water resistance:	Camera: IEC60529 (IP66)***
Shock resistance:	50J, IEC60068-2-75
Video output:	1.0 V [p-p]/75 Ω, NTSC/PAL composite, BNC connector
Dimensions:	ø164 mm x 146 mm (H), 191.5 mm (Base Cover) {ø6-7/16 inches x 5-3/4 inches (H), 7-9/16 inches (W)} (Base Cover)
Mass:	Main body: 1.05 kg {2.31 lbs} (including camera attachment 100 g {0.22 lbs}) Mounting base: 350 g {0.78 lbs} Ceiling Mount Bracket: 700 g (1.55 lbs)
Finish:	Main body: Aluminum die cast, light gray Dome cover: Clear polycarbonate resin

* When using 12 V DC power supply, the optional heater unit is unavailable.

** Heater unit WV-CW5H (option)

*** Applicable only when the installation and waterproof process are done properly.

• Camera

Image sensor:	1/3 type interline transfer CCD
Effective pixels:	NTSC: 768 (H) x 494 (V) PAL: 752 (H) x 582 (V)
Scanning area:	4.9 mm (H) x 3.7 mm (V) {3/16 inches x 5/32 inches}
Scanning system:	2:1 interlace
Scanning lines:	NTSC: 525 lines PAL: 625 lines
Scanning frequency:	Horizontal: 15.734 kHz (NTSC) 15.625 kHz (PAL) Vertical: 59.94 Hz (NTSC) 50.00 Hz (PAL)
Synchronization:	Internal, multiplexed vertical drive (VD2)
Resolution:	Horizontal: 540 TV lines (at center) Vertical: 350 TV lines (NTSC at center) 400 TV lines (PAL, at center)
Minimum illumination:	WV-CW364S: 0.6 lx (C/L), 0.05 lx (B/W), F1.3 (WIDE) WV-CW334S: 0.6 lx (C/L), 0.4 lx (B/W), F1.3 (WIDE)
Signal-to-noise ratio:	50 dB (equivalent to AGC Off, weight On)

Switch Function: Simple day/night mode selector for WV-CW334S, day/night mode selector for WV-CW364S (ON/OFF), adaptive black stretch selector (ON/OFF), backlight compensation selector (ON/OFF), white balance selector (ATW/AWC)

• **Lens**

Type: 3.6x variable focal lens
Focal length: 2.8 mm - 10.0 mm
F number: F1.3 (WIDE) - F3.1 (TELE)
Focus range: ∞ - 1.2 m
Angle of view: WV-CW364S
Horizontal: 100.50 ° (WIDE) - 27.39 ° (TELE)
Vertical: 73.51 ° (WIDE) - 20.45 ° (TELE)
WV-CW334S
Horizontal: 100.18 ° (WIDE) - 27.39 ° (TELE)
Vertical: 73.33 ° (WIDE) - 20.45 ° (TELE)
Adjusting angle: Panning range: +180 ° to -140 °
Tilting Range: ± 75 °
Azimuth Range: ± 100 °

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

Standard accessories

Installation Guide (this book)	1 pc.
Warranty card (NTSC models only)	1 pc.

The following parts are used during installation procedures.

Base cover	1 pc.
Mounting base	1 pc.
Fixing screw for mounting base	5 pcs. (incl. 1 spare screw)
Camera attachment	1 pc.
Bit for tamperproof screw	1 pc.
Butyl tape	1 pc.

Optional accessories

Dome cover	WV-CW4S
Heater unit	WV-CW5H
Ceiling mount bracket	WV-Q169

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