



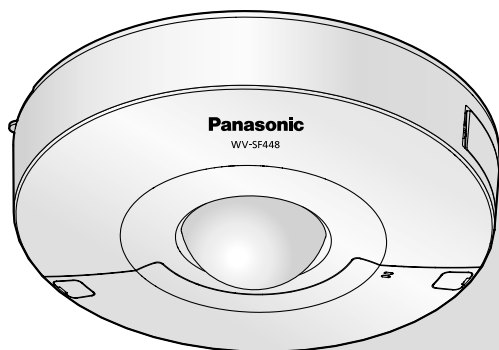
# Panasonic

## Installation Guide

Included Installation Instructions

## Network Camera

Model No. **WV-SF448/WV-SF448E**



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:**

- 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.
- To prevent injury, this apparatus must be securely attached to the floor/wall/ceiling in accordance with the installation instructions.
- To prevent fire or electric shock hazard, do not expose this apparatus to rain or moisture.
- The installation shall be carried out in accordance with all applicable installation rules.
- The connections should comply with local electrical code.

**CAUTION:**

- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- Before attempting to connect or operate this product, please read the label on the bottom.

For U.S.:

WV-SF448

For Europe and other countries:

WV-SF448E

UL listed model No.

WV-SF448

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. \_\_\_\_\_

For Europe

We declare under our sole responsibility that the product to which this declaration relates is in conformity with the standard or other normative document following the provisions of Directive 2004/108/EC.

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

Nous déclarons sous notre propre responsabilité que le produit auquel se réfère la présente déclaration est conforme à la norme spécifiée ou à tout autre document normatif conformément aux dispositions de la directive 2004/108/CE.

Nosotros declaramos bajo nuestra única responsabilidad que el producto a que hace referencia esta declaración está conforme con la norma u otro documento normativo siguiendo las estipulaciones de la directiva 2004/108/CE.

Noi dichiariamo sotto nostra esclusiva responsabilità che il prodotto a cui si riferisce la presente dichiarazione risulta conforme al seguente standard o altro documento normativo conforme alle disposizioni della direttiva 2004/108/CE.

Wij verklaren als enige aansprakelijke, dat het product waarop deze verklaring betrekking heeft, voldoet aan de volgende norm of ander normatief document, overeenkomstig de bepalingen van Richtlijn 2004/108/EC.

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

Vi deklarerar härmed vårt fulla ansvar för att den produkt till vilken denna deklaration hänvisar är i överensstämmelse med standarddokument eller annat normativt dokument som framställs i direktiv 2004/108/EC.

Ilmoitamme yksinomaisella vastuullamme, että tuote, jota tämä ilmoitus koskee, noudattaa seuraavaa standardia tai muuta ohjeellista asiakirjaa, jotka noudattavat direktiivin 2004/108/EC sääöksiä.

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

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\* SDXC/SDHC/SD memory card is described as SD memory card.

## 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 install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 8) Only use attachments/accessories specified by the manufacturer.
- 9) 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.



- 10) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

## Limitation of liability

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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) ALL MALFUNCTIONS OR TROUBLES FROM UNAUTHORIZED DISASSEMBLE, REPAIR OR MODIFICATION OF THE PRODUCT BY THE USER, REGARDLESS OF THE CAUSE OF THE MALFUNCTION OR TROUBLE;
- (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.

## Preface

The network cameras WV-SF448/WV-SF448E are designed to operate using a PC on a network (10BASE-T/100BASE-TX).

By connecting to a network (LAN) or the Internet, images and audio from the camera can be monitored on a PC via a network.

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**Note:**

- It is necessary to configure the network settings of the PC and its network environment to monitor images from the camera on the PC. It is also necessary to install a web browser on the PC.
-

## Main functions

### 360° monitoring with a wide variety of transmission modes

With the super-wide-angle fisheye lens, 360° monitoring is possible with a single camera. The 360° camera includes a wide variety of image capture modes that perform distortion correction: Panorama, Double Panorama, Quad PTZ, Single PTZ, and Quad streams (H.264/VGA).

### H.264 and JPEG triple encoding

H.264 dual stream output and JPEG output can be simultaneously provided.


- \* However, the image capture size of streams depends on the settings of the image capture mode.

### VIQS function (Variable Image Quality on Specified area)


It is possible to provide specified areas with high quality image without changing the overall size of the data. Up to 2 areas can be specified.

- \* VIQS can be used when the image capture mode is Fisheye, Panorama, or Double Panorama.

### SDXC/SDHC/SD memory card slot equipped


It is possible to save H.264 videos and JPEG images on the SDXC/SDHC/SD memory card manually at an alarm occurrence, during the period of the schedule, or on a web browser. It is also possible to save JPEG images at a network failure occurrence. (Download is possible.) (Recommended SDXC/SDHC/SD memory card  page 37)

### Super Dynamic

 Operating Instructions (included in the CD-ROM))

Super Dynamic compensates brightness on a pixel-to-pixel basis so that it produces clearer images even if objects have various illumination intensities.

### Privacy mode

 Operating Instructions (included in the CD-ROM))

The lens can be moved and hidden so that images cannot be displayed.

When the Privacy mode is used, a black image is transmitted to protect privacy.

By checking whether the lens is hidden or not, you can easily check whether images are being transmitted or not.

## About the user manuals

There are 2 sets of operating instructions for the WV-SF448 (P model), WV-SF448E (E model) as follows.

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

Adobe® Reader® is required to read these operating instructions 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-SF448” or “SF448” shown in the instructions and illustrations used in these operating instructions indicates the WV-SF448, WV-SF448E.

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

# System requirements for a PC

CPU:	Intel® Core™ 2 Duo 2.4 GHz or faster recommended
Memory:	512 MB or more (A minimum of 1 GB memory is required when using Microsoft® Windows® 8, Microsoft® Windows® 7 or Microsoft® Windows Vista®.)
Network Interface:	10BASE-T/100BASE-TX 1 port
Audio Interface:	Sound card (when using the audio function)
Monitor:	Image capture size: 1024 x 768 pixels or more Color: 24-bit True color or better
OS:	Microsoft® Windows® 8 Microsoft® Windows® 7 Microsoft® Windows Vista® Microsoft® Windows® XP SP3
Web browser:	Windows® Internet Explorer® 10.0 (32-bit) Windows® Internet Explorer® 9.0 (32-bit) Windows® Internet Explorer® 8.0 (32-bit) Windows® Internet Explorer® 7.0 (32-bit)
Others:	CD-ROM drive (It is necessary to read the operating instructions and use the software on the provided CD-ROM.) DirectX® 9.0c or later Adobe® Reader® (It is necessary to view the PDF file on the provided CD-ROM.)

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## IMPORTANT:

- When using a PC that does not meet the above requirements, displaying of images may become slower or the web browser may become inoperable.
- Audio may not be heard if a sound card is not installed on a PC. Audio may be interrupted depending on the network environment.
- Microsoft Windows RT, Microsoft Windows 7 Starter, Microsoft Windows Vista Starter and Microsoft Windows XP Professional 64-bit Edition are not supported.
- When using Windows 8, use it in the desktop. The software cannot be used in the Modern UI design.
- When using IPv6 for communication, use Microsoft Windows 8, Microsoft Windows 7 or Microsoft Windows Vista.

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## Note:

- For further information about PC system requirements and precautions for when using Microsoft Windows 8, Microsoft Windows 7, Microsoft Windows Vista, or Windows Internet Explorer, click “Manual” - “Open” from the supplied CD-ROM and refer to “Notes on Windows® / Internet Explorer® versions”.
  - If using Microsoft Windows XP, screen tearing\* may occur when the shooting scene drastically changes (for example, while shooting fast-moving subjects) due to the GDI restrictions of the OS.  
\* A phenomenon in which portions of the screen are displayed out of alignment
  - For information on the operation verification of the supported operating systems and web browsers, refer to our website at <http://security.panasonic.com/pss/security/support/index.html>.
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Distributing, copying, disassembling, reverse compiling and reverse engineering of the software provided with this product are all expressly prohibited. In addition, exporting any software provided with this product violating export laws is prohibited.

## Network security

As you will use this unit connected to a network, your attention is called to the following security risks.

- ① Leakage or theft of information through this unit
- ② Use of this unit for illegal operations by persons with malicious intent
- ③ Interference with or stoppage of this unit by persons with malicious intent

It is your responsibility to take precautions such as those described below to protect yourself against the above network security risks.

- Use this unit in a network secured by a firewall, etc.
- If this unit is connected to a network that includes PCs, make sure that the system is not infected by computer viruses or other malicious entities (using a regularly updated anti-virus program, anti-spyware program, etc.).
- Protect your network against unauthorized access by restricting users to those who log in with an authorized user name and password.
- Apply measures such as user authentication to protect your network against leakage or theft of information, including image data, authentication information (user names and passwords), alarm E-mail information, FTP server information and DDNS server information.
- After the unit is accessed by the administrator, make sure to close the browser.
- Change the administrator password periodically.
- Do not install the camera in locations where the camera or the cables can be destroyed or damaged by persons with malicious intent.



# Precautions

## **Refer installation work to the dealer.**

Installation work requires technique and experiences. Failure to observe this may cause fire, electric shock, injury, or damage to the product. Be sure to consult the dealer.

## **Stop the operation immediately when something is wrong with this product.**

When smoke goes up from the product, the smell of smoke comes from the product, or the exterior of the product has deteriorated, continued use will cause a fire or fall of the product resulting in injury, accidents, or damage to the 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.

## **Do not insert any foreign objects.**

Fire or electrical shock may be caused if water or any foreign objects, such as metal objects, enter inside the unit.

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 a fall of the product resulting in injury or accidents. Consult the dealer for the inspections.

## **Do not use this product in an inflammable atmosphere.**

Failure to observe this may cause an explosion resulting in injury.

## **Avoid installing this product in the locations where salt damage occurs or corrosive gas is produced.**

Otherwise, the mounting portions will deteriorate and accidents such as a fall of this product may occur.

## **The exclusively designed mount bracket shall be used.**

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

Use the exclusively designed mount bracket when installing on a ceiling or wall.

## **The screws and bolts must be tightened to the specified torque.**

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

## **Do not install this product in locations subject to vibration.**

Loosening of mounting screws or bolts may cause a fall of the product resulting in injury.

## **Install this product in a location high enough to avoid people and objects from bumping the product.**

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 fire or injury. Shock resistance grade (20 J (IEC 60068-2-75)/IK10 (IEC 62262) or equivalent) is applied to this product only when it is installed correctly as described in these operating instructions and appropriate shock resistance treatment is applied.

## **Turn the power off when wiring this product.**

Failure to observe this may cause electric shock. In addition, short circuit or wrong wiring may cause fire.

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

Failure to observe this may cause injury.

## **Do not touch this product, the power cord or the connected cables during thunder (even in the process of work).**

Failure to observe this may cause electric shock.

## **Keep SDXC/SDHC/SD memory cards (option) away from infants and children.**

Otherwise, they may swallow the cards by mistake. In this case, consult a doctor immediately.

**Do not damage the power cable.**

Do not damage, fabricate, twist, stretch, bundle, or forcibly bend the power cable. Do not place heavy objects. Keep away from heat sources. Use of the damaged power cable may cause electric shock, short circuit, or fire. Consult the dealer for repair.

**Turn the power off when cleaning this product.**

Failure to observe this may cause injury.

**Do not touch the metal part of the product.**

The metal part may become hot while the product is in use. Direct skin contact with high-temperature parts of the product may cause burns.

**[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, disconnect the power supply from the 12 V DC power supply or the PoE device. (When using both the 12 V DC power supply and the PoE device for power supply, disconnect both the connections.)

**To keep on using with stable performance**

Do not use this camera in hot and humid conditions for a long time. Failure to observe this causes component degradation resulting in life shortening of this product. Do not expose this product to direct heat sources such as a heater.

**Do not touch the dome cover with your bare hands.**

A dirty dome cover may cause deterioration of picture quality.

**Handle this camera with care.**

Do not drop this product, nor apply shock or vibration to the product. Failure to observe this may cause trouble. If a strong shock or vibration is applied to the dome cover, it may cause damage.

**About the PC monitor**

Displaying the same image on a monitor for a long time may damage the monitor. It is recommended to use a screen-saver.

**When an error is detected, this product will restart automatically.**

This product will be inoperable for around 2 minutes after the restart just as when the power is turned on.

**Product disposal/transfer**

Data saved on this product or a storage device used with this product may lead to personal information leakage. When it is necessary to dispose or give this product to someone, even when for repair, make sure that there is no data on this product.

**Cleaning this product body**

Be sure to turn off the power before cleaning. Failure to observe this may cause injury. Do not use strong abrasive detergent when cleaning this product. Otherwise, it may cause discoloration. When using a chemical cloth for cleaning, read the caution provided with the chemical cloth product.

**Transmission interval**

Image transmission interval may become slow depending on the network environment, PC performance, shooting subject, access number, etc.

**Privacy mode periodical checks**

We recommend periodically operating the privacy mode to keep it operating smoothly.

### **About SD memory card**

- Before removing the SD memory card from the camera, it is necessary to select “Not use” for “SD memory card” first. The recorded data may be corrupted if the SD memory card is removed when “Use” is selected for “SD memory card”. Refer to page 22 for descriptions of how to insert/remove an SD memory card.
- When using an SD memory card, format it using this product. Recorded data on the SD memory card will be deleted when formatted. If an unformatted SD memory card or an SD memory card formatted with other devices is used, this product may not work properly or performance deterioration may be caused. Refer to the Operating Instructions on the provided CD-ROM for how to format an SD memory card.
- When some SD memory cards are used with this product, the product may not work properly or performance deterioration may be caused.

### **Code label**

The code labels (accessory) are required at inquiry for trouble. Use caution not to lose these labels. It is recommended to paste one of the labels onto the CD-ROM case.

### **Discoloration on the color filter of the MOS image sensor**

- When continuously shooting a bright light source such as a spotlight, the color filter of the MOS image sensor 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.
- When shooting fast-moving subjects or performing panning/tilting operations, objects crossing the shooting area may look to be bending askew.

### **Indication label**

Refer to the indication label on the back of this product for the equipment classification and power source, etc.

### **AVC Patent Portfolio License**

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SEE [HTTP://WWW.MPEGLA.COM](http://www.mpegla.com)

# Precautions for Installation

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

## **This camera is designed to be used indoors.**

This product is not operable outdoors.

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

## **Do not place this product in the following places:**

- Locations where it may get wet from rain or water splash (including under the eaves, etc.)
- Locations where a chemical agent is used such as a swimming pool
- Locations subject to moisture or oil smoke such as a kitchen
- Locations that have a specific environment that is subject to an inflammable atmosphere or solvents
- Locations where a radiation, an X-ray, a strong radio wave or a strong magnetic field is generated
- 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 the specified range (☞ page 34)
- Locations subject to vibrations (This product is not designed for on-vehicle use.)

- Locations subject to condensation as the result of severe changes in temperature (In case of installing the camera in such locations, the dome cover may become foggy or condensation may be caused on the cover.)

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

## **Shielded (STP) LAN cables must be used with this unit to ensure compliance with EMC standards. \***

\* E model only

## **Before installation**

- When this camera is mounted on a ceiling or a wall, use the screws described on page 17. The screws to be used are not provided. 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.
- Ensure that the mounting surface, anchor and screws are sufficiently strong.
- Do not mount this product on a plaster board or a wooden section because they are too weak. If this product is unavoidably mounted on such a section, the section shall be sufficiently reinforced or use an optional ceiling mount bracket (WV-Q105).

## **About the network connection**

When connecting to a network using the network cable of this product, observe the following.

- When wiring for the network, design and engineer not to be affected by thunder.

## 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. Use of an impact driver may damage the screws or cause tightening excessively.
- Tighten screws at a right angle to the surface. After tightening screws, perform checks to ensure that the tightening is sufficient enough so that there is no movement or looseness.

## Fall prevention measures

When the external safety wire is connected, select a connection point resulting in that nothing will hit people after the mount bracket is damaged. Remove the slack of the safety wire by adjusting its connection position.

## Procure fixing screws separately.

The screws that secure this product are not supplied. Prepare them according to the material and strength of the area where the product is to be installed.

## Radio disturbance

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

## PoE (Power over Ethernet)

Use a PoE hub/device that is compliant with IEEE802.3af standard.

## Router

When connecting this product to the Internet, use a broadband router with the port forwarding function (NAT, IP masquerade).

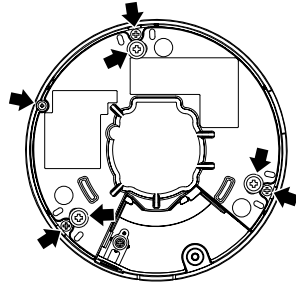
Refer to the Operating Instructions on the provided CD-ROM for further information about the port forwarding function.

## Time & date setting

It is necessary to set the time & date before putting this product into operation. Refer to the Operating Instructions on the provided CD-ROM for descriptions of how to perform the settings.

## Do not remove or loosen the screws on the rear of this product.

Ensure that the screws (7 pcs.) in the rear of the camera are firmly secured. Failure to observe this may cause a malfunction or the product to fall, resulting in injury or accidents.

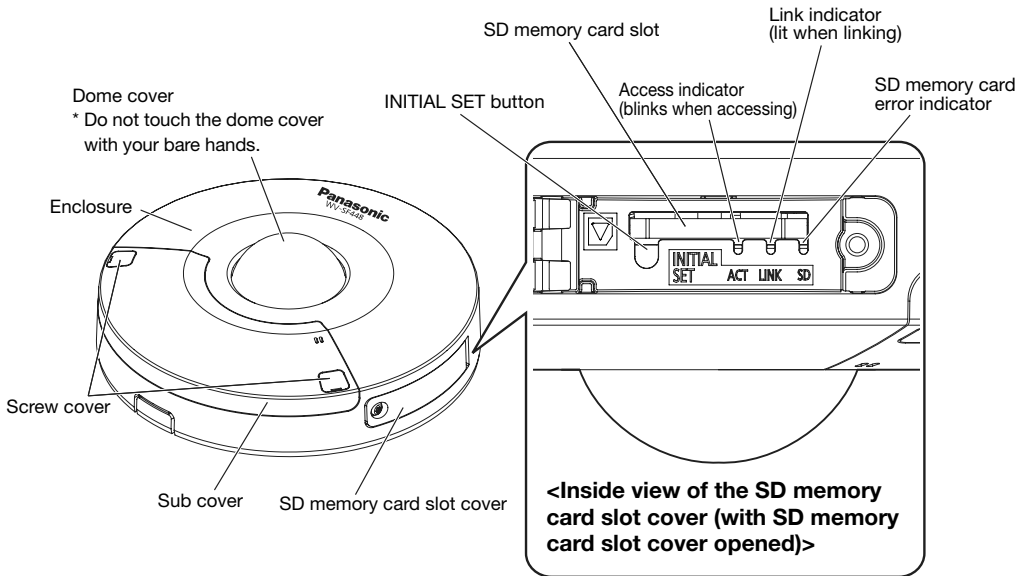


## Influence on images and their quality

This product has no wiper unit. Under the following conditions, image quality may deteriorate or images may not be viewed properly.

- Affects of dust in the air  
Depending on the installation environment, dome cover may be dirty due to dust in the air. That may degrade the quality of images.
- Affects of strong light  
When the camera is facing toward a spot light or other bright lights and light reflecting objects, ghost images (a phenomenon where objects that do not actually exist appear in images) may appear. In particular, ghost images may be more noticeable when the camera is facing toward an LED light.

# Major operating controls



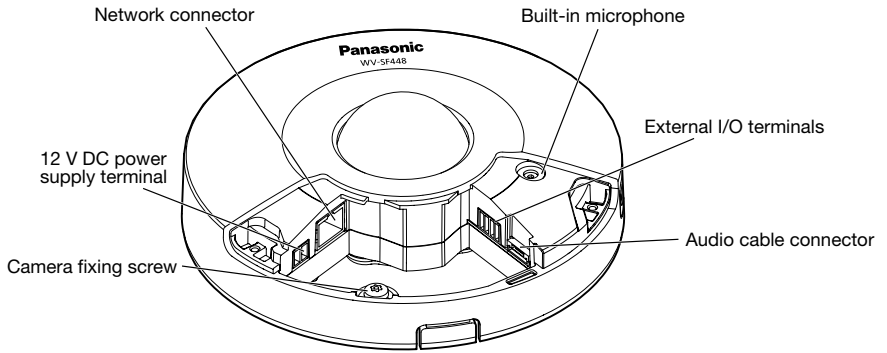
## About the [INITIAL SET] button

After turning off the power of the camera, turn on the power of the camera while holding down this button, and wait for about 5 seconds or more without releasing this button. Wait about 2 minutes after releasing the button. The camera will start up and the settings including the network settings will be initialized. Do not turn off the power of the camera during the process of initialization. Before initializing the settings, it is recommended to write down the settings in advance.

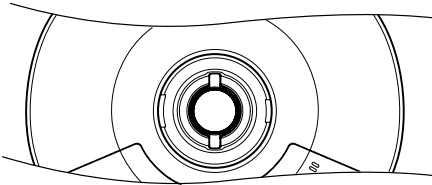
## About the indicators inside the SD memory card slot cover

The Access indicator, Link indicator, and SD memory card error indicator inside the SD memory card slot cover can be turned off. (Indicators are set to light or blink in the default settings.) Turn off the indicators as required according to the installation environment. (E3P Operating Instructions (included in the CD-ROM))

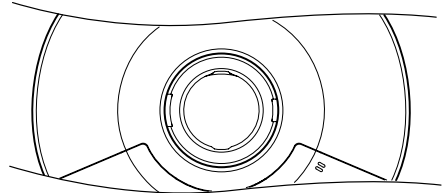
**<Inside view of the sub cover (with sub cover removed)>**



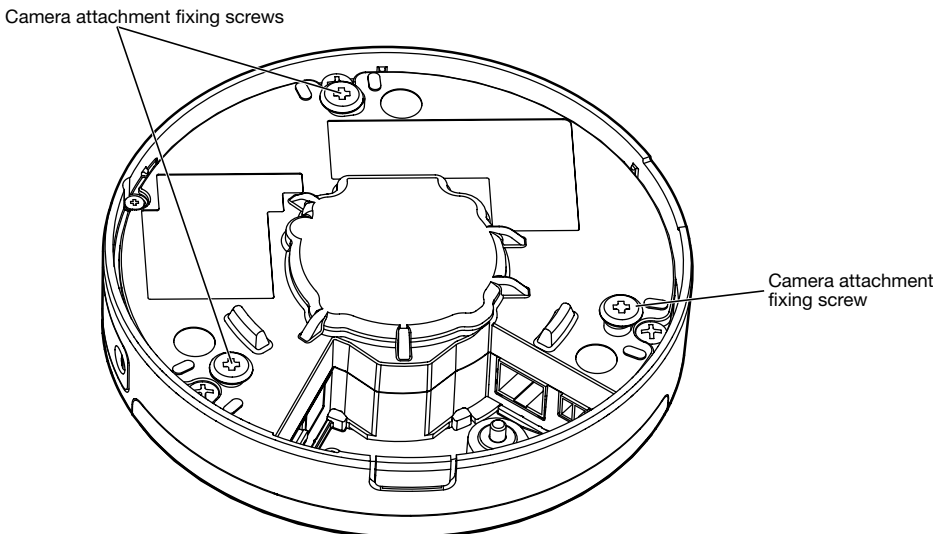
**• When the privacy mode is off**

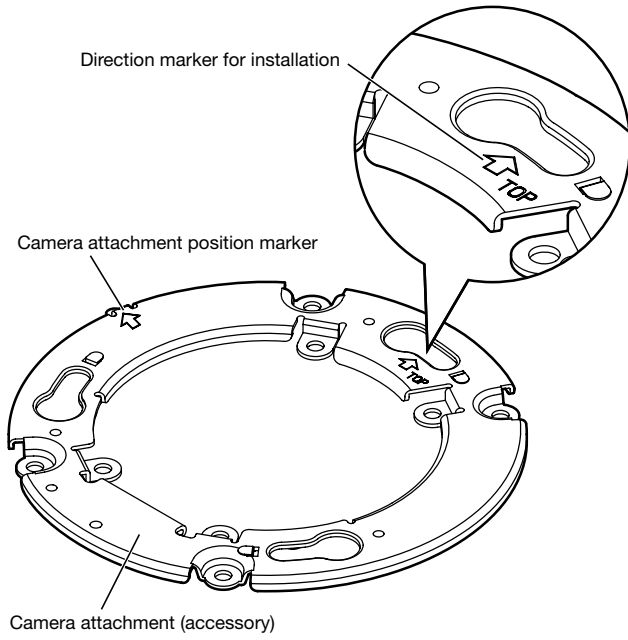


**• When the privacy mode is on**



**<Rear view>**







# Preparations

When installing the camera, there are 4 methods as specified below.

- Using the two-gang junction box (☞ pages 19)
- Installing the camera directly on the ceiling or wall (☞ page 20)
- Using the optional ceiling mount bracket WV-Q105\*<sup>1</sup> (for direct mounting on a ceiling) (☞ page 21)

---

## IMPORTANT:

- Procure 4 screws (M4) to secure the camera attachment (accessory) to a ceiling or a wall 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 (M4) or an AY plug bolt (M4) for securing. (Recommended tightening torque: 1.6 N·m {1.18 lbf·ft})
  - Mount the camera attachment (accessory) in consideration of the camera angle in accordance with the instructions (☞ pages 19 to 21).
  - 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 optional ceiling mount bracket for the camera, WV-Q105\*<sup>1</sup>, must be used.
- 

The mounting conditions of the camera are described as follows:

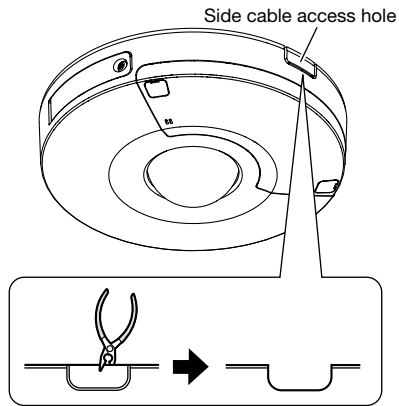
Installation place	Applicable mount bracket	Recommended screw	Number of screw	Minimum pull-out strength (per 1 pc.)
Ceiling/wall	Two-gang junction box	M4	4 pcs.	196 N {44 lbf}
Ceiling/wall	(Direct mounting)	M4	4 pcs.	196 N {44 lbf}
Ceiling	WV-Q105* <sup>1</sup> (approx. 150 g {0.33 lbs})	–	–	*2

\*1 E model only

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

## 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 enclosure to open a cable access hole.



---

### IMPORTANT:

- To prevent injury and protect cables, smooth opened cable access holes of the enclosure with a file or other tool.
- 

### Note:

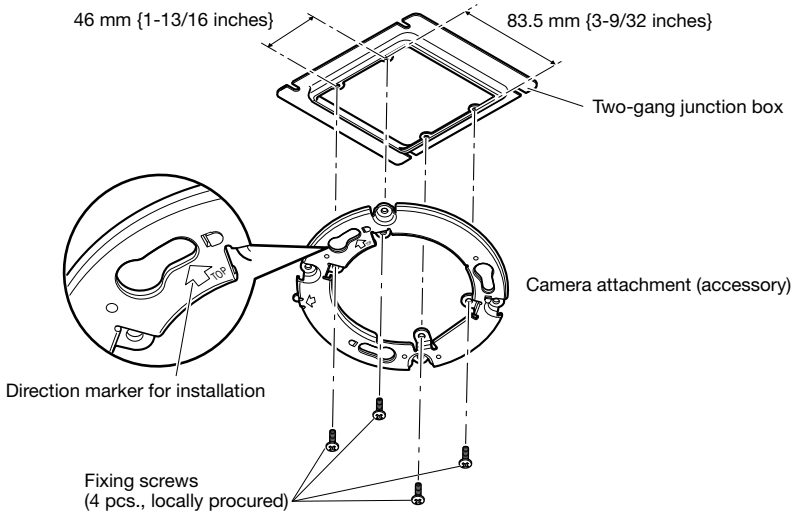
- To prevent filings or other substances entering inside the camera, remove the sub cover when using a file or other tool to smooth the cable access holes.
-

# Method of camera installation

## Using a two-gang junction box

Secure the camera attachment (accessory) to the two-gang junction box built in a ceiling or wall using the fixing screws (locally procured).

### [Mounting hole pattern]



---

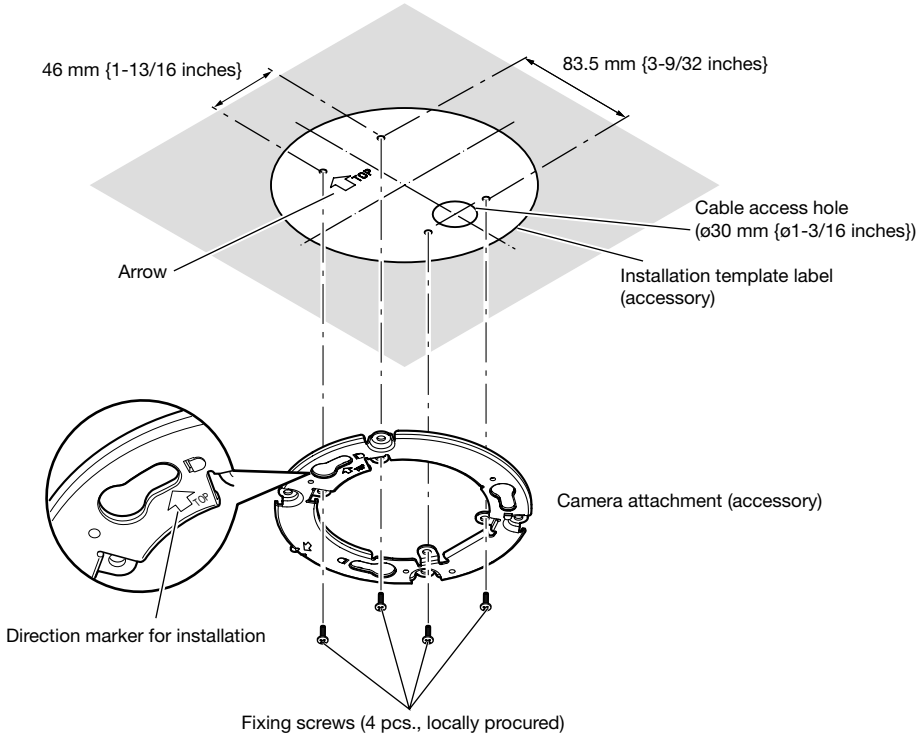
#### Note:

- The direction of “↑TOP” on the camera attachment (accessory) determines the upwards direction of the image on the PC monitor.
  - For ceiling mounting:  
Determine the direction that you want images to be displayed upwards on the PC monitor, and then mount the camera attachment (accessory) with “↑TOP” facing this direction.
  - For wall mounting:  
The camera attachment (accessory) shall be mounted with “↑TOP” facing upward.
-

## Installing the camera directly on the ceiling or wall

Place the installation template label (accessory) on the ceiling or wall, and make a hole to pass the cable.

Remove the template label, and mount the camera attachment (accessory) by fixing 4 screws (locally procured).



---

### IMPORTANT:

- For mounting a camera on a concrete surface, use an anchor bolt (M4) or an AY plug bolt (M4) for installing.  
(Recommended tightening torque M4: 1.6 N·m {1.18 lbf·ft})

---

### Note:

- The direction of “↑TOP” on the camera attachment (accessory) determines the upwards direction of the image on the PC monitor.  
Determine the direction that you want images to be displayed upwards on the PC monitor. When installing, make sure that the direction of the arrow shown on the installation template label matches that of the direction marker for installation.
-

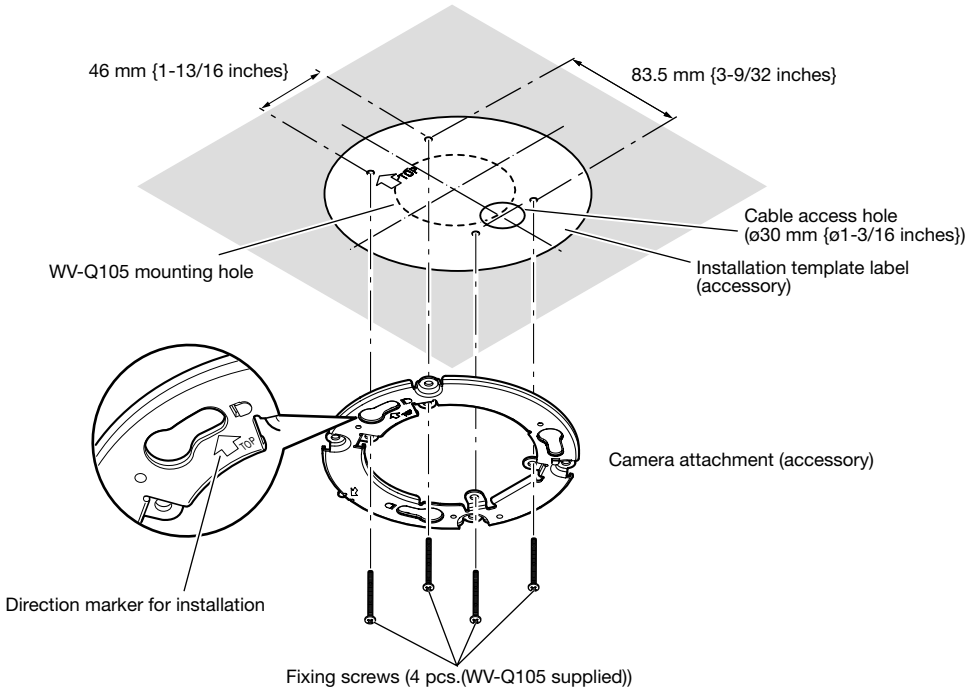
## Using the optional ceiling mount bracket WV-Q105 (E model only)

When using the optional ceiling mount bracket to mount the camera, first place the installation template (WV-Q105 accessory) on the ceiling, and then make a hole in ceiling and mount the WV-Q105.

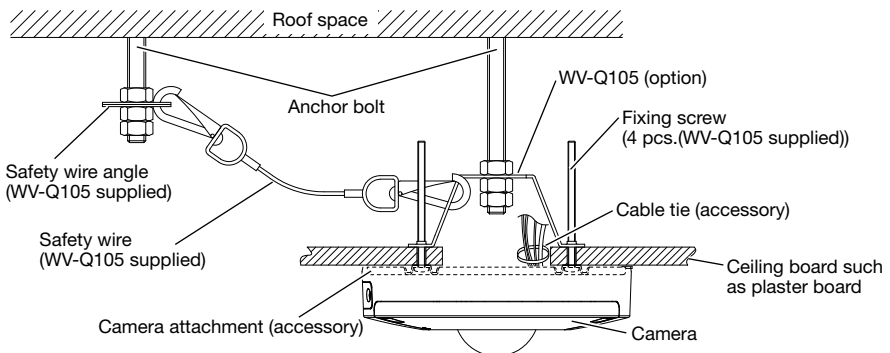
Next place the installation template label (accessory) on the ceiling, and make a hole to pass the cables. After completing this, remove the template label, and mount the camera attachment (accessory) by fixing 4 screws (WV-Q105 accessory).

Refer to WV-Q105 Operating Instructions for information on how to mount the camera when using the optional mounting bracket.

The following illustration shows when the mounting for the optional mounting bracket and camera attachment is completed.



<Completed mounting image>



# Insert/remove an SD memory card

## IMPORTANT:

- When inserting an SD memory card, make sure the direction.
- Before removing the SD memory card, select “Not use” for “SD memory card” on the [SD memory card] tab of the “Basic” page first. Turn off the power after “Not use” selection, and then unload the SD memory card. When the SD memory card is inserted or removed with the power on, data in the SD memory card may be damaged.  
(☞ Operating Instructions (included in the CD-ROM))

### 1 Open the SD memory slot cover.

Loosen the SD memory card slot cover fixing screw with the bit for tamperproof screw (accessory), then open the SD memory card slot cover by using the notched area.

#### IMPORTANT:

- Do not use excessive force when opening SD memory cards out from the SD memory card slot. Failure to observe this may damage the SD memory card slot cover.

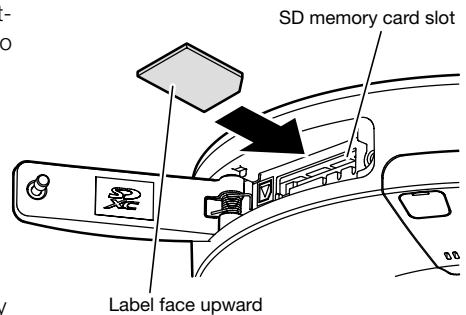
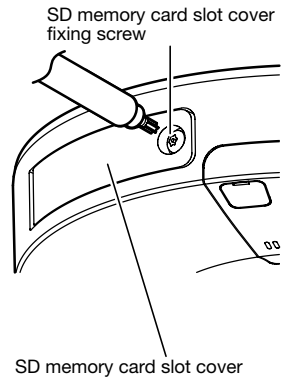
### 2 Insert an SD memory card fully into the SD memory card slot until a click is heard.

### 3 Attach the SD memory card slot cover, and tighten the SD memory card slot fixing screw to secure the cover.

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

### 4 When removing the SD memory card, push in the SD memory card until a click is heard after executing step 1, then pull it out from the SD memory card slot. After opening the SD memory card, attach the SD memory card slot cover, and tighten the SD memory card slot cover fixing screw to secure the cover.

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



# Connection

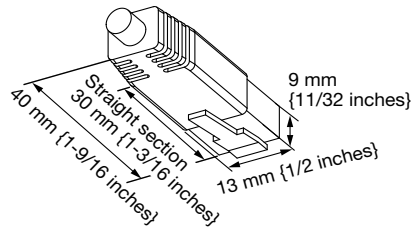
## Caution:

- ONLY CONNECT 12 V DC CLASS 2 POWER SUPPLY (UL 1310/CSA 223) or LIMITED POWER SOURCE (IEC/EN/UL/CSA 60950-1).
- A READILY ACCESSIBLE DISCONNECT DEVICE SHALL BE INCORPORATED TO THE EQUIPMENT POWERED BY 12 V DC POWER SUPPLY.

Before starting the connection, turn off the power of this camera and the devices to be connected. Check and prepare the required devices and cables for connection.

## Note:

- Since the connector storage section does not have a sufficient space, use a LAN cable that do not exceed the sizes described in the illustrations.

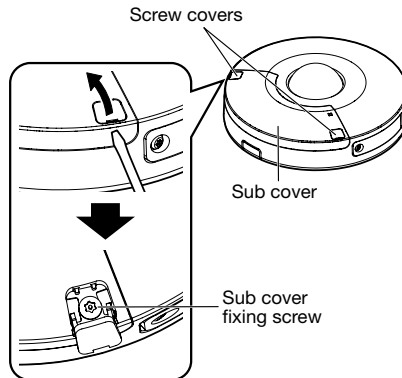


Example of LAN cable connector

- 1 Remove the sub cover.

Open the screw covers x2 of the camera with a thin tool\* as illustrated. Loosen the sub cover fixing screws x2 using the bit for tamperproof screw (accessory), then remove the sub cover.

\* A slotted head screwdriver etc.



## IMPORTANT:

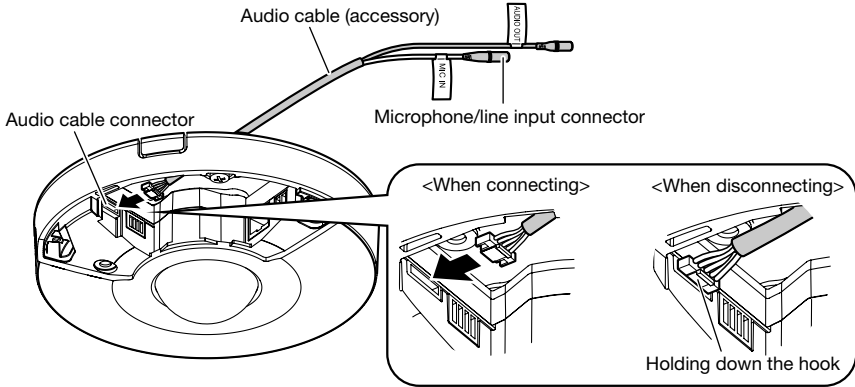
- Do not use excessive force when removing the sub cover. Failure to observe this may damage the sub cover.

## 2 Connecting an external microphone and an external speaker

Connect the audio cable (accessory) to the audio cable connector, then connect the microphone to Microphone/line input connector.

When disconnecting the audio cable (accessory), pull out the audio cable (accessory) while holding down the hook of the connector.

(The sub cover is not shown in the following illustrations.)



Input impedance:

Recommended cable length:

Recommended microphone:

- Supply voltage:
- Recommended sensitivity of microphone:

Approx. 2 k $\Omega$

1 m {3.3 feet} or less (for microphone input)

10 m {33 feet} or less (for line input)

Plug-in power type microphone (option)

Connect a monaural mini plug ( $\phi 3.5$  mm).

2.5 V $\pm$ 0.5 V

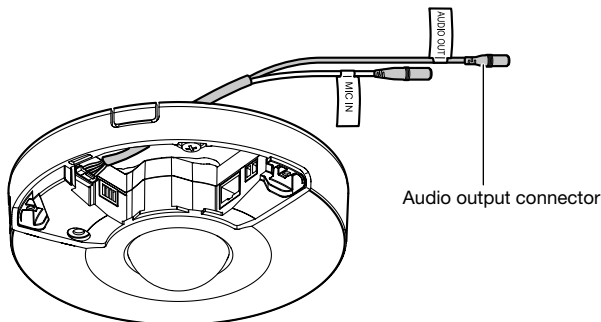
-48 dB  $\pm$ 3 dB (0 dB=1 V/Pa, 1 kHz)

### IMPORTANT:

- Connect/disconnect the audio cables and turn on the power of the camera after turning off the power of the audio output devices. Otherwise, loud noise may be heard from the speaker.

3 Connect an external speaker with amplifier to the audio output connector of the audio cable. Connect a stereo mini plug ( $\phi 3.5$  mm) (audio output is monaural).

- Recommended cable length: 10 m {33 feet} or less





#### 4 Connecting an External I/O terminal

Connect the cables of external devices to the External I/O terminal plug (accessory).

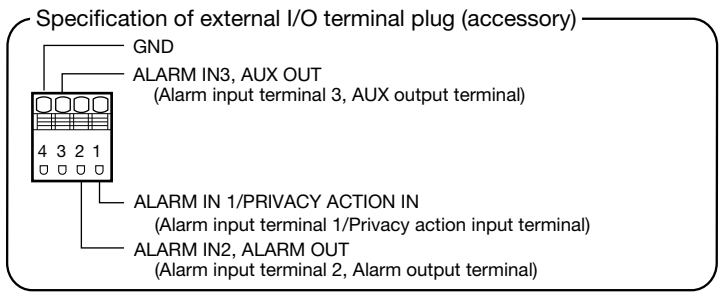
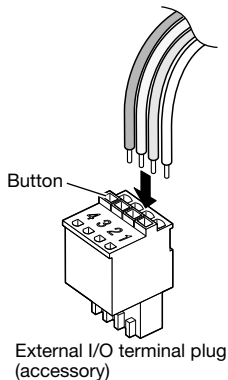
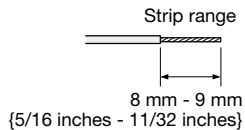
- When connecting an external device, remove 8 mm - 9 mm {5/16 inches - 11/32 inches} of the outer jacket of the cable and twist the cable core to prevent the short circuit first.

Specification of cable (wire):

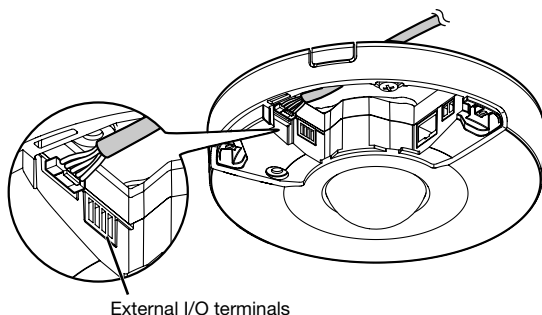
20 AWG - 26 AWG, Single core, twisted

- Push down the button of the desired terminal on the external I/O terminal plug with a ballpoint pen, and release the button when the cable of the external device is fully inserted into the terminal hole.

\* Check whether the stripped part of the wire is not exposed and is securely connected.



- After the cable connection, connect the external I/O terminal plug to the external I/O terminals of the camera.



---

**IMPORTANT:**

- Do not connect 2 wires or more directly to a terminal. When it is necessary to connect 2 wires or more, split the wire and connect the split wires to the terminal.
  - Input and output of the External I/O terminal 2 and 3 can be switched by configuring the setting. "Off" is selected by default. It is possible to determine whether or not to receive input from External I/O terminal 2 and 3 (ALARM IN2, 3) by selecting "Off", "Alarm input", "Alarm output" or "AUX output" for "Terminal 2" or "Terminal 3" on the [Alarm] tab of the "Alarm" page. Refer to the Operating Instructions on the provided CD-ROM for further information.
  - Connect an external device with verifying that the ratings are within the specifications below.
  - When using the External I/O terminals as the output terminals, ensure they do not cause signal collision with external signals.
  - In order for the External I/O terminal to detect alarm inputs when the terminal status is changed from Open to Close (On) or from Close to Open (Off), about 100 ms or more is needed. Because alarms cannot be detected for about 5 seconds after a detection is made, alarm inputs received within about 5 seconds after an alarm is detected are not detected.
- 

**<Ratings>**

- ALARM OUT, AUX OUT

Output specification: Open collector output (maximum applied voltage: 20 V DC)

Open: 4 V - 5 V DC by internal pull-up

Close: Output voltage 1 V DC or less (50 mA or less)

- ALARM IN

Input specification: No-voltage make contact input (4 V - 5 V DC, internally pulled up)

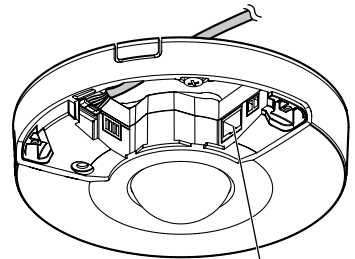
Off: Open or 4 V - 5 V DC

On: Make contact with GND (required drive current: 1 mA or more)

- 5** Connect a LAN cable (category 5 or better, straight, STP\*) to the network connector.

\* E model only

- 6** Connect the power supply.



---

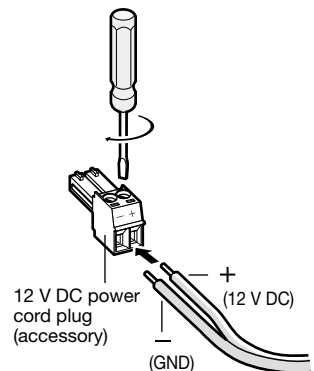
**IMPORTANT:**

- The 12 V DC power supply shall be insulated from the commercial AC power.
- 

**When using 12 V DC power supply\***

- ① Loosen the screws of the power cord plug (accessory).
- ② Connect the cable of the 12 V DC power supply\* to the power cord plug.  
Strip 3 mm - 7 mm {1/8 inches - 9/32 inches} from the end of the wire, and twist the stripped part of the wire sufficiently to avoid short circuit.  
Specification of cable (wire):  
16 AWG - 24 AWG, Single core, twisted
- ③ Tighten the screws of the power cord plug.  
(Recommended tightening torque:  
0.34 N·m {0.25 lbf·ft})
- ④ Connect the power cord plug to the 12 V DC power supply terminal.

\* ONLY CONNECT 12 V DC CLASS 2 POWER SUPPLY or LIMITED POWER SOURCE.



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**IMPORTANT:**

- Be sure to use the power cord plug provided with this product.
  - Be sure to fully insert the power cord plug (accessory) into the 12 V DC power supply terminal. Otherwise, it may damage the camera or cause malfunction.
  - When installing the camera, make sure that excessive force is not applied to the power cable.
  - Be sure to use an AC adaptor compliant with the Specifications regarding power source and power consumption. (☞ Page 34)
- 

**When using PoE (IEEE802.3af compliant)**

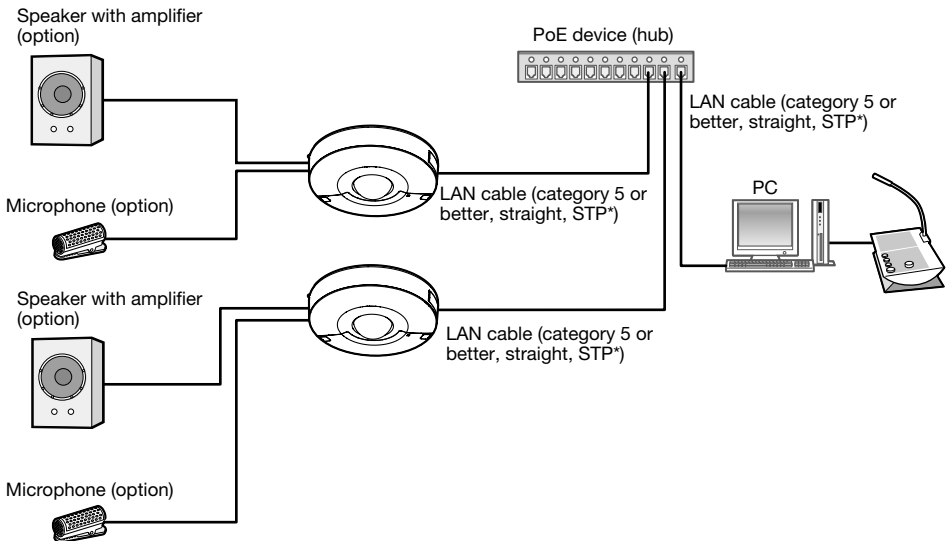
Connect a LAN cable (category 5 or better, straight, STP\*) between a PoE device (such as a hub) and the network connector of the camera.

\* E model only

---

**IMPORTANT:**

- Use all 4 pairs (8 pins) of the LAN cable.
  - The maximum cable length is 100 m {328 feet}.
  - Make sure that the PoE device in use is compliant with IEEE802.3af standard.
  - When connecting both the 12 V DC power supply and the PoE device for power supply, 12 V DC will be used for power supply. Depending on the PoE device used, the power supply lamp may not light and the network connections may not be possible. In this case, disable the PoE device setting, and refer to the operating instructions of the PoE device in use.
  - When the LAN cable is disconnected once, reconnect the cable after about 2 seconds. When the cable is quickly reconnected, the power may not be supplied from the PoE device.
- 

**Connection example when connecting to a network using a PoE hub****<Required cable>**

LAN cable (category 5 or better, straight, STP\*)

\* E model only

---

**IMPORTANT:**

- Use a switching hub or a router which is compliant with 10BASE-T/100BASE-TX.
  - If a PoE device (hub) is not used, each network camera must be connected to a power supply.
  - The camera is to be connected only to PoE networks without routing to the outside plant when using PoE.
-

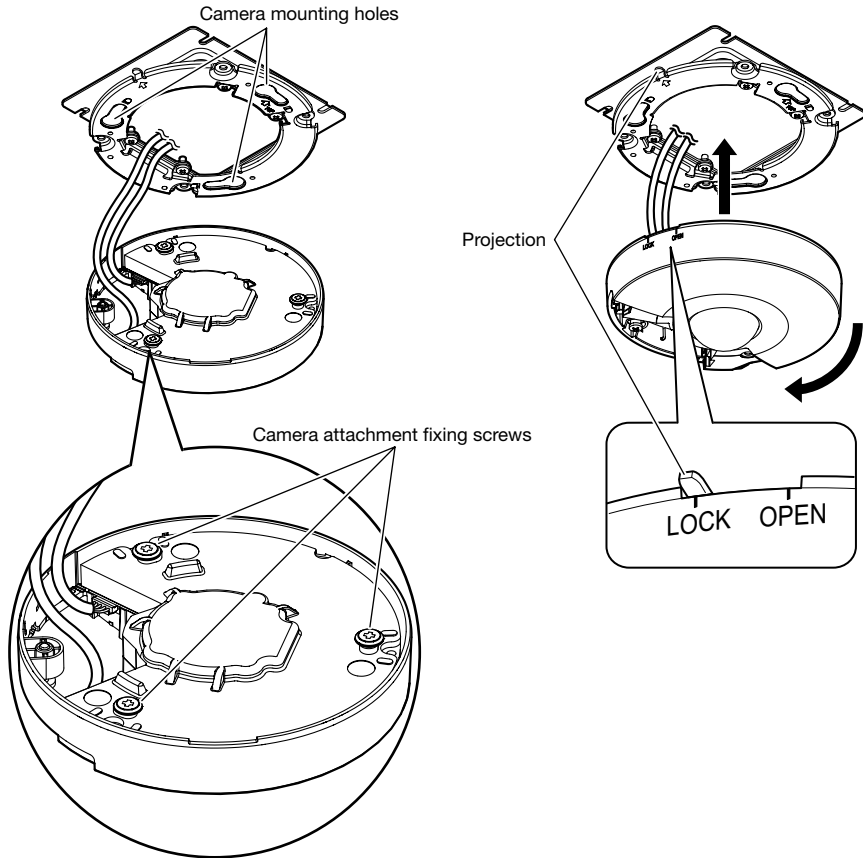
## Camera mounting

### Mount the camera with the camera attachment (accessory)

Installation shall be conducted after turning off each device.

- 1** Determine the mounting position and mounting method for the camera.
  - <Using a two-gang junction box>**  
Secure the camera attachment (accessory) to the two-gang junction box (locally procured).  
(☞ Pages 19)
  - <Installing the camera directly on the ceiling or wall>**  
Attach the camera attachment (accessory) using the installation template label (accessory).  
(☞ Page 20)
  - <Using the optional ceiling mount bracket WV-Q105 (option) \* >**  
Attach the camera attachment (accessory) using the optional ceiling mount bracket WV-Q105 (option). (☞ Page 21)  
\* E model only
  
- 2** Remove the sub cover. (☞ Page 23)
  
- 3** Connect the cables to the camera. (☞ Pages 24 to 27)  
As necessary, use a cable tie (accessory) to assemble the cables.

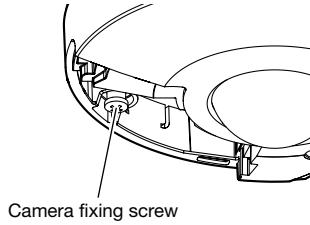
- 4 Using the camera attachment position marker as a guide, match the “OPEN” position of the camera to the projection of the camera attachment (accessory).
- 5 Engage the camera attachment fixing screws in the rear of the camera with the camera mounting holes of the camera attachment (accessory) and rotate the camera in the direction of the arrow shown below to secure the camera. Make sure that the projection of the camera attachment will be set to the “LOCK” position.  
(The illustration is an example of using a two-gang junction box.)



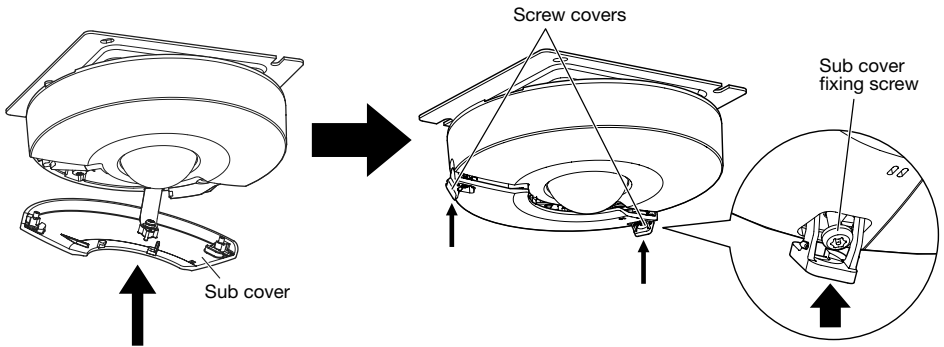
**6** Tighten the camera fixing screw.

**IMPORTANT:**

- Securely tighten the camera fixing screw. Failure to do so may cause damage or the camera to drop.  
(Recommended tightening torque: 0.78 N·m {0.58 lbf·ft})



**7** Attach the sub cover. (The illustration is an example of using a two-gang junction box.)  
Attach the sub cover to the camera, then fix it to the camera with the sub cover fixing screws x2.  
(Recommended tightening torque: 0.78 N·m {0.58 lbf·ft})  
After that, close the screw covers x2 of the camera.  
Make sure that the sub cover is securely fixed.



**8** Remove the cover film from the dome cover.

## Configure the network settings

### Configuring the camera so that it can be accessed from a PC

The following are descriptions for when the camera with default settings is configured. If you are using firewall software on your PC, the Setup Program may not be able to find any cameras on your network. Configure the setting of the camera after temporarily invalidating the firewall software. Contact the network administrator or your Internet service provider for information about configuring the settings of the network.

**1** Insert the provided CD-ROM into the CD-ROM drive of your PC.

- The License Agreement will be displayed. Read the Agreement and choose “I accept the term in the license agreement”, and click [OK].
- The launcher window will be displayed. If the launcher window is not displayed, double click the “CDLauncher.exe” file on the CD-ROM.



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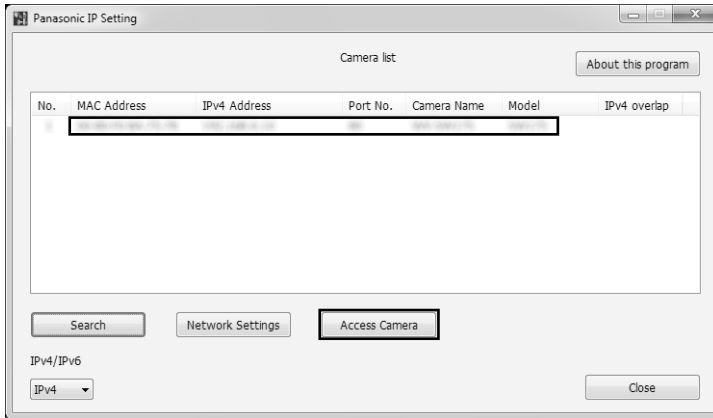
**Note:**

- Refer to “Using the CD-ROM” in the Operating Instructions on the provided CD-ROM for further information about CDLauncher.
- 

**2** Click the [Run] button next to [IP Setting Software].

[Panasonic IP Setting] screen will be displayed. Click the [Network Settings] button after selecting the MAC address/IP address of the camera to be configured.

- 3 Select the camera you want to configure, and click [Access Camera].



---

**Note:**

- When cameras are displayed in [Panasonic IP Setting] screen, click the camera with same MAC address as the MAC address printed on the camera that you want to configure.
- 

- 4 If the installation screen of the viewer software “Network Camera View 4S” is displayed, follow the instructions of the wizard to start the installation. (The viewer software is installed from the camera.)

- The “Live” page will be displayed.
- Perform the [Time & date] settings in the “Setup” - “Basic” page before using the camera.
- If you cannot install the viewer software “Network Camera View 4S” or if images are not displayed, click the [Install] button next to [Viewer Software] on the launcher window to install the software.

---

**Note:**

- When no image is displayed on the “Live” page, refer to the Troubleshooting in the Operating Instructions on the provided CD-ROM.
  - It is possible to enhance the network security by encrypting the access to cameras using the HTTPS function. Refer to the Operating instructions on the provided CD-ROM for how to configure the HTTPS settings.
  - Click the [Setup] button on the “Live” page, the user authentication window will be displayed. Enter the default user name and password as follows, and log in.  
User name: admin  
Password: 12345
  - When changing settings related to the network settings, such as connection mode, IP address, and subnet mask, click the [Network Settings] button in [Panasonic IP Setting] screen as shown in step 3, then change each setting.
  - Due to security enhancements in “IP Setting Software”, “Network settings” of the camera to be configured cannot be changed when around 20 minutes have passed after turning on the power of the camera. (When the effective period is set to “20 min” in the “Easy IP Setup accommodate period”.)  
However, settings can be changed after 20 minutes for cameras in the initial set mode.
-



# 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
<b>Power is not turned on.</b>	<p><b>When using DC power supply</b></p> <ul style="list-style-type: none"><li>• Is 12 V DC power supply connected to the power supply terminal? → Check whether the connection is appropriately established.</li><li>• Is the AC adaptor in use compliant with the Specifications? → Check the Specifications regarding AC adaptor.</li></ul> <p><b>When using a PoE device for power supply</b></p> <ul style="list-style-type: none"><li>• Are the PoE device and the network connector on the rear of the camera connected using a LAN cable (4-pair)? → Check whether the connection is appropriately established.</li><li>• Depending on the PoE device, the power supply will stop when the demanded power exceeds its total power limit for all PoE ports. → Refer to the operating instructions of the PoE device in use.</li></ul>	26, 27

# Specifications

## • Basic

Power source:	12 V DC, PoE (IEEE802.3af compliant)
Power consumption:	12 V DC*: 610 mA/ 7.3 W PoE 48 V: 140 mA/ 6.7 W (Class 0 devices) * ONLY CONNECT 12 V DC CLASS 2 POWER SUPPLY or LIMITED POWER SOURCE.
Ambient operating temperature:	-10 °C to +50 °C {14 °F to 122 °F}
Ambient operating humidity:	Less than 90 % (no condensation)
Shock resistance:	Compliant with 20 J (IEC 60068-2-75)/IK10 (IEC 62262)
External I/O terminals:	ALARM IN 1/PRIVACY ACTION IN, ALARM IN 2/ ALARM OUT, ALARM IN 3/ AUX OUT (x1 for each)
Microphone/line input cable:	Built-in microphone, ø3.5 mm monaural mini jack Input impedance: Approx. 2 kΩ
For microphone input:	Applicable microphone: Plug-in power type Supply voltage: 2.5 V ±0.5 V
For line input:	Input level: Approx. -10 dBV
Audio output cable:	ø3.5 mm stereo mini jack (monaural output) Output impedance: Approx. 600 Ω Line level
Mounting method:	Ceiling/ Wall
Dimensions:	ø150 mm x 50.5 mm (H) {ø5-29/32 inches x 2 inches (H)}
Mass:	Main body: Approx. 560 g {1.24 lbs} Camera attachment: Approx. 90 g {0.20 lbs}
Finish:	Main body: Aluminum die cast, sail white Dome cover: Clear polycarbonate resin

## • Camera

Image sensor:	1/3-type MOS image sensor
Effective pixels:	Approx. 3.1 megapixels
Scanning area:	4.51 mm (H) × 3.38 mm (V) {3/16 inches (H) x 1/8 inches (V)}
Scanning system:	Progressive
Minimum illumination:	Color: 1.5 lx {0.15 footcandle} (F2.4, Auto slow shutter: Off (1/30 s), Gain: On(High)) 0.1 lx {0.01 footcandle} (F2.4, Auto slow shutter: max. 16/30 s, Gain: On(High))* BW: 1.2 lx {0.12 footcandle} (F2.4, Auto slow shutter: Off (1/30 s), Gain: On(High)) 0.08 lx {0.008 footcandle} (F2.4, Auto slow shutter: max. 16/30 s, Gain: On(High))* * Converted value
Super-Dynamic:	On/Off
Dynamic range:	52 dB typ. (only at Super-Dynamic On)
Gain (AGC):	On (High)/ On (Mid)/ On (Low)/ Off
Adaptive black stretch:	On/Off (only at Super-Dynamic Off)
Light control mode setting:	Indoor scene (50 Hz/60 Hz)/ ELC

ELC (Maximum exposure time):	<ul style="list-style-type: none"> <li>• With Super Dynamic On ELC (1/30 s)</li> <li>• With Super Dynamic Off ELC (1/30 s), ELC (3/100 s), ELC (3/120 s), ELC (2/100 s), ELC (2/120 s), ELC (1/100 s), ELC (1/120 s), ELC (1/250 s), ELC (1/500 s), ELC (1/1000 s), ELC (1/2000 s), ELC (1/4000 s), ELC (1/10000 s)</li> </ul>
Auto slow shutter:	Off (1/30 s), max. 2/30 s, max. 4/30 s, max. 6/30 s, max. 10/30 s, max. 16/30 s
Day & Night (electrical):	Off/ Auto
White balance:	ATW1/ ATW2/ AWC
Digital noise reduction:	High/Low
Number of the preset positions:	16 Preset can only be used when the image type is Quad PTZ or Single PTZ.
Auto mode:	Auto pan/ Preset sequence Auto mode can only be used when the image type is Quad PTZ or Single PTZ.
Self return:	10 s/ 20 s/ 30 s/ 1 min/ 2 min/ 3 min/ 5 min/ 10 min/ 20 min/ 30 min/ 60 min Self return can only be used when the image type is Quad PTZ or Single PTZ.
Privacy zone:	Gray/Off (up to 4 zones available)
Privacy mode:	On/Off
VIQS:	On/Off (up to 2 areas available) However, VIQS is not supported when “Single PTZ”, “Quad PTZ”, or “Quad streams” is selected for the image type.
Camera title on screen:	Up to 20 characters (alphanumeric characters, marks) On/Off However, you can specify characters to be displayed on each of the four screens when “Quad streams” is selected.
Video motion detection (VMD alarm):	On/Off, (up to 4 areas available)

#### • Lens

Focal length:	0.837 mm
Maximum aperture ratio:	1:2.4 (Fixed)
Angular field of view:	Horizontal: 182° Vertical: 176°

• **Network**

Network:	10BASE-T/100BASE-TX, RJ-45 connector
Resolution:	<p>2M Panorama [16:9]/ 2M Double Panorama [16:9]:</p> <p>H.264(1) 1920x1080/640x360/320x180 max.30 fps</p> <p>H.264(2) 640x360/320x180 max.30 fps</p> <p>JPEG 1920x1080/640x360/320x180 max.30 fps</p> <hr/> <p>1M Panorama [16:9]/ 1M Double Panorama [16:9]:</p> <p>H.264(1) 1280x720/640x360/320x180 max.30 fps</p> <p>H.264(2) 640x360/320x180 max.30 fps</p> <p>JPEG 1280x720/640x360/320x180 max.30 fps</p> <hr/> <p>1.3M Fisheye [4:3]/ 1.3M Quad PTZ [4:3]/ 1.3M Single PTZ [4:3]:</p> <p>H.264(1) 1280x960/640x480/320x240 max.30 fps</p> <p>H.264(2) 640x480/320x240 max.30 fps</p> <p>JPEG 1280x960/640x480/320x240 max.30 fps</p> <hr/> <p>Panorama + Quad PTZ/ Panorama + Single PTZ/ Double Panorama + Quad PTZ/ Double Panorama + Single PTZ:</p> <ul style="list-style-type: none"> <li>• When using distribution of “Panorama” or “Double panorama”</li> </ul> <p>H.264(1) 1920x1080/640x360/320x180 max.15 fps</p> <p>JPEG 1920x1080/640x360/320x180 max.15 fps</p> <ul style="list-style-type: none"> <li>• When using distribution of “Quad PTZ” or “Single PTZ”</li> </ul> <p>H.264(2) 1280x960/640x480/320x240 max.15 fps</p> <p>JPEG 1280x960/640x480/320x240 max.15 fps</p> <hr/> <p>VGA Quad streams*:</p> <p>Ch1-Ch4 640x480 max.30 fps</p> <p>* Only for H.264 images.</p> <p>* There are specification limitations such as the SD memory card function being unavailable.</p> <hr/> <p>3M Fisheye [4:3]:</p> <p>H.264(1) 1280x960 max.15 fps</p> <p>JPEG 2048x1536 max.15 fps</p>
Image compression method*1:	<p>H.264</p> <p>Image quality: Low/ Normal/ Fine</p> <p>Transmission type: Unicast/Multicast</p> <p>Bit rate:</p> <p>Constant bit rate/Best effort: 64 kbps/ 128 kbps/ 256 kbps/ 384 kbps/ 512 kbps/ 768 kbps/ 1024 kbps/ 1536 kbps/ 2048 kbps/ 3072 kbps/ 4096 kbps/ 8192 kbps/ 10240 kbps/ 12288 kbps/ 14336 kbps</p> <p>Frame rate:</p> <p>1 fps/ 3 fps/ 5 fps/ 7.5 fps/ 10 fps/ 12 fps/ 15 fps/ 20 fps/ 30 fps</p>
Image compression method*1:	<p>JPEG (MJPEG)</p> <p>Image quality:</p> <p>0 SUPER FINE/ 1 FINE/ 2/ 3/ 4/ 5 NORMAL/ 6/ 7/ 8/ 9 LOW (10 steps: 0-9)</p> <p>Transmission type: PULL/PUSH</p>
Transmission interval:	0.1 fps - 30 fps (JPEG frame rate will be restricted when displaying both JPEG and H.264 images.)
Audio compression method:	G.726 (ADPCM) 32 kbps/ 16 kbps G.711 64 kbps
Bandwidth control:	Unlimited/ 64 kbps/ 128 kbps/ 256 kbps/ 384 kbps/ 512 kbps/ 768 kbps/ 1024 kbps/ 2048 kbps/ 4096 kbps/ 8192 kbps

Protocol:	IPv6: TCP/IP, UDP/IP, HTTP, HTTPS, RTP, FTP, SMTP, DNS, NTP, SNMP, DHCPv6, MLD, ICMP, ARP IPv4: TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTP/RTCP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP
OS*2 *3:	Microsoft Windows 8 Microsoft Windows 7 Microsoft Windows Vista Microsoft Windows XP SP3
Browser:	Windows Internet Explorer 10.0 (32-bit) Windows Internet Explorer 9.0 (32-bit) Windows Internet Explorer 8.0 (32-bit) Windows Internet Explorer 7.0 (32-bit)
Maximum concurrent access number:	14 (Number of sessions that can connect to cameras at the same time) * Depends on network conditions
FTP client:	Alarm image transmission, FTP periodic transmission (When the FTP transmission is failed, backup on an optional SD memory card is available.)
Multi-screen:	Up to 16 camera images can be displayed simultaneously on a multi-screen. (Including the camera itself)
Compatible SDXC/SDHC/SD memory card (option):	Manufactured by Panasonic (SD speed class 4 or higher) SDXC memory card: 64 GB SDHC memory card: 4 GB, 8 GB, 16 GB, 32 GB SD memory card: 2 GB (except miniSD card and microSD card)
Cellular phone compatibility:	JPEG image, AUX control (by access level)
Mobile terminal compatibility: (As of June, 2013) <sup>*4</sup>	iPad, iPhone, iPod touch (iOS 4.2.1 or later) Android™ mobile terminals

\*1 Transmission for 2 streams can be individually set in the same compression method.

\*2 For further information about PC system requirements and precautions for when using Microsoft Windows 8, Microsoft Windows 7, Microsoft Windows Vista, or Windows Internet Explorer, click “Manual” - “Open” from the supplied CD-ROM and refer to “Notes on Windows® / Internet Explorer® versions”.

\*3 When using IPv6 for communication, use Microsoft Windows 8, Microsoft Windows 7 or Microsoft Windows Vista.

\*4 For further information about compatible devices, refer to our website (<http://security.panasonic.com/pss/security/support/info.html>).

## Standard accessories

Installation Guide (this document) .....	1 pc.
Warranty card (P model only) .....	1 pc.
CD-ROM*1 .....	1 pc.
Code label*2 .....	1 pc.

The following parts are used during installation procedures.

Camera attachment .....	1 pc.
Audio cable .....	1 pc.
Power cord plug .....	1 pc.
External I/O terminal plug .....	1 pc.
Installation template label .....	1 pc.
Cable tie .....	2 pcs. (incl. 1 spare)
Bit for tamperproof screw .....	1 pc.

\*1 The CD-ROM contains the operating instructions and different kinds of tool software programs.

\*2 This label may be required for network management. The network administrator shall retain the code label.

## Optional accessories

User License Accessory (For H.264) .....	BB-HCA8A (P model) BB-HCA8CE (E model, Korea*)
Ceiling Mount Bracket .....	* Required in Korea WV-Q105 (E model only)



## Information for Users on Collection and Disposal of Old Equipment and used Batteries



These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries should not be mixed with general household waste.

For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC and 2006/66/EC.

By disposing of these products and batteries correctly, you 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.

For more information about collection and recycling of old products and batteries, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.

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]

These symbols are only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.



**Cd**

### Note for the battery symbol (bottom two symbol examples):

This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.

### For U.S.:

#### Panasonic System Communications Company of North America, Unit of Panasonic Corporation of North America

[www.panasonic.com/business/](http://www.panasonic.com/business/)  
For customer support, call 1.800.528.6747  
Three Panasonic Way, Secaucus,  
New Jersey 07094 U.S.A.

### For Europe and other countries:

#### Panasonic Corporation

<http://panasonic.net>

Panasonic System Networks Co., Ltd.  
Fukuoka, Japan

Authorised Representative in EU:

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

