



Panasonic®

Installation Guide

Network Camera

Model No. **WV-SW158**



WV-SW158



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.

For U.S. and Canada:
WV-SW158
For Europe and other countries:
WV-SW158

UL listed model No.
WV-SW158

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. _____

WARNING:

- To prevent injury, this apparatus must be securely attached to the wall/ceiling in accordance with the installation instructions.
- All work related to the installation of this product should be made by qualified service personnel or system installers.
- For PERMANENTLY CONNECTED APPARATUS provided neither with an all-pole MAINS SWITCH nor an all-all pole circuit breaker, the installation shall be carried out in accordance with all applicable installation rules.
- The connections should comply with local electrical code.

CAUTION:

- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

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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.

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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 block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 6) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 7) Only use attachments/accessories specified by the manufacturer.
- 8) 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.



- 9) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 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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- (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 camera WV-SW158 is designed to operate using a PC on a network (10BASE-T/100BASE-TX), and can be installed under eaves (sheltered outdoor).
By connecting to a network (LAN) or the Internet, images from the camera can be monitored on a PC via a network.

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

H.264 and JPEG triple encoding

The 2 types of H.264 stream outputs and the JPEG output can be simultaneously provided.

VIQS function

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

Power over Ethernet function

When connecting with a PoE (Power over Ethernet) device, power will be supplied by simply connecting a LAN cable. (IEEE802.3af compliant)

Adaptive darkness correction mode

Corrects the blacked-out parts of dark areas of objects that have different illumination intensities.

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.

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 38)

About the user manuals

There are 2 sets of operating instructions for the WV-SW158 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.

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:	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.)

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 8 RT, Microsoft Windows 7 Starter, Microsoft Windows Vista Starter and Microsoft Windows XP Professional 64-bit Edition are not supported.
 - When using IPv6 for communication, use Microsoft Windows 8, Microsoft Windows 7 or Microsoft Windows Vista.
-

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 or while controlling panning/tilting) 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>.
 - When using Windows 8, use it in the desktop. The software cannot be used in the Modern UI design.
-

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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 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 this 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.

This could permanently damage this 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 this 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 the product may occur.

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 (50J IEC60068-2-75 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 do wiring of this product.

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

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 for installation.

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 rub the edges of metal parts with your hand.

Failure to observe this may cause injury.

Do not touch this product 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 hang down from this product or use this product as a pedestal.

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

Correctly perform all wiring

Short circuits in the wiring or incorrect wiring may cause fire or electrical shock.

Turn the power off when cleaning this product.

Failure to observe this may cause injury.

[Precautions for use]

This product has no power switch.

When turning off the power, turn off a PoE hub or remove a network cable.

To keep on using with stable performance

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

Do not touch the dome cover with your bare hands.

A dirty dome cover causes deterioration of picture quality.

Handle this product 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 enclosure, it may cause damage or allow water to enter this product.

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. When cleaning areas other than the dome cover, do not use benzene, thinner, alcohol, or any other types of solvents. Failure to observe this may cause discoloration. When using a chemical cloth for cleaning, read the caution provided with the chemical cloth product.

Cleaning the lens

Use a lens cleaning paper (used to clean camera lenses or lenses of spectacles). When using solvent, use an alcohol solvent and do not use a thinner or a glass cleaner.

Transmission interval

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

Periodically images on the screen appear to be distorted

When the camera is installed in a location where it is subject to small vibrations (for example, when it is installed near devices that vibrate), images may appear distorted and stretched lengthways. This phenomenon is a characteristic of image pickup devices that use CMOS sensors and is caused by the relationship between the periodic movements of the camera and the timing that the image sensor reads images. This is not a problem with the camera. To reduce the possibility of this phenomenon occurring, install the camera in a secure location.

About 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 (included in the CD-ROM) for how to format a 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. Use the SD memory cards recommended in page 38.

About the microphone

- Volume may be reduced if any water adheres to the microphone opening. Please allow it to sit and dry thoroughly prior to using again.
- When cleaning, please do not poke the microphone opening with any sharp object. This may cause it to become wet or damaged.

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.

About 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.

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Flickering

Due to the influence of lighting, flickering may sometimes happen. In this case, select "Indoor scene" for "Light control mode". Select "Indoor scene(50Hz)" or "Indoor scene(60Hz)" in accordance with the power supply frequency in your locality. Refer to the Operating Instructions (included in the CD-ROM) for further information about the setting.

Under extremely strong lighting, flickering may happen even when "Indoor scene" is selected for "Light control mode".

When the brightness (illuminance) level on the screen is set to a relatively low level with the [Brightness] buttons, flickering may frequently happen. In such cases, either of the following can reduce flickering.

- Moderate the illumination intensities of objects by changing the camera direction.
- Set the brightness (illuminance) level on the screen to a brighter level with the [Brightness] buttons.

White-out on images caused by the effect of light control mode

When "Indoor scene" is selected for "Light control mode", the tone of the brighter parts on the screen may be deteriorated than the case when "ELC" is selected.

Color blurring on detailed drawing patterns

When there are detailed drawing patterns on images, color blurring may happen over these parts.

Operating temperature

This product can be used in low temperature outdoor environments that get as cold as $-30\text{ }^{\circ}\text{C}$ $\{-22\text{ }^{\circ}\text{F}\}$. However, when this product is installed and operated in temperatures below $-20\text{ }^{\circ}\text{C}$ $\{-4\text{ }^{\circ}\text{F}\}$, normal images may not be obtained immediately after startup. In such a case, connect the power and wait approx. 2 hours, and then connect the power again.

Brightness around the images

The surrounding area of the image may appear slightly dark depending on the shooting subject.

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 product is designed to be installed under eaves.

Install the product under eaves to avoid 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 this product, such as a concrete ceiling.
- When this product and camera mount bracket are mounted on a ceiling or a wall, use the screws described in page 26. The screws that secure the product are not supplied. Prepare them according to the material and strength of the area where the product is to be installed.
- Do not mount the product on a plaster board or a wooden section because they are too weak. If the product is unavoidably mounted on such a section, the section shall be sufficiently reinforced.

Do not place this product in the following places:

- Locations where a chemical agent is used such as a swimming pool
- Locations subject to humidity, dust, steam and oil smoke
- 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 35)
- Locations subject to vibrations that exceed the railway specifications (EN50155)
- Locations subject to condensation as the

result of severe changes in temperature (In case of installing the product 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.

Design and engineer the power supply system to turn on/off the power of this product.

The product has no power switch. When installing the product, use a PoE hub equipped with the ON-OFF switch for servicing.

Protection from lightning

When cables are used outdoors, there is a chance that they may be affected by lightning. In this case, install a lightning arrester just before where the cables connect to the camera.

Screw tightening

- The screws 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.
- 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.

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.

Do not remove or loosen the internal camera screws

Do not loosen the internal camera screws. Otherwise, water exposure may cause damage or malfunction of camera, or camera dropping may result in injury.

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.

Check before installation

Compatibility of devices is restricted. Before installation, check the ratings and dimensions of the devices to be used.

Contact your dealer for details.

Router

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

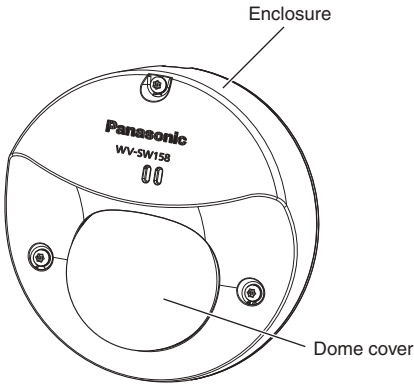
Refer to the Operating Instructions (included in the CD-ROM) for further information about the port forwarding function.

Time & date setting

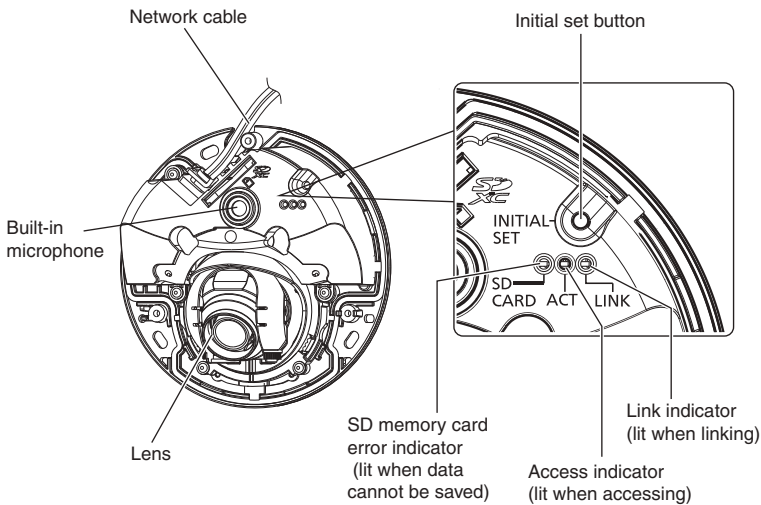
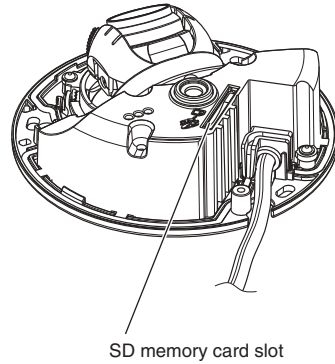
It is necessary to set the time & date before putting this product into operation. Refer to the Operating Instructions on the provided CD-ROM for descriptions of how to perform the settings.

Major operating controls

<Front view>



<Rear view>



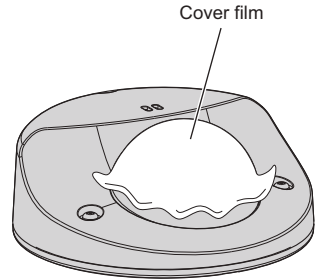
About the initial set button

After turning off the power of the camera, turn on the power of the camera while holding down this button, and wait for around 5 seconds or more without releasing the button. Wait around 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.

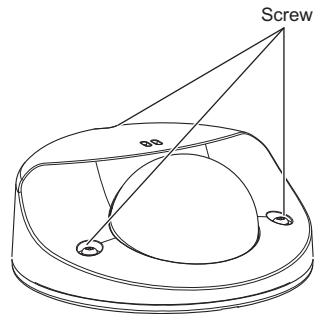
Removing the enclosure

IMPORTANT:

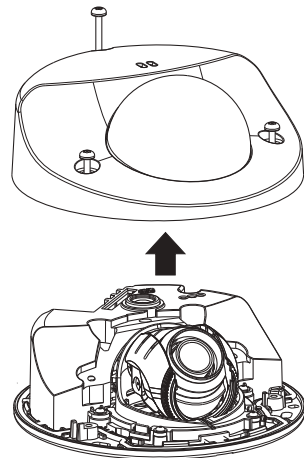
- Remove the cover film attached to the dome cover after the camera installation is completed. After removing the cover film, do not touch the dome cover with your hands.



- 1** Loosen the 3 enclosure fixing screws (M3) using the tamperproof screw bit (accessory).



- 2** Remove the enclosure.



Preparations

When installing the camera on a ceiling or a wall, there are three methods as specified below.

- Directly mounting to a ceiling or a wall
- Use the supplied mount bracket
- Use the one-gang junction box

IMPORTANT:

- Procure 3 screws (M4) to secure the camera or the mount bracket (accessory) to a ceiling or a wall according to the material of the installation area. Do not use wood screws and nails. For mounting a camera on a concrete ceiling, use an anchor bolt (for M4) or an AY plug bolt (M4) for securing.
(Recommended tightening torque: 1.6 N·m {1.18 lbf·ft})
 - Mount the mount bracket in consideration of the camera angle in accordance with the instructions (pages 19 and 20).
 - 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.
-

The mounting conditions of the camera are described as follows:

Installation place	Appropriate mount bracket	Recommended screw	Number of screw	Minimum pull-out strength (per 1 pc.)
Ceiling/wall	(direct mounting)	M4	3 pcs.	196 N {44.06 lbf}
Ceiling/wall*	Mount bracket (accessory)	M4	3 pcs.	196 N {44.06 lbf}
Ceiling/wall	One-gang junction box	M4	2 pcs.	196 N {44.06 lbf}

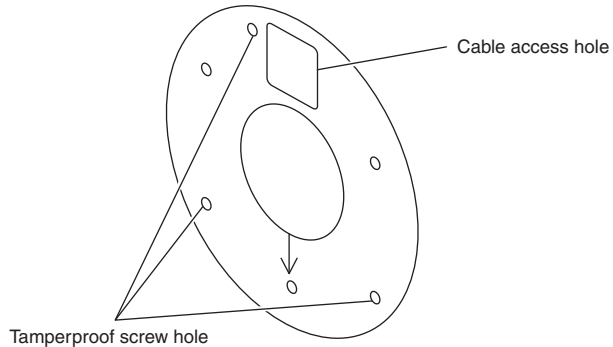
* The conditions for securing the mount bracket to a ceiling or a wall are described here.

Method of camera installation

Installing the camera directly on the ceiling or wall

Note:

- Use the installation template label (accessory) with the side with the arrow facing you.
 - Ceiling installation:
Place the installation template label so that the "↓" is pointing to the front of the camera (the lens side).
 - Wall installation:
Place the installation template label so that the "↓" is pointing down.
-



<Connecting the cable through holes opened in the ceiling or wall>

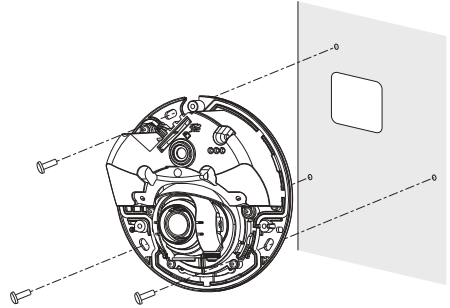
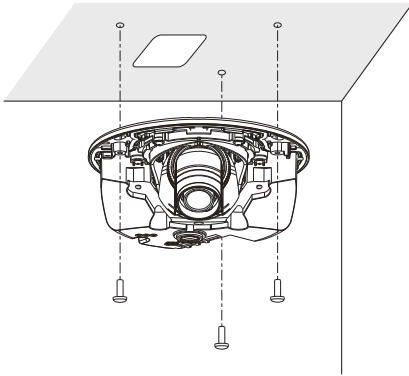
Place the installation template label (accessory) on the ceiling or wall, mark the hole for the cable to be passed through and for the fixing screws (3 places), then open the holes. Remove the installation template label, and mount the camera with 3 fixing screws (locally procured). (☞ Page 26)

<Connecting the cable through the side cable access hole>

Place the installation template label (accessory) on the ceiling or wall, mark the holes for the fixing screws (3 places), then open the holes. Remove the installation template label, and mount the camera with 3 fixing screws (locally procured). (☞ Page 26)

■ Ceiling

■ Wall



Using the mount bracket (accessory)

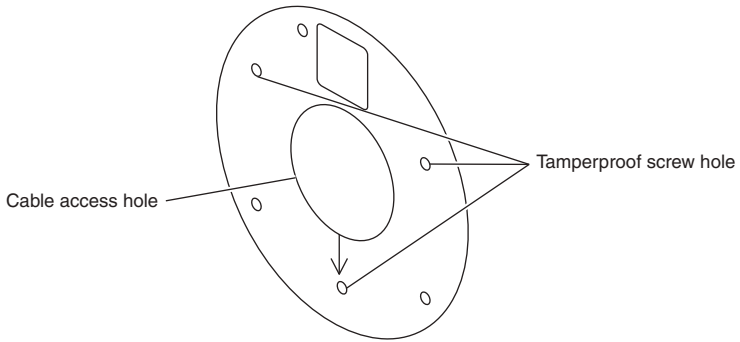
Note:

- When the camera is mounted on the ceiling or wall with a hole for cable running and the cables are passed through a conduit, the mount bracket is used.
- The female thread for conduit is compliant with ANSI NPSM (parallel pipe threads) 3/4" or G3/4 of ISO 228-1.
- Ceiling installation:
The mount bracket shall be mounted with aligning the front side (the lens side) of the camera with the position of the arrow in "↓".
- Wall installation:
The mount bracket shall be mounted with "↓" facing upward.

IMPORTANT:

- Installation work shall be such that there is no intrusion of water into the architecture through the joined conduits, or through the hole opened for the ceiling or wall.





<Connecting the cable through holes opened in the ceiling or wall>

Place the installation template label (accessory) on the ceiling or wall, mark the hole for the cable to be passed through and for the fixing screws (3 places), then open the holes.

Remove the installation template label, and mount the mount bracket with 3 fixing screws (locally procured). (☞ Pages 26 and 27)

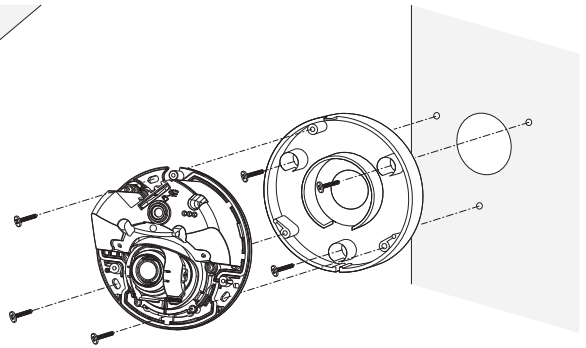
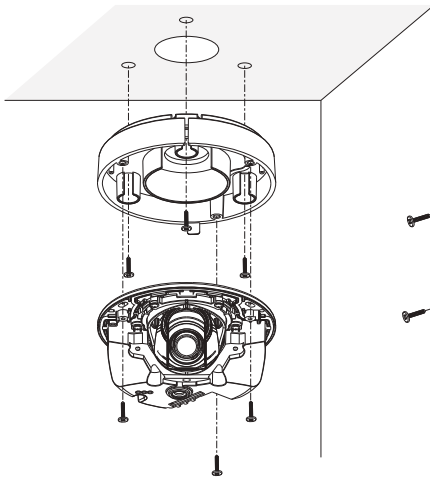
<Connecting the cable through the side cable access hole>

Place the installation template label (accessory) on the ceiling or wall, mark the holes for the fixing screws (3 places), then open the holes.

Remove the installation template label, and mount the mount bracket with 3 fixing screws (locally procured). (☞ Pages 26 and 27)

■ Ceiling

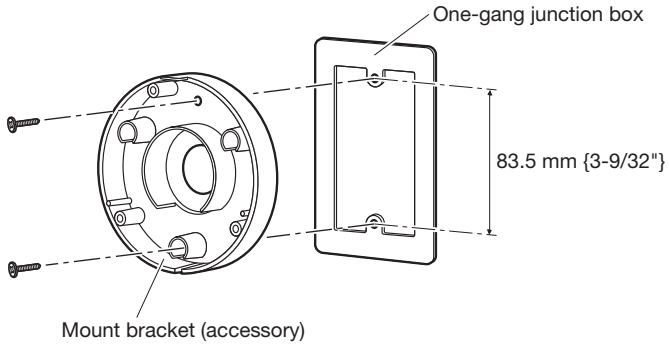
■ Wall



Using a one-gang junction box

- Secure the mount bracket (accessory) to the one-gang junction box built in a ceiling or a wall.

[Mounting hole pattern]



Note:

- Ceiling installation:
The mount bracket shall be mounted with aligning the front side (the lens side) of the camera with the position of the arrow in "↙".
 - Wall installation:
The mount bracket shall be mounted with "↙" facing upward.
-

Insert/remove an SD memory card

IMPORTANT:

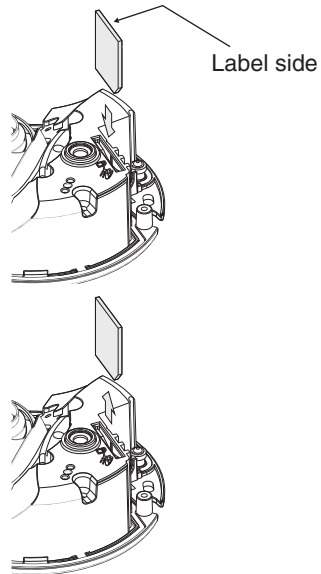
- When inserting an SD memory card, make sure the direction.
- Before removing the SD memory card, select "Not use" for "SD memory card" on the [SD memory card] tab of the setup menu first. (☞ Operating Instructions (included in the CD-ROM))

1 Remove the enclosure. (☞ Page 16)

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

3 Attach the enclosure to the camera.
(☞ Page 31)

4 When removing the SD memory card from the SD memory card slot, remove the enclosure (☞ page 16), and push the card until a click is heard. After the SD memory card is removed, attach the enclosure to the camera again.
(☞ Page 31)



Connection

Caution:

- FOR UL LISTED MODEL(S), ONLY CONNECT PoE 48 V CLASS 2 POWER SUPPLY (UL 1310/CSA 223) or LIMITED POWER SOURCE (IEC/EN/UL/CSA 60950-1).

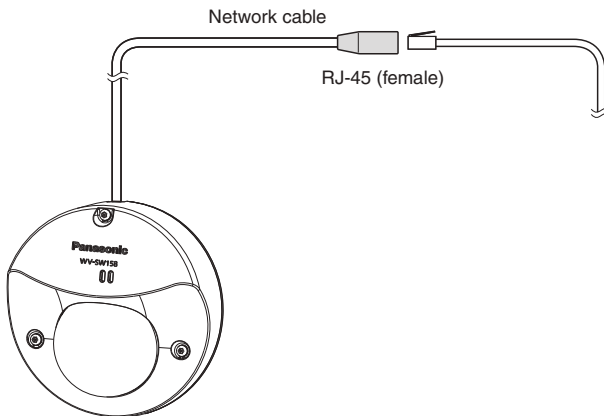
Before starting the connection, turn off the power of the devices to be connected. Check and prepare the required devices and cables for connection.

Note:

- Refer to pages 26 and 27 when using the mount bracket (accessory).
- Refer to pages 26 and 27 when using the conduit.

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

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.

**IMPORTANT:**

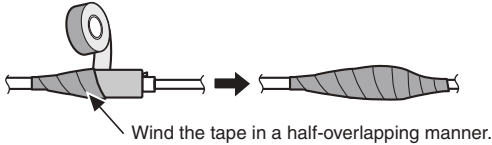
- Use all 4 pairs (8 pins) of the LAN cable.
- The maximum cable length is 100 m {328 feet}.
- Make sure that the PoE device in use is compliant with IEEE802.3af standard.
- When the LAN cable is disconnected once, reconnect the cable after about 2 seconds. When the cable is quickly reconnected, the power may not be supplied from the PoE device.
- The camera is to be connected only to PoE networks without routing to the outside plant when using PoE.

Waterproof treatment for the cable joint sections

Adequate waterproof treatment is required for the cables when installing the camera outdoors. The camera body is waterproof, but the cable ends are not waterproof.

Be sure to use the supplied waterproof tape at the points where the cables are connected to apply waterproof treatment in the following procedure. Failure to observe this or use of a tape other than the provided waterproof tape (such as a vinyl tape) may cause water leakage resulting in malfunction.

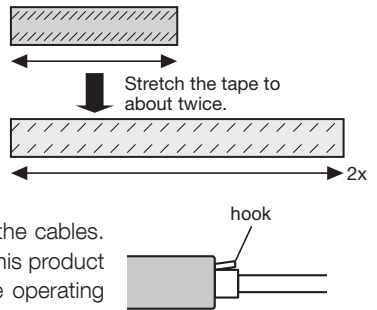
LAN cable



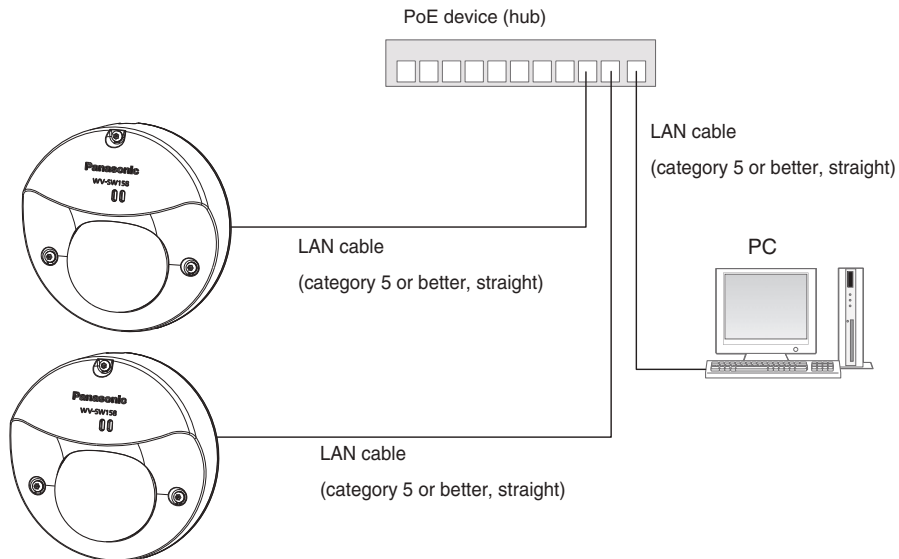
Note:

How to wind the supplied waterproof tape

- Stretch the tape by approx. twice (see the illustration) and wind it around the cable. Insufficient tape stretch causes insufficient waterproofing.
- Make sure to wind the tape so that it does not press down on the hook of the network cable.
- To install this product outdoors, be sure to waterproof the cables. Waterproof grade (IEC IP66 or equivalent) is applied to this product only when it is installed correctly as described in these operating instructions and appropriate waterproof treatment is applied. The mount brackets are not waterproofed.



Connection example



<Required cable>

LAN cable (category 5 or better, straight)

IMPORTANT:

- Use a switching hub which is compliant with 10BASE-T/100BASE-TX.
-

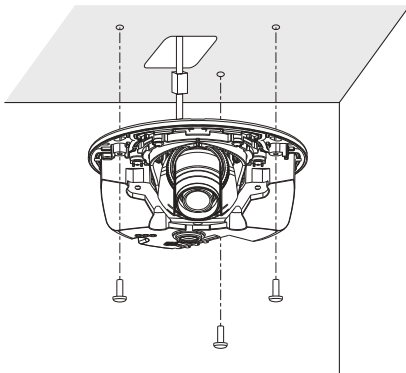
Installation

Camera mounting

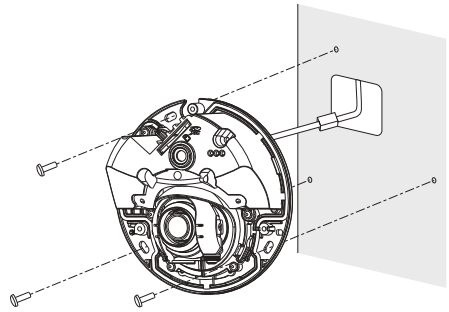
<Installing the camera directly on the ceiling or wall>

- 1** Remove the enclosure. (3 screws) (☞ Page 16)
- 2** Connect the cables to the camera. (☞ Pages 23 and 24)
 - Waterproof the connecting portion. (☞ Page 24)
- 3** Secure the camera with 3 screws (M4) (locally procured).

■ Ceiling



■ Wall

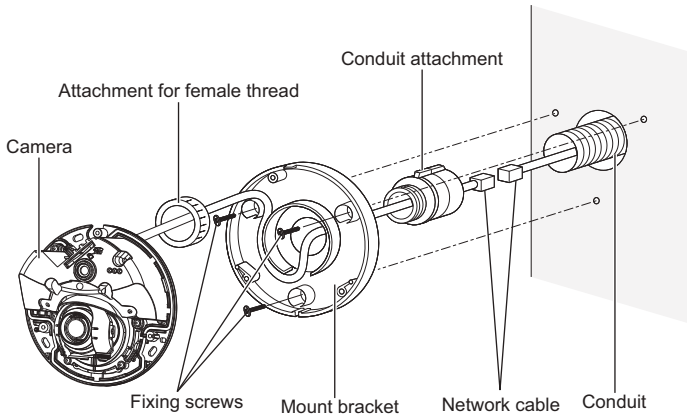


IMPORTANT:

- Do not touch the lens.
 - When tightening the screws, be careful to ensure that the cables does not tangle the cables.
-

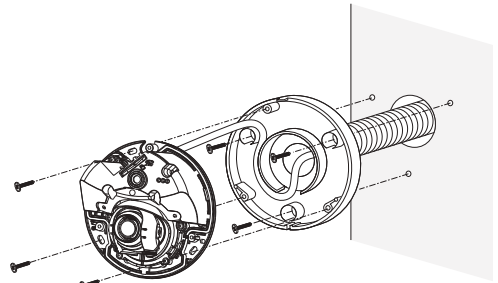
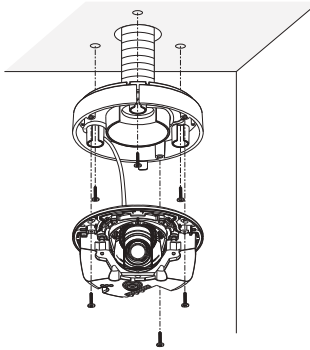
<Using the mount bracket>

- 1** Connect each cable.
 - Apply waterproof treatment to all connections. (☞ Page 24)
- 2** Connect the conduit attachment (locally procured) to the conduit.
- 3** Secure the mount bracket to the conduit attachment with the attachment for female thread (locally procured).
- 4** Mount the mount bracket to either a ceiling or a wall. (3 screws (M4) (locally procured))
- 5** Secure the camera to the mount bracket with 3 fixing screws (accessory). (Recommended tightening torque: 1.4 N·m {1 lbf·ft})



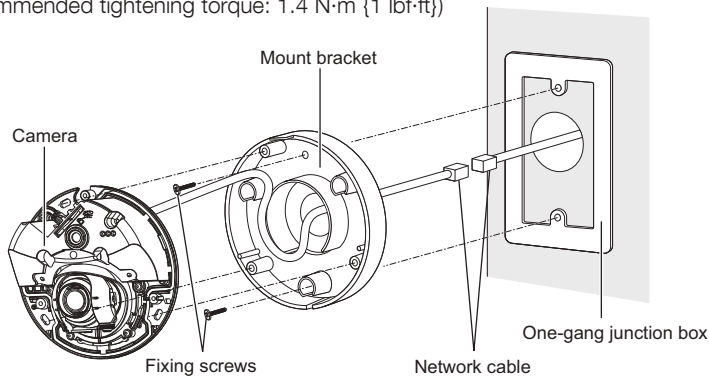
■ Ceiling

■ Wall



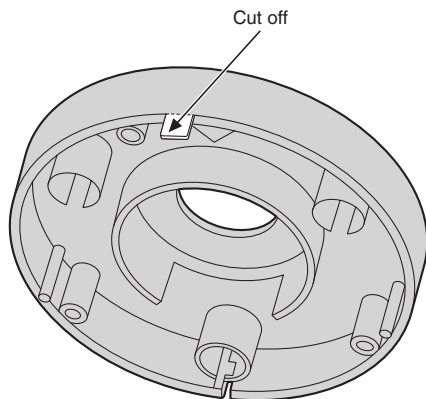
<Using a one-gang junction box>

- 1** Connect each cable.
 - Apply waterproof treatment to all connections. (☞ Page 24)
- 2** Secure the mount bracket to the one-gang junction box. (2 screws (M4) (locally procured))
- 3** Secure the camera to the mount bracket with 3 fixing screws (accessory).
(Recommended tightening torque: 1.4 N·m {1 lbf·ft})



Using the side cable access hole

When installing the camera directly on the ceiling or wall with cables exposed, cut off a portion of the mount bracket to open a cable access hole.

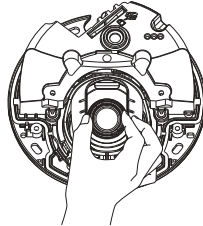


Adjustment

1 Adjust the camera angle.

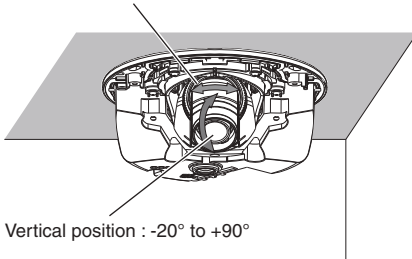
When determining the camera angle, repeat fine adjustments by gradually moving the panning table and tilting table.

- Attach the lens adjuster (accessory) to the lens and adjust the direction of the lens. Attach the wider end of the lens adjuster to the lens.
- Do not touch the lens with your hand when making adjustments.
- Make adjustments to the direction of the lens while confirming the picture displayed on computer's monitor.



■ Ceiling

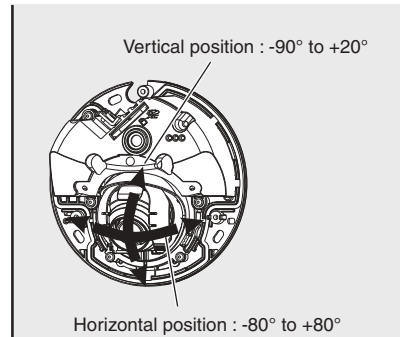
Horizontal position : -20° to $+20^{\circ}$



Vertical position : -20° to $+90^{\circ}$

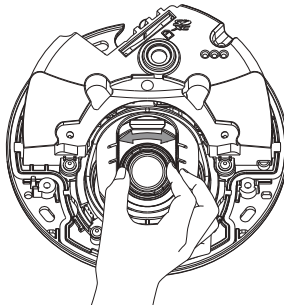
■ Wall

Vertical position : -90° to $+20^{\circ}$



Horizontal position : -80° to $+80^{\circ}$

- When adjusting the horizontal angle of cameras mounted to a ceiling, adjust the direction of the lens by moving the lens holding the indentations on the sides of the lens.



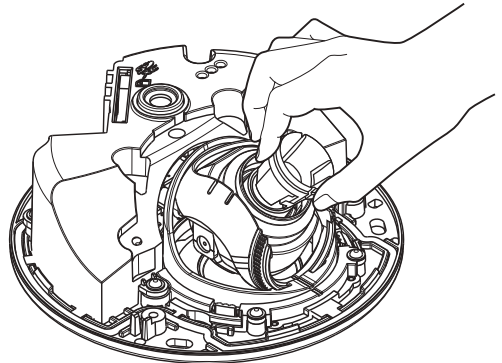
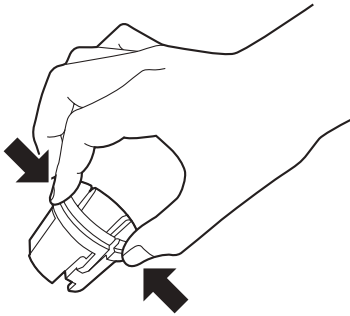
Note:

- Depending on the vertical/horizontal angle used, the edges of the camera may be projected.
 - Use Extra Zoom when you want to adjust the angular field of view on the "Tele" side.
 - If the 3x extra zoom is applied when "2048×1536, 1920×1080, 1280×960, 1280×720" is selected for the image capture size, the image quality will be deteriorated because the effect of Extra Zoom is not provided.
-

2 <Adjusting the focus of the lens>

Attach the lens adjuster (accessory), and rotate the lens to adjust the focus of the lens.

- When making adjustments to the focus of the lens, attach the narrower end of the lens adjuster to the lens.



When attaching or removing the lens adjuster, squeeze the wider end of the lens adjuster as shown in the illustration to open the narrower end of the lens adjuster.

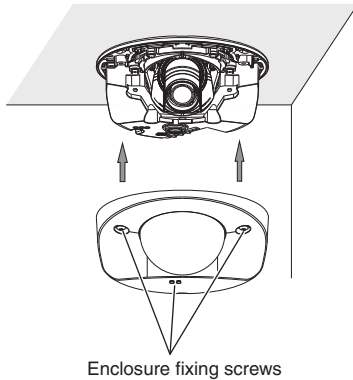
Note:

- When the focus is difficult to adjust, set the [Zoom] button on the "Live" page to "x2".
-

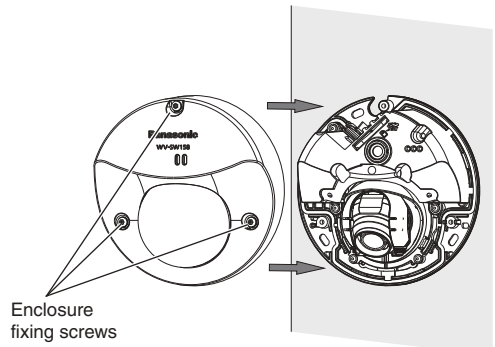
Attaching the enclosure

- 1 Attach the enclosure to the camera by using the tamperproof screw bit (accessory) to tighten the 3 enclosure fixing screws (M3). (Recommended tightening torque: 0.8 N·m {8.0 kgf·cm})

■ Ceiling



■ Wall



- 2 Remove the cover film completely.

IMPORTANT:

- When attaching the enclosure the focus may be slightly disturbed. If this occurs, remove the enclosure and make the necessary adjustments.
- Before attaching the enclosure, make sure that the subject is present.
- Securely tighten all the fixing screws (x3) of enclosure. Otherwise, water exposure may cause damage or malfunction of camera, or camera dropping may result in injury. (Recommended tightening torque: 0.8 N·m {0.59 lbf·ft})
- 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 fire-wall 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.

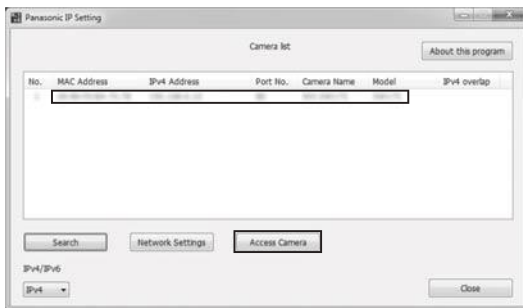
- 1 Insert the provided CD-ROM into the CD-ROM drive of your PC.
 - The License Agreement will be displayed. Read the Agreement and choose “I accept the term in the license agreement”, and click [OK].
 - The launcher window will be displayed. If the launcher window is not displayed, double click the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



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 Software” page 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 [IP Setting Software] 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.
 - 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.
 - Perform the [Time & date] settings in the “Setup” - “Basic” page before using the camera.

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 [IP Setting Software] 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.
 - “Network Camera Recorder with Viewer Software Lite” which supports live monitoring and recording images from multiple cameras is available. For further information, refer to our website (<http://security.panasonic.com/pss/security/support/info.html>).
-

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
Power is not turned on.	<ul style="list-style-type: none">• Are the PoE device and the network cable of the camera connected using a LAN cable? → Check whether the connection is appropriately established.• 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.	23

Specifications

• Basic

Power source:	PoE (IEEE802.3af compliant)
Power consumption:	PoE 48 V: 110 mA/5.3 W(Class 2 device)
Ambient operating temperature:	-30 °C to +50 °C {14 °F to 122 °F}
Ambient operating humidity:	Less than 90 % (no condensation)
Waterproof:	Camera: IP66 (IEC60529) * Only when installation work specified in this book is properly performed and appropriate waterproof treatment is performed
Built-in microphone:	Electret condenser microphone
Shock resistance:	Compliant with 50 J IEC60068-2-75
Dimensions:	ø109 mm x 47 (H) mm {ø6-15/32 inches x 5-3/4 inches (H)}
Mass:	Approx. 350 g {0.77 lbs}
Finish:	Main body: Aluminum die cast, light gray 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) {11/64 inches (H) x 9/64 inches (V)}
Scanning system:	Progressive
Minimum illumination:	Color: 1.2 lx {0.12 footcandle} (F2.2, Auto slow shutter: Off (1/30s), AGC: On (High)) 0.075 lx {0.0075 footcandle} (F2.2, Auto slow shutter: Max. 16/30s, AGC: On (High))* BW: 0.9 lx {0.09 footcandle} (F2.2, Auto slow shutter: Off (1/30s), AGC: On (High)) 0.056 lx {0.0056 footcandle} (F2.2, Auto slow shutter: Max. 16/30s, AGC: On (High))* * Converted value
Super Dynamic:	On/Off
Dynamic range:	52 dB typ. (Super Dynamic: On, Light control: ELC)
Gain (AGC):	On (High)/ On (Mid)/ On (Low)/ Off
Adaptive black stretch:	On/Off
Fog compensation:	On/Off
Light control mode setting:	Indoor scene (50 Hz/60 Hz)/ ELC
ELC (Maximum exposure time):	• With Super Dynamic On ELC(1/30s) • With Super Dynamic Off ELC(1/30s), ELC(3/100s), ELC(3/120s), ELC(2/100s), ELC(2/120s), ELC(1/100s), ELC(1/120s), ELC(1/250s), ELC(1/500s), ELC(1/1000s), ELC(1/2000s), ELC(1/4000s), ELC(1/10000s)
Auto slow shutter:	Off (1/30s), Max. 2/30s, Max. 4/30s, Max. 6/30s, Max. 10/30s, Max. 16/30s
Day & Night (electrical):	Off/Auto
White balance:	ATW1/ ATW2/ AWC
Digital noise reduction:	High/Low
Privacy zone:	On/Off (up to 2 zones available)
VIQS:	On/Off

Camera title on screen:	Up to 20 characters (alphanumeric characters, marks) On/Off
Video motion detection (VMD alarm):	On/Off, 4 areas available
• Lens	
Zoom ratio:	1x 3x (2 megapixels under 640x360 resolution)
Focal length:	1.95 mm {5/64 inches}
Maximum aperture ratio:	1:2.2
Angular field of view:	Horizontal: 100° Vertical: 81° (3 megapixels [4:3]) Horizontal: 95° Vertical: 62° (2/1.3 megapixels [16:9]) Horizontal: 84° Vertical: 68° (1.3 megapixels [4:3])
Adjusting angle:	<ul style="list-style-type: none"> • Ceiling installation <ul style="list-style-type: none"> Horizontal: -20° to +20° Vertical: -20° to +90° • Wall installation <ul style="list-style-type: none"> Horizontal: -80° to +80° Vertical: -90° to +20°
• Network	
Network:	10BASE-T/100BASE-TX, RJ-45 connector
Resolution:	Image capture mode: 2 megapixels [16:9] H.264 1920×1080/ 640×360/ 320×180, Max. 30 fps JPEG (MJPEG) 1920×1080/ 640×360/ 320×180, Max. 30 fps Image capture mode: 1.3 megapixels [16:9] H.264 1280×720/ 640×360/ 320×180, Max. 30 fps JPEG (MJPEG) 1280×720/ 640×360/ 320×180, Max. 30 fps Image capture mode: 1.3 megapixels [4:3] H.264 1280×960/ VGA (640×480)/ QVGA (320×240), Max. 30 fps JPEG (MJPEG) 1280×960/ VGA (640×480)/ QVGA (320×240), Max. 30 fps Image capture mode: 3 megapixels [4:3] H.264 1280×960, Max. 15 fps JPEG (MJPEG) 2048×1536, Max. 15 fps
Image compression method*1 :	H.264 Image quality: Low/Normal/Fine Transmission type: Unicast/Multicast Bit rate: Constant bit rate/Best effort/Advanced variable bit rate: 64 kbps/ 128 kbps/ 256 kbps/ 384 kbps/ 512 kbps/ 768 kbps/ 1024 kbps/ 1536 kbps/ 2048 kbps/ 3072 kbps/ 4096 kbps/ 6144 kbps/ 8192 kbps/ 10240 kbps/ 12288 kbps/ 14336 kbps

Image compression method*1: Frame rate:
 1fps/ 3fps/ 5fps/ 7.5fps/ 10fps/ 12fps*/ 15fps/ 20fps/ 30fps
 * E model only
 JPEG (MJPEG)
 Image quality:
 0 SUPER FINE/ 1 FINE/ 2/ 3/ 4/ 5 NORMAL/ 6/ 7/ 8/
 9 LOW (10 steps: 0-9)
 Transmission type: PULL/PUSH

Transmission interval: 0.1 fps - 30 fps (JPEG frame rate will be restricted when displaying both JPEG and H.264 images.)

Cropping function: 2 megapixels [16:9]
 H.264 640×360/ 320×180, Max. 30 fps
 MJPEG 640×360/ 320×180, Max. 30 fps
 1.3 megapixels [16:9]
 H.264 640×360/ 320×180, Max. 30 fps
 MJPEG 640×360/ 320×180, Max. 30 fps
 1.3 megapixels [4:3]
 H.264 VGA (640×480)/ QVGA (320×240), Max. 30 fps
 MJPEG VGA (640×480)/ QVGA (320×240), Max. 30 fps

Audio compression method: G.726 (ADPCM) 32kbps/ 16kbps
 G.711 64kbps
 AAC*2

Bandwidth control: Unlimited/ 64kbps/ 128kbps/ 256kbps/ 384kbps/
 512kbps/ 768kbps/ 1024 kbps/ 2048kbps/ 4096kbps/
 8192kbps

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*3 *4:	Microsoft® Windows® 8 Microsoft® Windows® 7 Microsoft® Windows Vista® Microsoft® Windows® XP SP3
Browser:	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 February, 2013)*5	iPad, iPhone, iPod touch (iOS 4.2.1 or later) Android™ mobile terminals

*1 Transmission for 2 streams can be individually set.

*2 AAC (Advanced Audio Coding) is only used when recording audio on an SD memory card.

*3 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”.

*4 When using IPv6 for communication, use Microsoft® Windows® 8, Microsoft® Windows® 7 or Microsoft® Windows Vista®.

*5 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)	2 pcs.
Important Safety Instructions	1 pc.
Warranty card (For US only)	1 pc.
CD-ROM*1	1 pc.
Code label*2	1 pc.

The following parts are used during installation procedures.

Fixing screws (M4 x 8 mm)	3 pcs.
Installation template label.....	1 pc.
Mount bracket	1 pc.
Tamperproof screw bit.....	1 pc.
Waterproof tape.....	1 pc.
Lens adjuster.....	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
	BB-HCA8CE



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. and Canada:

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

www.panasonic.com/business/

For customer support, call 1.800.528.6747

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5770 Ambler Drive, Mississauga,
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For Europe and other countries:

Panasonic Corporation

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