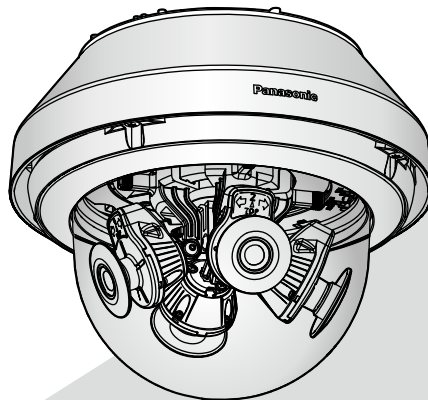# Panasonic®

Important Information

Network Camera

Model No. WV-X8570N / WV-S8530N

WV-X8570N

* For information about the installation tasks, refer to the provided Installation Guide. For information about how to perform the settings and how to operate the camera, refer to the Operating Instructions on the following Panasonic support web site.
https://security.panasonic.com/download/

SD XC™

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.

Contents

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

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Preface

This product is an outdoor use dome-type (featuring 4 camera units) monitoring camera with a 10BASE-T/100BASE-TX/1000BASE-T network port for network connection.
By connecting to a network (LAN) or the Internet, images and audio (X8570) 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.

About notations

The following notations are used when describing the functions limited for specified models.
The functions without the notations are supported by all models.

(X8570) The functions with this notation are available when using the model WV-X8570N.
(S8530) The functions with this notation are available when using the model WV-S8530N.

Main functions

Featuring 4 camera units that direction adjustment is available independently
Featuring four camera units whose direction can be adjusted independently with 4K sensor (X8570) or 2-megapixel sensor (S8530) , 360° shooting with little blind spot is enabled. Also, one of the camera units can be tilted largely to shoot right below.

The use of the H.265 engine having our original Smart Coding technology[*1] has achieved a low bit rate and high quality image stream.
In addition to the conventional H.264 stream encoding format, H.265 is available, and an effective compression of a large amount of information collected by 4 camera units in combination with the smart coding technology reduces the communication and recording cost significantly.

Panasonic's own intelligent auto (iA) feature provides increased discernibility even in environments with poor visibility
Improvements to the Super Dynamic (SD) feature and shutter speed optimization provides clear discernibility even when monitoring moving car silhouettes.

ClearSight coating (rain wash coating)[*2] for dome cover adopted
The ClearSight coating is a special coating applied to the surface of the transparent cover that makes it difficult for water droplets to adhere to the dome cover.

The camera conforms to the IP66[*3] and Type 4X (UL50)[*4], is compliant with NEMA 4X[*5] ratings, and provides high dust resistance and waterproof performance.
Waterproofing treatment is not required for the camera body (Waterproofing treatment is required for connecting section of cables other than the Ethernet cable.).

Achieves high-level shock resistance with IK10[*6] (IEC 62262) conformity.
The camera has a strong shock resistance body which is needed in outdoor installations.

Encryption and alteration detection functions enhanced the security.

*1 A technology to significantly reduce a band by increasing the compression ratio of areas where a subject does not move and optimizing the refresh interval and frame rate according to subject motions.

*2 The ClearSight coating is only effective against water (rain water) and is not effective against other substances such as oil or damage to the dome cover.

*3 IP66: The applicable product has "Dust tight (6)" protection against foreign solids and has "Powerful water jets (6)" protection against water (IEC60529).

*4 Type 4X (UL50): 4X indicates the rank in the UL waterproof standard.

*5 NEMA: Dust resistance and waterproof performance standards set by National Electrical Manufacturers Association (United States).

*6 IK10: is a standard in regards to shock resistance that represents the level of impact protection, and is regulated by the International Electrotechnical Commission (IEC).

About the user manuals

Product documentation is composed of the following documents.
- **Important Information (this document):** Provides basic information about the product such as Precautions for installation, Parts and functions, etc..
- **Installation Guide:** Explains installation, mounting, cable connections, and adjusting the field of view.
- **Operating Instructions (on the Panasonic support web site):** Explains how to perform the settings and how to operate this camera.

Note:
- The external appearance and other parts shown in this manual may differ from the actual product within the scope that will not interfere with normal use due to improvement of the product.
- "<Control No.:C****>" used in this document should be used to search for information on the Panasonic support website and will guide you to the right information.

System requirements for a PC

CPU:	Intel® Core™ i5-6500 or faster, or Intel® Core™ i7-6700 or faster recommended
Memory:	A minimum of 1 GB or more (for 32-bit OSs), 2 GB or more (for 64-bit OSs) memory is required. 4 GB (2 GB x 2, Dual Channel) or more recommended.
Network interface:	10BASE-T/100BASE-TX/1000BASE-T (X8570) 1 port
Audio interface:	Sound card (when using the audio function)
Monitor:	Image capture size: 1024 x 768 pixels or more High-resolution monitoring: 3840 x 2160 pixels or more Color: 24-bit True color or better
OS:	Microsoft Windows 10 Microsoft Windows 8.1 Microsoft Windows 7
Web browser:	Windows Internet Explorer 11 (32-bit) Microsoft Edge Firefox Google Chrome™
Others:	CD-ROM drive (It is necessary to read the operating instructions and use the software on the provided CD-ROM.) Adobe® Reader® (It is necessary to view the PDF file on the provided CD-ROM.)

IMPORTANT:
- For information on the operation verification of the supported operating systems and web browsers, refer to our website at https://security.panasonic.com/support/info/.
  <Control No.:C0104, C0122>
- 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 and Microsoft Windows 7 Starter are not supported.
- When using Microsoft Windows 8.1, use it in the desktop. The software cannot be used in the Modern UI design.

Note:
- For further information about PC system requirements and precautions for when using Microsoft Windows or Windows Internet Explorer, click "Manual" - "Open" from the supplied CD-ROM and refer to "Notes on Windows / Internet Explorer versions".

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- Customers can duplicate, distribute and modify the source code of the software under license of GPL and/or LGPL.
- Refer to the "readme.txt" file on the provided CD-ROM for further information about open source software licenses and the source code.
- Please note that Panasonic shall not respond to any inquiries regarding the contents of the source code.

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.).
- To prevent unauthorized access, use user-authentication, set user names and passwords, and limit which users can log in.
- 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. Additionally, save user authentication information (user names and passwords) in such a way that it is kept out of the hands of third parties.
- Do not install the camera in locations where the camera or the cables can be destroyed or damaged by persons with malicious intent.

Precautions

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.

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.

Do not strike or give a strong shock to this product.
Failure to observe this may cause fire or injury.

Keep SDXC/SDHC/SD memory cards 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 injury or accidents.

Do not install this product on a place that is greatly influenced by wind.
Installation on a place where the wind speed is 60 m/s {approx. 134 mph} or more may cause a fall of the product resulting in injury or accidents.

Do not splash water exceeding the waterproof performance of this product using a high-pressure cleaning machine or by other means.
Otherwise, water exposure may cause fire or electric shock.

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 install or clean the camera, or touch this product, the power cable or the connected cables during thunder storms.
Failure to observe this may cause electric shock.

Refer installation work to the dealer.
Installation work requires technique and experience. 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, or damage to the product.
In this case, 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 or accidents.
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.

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.

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.

Install this product in a location high enough to avoid people and objects from bumping the product.
Failure to observe this may cause injury.

The measures of protection against a fall of this product shall be taken.
Failure to observe this may cause a drop resulting in injury or accidents.
Be sure to install the safety wire.

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 or accidents.

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

The measures of protection against snow-fall shall be taken.
Weight of snow may cause a fall of the product resulting in injury or accidents.
Protect the product against snowfall by install-ing it under eaves.

Turn the power off when cleaning this product. (X8570)
Failure to observe this may cause electrical shock.

Turn the power off when cleaning this product. (S8530)
Failure to observe this may cause injury.

Install the product securely on a ceiling or wall in accordance with the installation instructions.
Failure to observe this may cause injury or accidents.

Do not rub the edges of metal parts with your hand.
Failure to observe this may cause injury.

[Precautions for use]
When the product is accessible from the Internet
To prevent unauthorized access, note the following.
- Leave user authentication turned on.
- Periodically change passwords that are used to access the product.
  Refer to the Operating Instructions on the Panasonic support web site for information about how to change passwords.

To keep on using with stable performance
Do not use this product in hot and humid con-ditions 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.

This product has no power switch.
When turning off the power, disconnect the power supply from the the PoE device.

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.

About the battery
A battery is installed inside the camera. Do not leave the battery exposed in environments of excessive heat as a result of sunlight or fire.

Do not subject dome cover to strong impact.
Doing so may cause damage or immersion.

Do not touch the dome cover with your bare hands.
A dirty dome cover causes deterioration of pic-ture quality.

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.

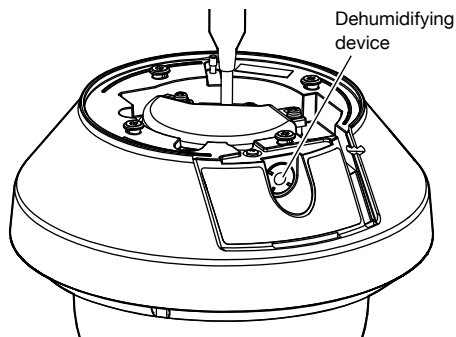**About the automatic status detection function**

When this product malfunctions due to exogenous noise, etc. for 30 seconds or more, the product will automatically reset and will return to normal state. When the product is reset, initialization will be carried out as when the power of the product is turned on. When the product repeatedly resets, exogenous noise level around the product may be high and that may cause malfunction. Contact your dealer for instructions.

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 the dehumidifying device

- This product has dehumidifying device to keep the inside at low moisture level.
- Dew may be produced depending on the conditions of temperature, humidity, winds, and rain, and it may take time to dehumidify.
- The dehumidifying device is mounted inside the rear cover.

Dehumidifying device

* Image when "rear cover" is removed

We shall not be liable for content compensation, losses of recorded or edited content and any direct or indirect consequent damages caused by failure to record or edit due to faults with this unit or the SD memory card. In addition, the same provisions apply after unit is repaired.

About the CMOS image sensor

- When continuously shooting a bright light source such as a spotlight, the color filter of the CMOS image sensor may become deteriorated and this 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 objects crossing the shooting area may look to be bending askew.

Cleaning this product body

Be sure to turn off the power before cleaning. Failure to observe this may cause electrical shock ⟨X8570⟩ injury ⟨S8530⟩. Do not use benzine, thinner, alcohol, or any other types of solvents or detergents. Otherwise, it may cause discoloration. When using a chemical cloth for cleaning, read the caution provided with the chemical cloth product.

* Do not loozen or remove screws unless instructed to do so in the product documentation.

Cleaning the lens

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

Cleaning of the dome cover

● When cleaning the dome cover, hose or spray fresh water that is not containing lubricant agent or silicon substances and wash away adherents such as grain of sand. If dirt is hard to remove, use a sponge soaked into the fresh water mentioned above and wipe off.

● Do not wipe the dome cover with a dry cloth. (Using dry cloth may spread oil constituent adhered to the surface, and it may result in damaging the rain wash coating.)

● If dirt cannot be wiped off with a damp cloth, use a neutral detergent for dishwashing. After that, sufficiently rinse off the detergent. If wax-contained car washing detergent, abrasive compound, or other than neutral solution (weak alkaline or slightly acid) is used, hydrophilic property may deteriorate or the surface coating may peel off.

● Do not use organic solvent such as benzine and thinner.

● Before using a spray, abandon a few sprays to eliminate impurities.

 * Improper cleaning of the dome cover may cause the rain wash coating to become less effective. In this case, in order to have effective rain wash coating, a new dome cover must be purchased to replace the existing dome cover. Consult with your dealer or construction contractor.

About the rain wash coating

Due to effectiveness of the rain wash coating, drops are likely to be accumulated right under the camera and it may cause a partial distortion of the video.
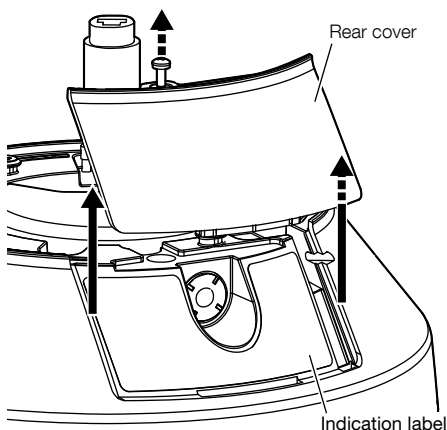
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Equipment classification and power source indication label

Remove the rear cover of this product to refer to the indication label for the equipment classification, power source, and other information.

Rear cover

Indication label

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.

When abandoning the memory media, it is recommended to destroy it physically after deleting data by PC.

Meaning of symbols

▬▬▬ : Direct current symbol

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.
For information about the installation tasks, refer to the provided Installation Guide.

In order to prevent injury, the product must be securely mounted to a wall or ceiling according to Installation Guide.

Power supply
This product has no power switch.
When performing electrical work, make sure the camera can be turned on and off. When an Ethernet cable is connected, the power is turned on. When cleaning the product, remove the Ethernet cable cable from this product.

Installation area for this product
Select an appropriate place for the installation area (such as a strong wall or ceiling) 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.
- 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.

Mounting method for this product
This product is designed to be used as a pendant mount camera. If the product is mounted on a desktop or at a slant, it may not work correctly and its lifetime may be shortened.

Do not place this product in the following places:
- 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 near coasts directly subjected to sea breezes, or locations subject to corrosive gases such as from hot springs, volcanic regions, etc.
- Locations where the ambient operating temperature is not within the specified range (☞ page 28)
- Locations subject to vibrations, such as on vehicles, marine vessels, or above product lines (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 product in such locations, the dome cover may become foggy or condensation may be caused on the cover.)

Sulfurization caused by rubber products
Do not place the product near rubber products (packing, rubber feet, etc.) that contain sulfur. There is a risk that sulfur components in rubber products may cause electrical parts and terminals, etc. to become sulfurized and corrode.

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.
- When a screw is tightened, make the screw at a right angle to the surface. After tightening the screws or bolts, perform checks to ensure that the tightening is sufficient enough so that there is no movement or looseness.

Installing in low temperature environments

This product may not function properly, if it is installed and operated in an environment where the temperature is below –30 °C {–22 °F}. In such a case, wait approximately 2 hours or more until the camera is warmed up. Then, turn on the power again.

As the camera warms up, snow or frost accumulated on the dome cover will melt. However, it may not be defrosted from the cover depending on the ambient temperature or weather condition.

Effects on images and image quality

Under the following conditions, image quality may deteriorate or images may become difficult to see.

- When there are raindrops on the dome cover due to wind during rainfall.
- When there is snow on the dome cover due to wind during snowfall. (varies depending on the amount and quality of snowfall).
- When the dome cover is dirty due to dust in the air or vehicle exhaust.

About reflection of light from outside or IR light

Depending on the incident angle of high intensity light source such as sunlight or lighting, images of non-existing objects (reflected light) or reflections of surroundings on the camera lens (ghost) may sometimes appear on the screen. Especially in the case of LED light, these phenomena may be seen remarkably. In the case of using the IR light, installation of a camera near a wall may cause reflection of infrared rays resulting in a part of the screen or the entire screen turning whitish. Therefore, consider the installation place carefully.

Refer to our website (https://security. panasonic.com/support/info/ <Control No.:C0109>) for image examples and measures to take.

Protection from lightning

When cables are used outdoors, there is a chance that they may be affected by lightning. In such a case, install a lightning arrestor close to the camera, and make the length of the network cable between the camera and lightning arrestor as short as possible to prevent the camera from being damaged by lightning.

Take notice of humidity

Install this product when the humidity is low. If installation is performed when it is raining or in very humid conditions, the inside may be affected by humidity, causing mist-over inside the dome cover

When noise disturbance may happen

Conduct the power distribution work to keep a distance of 1 m {3.28 feet} or more from the 120 V (for U.S. and Canada) or 220 V – 240 V (for Europe and other countries) power line. Or conduct the electric conduit work separately (Always connect the metal pipe with grounding).

Radio disturbance

Noise may appear in video or audio near a strong electric field from a TV or radio antenna, motors and transformers, or a strong electric field/magnetic field from a power line (lamp line) of AC100 V or more.

About ferrite core (accessory)

Alarm I/O cable / Audio input cable with ferrite core must be used for EMS (Electromagnetic Susceptibility).

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 Panasonic support web site for further information about the port forwarding function.
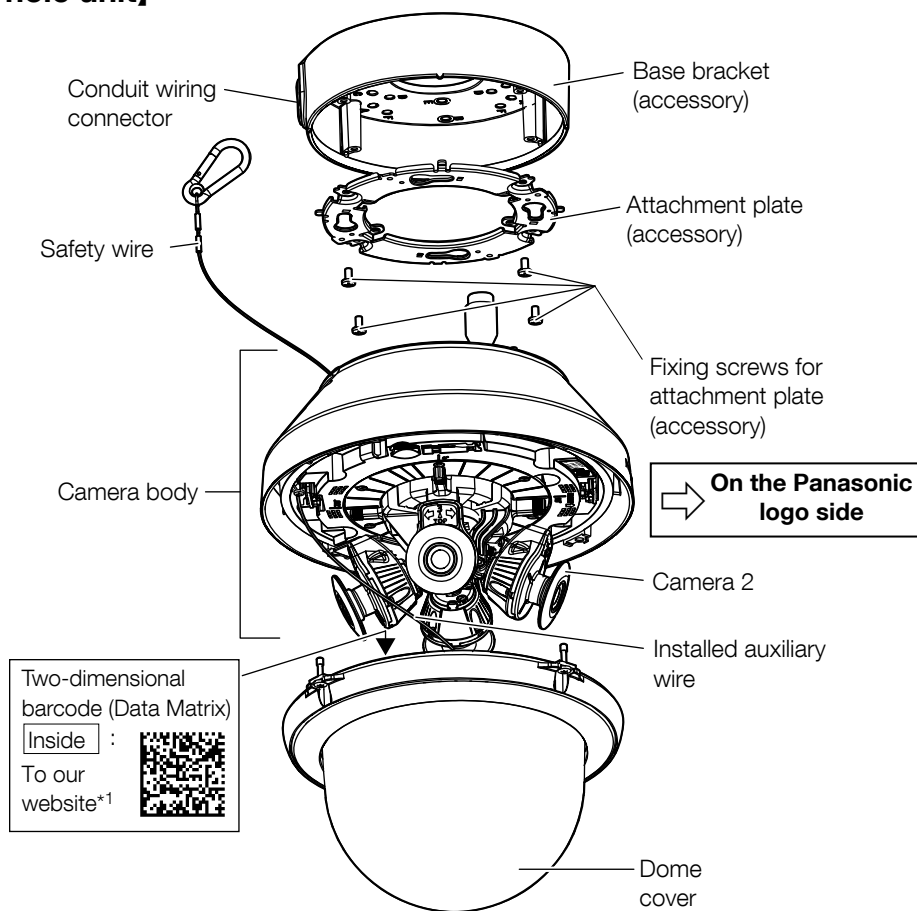
Time & date setting

It is necessary to set the time & date before putting this product into operation. Refer to the Operating Instructions on the Panasonic support web site for descriptions of how to perform the settings.

Make sure to remove this product if it will no longer be used.

Parts and functions

【Whole unit】

Conduit wiring connector

Safety wire

Camera body

Two-dimensional barcode (Data Matrix)

| Inside | : [Data Matrix]

To our website*1

Base bracket (accessory)

Attachment plate (accessory)

Fixing screws for attachment plate (accessory)

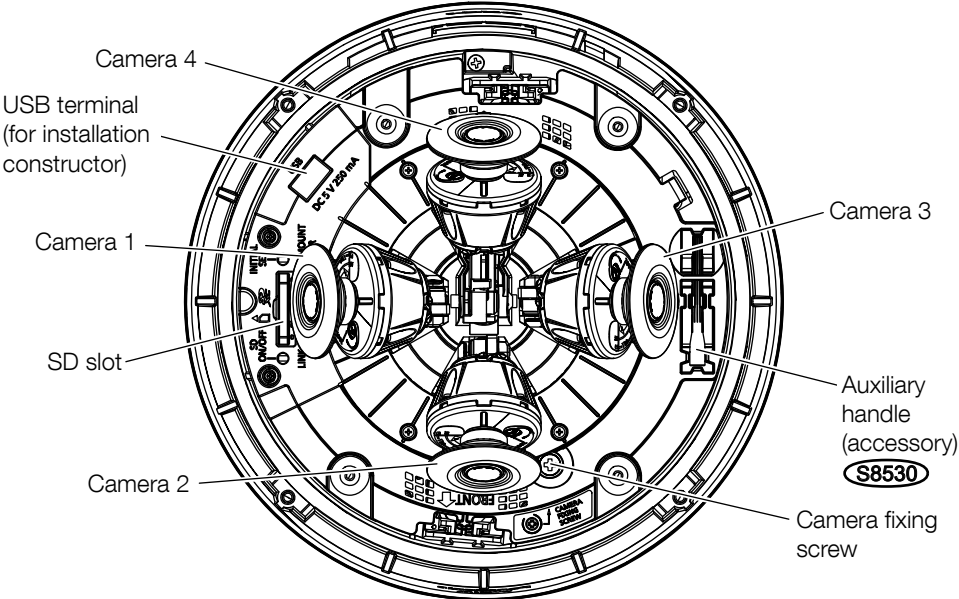⇨ **On the Panasonic logo side**

Camera 2

Installed auxiliary wire

Dome cover

*1 Depending on the scanning application used, the Data Matrix may not be able to be read correctly. In this case, access the site by directly entering the following URL.
https://security.panasonic.com/support/qr_sp_select/

15

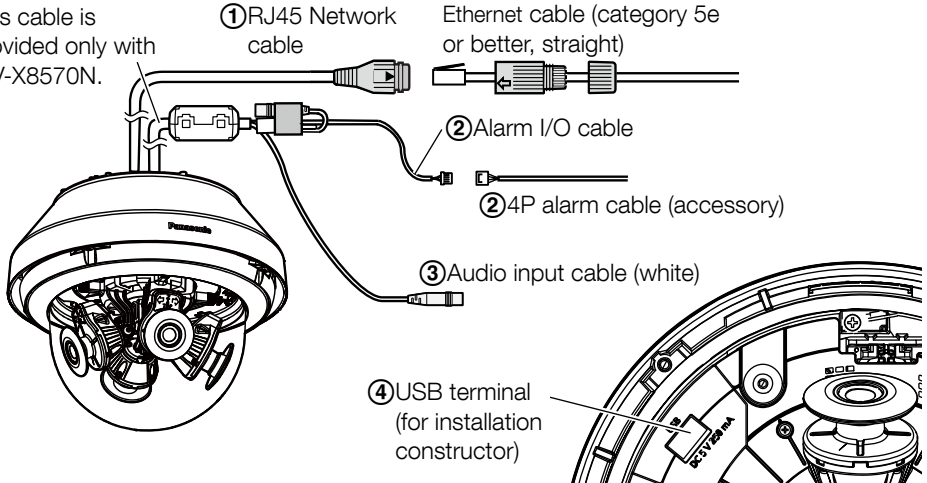## 【Camera body】 * This illustration represents WV-S8530N

Camera 4

USB terminal
(for installation
constructor)

Camera 1

SD slot

Camera 2

Camera 3

Auxiliary
handle
(accessory)
S8530

Camera fixing
screw

On the Panasonic logo side

■ Cables

This cable is provided only with WV-X8570N.

①RJ45 Network cable

Ethernet cable (category 5e or better, straight)

②Alarm I/O cable

②4P alarm cable (accessory)

③Audio input cable (white)

④USB terminal (for installation constructor)

①RJ45 Network cable

Connect an Ethernet cable (category 5e or better, straight) to the RJ45 Network cable.

IMPORTANT:
- Use all 4 pairs (8 pins) of the Ethernet 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 Ethernet cable is disconnected once, reconnect the cable after around 2 seconds. When the cable is quickly reconnected, the power may not be supplied from the PoE device.

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②Alarm I/O cable / 4P alarm cable (accessory) ⬭X8570

Connect the 4P alarm cable (accessory) to the alarm I/O cable, and connect the external device cable to the 4P alarm cable.
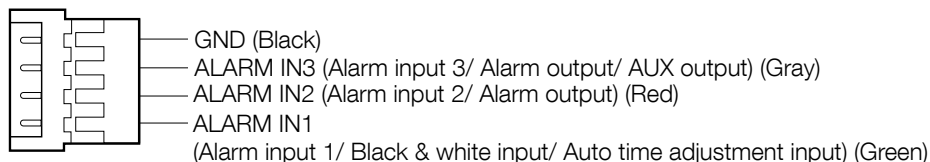

Note:
- Off, input, and output of the external I/O terminal 2 and 3 can be switched by configuring the setting. Refer to the Operating Instructions on the Panasonic support web site for further information about the external I/O terminal 2 and 3 (ALARM IN2, 3) settings ("Off", "Alarm input", "Alarm output" or "AUX output").

<Ratings>
- ALARM IN1 (Black & white input / Auto time adjustment input), ALARM IN2, ALARM IN3

  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)
- ALARM OUT, AUX OUT

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

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

  OFF   : Output voltage 1 V DC or less (maximum drive current: 50 mA)

4P alarm cable

GND (Black)
ALARM IN3 (Alarm input 3/ Alarm output/ AUX output) (Gray)
ALARM IN2 (Alarm input 2/ Alarm output) (Red)
ALARM IN1
(Alarm input 1/ Black & white input/ Auto time adjustment input) (Green)

IMPORTANT:
- Install external devices so that they do not exceed the rating of the network camera.
- When using the external I/O terminals as the output terminals, ensure they do not cause signal collision with external signals.

---

③Audio input cable (white) (X8570)

Connect a microphone or the line out of an external device using a stereo mini plug (ø3.5 mm).

* Audio input is monaural.

<For microphone input>

- Recommended microphone: Plug-in power type (locally procured)
  (Sensitivity of microphone: –48 dB ±3 dB (0 dB=1 V/Pa,1 kHz))
- Input impedance: Approx. 2 kΩ (unbalanced)
- Supply voltage: 4.0 V ±0.5 V
- Recommended cable length: Less than 1 m {3.28 feet}

<For line input>

- Input level for the line input: Approx. –10 dBV
- Recommended cable length: Less than 10 m {32.8 feet}

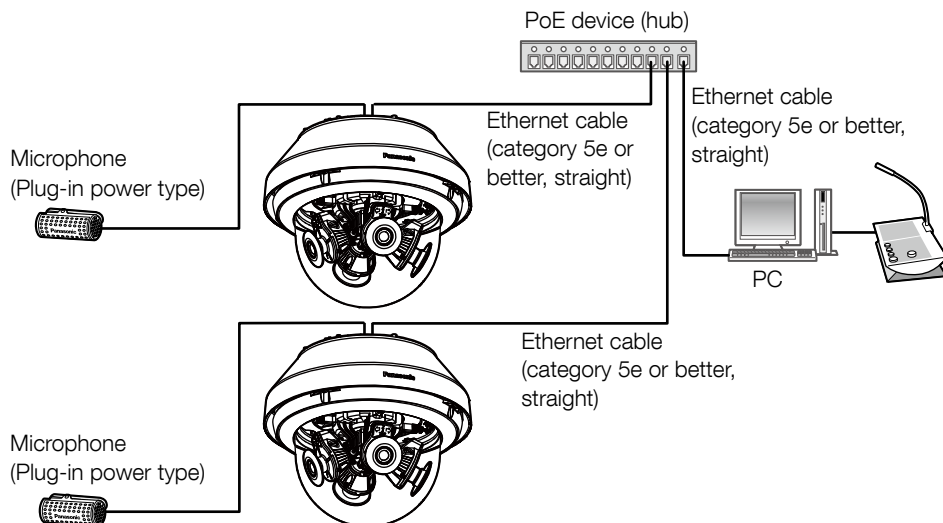### ④USB terminal(for installation constructor only)

Use to adjust the angle of view at the time of installation.

For how to use, refer to the supplied "Installation Guide".

- Maximum supply corrent: 250 mA (DC 5 V)

When connecting to a network using a PoE hub

Before starting the installation, check the entire system configuration. The following illustration gives a wiring example of how to connect the camera to the network via a PoE device (hub).
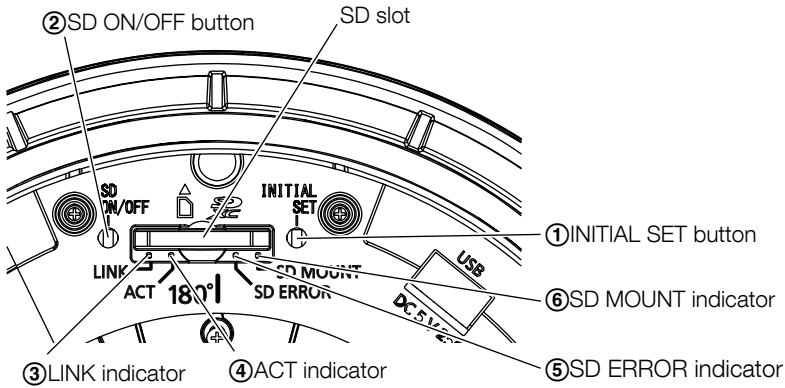
PoE device (hub)

Ethernet cable
(category 5e or better,
straight)

Ethernet cable
(category 5e or
better, straight)

Microphone
(Plug-in power type)

PC

Ethernet cable
(category 5e or better,
straight)

Microphone
(Plug-in power type)

*A microphone cannot be connected to WV-S8530N.

IMPORTANT:
● Use a switching hub or a router which is compliant with 10BASE-T/ 100BASE-TX /1000BASE-T.

■ Indicators and buttons

* Image of camera 1 is omitted for simple explanation.

②SD ON/OFF button　　SD slot

①INITIAL SET button

⑥SD MOUNT indicator

③LINK indicator　　④ACT indicator　　⑤SD ERROR indicator

①INITIAL SET button

Follow the steps below to initialize the network camera.

(1) Turn off the power of the camera. Disconnect the Ethernet cable from the camera.
(2) Turn on the power of the camera while pressing the INITIAL SET button, and make sure to release the button after approximately 15 seconds. In about 2 minutes later, the camera will start up and the settings including the network settings will be initialized. Retry if the camera does not start up normally.

IMPORTANT:
- When the camera is initialized, the settings including the network settings will be initialized. Before initializing the settings, it is recommended to write down the settings in advance.
- Do not turn off the power of the camera during the process of initialization. Otherwise, it may fail to initialize and may cause malfunction.

---

②SD ON/OFF button

(1) When the SD ON/OFF button is pressed (less than 1 second), the SD MOUNT indicator lights up in green and data can be saved to the SD memory card.
(2) When the SD ON/OFF button is held down (about 2 seconds), the SD MOUNT indicator lights off and the SD memory card can be removed.

③LINK indicator

- When the camera is able to communicate with the connected device　　　　　　Lights orange

④ACT indicator

- When data is being sent via the network camera　　　　Blinks green (accessing)

⑤SD ERROR indicator

- When the set is being started   Lights red
- When an SD memory card is recognized normally   Lights red → Lights off
- When the SD card slot is not used or an abnormality is   Lights red → Stays red
  detected in SD card after the camera has started

⑥SD MOUNT indicator

- When an SD memory card is inserted and could   Lights off → Blinks green →
  be recognized   Lights off
- When data can be saved after the SD memory card is   Lights off → Lights green
  inserted and the SD ON/OFF button is pressed
  (less than 1 second)
- When data can be saved to the SD memory card   Lights green
- When the SD memory card is removed after holding down   Lights green → Blinks green →
  the SD ON/OFF button (about 2 seconds)   Lights off (recording)
                                                            Lights green → Lights off
                                                            (waiting for recording)
- When data cannot be saved to the SD memory card   Lights off
  because an abnormality was detected or the SD
  memory card is configured not to be used

Note:
- Lighting/blinking LED can be turned off with the software settings at any time. (The initial state is lighting or blinking.) Set the LED to be solid off if necessary, depending on the installation conditions. (☞ Operating instructions on the Panasonic support web site)

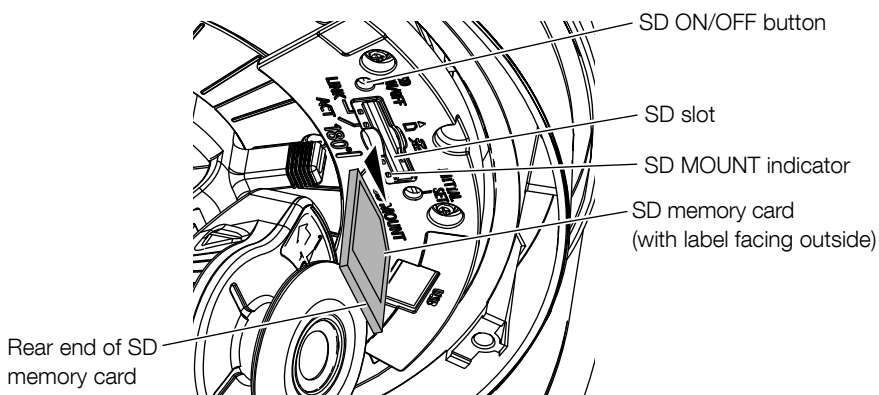# Insert / remove an SD memory card

Note:
● Refer to the Operating Instructions on the Panasonic support web site for further information about the SD memory card settings.

■ Insert an SD memory card

【1】 Remove the dome cover from the camera, insert an SD memory card fully into the SD slot until a click is heard.

IMPORTANT:
● Dome cover is fixed to the camera body by the installed auxiliary wire, so please do not remove it.
● The dome cover is not fixed temporarily. Take care not to hit the dome cover against periphery.

   ●Insert the SD memory card with its label facing outside.
   ●Insert the SD memory card with its back end at the same height as the lower part of the center SD slot until it makes a clicking sound.
   ●Take your fingers off the SD memory card and check that its back end does not protrude over the upper part of the SD slot.
   ●After the SD memory card has been inserted, press the SD ON/OFF button, and make sure the SD MOUNT indicator is continually lit.
   ● If you do not press the SD ON/OFF button after inserting the SD memory card, the SD MOUNT indicator is automatically lit approximately 5 minutes later.

SD ON/OFF button

SD slot

SD MOUNT indicator

SD memory card
(with label facing outside)

Rear end of SD memory card

【2】 Attach the dome cover to the camera.

IMPORTANT:
● Fasten the dome cover fixing screws along the diagonal direction.
(Recommended tightening torque: 1.37 N·m {1.01 lbf·ft})

■ Remove an SD memory card

When removing an SD memory card, reverse the procedure.

● To remove the SD memory card, hold down the SD ON/OFF button for about 2 seconds. When the flashing SD MOUNT indicator goes out, you can remove the SD memory card.

IMPORTANT:
● Before turning off the camera power switch, make sure that the SD MOUNT indicator is turned off. If you turn off the camera power switch while the SD MOUNT indicator is lit or flashing, the recorded data may be corrupted or damaged.

Note:
● 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 Panasonic support web site 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. Use the compatible SD memory cards. (☞ page 32)

Configure the network settings

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

Configure the setting of the camera after temporarily invalidating the firewall software. Once the camera configuration is completed, return to the original state.

Contact the network administrator or your Internet service provider for information about configuring the settings of the network.
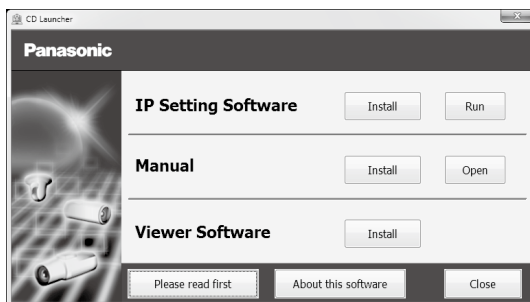
【1】 Insert the provided CD-ROM into the CD-ROM drive of your PC.

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.

Note:
- If the launcher window is not displayed, double click the "CDLauncher.exe" file on the CD-ROM.
- Refer to "Using the CD-ROM" in the Operating Instructions on the Panasonic support web site for further information about CDLauncher

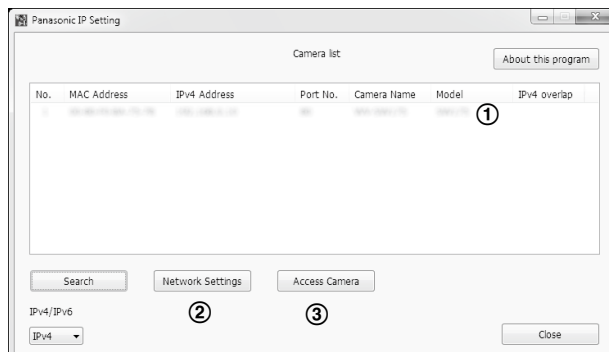### 【2】 Click the [Run] button next to [IP Setting Software].

⇒ [Panasonic IP Setting] screen will be displayed.

The MAC Address / IP address of the detected camera will be displayed.

【3】 Select the camera you want to configure (①), and click [Network Settings] (②) to change the network settings. Then, click [Access Camera] (③).

Note:
Select the camera with same MAC address as the MAC address printed on the camera that you want to configure.

【4】When the administrator registration window is displayed, enter "User name","Password" and "Retype password" by following the instructions displayed on the screen, and then click the [Set] button.

Please keep your user name and password in a safe place free from public view to ensure security. After completing the registration, the camera will automatically be re-connected and the authentication window will be displayed. Enter the registered user name and password. The default setting of user authentication is "On". For further information, refer to the "Preface" section in the Operating Instructions on the Panasonic support web site.

Administrator registration

Enter the user name and password of the administrator.

User name (1 to 32 characters)	
Password (8 to 32 characters)	
Retype password	

Set

Note:
(1) Distinguish between upper- and lower cases.
(2) Entry of the following is not allowed as a user name: 2-byte characters, and 1-byte symbols " & : ; \
(3) Entry of the following is not allowed as a password: 2-byte characters, and 1-byte symbols " &
(4) For the password, use three or more types of characters from upper- and lowercase alphabetic characters, numbers, and symbols.
(5) Keep the user name and password at hand so as not to lose.
(6) It is recommended to change the password periodically.
(7) Set the password which does not include the user name.

IMPORTANT:
- When the camera is used over the Internet, setting user authentication to "Off" may lead to unintended access by a third party. Please leave user authentication set to "On".

【5】When live images from the camera are displayed, the network connection is complete.

Note:

For more information on the following content, refer to the Operating Instructions.
- Please set [Time & date] on the [Basic] screen of "Setup" before using the camera.
- It is impossible to display H.265 (or H.264) or MJPEG images, receive audio (X8570), display logs, and use full-screen display when the viewer software "Network Camera View 4S" is not installed on the PC.
- Depending on the environment of your PC, it may take time for images to be displayed.
- At the time of purchase, the audio input are set to "Off".If needed, change the setting on the "Audio" screen in "Setup". (X8570)
- Due to security enhancements in "IP Setting Software", "Network settings" cannot be changed when around 20 minutes have passed after turning on the power of the camera to be configured. (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.

If images are not displayed, set the Web browser to compatibility view. For details on how to configure, refer to our website (https://security.panasonic.com/support/info/ <Control No.:C0104>)

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.	• Are the PoE device and the network connector connected using an Ethernet cable (category 5e or better)? 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.	Installation Guide
The LINK indicator does not light in orange even when the Ethernet cable is connected to the camera.	• Is the Ethernet cable connected appropriately? Connect the Ethernet cable appropriately. • Is the hub or router connected to the camera operating appropriately? Check if the hub or router in use is operating appropriately. • Isn't the Ethernet cable connected to the camera broken? Replace the cable with another one.	Installation Guide
Frame by frame or skipping may occur in the distributed images. (X8570)	• Is a PoE power supply device or hub that is compliant with 10BASE-T/100BASETX used? Use a PoE power supply device or hub that is compliant with 1000BASE-T.	–
SD ERROR indicator lights red	**This indicator lights up red when data cannot be saved on the SD memory card.** • Isn't the write protect switch of the inserted SD memory card set to "LOCK"? Unlock the write protect switch of the SD memory card. • Hasn't the inserted SD memory card been formatted on a PC? Use an SD memory card formatted on the camera. Or install the software to format the SD memory card on the PC. Refer to our website (https://security.panasonic.com/support/info/ <Control No.:C0105>)) for further information about the supported software. • Isn't the inserted SD memory card faulty? Replace the card with a normal one.	22

Symptom	Cause/solution	Reference pages

Audio input contains noise. (X8570)	• Check the following.
	  • Grounding of the camera, a switching hub or peripheral devices are not done.
	  • The camera is used near an electrical power line.
	  • The camera is used near a device which produces strong magnetic field or radio waves (such as near a TV/radio antenna, a motor of an air conditioning system, a transformer, etc.)
	When audio input still contains noise even after checking the above possibilities, use a powered microphone or connect audio output with low output impedance.
		14

Specifications

• **Basic**

Power source *1:	PoE (IEEE802.3af compliant)
Power consumption *1:	(X8570) PoE DC 48 V : 265 mA/Approx. 12.95 W (Class 0 device) (S8530) PoE DC 48 V : 210 mA/Approx. 10.1 W (Class 0 device)
Operating environment Ambient operating temperature:	–40 °C to +60 °C {–40 °F to +140 °F} (Power On range: –20 °C to +60 °C {–4 °F to +140 °F})
Ambient operating humidity:	10 % to 100 % (no condensation)
Storage environment Storage temperature:	–30 °C to +60 °C {–22 °F to 140 °F}
Storage humidity:	10 % to 95 % (no condensation)
External I/O terminals (X8570) :	ALARM IN1 (Alarm input 1/ Black & white input/ Auto time adjustment input) (x1) ALARM IN2 (Alarm input 2/ ALARM OUT) (x1) ALARM IN3 (Alarm input 3/ ALARM OUT/ AUX OUT) (x1)
Audio input (X8570) :	ø3.5 mm stereo mini jack (Audio input is monaural.)
For microphone input:	Recommended applicable microphone: Plug-in power type (Sensitivity of microphone: –48 dB ±3 dB (0 dB=1 V/Pa,1 kHz)) Input impedance: Approx. 2 kΩ (unbalanced) Supply voltage: 4.0 V ±0.5 V
For line input:	Input level: Approx. –10 dBV
Waterproof *2:	IP66 (IEC60529), Type 4X (UL50), NEMA 4X compliant
Shock resistance:	IK10 (IEC62262)
Dimensions:	**When using base bracket:** ø230 mm × 232 mm (H) {ø9-1/16 inches × 9-1/8 inches (H)} Dome radius 80 mm {3-5/32 inches} **When using attachment plate only:** ø230 mm × 196 mm (H) {ø9-1/16 inches × 7-23/32 inches (H)} Dome radius 80 mm {3-5/32 inches}
Mass:	**When using base bracket:** Approx. 3.3 kg {7.28 lbs} (X8570) Approx. 3.2 kg {7.05 lbs} (S8530) **When using attachment plate only:** Approx. 2.8 kg {6.17 lbs} (X8570) Approx. 2.7 kg {5.95 lbs} (S8530)
Finish:	**Main body**: Aluminum die cast, Light gray **Outer fixing screws**: Stainless steel (Corrosion-resistant treatment) **Dome cover**: Polycarbonate resin (with ClearSight coating), Clear
Others:	Tamper-resistant enclosure*3

*1 Refer to our website (https://security.panasonic.com/support/info/ <Control No.:C0106>) for further information about Power source and Power consumption information.
*2 Only when installation work is properly performed according to the Installation Guide and appropriate waterproof treatment is performed.
*3 Component that has a structure on which the screws that are accessible after installation cannot be screwed or unscrewed using an ordinary screwdriver.

• **Camera**

Image sensor:	1/1.8 type CMOS image sensor (X8570) 1/3 type CMOS image sensor (S8530)
Effective pixels:	Approx. 8.4 megapixels (X8570) Approx. 2.4 megapixels (S8530)
Scanning area:	(X8570) 7.68 mm (H) × 4.32 mm (V) {5/16 inches (H) × 5/32 inches (V)} (S8530) 5.28 mm (H) × 2.97 mm (V) {7/32 inches (H) × 1/8 inches (V)}
Scanning system:	Progressive

Minimum illumination:	(X8570)
	Color: 0.12 lx {0.01115 footcandle}
	      (F1.6, Maximum shutter: Off (1/30 s), AGC: 11)
	      0.008 lx {0.00074 footcandle}
	      (F1.6, Maximum shutter: max. 16/30 s, AGC: 11)*
	BW : 0.05 lx {0.00465 footcandle}
	      (F1.6, Maximum shutter: Off (1/30 s), AGC: 11)
	      0.003 lx {0.00028 footcandle}
	      (F1.6, Maximum shutter: max. 16/30 s, AGC: 11)*
	
	(S8530)
	Color: 0.09 lx {0.00836 footcandle}
	      (F2.2, Maximum shutter: Off (1/30 s), AGC: 11)
	      0.006 lx {0.00056 footcandle}
	      (F2.2, Maximum shutter: max. 16/30 s, AGC: 11)*
	BW : 0.04 lx {0.00372 footcandle}
	      (F2.2, Maximum shutter: Off (1/30 s), AGC: 11)
	      0.003 lx {0.00028 footcandle}
	      (F2.2, Maximum shutter: max. 16/30 s, AGC: 11)*
	* Converted value

Intelligent auto	On/ Off
Super Dynamic:	On/ Off, the level can be set in the range of 0 to 31.
Dynamic range:	108 dB typ. (Super Dynamic: On, level: 31)
Maximum gain:	The level can be set in the range of 0 to 11.
Auto contrast adjust	On/ Off
Adaptive black stretch:	The level can be set in the range of 0 to 255.
Back light compensation (BLC) /High light compensation (HLC):	BLC/ HLC/ Off, the level can be set in the range of 0 to 31. (only when Super Dynamic/ Intelligent auto: Off)
Fog compensation:	On/ Off, the level can be set in the range of 0 to 8 (only when Intelligent auto/ auto contrast adjust: Off)
Light control mode setting:	Indoor scene (50 Hz)/ Indoor scene (60 Hz)/ ELC

Maximum shutter:	Max.1/10000s, Max.1/4000s, Max.1/2000s, Max.1/1000s, Max.1/500s, Max.1/250s, Max.1/120s, Max.1/100s, Max.2/120s, Max.2/100s, Max.3/120s, Max.1/30s, Max.2/30s, Max.4/30s, Max.6/30s, Max.10/30s, Max.16/30s
Color/BW:	Off/ On/ Auto1(Normal)/ Auto2(IR Light)/ Auto3(SCC)
White balance:	ATW1/ ATW2/ AWC
Digital noise reduction:	The level can be set in the range of 0 to 255.
Privacy zone:	On/ Off (up to 8 zones available)
Camera title on screen:	On/ Off Up to 20 characters (alphanumeric characters, marks)
Video Motion Detection (VMD):	On/ Off, 4 areas available
Upside-down	On/ Off
Adjusting angle:	**Camera 1, 2, 3:** 　Horizontal (PAN) angle　: 360 ° 　Vertical (TILT) angle　　: +30 ° to +80 ° 　Azimuth (YAW) angle　　: ±50 ° **Camera 4:** 　Horizontal (PAN) angle　: 360 ° 　Vertical (TILT) angle　　: −15 ° to +80 ° 　Azimuth (YAW) angle　　: ±50 ° * The above is the adjustable range of each camera unit. The adjustable range varies according to the positional relationship with other camera units.

• Lens

Zoom ratio:	(X8570) 1x Optical (S8530) 1.8x Optical (Manual zoom / Manual focus)
Digital (electronic) zoom:	Choose from 3 levels of x1, x2, x4
Focal length:	(X8570) 4.6 mm {3/16 inches} (S8530) 3.2 mm {1/8 inches} – 5.7 mm {7/32 inches}
Maximum aperture ratio:	(X8570) 1:1.6 (S8530) 1:2.2 (WIDE) – 1:3.1 (TELE)
Focus range:	(X8570) 3.0 m {9.84 feet} – ∞ (S8530) 1.5 m {4.92 feet} – ∞

Angular field of view:	⟨X8570⟩ **[16:9 mode*]** *Cannot be changed. Horizontal: 97 ° / Vertical: 53 ° ⟨S8530⟩ **[16:9 mode]** Horizontal : 53 ° (TELE) – 99 ° (WIDE) Vertical : 30 ° (TELE) – 54 ° (WIDE) **[4:3 mode]** Horizontal : 44 ° (TELE) – 81 ° (WIDE) Vertical : 33 ° (TELE) – 60 ° (WIDE)

• Network

Network:	10BASE-T/ 100BASE-TX/ 1000BASE-T *1, RJ45 connector
Resolution*2: H.265/ H.264 JPEG (MJPEG)	⟨X8570⟩ **[16:9 mode*]** *Cannot be changed. 3840x2160/ 2560x1440/ 1280x720/ 640x360/ 320x180 ⟨S8530⟩ **[16:9 mode]** 1920x1080/ 1280x720/ 640x360/ 320x180 **[4:3 mode]** 1600x1200/ 1280x960/ 640x480/ 320x240

Image compression method:
H.265/ H.264
	Transmission priority:
	Constant bit rate / VBR / Frame rate / Best effort
	Frame rate:
	1 fps/ 3 fps*/ 5 fps*/ 7.5 fps*/ 10 fps*/ 12 fps*/ 15 fps*/
	20 fps* ⟨S8530⟩ / 30 fps* ⟨S8530⟩
	* The frame rate is limited to "bit rate". When a value with an aster-
	  isk (*) is selected, the actual frame rate may be lower that the
	  value selected.
	Bit rate per client:
	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*/ 16384 kbps*/ 20480 kbps*/
	24576 kbps*/ --FREE ENTRY--
	* The available range of the bit rate varies depending on the setting
	  selected for "image capture size".
	Image quality:
	• For "Constant bit rate", "Frame rate", and "Best effort":
	  Motion priority/ Normal/ Quality priority
	• For "VBR":
	  0 Super fine/1 Fine/ 2/ 3/ 4/ 5 Normal/ 6/ 7/ 8/ 9 Low
	Transmission type:
	Unicast/ Multicast

Image compression method: 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 **Refresh interval:** 0.1fps/ 0.2fps/ 0.33fps/ 0.5fps/ 1fps/ 2fps/ 3fps/ 5fps/ 6fps/ 10fps/ 12fps/ 15fps/ 30fps (S8530) (JPEG frame rates are limited when using JPEG and H.265/H.264 simultaneously)
Smart coding	**GOP(Group of pictures) control** On(Frame rate control)*/ On(Advanced)*/ On(Low)/ On(Mid)/ Off *On(Frame rate control) and On(Advanced) are only available with H.265. **AUTO VIQS** On/ Off
Audio compression method: (X8570)	G.726 (ADPCM) : 16 kbps/ 32 kbps G.711 : 64 kbps AAC-LC*3 : 64 kbps/ 96 kbps/ 128 kbps
Bandwidth control:	(X8570) Unlimited/ 4096 kbps/ 6144 kbps/ 8192 kbps/ 10240 kbps/ 12288kbps/ 15360 kbps/ 20480 kbps/ 25600 kbps/ 30720 kbps/ 35840 kbps/ 40960 kbps/ 51200 kbps/ 61440 kbps/ 81920 kbps/ 102400 kbps/ 153600 kbps (S8530) Unlimited/ 256 kbps/ 384 kbps/ 512 kbps/ 768 kbps/ 1024 kbps/ 2048 kbps/ 4096 kbps/ 6144 kbps/ 8192 kbps/ 10240 kbps/ 12288kbps/ 15360 kbps/ 20480 kbps/ 25600 kbps/ 30720 kbps/ 35840 kbps/ 40960 kbps/ 51200 kbps/ 61440 kbps/ 81920 kbps/ 102400 kbps/ 153600 kbps
Protocol:	IPv6: TCP/IP, UDP/IP, HTTP, HTTPS, FTP (Server), SMTP, DNS, NTP, SNMP, DHCPv6, RTP, MLD, ICMP, ARP, IEEE 802.1X, DiffServ IPv4: TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTP/RTCP, FTP (Server), SMTP, DHCP, DNS, DDNS, NTP, SNMP, UPnP, IGMP, ICMP, ARP, IEEE 802.1X, DiffServ
Security	User authentication / Host authentication / HTTPS* / Alteration detection of video file* * The certification is pre-installed.
OS*4:	Microsoft Windows 10 Microsoft Windows 8.1 Microsoft Windows 7
Browser*4, *5:	Windows Internet Explorer 11 (32-bit) Microsoft Edge Firefox Google Chrome
Maximum concurrent access number:	24 (Number of sessions that can connect to cameras at the same time) * Depends on network conditions
Compatible SDXC/SDHC/SD memory card*6, *7, *8	Manufactured by Panasonic (SD speed class 4 or higher) SDXC memory card : 64 GB, 128 GB, 256 GB SDHC memory card : 4 GB, 8 GB, 16 GB, 32 GB SD memory card : 2 GB (except miniSD memory card and microSD memory card)

Mobile terminal compatibility: (As of April, 2018)*9	iPad / iPhone (iOS 4.2.1 or later), Android™ mobile terminals

*1 Use the devices that are compliant with 1000BASE-T. X8570

*2 H.265/H.264 can be selected for each stream.

*3 When recording audio on an SD memory card, only use AAC-LC (Advanced Audio Coding - Low Complexity).

*4 For further information about PC system requirements and precautions for when using Microsoft Windows or Windows Internet Explorer, click "Manual" - "Open" from the supplied CD-ROM and refer to "Notes on Windows / Internet Explorer versions".

*5 Refer to our website (https://security.panasonic.com/support/info/<Control No.: C0122>) for latest information about the browser.

*6 Refer to our website (https://security.panasonic.com/support/info/ <Control No.:C0107>) for latest information about the compatible SD memory cards.

*7 When using with the image capture size of 3840x2160, use an SD memory card supporting Class10 specifications. X8570

*8 Use the SD memory card that complies with UHS-1(Ultra High Speed-1) in the case of SD Speed Class 10.

*9 For further information about compatible devices, refer to our website (https://security.panasonic.com/support/info/ <Control No.:C0108>).

Optional accessories

Ceiling mount bracket :	WV-Q105A[1]

<Light gray brackets>

Wall mount bracket:	WV-Q185[2]
Mount bracket:	WV-Q187[2]
Pole Mount Bracket:	WV-Q182[3]
Corner Mount Bracket:	WV-Q183[3]

<Fine silver brackets>

Wall mount bracket:	WV-Q122A[4]
Pole Mount Bracket:	WV-Q188[5]
Corner Mount Bracket:	WV-Q189[5]

[1] This product can only be installed indoors when WV-Q105A is used to install it on the ceiling.
[2] WV-Q187 is used with the WV-Q185.
[3] After assembling WV-Q182 or WV-Q183 with WV-Q185, attach them to the pole or corner of the wall of the building.
[4] WV-Q122A is used with the WV-Q187 (Light gray).
[5] After assembling WV-Q188 or WV-Q189 with WV-Q122A, attach them to the pole or corner of the wall of the building.

Note:
● The brackets are available in two colors, fine Silver and light gray. It is possible to use them in the different color combination.