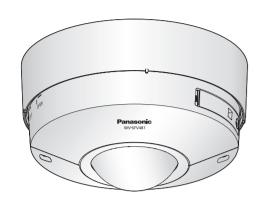
Panasonic

Installation Guide

Included Installation Instructions

Network Camera

Model No. WV-SFV481





- This manual describes the installation procedures, network camera installation, cable connections, and the direction of the image adjustment.
- Before reading this manual, be sure to read the Important Information.

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 Two Riverfront Plaza, Newark, NJ 07102-5490

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For Europe and other countries:

Panasonic Corporation http://www.panasonic.com

Panasonic Corporation Osaka, Japan

Authorised Representative in EU:

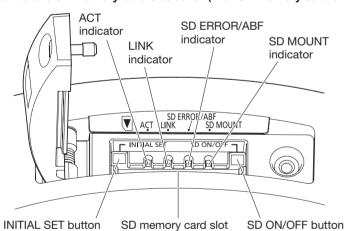
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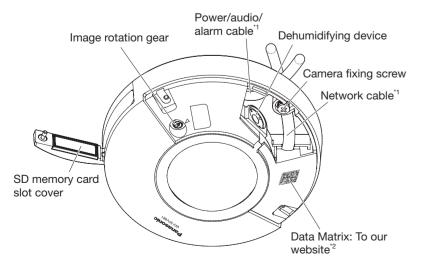
Major operating controls

The component names of the camera are as follows. Refer to the illustration when installing or adjusting the camera.

<Inside view of the SD memory card slot cover (with SD memory card slot cover opened)>



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



- *1 The detailed specifications on the right side of this page describe each terminal and
- *2 Data Matrix is our website address converted into a two-dimensional barcode. 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.
- http://security.panasonic.com/pss/security/support/qr_sp_select.html *3 SDXC/SDHC/SD memory card is described as SD memory card.

Standard accessories

Important Information	·
Warranty card1 set	

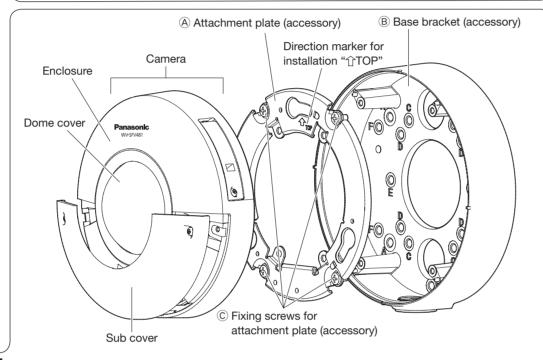
- *1 The CD-ROM contains the operating instructions and different kinds of tool software pro-
- *2 This label may be required for network management. The network administrator shall retain the code labe

The following parts are used during installation procedures.

. 1 pc. F Waterproof tape .. Attachment plate . . 1 pc. G Bit (Hex wrench, screw size B Base bracket... © Fixing screws for attachment plate 6.35 mm {1/4 inches} T10).. .. 5 pcs. H 4P alarm cable. (incl. 1 spare) () 2P power cable ... D Template A (for the attachment plate) 1 sheet (J) LAN cable cover... (E) Template B (for the base bracket)..... 1 sheet



(Hex wrench, screw size 6.35 mm {1/4 inches} T10)



INITIAL SET button

How to initialize the camera

Follow the steps below to initialize the network camera.

① Turn off the power of the camera. When using a PoE hub, disconnect the LAN cable from the cam-

era. When using an external power supply, disconnect the 2P power cable plug from the camera. ② Turn on the power of the camera while holding down the INITIAL SET button, and then keep holding down the button for 5 seconds or more. About 2 minutes later, the camera will start up and the settings including the network settings will be initialized.

- When the camera is initialized, the settings including the network settings will be initialized. Note that the CRT key (SSL encryption key) used for the HTTPS protocol will not 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

Blinks green (accessing)

Lights red → Lights off

Lights off \rightarrow Blinks green \rightarrow

Lights green → Lights off (waiting for recording)

Lights off → Lights green

Blinks red (Interval of 1 time/ second)

Lights orange

Liahts red

Liahts off

Lights green

ACT indicator

- When data is being sent via the network camera LINK indicator
- When the camera is able to communicate with the connected device

may fail to initialize and may cause malfunction.

- SD ERROR/ABF indicator
- When ABF (Auto Back Focus) operation is being executed
- When the set is being started
- When an SD memory card*3 is recognized normally
- ullet When the SD memory card slot is not used or an abnormality Lights red ightarrow Stays red

is detected in SD memory card after the camera has started

SD MOUNT indicator

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

SD ON/OFF button

- When the SD ON/OFF button is pressed, data can be saved to the SD memory card.
- ② When the SD ON/OFF button is held down for about 2 seconds, the SD MOUNT indicator goes out, and the SD memory card can be removed.

• The ACT indicator, Link indicator, SD ERROR/ABF indicator, and SD MOUNT indicator inside the SD memory card slot cover can be turned off. (Indicators are set to light or blink in the default settings.)

Turn off the indicators as required according to the installation environment. (Fig. Operating Instructions (included in the CD-ROM))

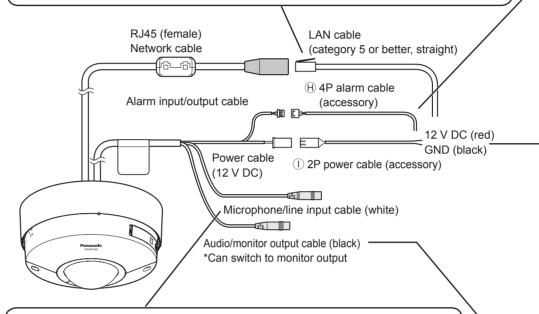
Making connections

Turn off each system's power supply before making a connection. Before making connections, prepare the required peripheral devices and cables.

Connect a LAN cable

IMPORTANT:

- Use all 4 pairs (8 pins) of the LAN cable (category 5 or better, straight, STP).
- The maximum cable length is 100 m {328 feet}.
- Make sure that the PoE device in use is compliant with IEEE802.3af standard. When connecting both the 12 V DC power supply and the PoE device for power
- supply, 12 V DC will be used for power supply*. * If a 12 V DC power supply and a PoE hub or router are used at the same time,
- network connections may not be possible. In this case, disable the PoE settings. Refer to the operating instructions of the PoE hub or router in use.
- * Depending on the PoE device used, if you stop the 12 V DC power supply after operating it and a PoE hub or router at the same time, the power supply may stop, causing the camera to restart.
- When the LAN 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
- 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.



Microphone/line input cable

Connect a stereo mini plug (ø3.5 mm)

- Input impedance: Approx. 2 kΩ (unbalanced)
- Recommended cable length: Less than 1 m {3.28 feet} (for microphone input) Less than 10 m {32.8 feet} (for line input)
- Recommended microphone: Plug-in power type (option) •Supply voltage: 2.5 V ±0.5 V •Recommended sensitivity of microphone: -48 dB ±3 dB (0 dB=1 V/Pa,1 kHz)
- Input level for the line input: Approx. -10 dBV

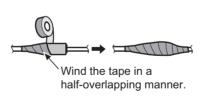
Waterproof treatment for the cable joint sections

Adequate waterproof treatment is required for the cables when installing the camera with cables exposed or installing it under the eaves. 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.

manner.

<LAN cable>



<Alarm input/output cable, power cable, microphone/</p> line input cable, audio/monitor output cable> Wind the tape in a half-overlapping

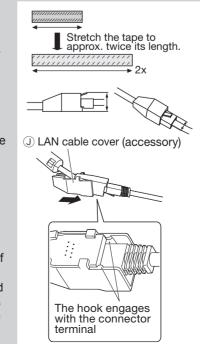
IMPORTANT:

How to wind the supplied waterproof tape

- Also waterproof the ① 2P power cable (accessory), (H) 4P alarm cable (accessory), and external connections in the same way.
- Stretch the tape to approx. twice its length (see the illustration) and wind it around the cable. Insufficient tape stretch causes insufficient waterproofing. To prevent the LAN cable hook from coming loose
- easily, fit the ① LAN cable cover (accessory) onto the ① LAN cable cover (accessory) pigtail cable as illustrated, and then slide it in the direction indicated by the arrow. The connector of the LAN cable used with this camera must meet the following restrictions.

Height when inserted (From bottom to hook.): Max. 16 mm {5/8 inches} Connector width: Max. 14 mm {9/16 inches}

• 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 internal parts of (B) base bracket (accessory) are not



Connect the alarm input/output cable

H 4P alarm cable (accessory)

_ GND (black) - ALARM IN3, AUX OUT (gray) (Alarm input 3, AUX output) - ALARM IN2, ALARM OUT (red) (Alarm input 2, Alarm output)

ALARM IN1, DAY/NIGHT IN (green) (Alarm input 1/ Color-monochrome switching input)

<Ratings>

ALARM IN1(DAY/NIGHT IN), ALARM IN2, ALARM IN3 Input specification: No-voltage make contact input (4 V - 5 V DC, internally pulled up) Open or 4 V - 5 V DC

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) 4 V - 5 V DC by internal pull-up

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

* The default of EXT I/O terminals is "Off".

IMPORTANT:

- Be sure to use the \oplus 4P alarm cable (accessory) provided with this product. • Install external devices so that they do not exceed the ratings above.
- When using the external I/O terminals as the output terminals, ensure they do not cause signal collision with external signals.

• 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 provided CD-ROM for further information about the external I/O terminal 2 and 3 (ALARM IN2, 3) settings ("Off", "Alarm input", "Alarm output" or "AUX output").

Power cable

Black Negative

12 V DC

Positive

Connect the power cable

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

Connect the output cable of the AC adaptor to the ① 2P power cable (accessory).

- Use 12 V DC power supply that is insulated from the commercial AC power. • Be sure to use the ① 2P power cable (accessory) provided with this product.
- Be sure to fully insert the ① 2P power cable (accessory) into the 12 V DC power
- supply terminal. Otherwise, it may damage the camera or cause malfunction. • When installing the camera, make sure that excessive force is not applied to the
- power cable. • Be sure to use an AC adaptor compliant with the specifications (written in the indication

Connect an external amplifier-embedded speaker to the audio/monitor output cable

label on the bottom side of this unit) regarding power source and power consumption.

Connect a stereo mini plug (ø3.5 mm).*

- Output impedance: Approx. 600 Ω (unbalanced)
- Recommended cable length: Less than 10 m {32.8 feet}
- Output level: -20 dBV (can switch to monitor output) * Use an external powered speaker.

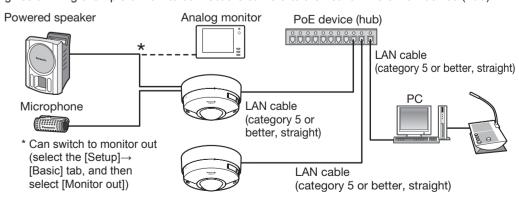
- Connect/disconnect the audio cables and turn on the power of the camera after turning off the power of the audio output devices. Otherwise, loud noise may be heard
- Make sure that the stereo mini plug is connected to this cable. When a monaural mini plug is connected, audio may not be heard.

When connecting a monaural speaker with amplifier, use a locally procured conversion cable (mono-stereo).

• Audio out is selected for the audio/monitor output cable by default. The cable can be used for monitor out by selecting the [Setup] → [Basic] tab, and then selecting [Monitor out]. (The ø3.5 mm monaural mini plug⇔RCA pin jack conversion cable is locally procured.)

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).



<Required cable>

LAN cable (category 5 or better, straight)

Use a LAN cable (category 5 or better, cross) when directly connecting the camera to a PC.

- The analog monitor is used when servicing the camera. It is not provided for record-
- Depending on the monitor, some characters (camera title, preset ID, etc.) may not be displayed on the screen. Use a switching hub or a router which is compliant with 10BASE-T/100BASE-TX.
- If a PoE hub is not used, each network camera must be connected to a 12 V DC
- When using 12 V DC, power supply from a PoE hub or router is not required.

Installation

The installation tasks are explained using 4 steps.

Make sure all items are prepared before beginning installation



Mount the brackets to a ceiling or



Step3

Connect cables, and then attach the camera to the mount bracket.



Step4 Adjust the direction of the image.

B Base bracket (accessory)

Fixing screws (M4 x 4, locally procured)

Minimum pull-out strength:

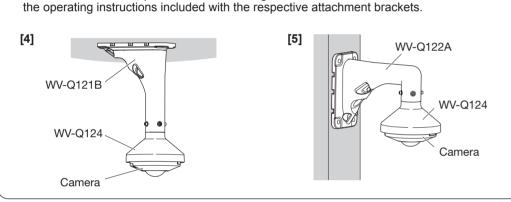
B Base bracket 196 N {44 lbf} (per 1 pc.)

|Step1 Preparations

There are 4 methods to install the camera to a ceiling or wall as described below. Prepare the required parts for each installation method before starting the installation. The following are the requirements for the various installation methods.

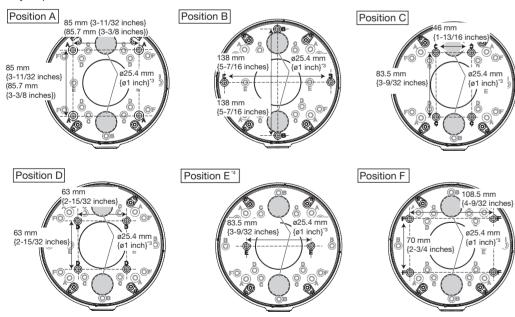
Recommended screw	Minimum pull-out strength	
M4 screws x 4	196 N {44 lbf}/1 pc.	
M4 screws x 4	196 N {44 lbf}/1 pc.	
M4 screws x 4	196 N {44 lbf}/1 pc.	
M10 screws x 4	1411 N {317 lbf}/1 pc.	
M10 screws x 4	823 N {185 lbf}/1 pc.	
	M4 screws x 4 M4 screws x 4 M4 screws x 4 M4 screws x 4	

- *1 Use 4 screws (M4 x 8 mm, accessory) to fix the (A) attachment plate (accessory) to the B base bracket (accessory) or WV-Q124.
- *2 For information on the procedure for attaching the WV-Q121B and WV-Q122A with the WV-Q124, refer to the operating instructions included with the respective attachment brackets. *3 For information on the procedure for attaching the WV-Q122A with the WV-Q124, refer to



[3] Mount the camera to a ceiling or a wall using base bracket <Mounting the base bracket>

The ® base bracket (accessory) can be fixed in any of the following 6 screwing positions according to ceiling and wall conditions. Match the hole used when installing the camera to any of positions A to F.



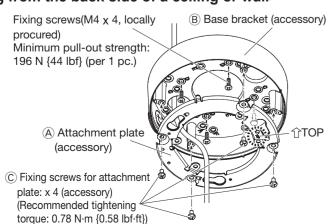
- *3 The wiring hole diameter is 25.4 mm {1 inch}. Select any of the 2 base bracket fixture holes of © template B (for the base bracket, accessory) when installing the base bracket.
- *4 When attaching the base bracket to a one-gang junction box in Position E, secure the base bracket with 2 screws (M4, locally procured).

<Making holes and wiring from the back side of a ceiling or wall>

 Mount the

 B base bracket (accessory) to a ceiling or wall procured) using 4 fixing screws (M4, locally procured). Refer to the installation example on the right and pass the wiring

through the base bracket. Secure (A) attachment plate (accessory) to base bracket using 4 © attachment fixing screws (accessory). (Recommended tightening torque: 0.78 N·m {0.58 lbf·ft})



IMPORTANT:

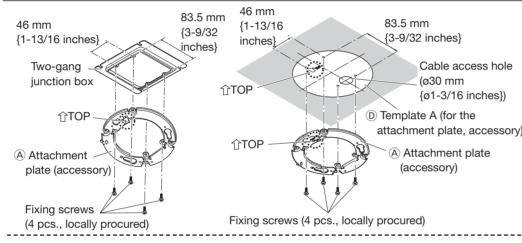
- Procure 4 screws (M4) to secure the (A) attachment plate (accessory) or (B) base bracket (accessory) to a ceiling or a wall.
- When mounting the camera on a concrete ceiling, use an AY plug bolt (M4) for securing. (Recommended tightening torque: 1.6 N·m {1.18 lbf·ft})
- Select screws according to the material of the ceiling or wall that the camera will be mounted to. In this case, wood screws and nails should not be used.
- If a ceiling board such as plaster board is too weak to support the total weight, the area shall be sufficiently reinforced.

Step2 Fixing the brackets

[1] Using a two-gang junction box

[2] Directly mount the camera to the ceiling or wall using the attachment plate

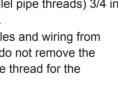
- The direction of "TOP" on the (a attachment plate (accessory) determines the upwards direction of the image on the PC monitor.
- When mounting on a ceiling, determine the direction that you want images to be displayed upwards on the PC monitor, and then mount so that the (A) attachment plate (accessory) aligns with "介TOP" on © template A (for the attachment plate, accessory).
- When installing on a wall, attach the A attachment plate (accessory) so that "介TOP" faces upward.



<Wiring using a ceiling or wall conduit>

①Remove the cap for the female thread for the conduit by using a hexagon wrench (ISO 2936, width across flats S=5 mm {3/16 inches}). The female thread for conduit is compliant with ANSI NPSM (parallel pipe threads) 3/4 inches or G3/4 of ISO 228-1. * When making holes and wiring from thread for the conduit

a ceiling or wall, do not remove the cap for the female thread for the conduit.



②Attach the base bracket and attachment plate to a ceiling or wall.

(accessory) to a ceiling or wall using 4 fixing screws (M4, locally procured). Refer to the installation example on the right and pass the wiring through the base bracket.

(accessory) to base bracket using 4 © attachment fixing screws (accessory). (Recommended tightening torque: 0.78 N·m {0.58 lbf·ft})

© Fixing screws for attachment plate: x 4 (accessory) (Recommended tightening torque: 0.78 N·m {0.58 lbf·ft}) (accessory)

(accessory)

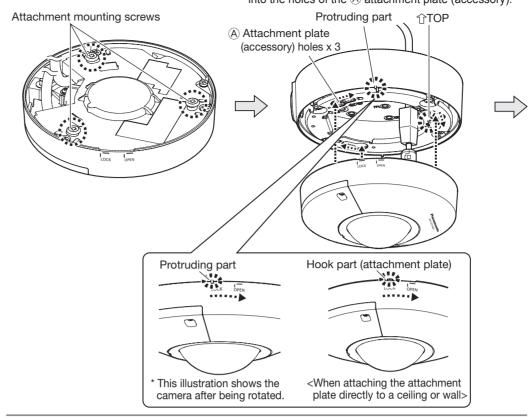
- If open wiring is conducted, be sure to use conduits and run the cables inside the tubes to protect the cables from direct sunlight.
- Installation work shall be such that there is no exposure to water into the architecture through the conduits having been joined.

- in the opposite direction of the cap for the female thread for the conduit.
- The direction of "☆TOP" on the ⓐ attachment plate (accessory) determines the upwards direction of the image on the PC monitor. Determine the direction that you want images to be displayed upwards on the PC monitor, and then align the direction of the B base bracket (accessory).
- faces upward.

Step3 Mount the camera to the attachment plate

(1) Check the position of attachment mounting screws on the bottom side of the camera.

(2) Connect cables to the camera according to the instructions in "Making connections", and mount the camera by inserting the attachment mounting screws into the holes of the (A) attachment plate (accessory).



Note:

• After the cables have been connected to the camera, align the direction of the Panasonic logo on the camera with "TOP" of the (A) attachment plate (accessory). Align the OPEN mark of the enclosure side panel with the protruding part of the

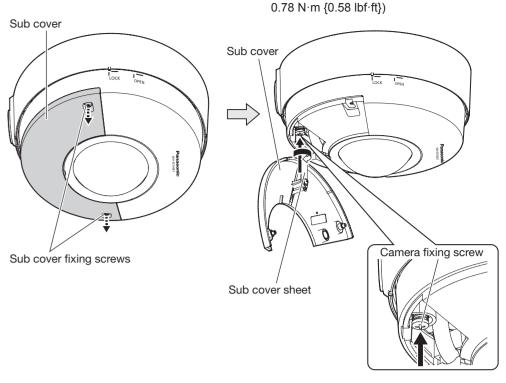
B base bracket (accessory), insert 3 attachment mounting screws into the attachment plate, rotate the camera approximately 15°, and move the LOCK mark to the protruding part of the base bracket to temporarily secure the camera. (When directly attaching the attachment plate to a ceiling or wall, align the OPEN mark to the hook part of the attachment plate.)

IMPORTANT:

- Disconnect the 12 V DC power source and PoE power source to prevent power from being supplied during mounting work.
- Because the sub cover is attached to the camera with the sub cover sheet, do not remove the sub cover
- For installations on the wall, to prevent water from accumulating on the surface of the dehumidifying device, install the camera so that the dehumidifying device does not face up. If water accumulates on the surface of the dehumidifying device, it cannot function properly.

3 Loosen 2 sub cover fixing screws using the G bit (accessory).

4 Remove the sub cover from the camera, and secure the camera using camera fixing screws. (Recommended tightening torque:



IMPORTANT:

• Be sure to tighten the camera fixing screw. Failure to observe this may cause camera trouble due to camera falling. (Recommended tightening torque: 0.78 N·m {0.58 lbf·ft})

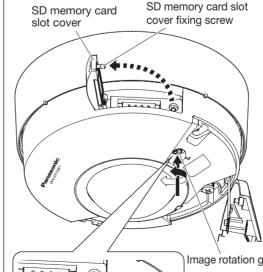
Step4 Adjustment

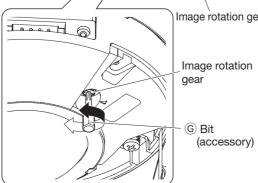
screw on the side of the camera using the © bit (accessory), and open the SD memory card slot cover.

②Turn on the camera. The LINK indicator inside the SD memory card slot cover lights. Make sure that the ACT indicator is blinking. (Refer to the descriptions in "Major operating controls" for more information about the indicators.)

* After turning on the camera, there may be a sound produced from the lens for several seconds. This is not a malfunction.

③Perform camera settings while referring to the included "Configure the settings of the camera" (leaflet), and check if camera images are displayed on the PC monitor.





Part of the sub cover is not shown.

①Loosen the SD memory card slot cover fixing ④Remove the cover film from the dome cover

⑤Align the upwards direction of the image while rotating the image rotation gear and checking the image on the PC monitor.

Rotate the image rotation gear using the included bit, and align the upwards direction of the image as necessary. Rotating the image rotation gear clockwise also rotates the PC image clockwise. Rotating the image rotation gear counterclockwise also rotates the PC image counterclockwise.

Adjustable range of the PC image: -45° to +45°

- The default position of the image rotation
- When using Double Panorama, if the image rotation gear is in its default position, images are display at a 45° angle. If you want to divide Double Panorama images horizontally or vertically, adjust the image rotation gear Adjustments to the image rotation gear are applied to all image capture modes including Double Panorama.

gear is 0°.

 When Double Panorama or Panorama is selected for the image capture mode, you can rotate the image at 90° intervals by using preset position settings. To make further fine adjustments to the image angle, adjust the image rotation gear. Refer to 11.1 and 11.5.4 of the Operating Instructions for more information.

Note:

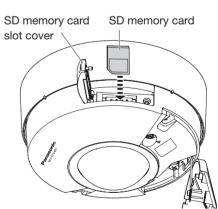
Take care of the following points when using monitor out.

- Select "9M Fisheye" or "4M Fisheye" for "Image capture mode".
- Locally procure the ø3.5 mm monaural mini plug⇔RCA pin jack conversion cable.
- Select the [Setup]→[Basic] tab, and then select On (NTSC) or On (PAL) for [Monitor out].

6 Insert an SD memory card into the slot, if

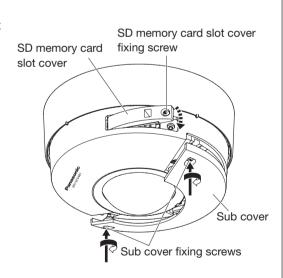
 Insert the SD memory card with its label facing down.

7 Close the SD memory card slot cover, and tighten the SD memory slot cover slot cover fixing screw to secure the cover. (Recommended tightening torque: 0.78 N·m {0.58 lbf·ft})



- * Part of the sub cover is not shown.
- To remove the SD memory card, hold down the SD ON/OFF button for about 2 seconds. When the SD MOUNT indicator goes out, you can remove the SD memory
- After the SD memory card has been replaced, 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 replacing the SD memory card, the SD MOUNT indicator is continually lit approximately 5 minutes

®Return the sub cover to its original position and secure it using 2 sub cover fixing screws. (Recommended tightening torque: 0.78 N·m {0.58 lbf·ft})



IMPORTANT:

- Ensure that the SD memory card slot cover's fixing screw is firmly secured. Failure to observe this may cause electric shock or malfunction.
- Securely tighten the 2 sub cover fixing screws. Failure to do so may cause the camera to drop.
- After the installation is completed, clean the dome cover surface with a soft cloth, etc.
- After the installation is complete, if the image is out of focus, turn off the camera, and then turn it on again. If the image is still out of focus, select the [Image/Position] tab from [Setup]→[Image/Audio], and then readjust the back focus from [Setup>>] of [Back focus].
- * When removing the camera, perform removal by following the installation procedure in the reverse order.