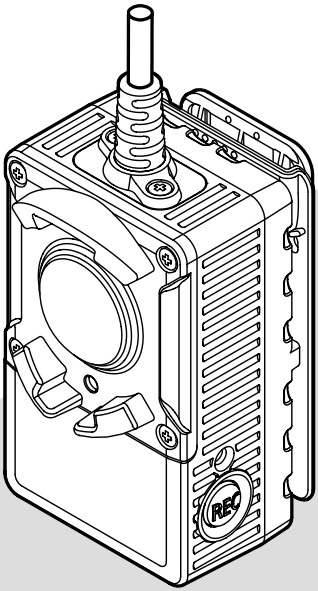
Panasonic

Installation Guide

Wearable Camera

Model No. WV-TW310L/WV-TW310S
WV-TW310LE/WV-TW310SE



Before attempting to connect or operate this product, please read these instructions carefully and save this manual for future use.

The model number is abbreviated in some descriptions in this manual.

WARNING:

- Batteries (battery pack or batteries installed) shall not be exposed to excessive heat such as sunlight, fire or the like.
- The installation shall be carried out in accordance with all applicable installation rules.
- The connections should comply with local electrical code.

For U.S. and Canada:
WV-TW310L, WV-TW310S
For Europe and other countries:
WV-TW310LE, WV-TW310SE

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. _____

For WV-TB311 (Optional)

Caution:
Do not open, crush, disassemble or dispose of batteries in fire with temperatures above (60 °C {140 °F}). Mishandling may cause burns, fire or explosions. Dispose of used batteries according to local ordinances and /or regulations.

For Europe

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

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

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

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

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

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

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

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

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

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

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Important safety instructions

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Clean only with dry cloth.

6) Do not 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) 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.

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(1) ANY DAMAGE AND LOSS, INCLUDING WITHOUT LIMITATION, DIRECT OR INDIRECT, SPECIAL, CONSEQUENTIAL OR EXEMPLARY, ARISING OUT OF OR RELATING TO THE PRODUCT;
(2) PERSONAL INJURY OR ANY DAMAGE CAUSED BY INAPPROPRIATE USE OR NEGLIGENT OPERATION OF THE USER;
(3) ALL MALFUNCTIONS OR TROUBLES FROM UNAUTHORIZED DISASSEMBLE, REPAIR OR MODIFICATION OF THE PRODUCT BY THE USER, REGARDLESS OF THE CAUSE OF THE MALFUNCTION OR TROUBLE;
(4) INCONVENIENCE OR ANY LOSS ARISING WHEN IMAGES ARE NOT DISPLAYED, DUE TO ANY REASON OR CAUSE INCLUDING ANY FAILURE OR PROBLEM OF THE PRODUCT;
(5) ANY PROBLEM, CONSEQUENTIAL INCONVENIENCE, OR LOSS OR DAMAGE, ARISING OUT OF THE SYSTEM COMBINED BY THE DEVICES OF THIRD PARTY;
(6) ANY CLAIM OR ACTION FOR DAMAGES, BROUGHT BY ANY PERSON OR ORGANIZATION BEING A PHOTOGENIC SUBJECT, DUE TO VIOLATION OF PRIVACY WITH THE RESULT OF THAT SURVEILLANCE-CAMERA'S PICTURE, INCLUDING SAVED DATA, FOR SOME REASON, BECOMES PUBLIC OR IS USED FOR ANY PURPOSE;
(7) LOSS OF REGISTERED DATA CAUSED BY ANY FAILURE.

Preface

WV-TW310 series Wearable Cameras are battery-powered cameras that are used to record images by being worn on a human body. They have Fisheye lens, which enables shooting with super wide angles. It is also possible to record H.264 images on the SDHC memory card of the camera.

WV-TW310

- Image capture size (1280 x 960 (Aspect ratio of 4:3)).
- There are 2 models, WV-TW310L and WV-TW310S, depending on the length of the connecting cable.
- WV-TW310 series includes 2 PC software applications, Wearable Camera Agent Software and Wearable Camera Viewer Software, which are in the provided CD-ROM.

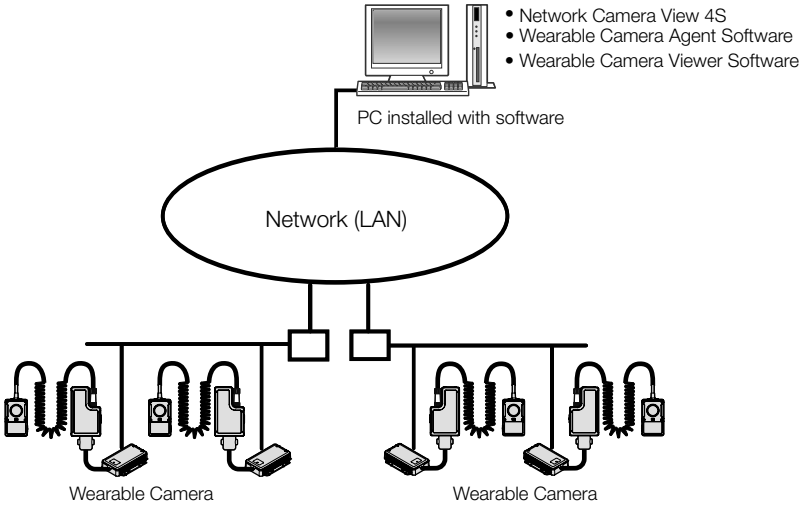
WV-TB311 (Optional)

- The WV-TB311 is the battery container specified for the WV-TW310 series.

WV-TC312 (Optional)

- The WV-TC312 is the conversion box specified for the WV-TW310 series.
- The WV-TC312 is used to connect the camera and PC.
- The WV-TC312 has a 12 V DC input terminal and 10BASE-T/100BASE-TX (PoE) input terminal.

<System configuration>



IMPORTANT:

- Wearable Camera Agent Software uses directed broadcasts to search for the camera. The router that you use must be configured to allow directed broadcast packets. If directed broadcast packets cannot be configured to be allowed, structure your system so that camera and the PC installed with software are on the same network segment.
- Use UDP port 10668 and 10669 for transmissions between the Wearable Camera Agent Software and the camera. The router that you use must be configured to allow UDP port 10668 and 10669.

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 Recording

Images are encoded to H.264 and saved on the SDHC memory card.

Wide angle

The wide angle lens enables wide areas to be recorded.

Pre recording

Depending on the settings, pre recording of up to 30 seconds is possible.

Color mode / black & white mode switching available

Images will be displayed clearly even at night since the camera will be automatically switched from the color mode to the black and white mode under low illumination condition.

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)

Upload and save the video image data

With Wearable Camera Agent Software (included in the CD-ROM), you can upload the video image data from the camera to a PC and save it.

Combine the multiple video image data

With Wearable Camera Agent Software (included in the CD-ROM), you can combine the multiple video image data in MPEG4 file format.

Verifying (Integrity check)

With Wearable Camera Agent Software or Wearable Camera Viewer Software (included in the CD-ROM), you can verify the video image data.

Image correction

With Wearable Camera Viewer Software (included in the CD-ROM), you can view the images with stabilization and distortion correction.

Playback

With Wearable Camera Viewer Software (included in the CD-ROM), you can play video images.

Snapshot

With Wearable Camera Viewer Software (included in the CD-ROM), you can take snapshots.

About the user manuals

There are 2 sets of operating instructions for the WV-TW310L, WV-TW310S (P model), WV-TW310LE and WV-TW310SE (E model).

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

Adobe® Reader® is required to read these operating instructions on the provided CD-ROM.
When the Adobe Reader is not installed on the PC, download the latest Adobe Reader from the Adobe web site and install it.

The model number is abbreviated in some descriptions in this manual.
The screens or illustrations used in this manual show the case of WV-TW310L (P model).

System requirements for a PC

CPU:	Intel® Core™ 2 Duo 2.66 GHz or faster recommended
Memory:	2 GB or more
Network Interface:	10BASE-T/100BASE-TX 1 port
Audio interface:	Sound card (when using the audio function)
Monitor:	Image capture size: 1024x768 pixels or more Color: 24-bit True color or better
OS:	Microsoft® Windows® 7 Microsoft® Windows Vista® Microsoft® Windows® XP SP3
Web Browser:	Windows® Internet Explorer® 9.0 (32-bit) Windows® Internet Explorer® 8.0 (32-bit) Windows® Internet Explorer® 7.0 (32-bit) Microsoft® Internet Explorer® 6.0 SP3
Other:	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 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 7 or Microsoft Windows Vista.

Note:

- Refer to "Notes on Windows®/ Internet Explorer® versions" (included in the CD-ROM) for further information about system requirements for a PC and precautions when using Microsoft Windows 7, Microsoft Windows Vista or Internet Explorer.

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Abbreviations

The Wearable Camera is refer to as "the camera" in this manual.

Copyright

Distributing, copying, disassembling, reverse compiling and reverse engineering of the software provided with this product are all expressly prohibited. In addition, exporting any software provided with this product violating export laws is prohibited.

Network security

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

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

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

- Use this unit in a network secured by a firewall, etc.
- If this unit is connected to a network that includes PCs, make sure that the system is not infected by computer viruses or other malicious entities (using a regularly updated anti-virus program, anti-spyware program, etc.).
- Protect your network against unauthorized access by restricting users to those who log in with an authorized user name and password.
- Apply measures such as user authentication to protect your network against leakage or theft of information, including image data, authentication information (user names and passwords).
- 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

Follow the instructions of battery.
Use only the WV-TB311 battery container (optional) for the battery. In combination with this product, refer to the WV-TB311 and WV-TC312 Operating Instructions for care and handling of the battery charge.

Stop the operation immediately when something is wrong with this product.
When smoke goes up from this product or the smell of smoke comes from this product, stop the operation immediately and contact your dealer.
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 the apparatus. 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.

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.

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

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

Turn the power off when connecting this product.
Failure to observe this may cause electric shock. In addition, short circuit may cause fire.

Do not directly touch the product with your skin when it has been turned on for an extended period.
Direct skin contact with high-temperature parts of the product for extended periods may cause low-temperature burns.

Turn the power off when cleaning of this product.
Failure to observe this may cause injury.

[Precautions for use]

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

Handle this camera with care.
Do not drop this camera, nor apply shock or vibration to this camera. Failure to observe this may cause trouble.

About the PC monitor
Displaying the same image on a CRT type 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 about 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. Do not use strong abrasive detergent when cleaning this camera. Otherwise, it may cause discoloration.

When using a chemical cloth for cleaning, read the caution provided with the chemical cloth product.

Do not touch the lens cover with your bare hands.

A dirty lens cover causes deterioration of picture quality.

Cleaning the lens cover

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.

Transmission interval

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

About SDHC memory card

- Before inserting the SDHC memory card, turn off the power of this product first. Otherwise, it may cause malfunction or damage data recorded on the SDHC memory card.
- When using an unformatted SDHC memory card, format it using this camera. Recorded data on the SDHC memory card will be deleted when formatted. If an unformatted SDHC memory card or an SDHC 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 an SDHC memory card.
- When some SDHC memory cards are used with this product, the product may not work properly or performance deterioration may be caused. Use the SDHC memory cards recommended in page 30.
- Frequently overwriting the SD memory card reduces its product life. It is recommended to replace the SD memory card once a year. Contact service personnel for information about replacement SD memory cards.

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, objects crossing the shooting area may look to be bending askew.

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SEE HTTP://WWW.MPEGLA.COM

About the stabilization

Excessively rough movements during recording reduces the effectiveness of distortion correction.

About the batteries

The capacity of the battery is reduced each time it is used. In particular, recharging or using the battery in high-temperature locations increases deterioration.

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.

Installation place

Do not place the unit 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 in a specific environment where a solvent or a flammable atmosphere exists
- 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 –10 °C to +50 °C {14 °F to 122 °F}.
- Locations subject to vibrations (This product is not designed for on-vehicle use.)

IMPORTANT:

- When attaching the camera to your body, use it environments with ambient temperatures of -10 °C to +45 °C {14 °F to 113 °F}.

Note:

- Locations subject to condensation as the result of severe changes in temperature

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

* E models only

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)

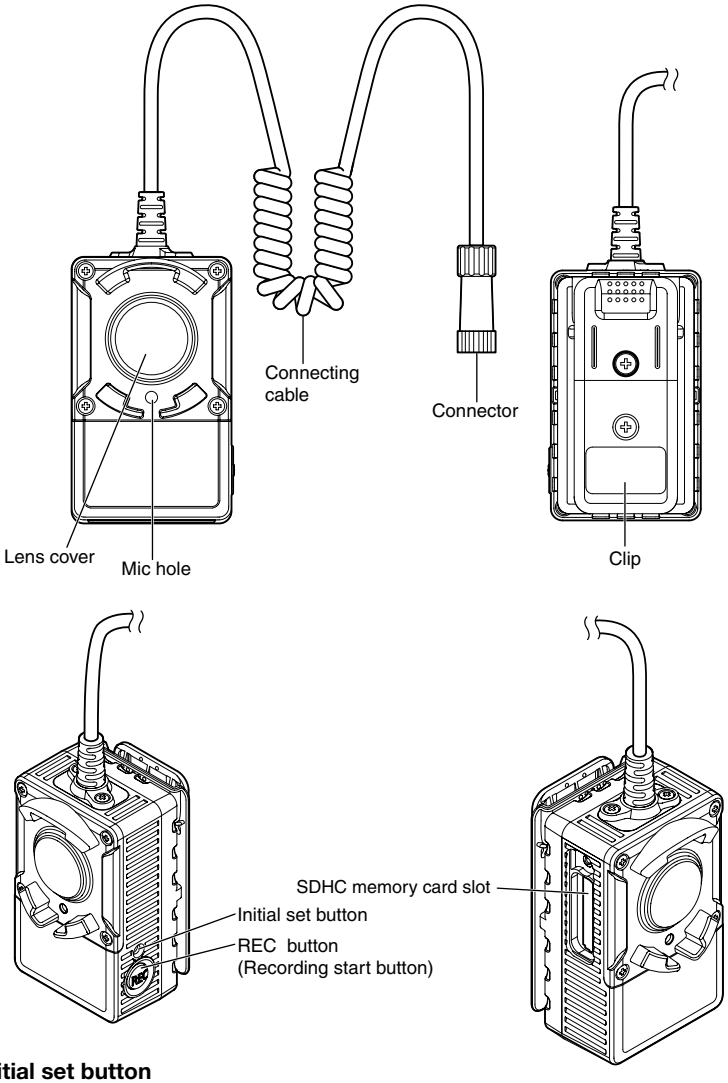
Use a PoE hub/device that is compliant with IEEE802.3af standard.

Time & date setting

It is necessary to set the time & date before putting this product into operation. Because the time & date of this product is set to the time and date of the connected computer, make sure that the time and date settings of the computer are correct before connecting the camera.

Major operating controls

<Camera>
WV-TW310

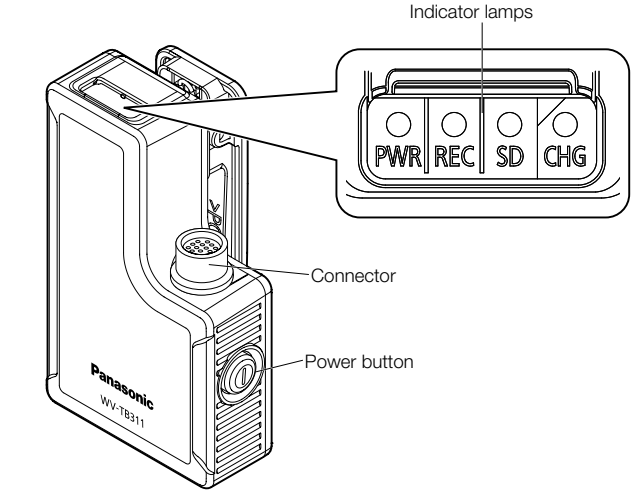


About the initial set button

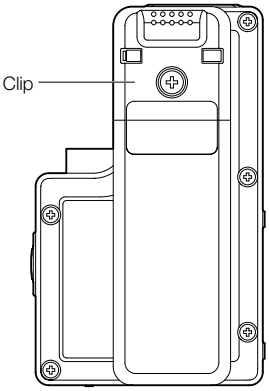
After turning off the power of the camera, while recharging the battery, turn on the power of the camera while holding down this button, and wait for about 5 seconds or more without releasing this button. Wait about 3 minutes after releasing the button. The camera will start up and the settings including the network settings will be initialized. Before initializing the settings, it is recommended to write down the settings in advance.

<Battery container (Optional)>

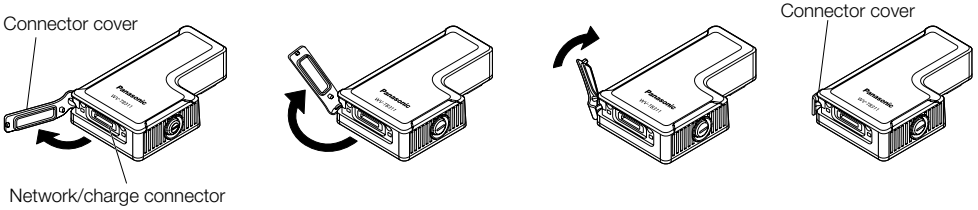
WV-TB311 (Optional)



<Rear view>



The connector cover of the battery container (optional) can be opened in the following way and fixed to the side of the battery container (optional). When storing the battery container (optional) in the stand, open the connector cover and fix it to the side of the battery container (optional).



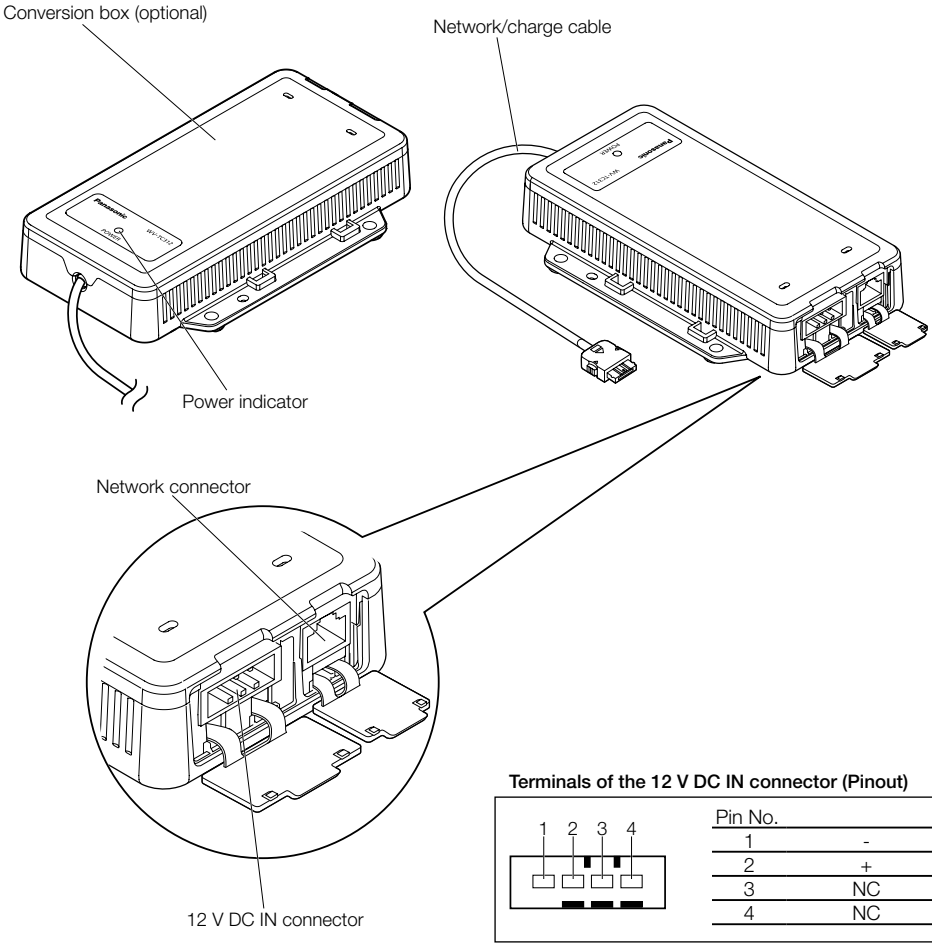
About the battery container's indicators

The battery container's indicators light as follows according to the status of the camera. Understanding how and when the indicators light can help you troubleshoot problems with the camera.

Indicator	Lit	Slow blinking	Fast blinking	Light off
PWR	ON (Remaining battery time: Long)	ON (Remaining battery time: Short)	Activating	Power OFF (Remaining battery time: None)
REC	Recording images and audio	Recording images	①Writing recorded data ②Accessing the SD memory card	Not recording Pre-recording
SD	Remaining SD recording time: Long	Remaining SD recording time: Short	SD memory card error ·The SD memory card is not inserted ·The SD memory card is locked ·There is no remaining memory ·A read/write error has occurred	-
CHG	Green: Charging Red: Charging error detected	-	-	Operating normally

<Conversion box (Optional)>

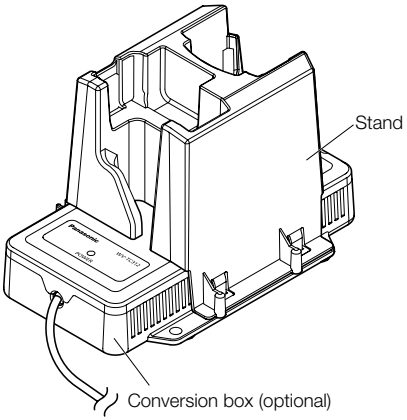
WV-TC312 (Optional)

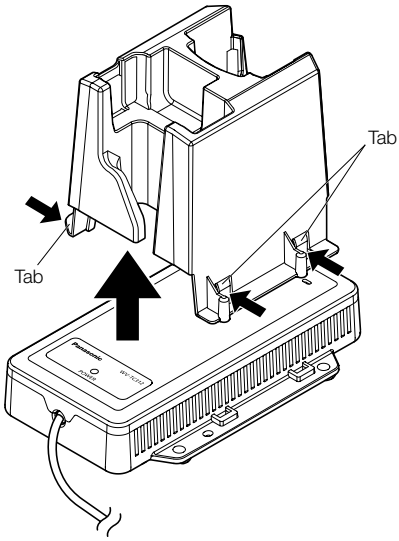


Terminals of the 12 V DC IN connector (Pinout)

Pin No.	
1	-
2	+
3	NC
4	NC

The battery container (optional) and the camera can be stored in the stand mounted to the conversion box (optional). With the battery container (optional) and the camera stored in the stand, the conversion box (optional) can be connected to 12 V DC or a PoE hub, making recharging the battery container (optional) possible, a LAN cable can also be connected to the conversion box (optional), making it possible to view saved images on a computer monitor.
When removing the stand from the conversion box (optional), lift up the stand while pressing the 4 tabs on the stand at the same time.



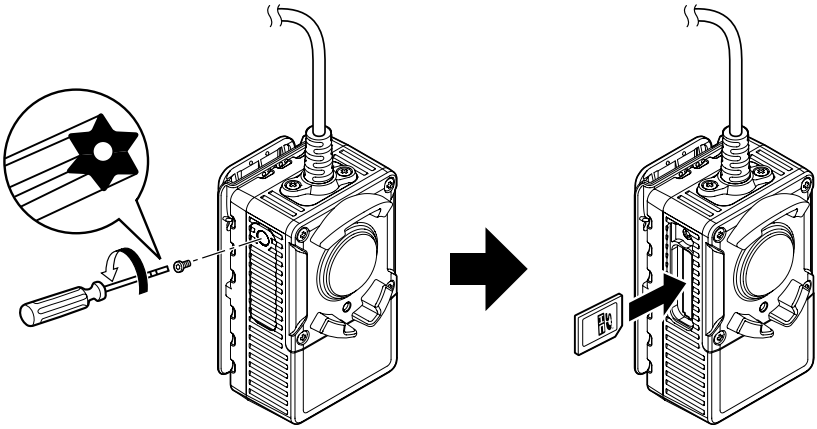


Insert/remove an SDHC memory card

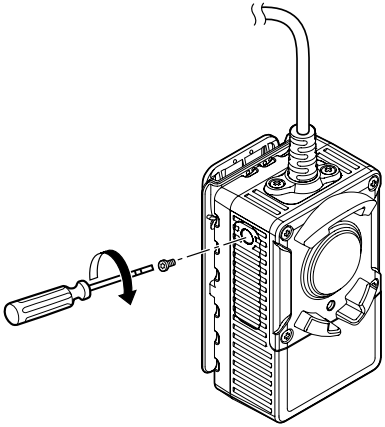
IMPORTANT:

- Contact an authorized service center for information on replacing SDHC memory cards.
- Before inserting an SDHC memory card, turn off the power of the camera first.
- When inserting an SDHC memory card, make sure the direction.
- When the SDHC memory card is inserted or removed with the power on, data in the SDHC memory card may be damaged.
- Do not use other screws to tighten the cover.
  Recommended tightening torque T8: 0.2 N·m {0.14 lbf·ft}

1 Remove the memory cover after removing the tamperproof screw of the cover on the WV-TW310, and insert the SDHC memory card into the SDHC memory card slot.



2 Attach the cover, and tighten the tamperproof screw.
Recommended tightening torque: T8: 0.2 N·m {0.14 lbf·ft}

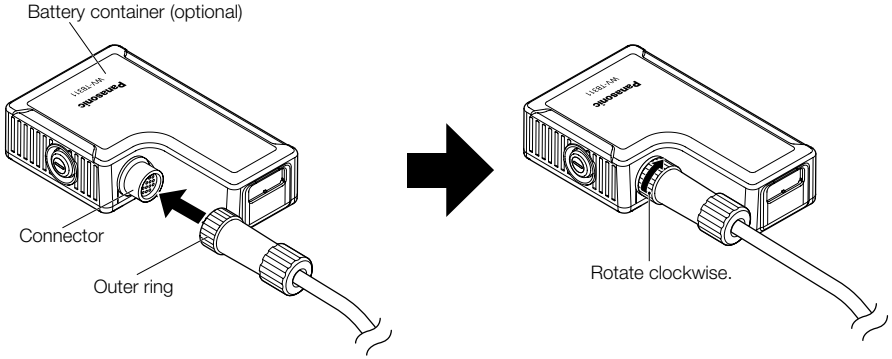


Installation

Connecting the battery container (optional) to the camera

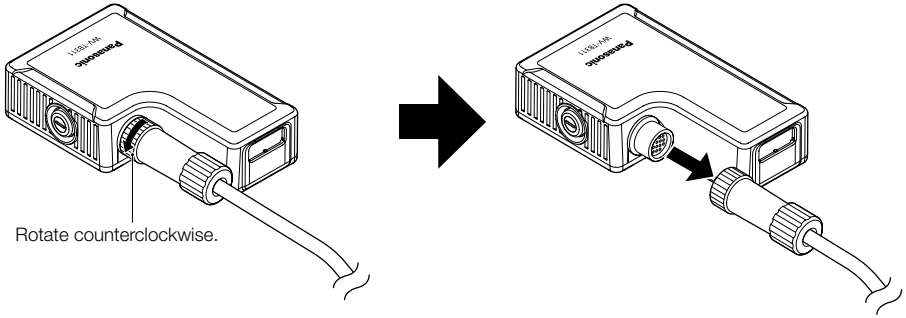
1 Align the direction of the mark on the connector on the end of the connecting cable to the direction of the mark on the battery container (optional).

2 Insert the connector of the connecting cable straight into the connector of the battery container (optional), and then lock it by rotating the outer ring of the connecting cable clockwise.



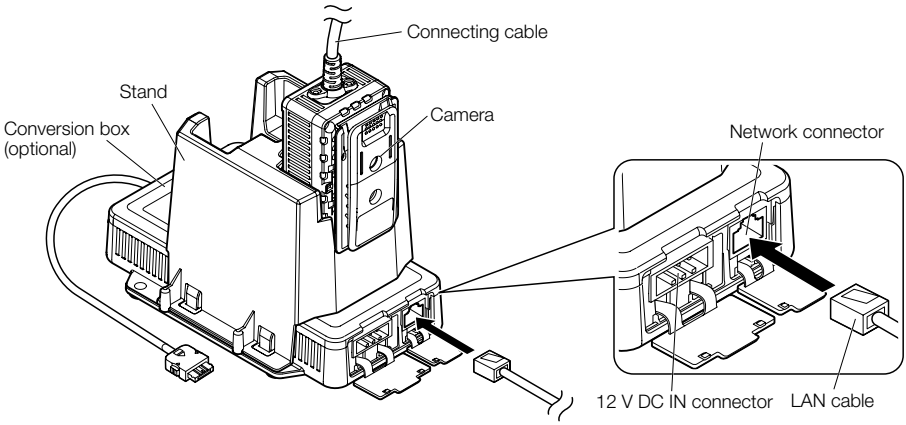
Removing the battery container (optional) from the camera

To remove the camera from the battery container (optional), unlock the connector by rotating the outer ring counterclockwise, and then pull the connecting cable straight.

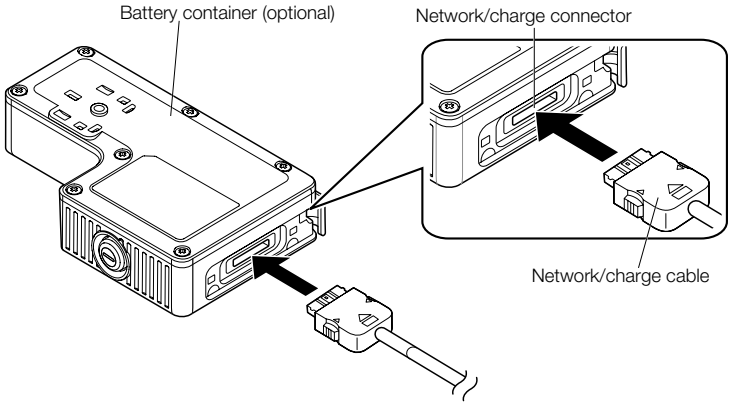


Connecting the conversion box (optional) to the battery container (optional)

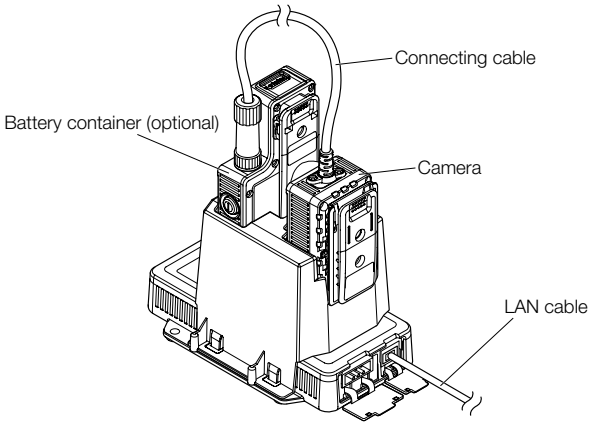
1 Connect the power to the conversion box (optional).
Connect 12 V DC or PoE hub for the power source.



2 Connect the network/charge cable of the conversion box (optional) to the network/charge connector of the battery container (optional).
Insert the cable into the connector until a click is heard. Ensure that they are connected in the correct direction.



3 Connect the connecting cable of the camera to the connector of the battery container (optional). Then charging starts.



IMPORTANT:

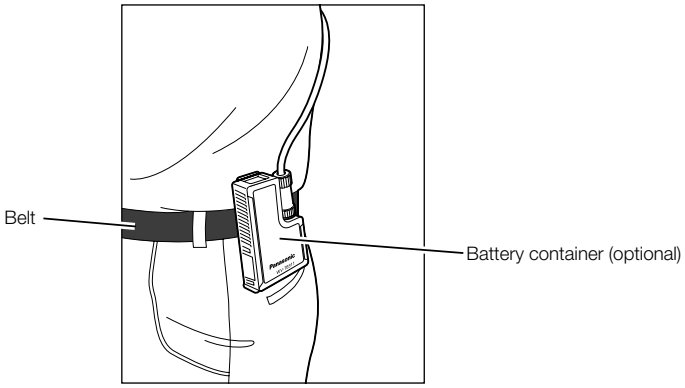
- Recharging will not begin if the temperature of the internal battery pack is outside of the allowable temperature range (0 °C to +50 °C {32 °F to 122 °F}).
- Charging begins automatically when the temperature enters the allowable range.
- Recharging will stop after 6 hours from when the connection was made. (Under normal conditions, recharging finishes within 3.5 hours.)
- Exposing the battery to high temperatures may cause battery deterioration (reduced battery capacity and recharging cycle).

Note:

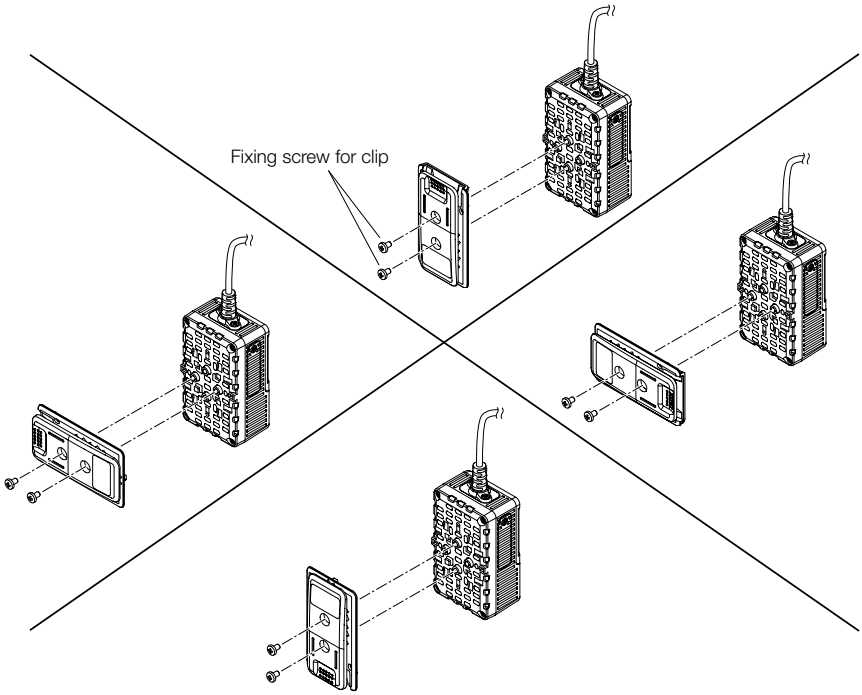
- When the camera is connected to a PoE hub without the battery container (optional) connected, the power indicator of the conversion box (optional) may blink. This is not a malfunction.

Wearing the camera

1 Attach the battery container (optional) to the belt you are wearing.



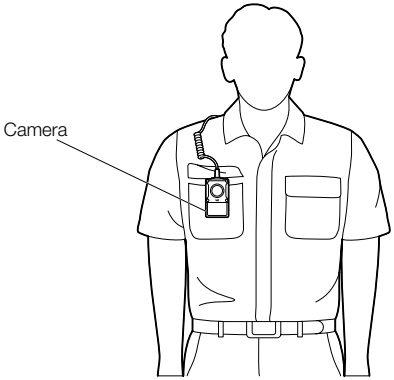
2 The camera clip can be attached in 4 directions to the camera depending on where you want to fix the camera. The camera clip can be fixed to clothing (belts, pockets, etc.) from different directions (top, bottom, left, or right) by changing the direction it is attached to the camera.
To change the direction of the camera clip, loosen the camera clip screws, rotate the clip to the desired direction, and then retighten the camera clip screws.
Recommended tightening torque: 0.78 N·m {0.58 lbf·ft}.



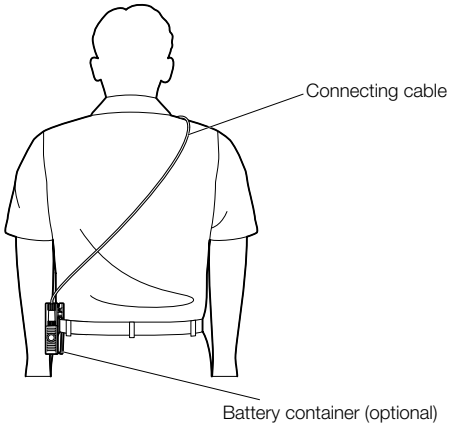
3 Fix the camera to your clothing.

<WV-TW310L>

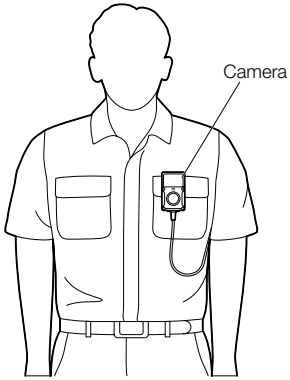
<Front view>



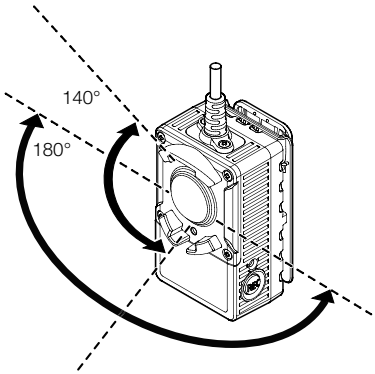
<Rear view>



<WV-TW310S>



<Lens angular field of view>



IMPORTANT:

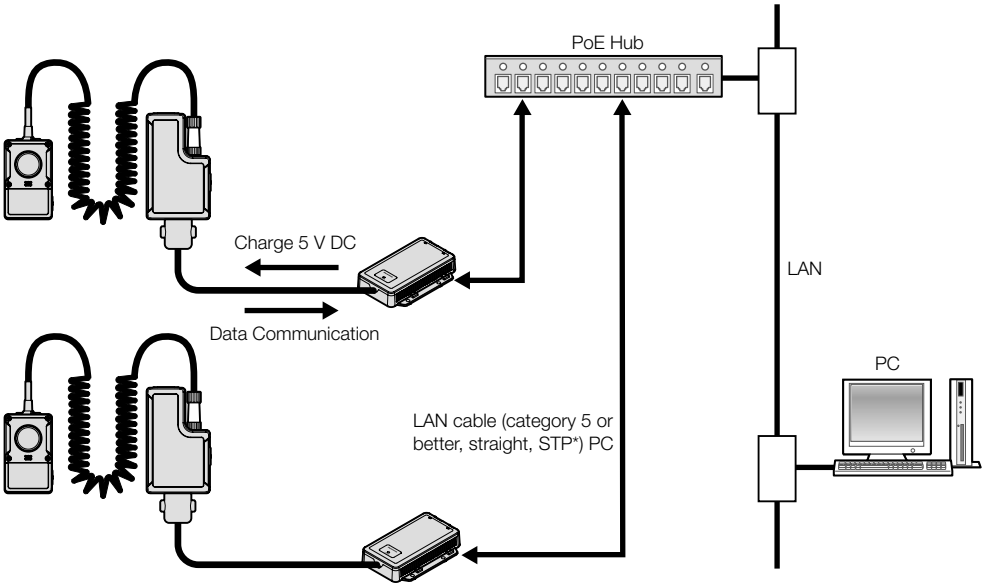
- Attach the camera so that it is securely fixed.
- Attaching the camera to loose clothing reduces the effectiveness of distortion correction.

Connection

Caution:
- ONLY CONNECT 12 V DC CLASS 2 POWER SUPPLY or LIMITED POWER SOURCE.

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

Connection example when connecting to a network using a PoE hub



<Required cable>
LAN cable (category 5 or better, straight, STP*)
* E models only

IMPORTANT:
- Use a switching hub or a router which is compliant with 10BASE-T/100BASE-TX.
- Power supply is required for each camera. When using a PoE device (hub), 12 V DC power supply is unnecessary.

Configure the network settings

Install the software

Before installing the software, read the readme file on the provided CD-ROM first.

Software included on the provided CD-ROM

- Panasonic IP setting software
  Configure the network settings of the camera. Refer to the following for further information.
- Viewer Software "Network Camera View 4S"
  It is necessary to install the viewer software "Network Camera View 4S" to display images on a PC and to setup the Wearable Camera basic configuration. Install the viewer software by double-clicking the "nwcv4Ssetup.exe" icon on the provided CD-ROM. Refer to the WV-TW310 Operating Instructions (included in the CD-ROM) for more details.
- Wearable Camera Agent Software
  It is necessary to install the Wearable Camera Agent Software to upload the video image data from the cameras.
- Wearable Camera Viewer Software
  It is necessary to install the Wearable Camera Viewer Software to play the video image data.

Configure the network settings of the camera using the Panasonic IP setting software

It is possible to perform the network settings of the camera using the IP setup software on the provided CD-ROM. When using multiple cameras, it is necessary to configure the network settings of each camera independently.
If the Panasonic IP setting software does not work, configure the network settings of the camera and the PC individually on the "Network" page of the setup menu. Refer to the Operating Instructions (included in the CD-ROM) for further information.

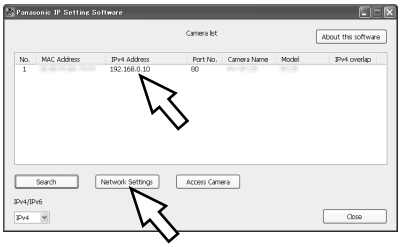
IMPORTANT:

- When using Microsoft Windows 7 or Microsoft Windows Vista, the "Windows Security Alert" window may be displayed when starting the IP setup software. In this case, disable "User Account Control" from the control panel.
- For the security enhancement, the MAC address/IP address of the camera to be configured will not be displayed when about 20 minutes have passed after turning on the power of the camera. (When the effective period is set to "20min" in the IP setup)
  However cameras in the initial set mode are still displayed even after 20 minutes.
- Panasonic IP setting software is inoperable in other subnets via the same router. When configuring the IP address of the camera for the first time, configure the PC's IP address to 192.168.0.xxx.
- This camera cannot be displayed or set with an older version of the IP setup software (version 2.xx).

1 Start the Panasonic IP setting software by double-clicking the "EasyIpSetup.exe" icon on the provided CD-ROM.

- The License Agreement will be displayed. Read the Agreement and choose "I accept the term in the license agreement", and click [OK].

2 Click the [Network Settings] button after selecting the MAC address/IP address of the camera to be configured.



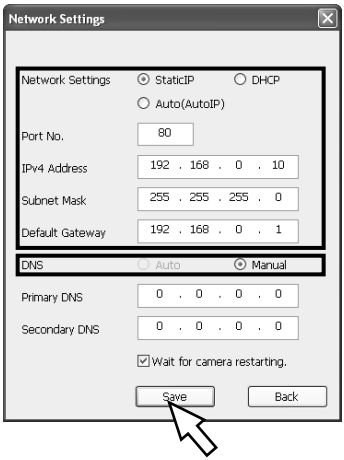
Note:

- When using a DHCP server, the IP address assigned to the camera can be displayed by clicking the [Search] button of the IP setting software.
- When a duplicate IP address is used, the corresponding camera number will be displayed shaded.
- When the [Access Camera] button is clicked, live images of the selected camera will be displayed.
- It is possible to change the "Camera list" display between IPv4 addresses and IPv6 addresses in accordance with the protocol in use.
- The information displayed can be sorted by clicking the title of each displayed item.

3 Complete each network setup item and click the [Save] button.

Note:

- In the camera settings, "Auto IP" is deactivated even when it is selected for the connection mode.
- In the camera settings, the "Primary DNS" and "Secondary DNS" settings are deactivated.



IMPORTANT:

- It may take for about 2 minutes to complete to upload the settings to the camera after clicking the [Save] button. The settings may be invalidated when the LAN cable is disconnected before completing the upload. In this case, perform the settings again.
- When using a firewall (including software), allow access to all UDP ports.
- The Wearable Camera Agent Software and Panasonic IP setting software cannot be used on the same PC at the same time. To use the Panasonic IP setting software on a PC with Wearable Camera Agent Software installed: right click "My Computer" and select "Manage" to open the "Computer Management" screen, select and right click "Wearable Camera Agent" from [Services and Applications] - [Services], and then select "Stop". After finishing using the Panasonic IP setting software, perform the above steps again, select and right click "Wearable Camera Agent", and then select "Start".

Installation of Wearable Camera Agent Software

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

2 Double-click "Agent_setup.exe" in the "PC_software" folder. The installer for Wearable Camera Agent Software will start. Follow the on-screen instructions. If the installation is performed with the standard settings, a "C:\Panasonic\Wearable" folder is created and executable files and other files are installed.

3 Configure the exceptional settings of Windows Firewall.

Procedures for Windows XP

① Click the "Security Center" on the "Control Panel", and click "Windows Firewall"-"Exceptions" tab.
② Click the "Add Program..." button, and click the "Browse..." button.
③ Select "CamManageService.exe" in the folder "C:\Panasonic\Wearable\Agent", and click the "Open" button.
④ Select "CamManageService.exe", and click the "OK" button.
⑤ Perform steps ② to ④ in the same manner to add "AgentGui.exe".

Procedures for Windows Vista

① Open the "Security" on the "Control Panel", and click the "Windows Firewall"-"Allow A Program Through Windows Firewall"-"Exceptions" tab.
② Click the "Add Program..." button, and click the "Browse..." button.
③ Select "CamManageService.exe" in the folder "C:\Panasonic\Wearable\Agent", and click the "Open" button.
④ Select "CamManageService.exe", and click the "OK" button.
⑤ Perform steps ② to ④ in the same manner to add "AgentGui.exe".

Procedures for Windows 7

① Open the "System and Security" on the "Control Panel", and click the "Windows Firewall"-"Allow A Program Through Windows Firewall".
② Click the "Allow Another Program" button, and click the "Browse..." button.
③ Select "CamManageService.exe" in the folder "C:\Panasonic\Wearable\Agent", and click the "Open" button.
④ Select "CamManageService.exe", and click the "OK" button.
⑤ Perform steps ② to ④ in the same manner to add "AgentGui.exe".

Uninstallation of Wearable Camera Agent Software

Note:

- The data uploaded from the camera will not be deleted even when this software is uninstalled.

Procedures for Windows XP

① Select "Wearable Camera Agent" from [Control Panel]-[Add or Remove Programs].
② Click [Delete]. The uninstall program starts. Follow the on-screen instructions to uninstall the program.

Procedures for Windows Vista
① Select "Wearable Camera Agent" from [Control Panel]-[Programs]-[Uninstall a program].
② Click [Uninstall]. The uninstall program starts. Follow the on-screen instructions to uninstall the program.

Procedures for Windows 7
① Open "Programs and Features" from [Control Panel]-[Programs].
② Select "Wearable Camera Agent" from the presently installed programs and click the [Remove] button.
③ Uninstall the software by following the instructions displayed on the monitor.

How to operate the Wearable Camera Agent Software

Refer to the WV-TW310-Agent_en.chm file for the details.

Installation of Wearable Camera Viewer Software

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

2 Double-click "Viewer_setup.exe" in the "PC_software" folder. The installer for Wearable Camera Viewer Software will start. Follow the on-screen instructions. If the installation is performed with the standard settings, a "C:\Panasonic\Wearable" folder is created and executable files and other files are installed.

Uninstallation of Wearable Camera Viewer Software

Procedures for Windows XP
① Select "Wearable Camera Viewer" from [Control Panel]-[Add or Remove Programs].
② Click [Delete]. The uninstall program starts. Follow the on-screen instructions to uninstall the program.

Procedures for Windows Vista
① Select "Wearable Camera Viewer" from [Control Panel]-[Programs]-[Uninstall a program].
② Click [Uninstall]. The uninstall program starts. Follow the on-screen instructions to uninstall the program.

Procedures for Windows 7
① Open "Programs and Features" from [Control Panel]-[Programs].
② Select "Wearable Camera Viewer" from the presently installed programs and click the [Remove] button.
③ Uninstall the software by following the instructions displayed on the monitor.

How to operate the Wearable Camera Viewer Software

Refer to the WV-TW310-Viewer_en.chm file for the details.

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.	**When using DC power supply** • Is 12 V DC power supply connected to the power supply terminal? → Check whether the connection is appropriately established. • Is the AC adaptor in use compliant with the Specifications? → Check the Specifications regarding AC adaptor. **When using a PoE device for power supply** • Are the PoE device and the network connector on the rear of the camera connected using a LAN cable (4-pair)? → Check whether the connection is appropriately established. • 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
Camera search cannot be performed with Panasonic "IP Setting Software".	Click "Services and Applications", select "Wearable Camera Agent" under "Services", and then right click and select "Stop". After using Panasonic "IP Setting Software", follow the above procedure to select "Wearable Camera Agent", and then right click and the select "Start".	24

Specifications

● Basic

Power source:	12 V DC, PoE (IEEE802.3af compliant)
Power consumption:	12 V DC*: 650 mA, PoE: 11 W (Class 0 device) * ONLY CONNECT 12 V DC CLASS 2 POWER SUPPLY or LIMITED POWER SOURCE.
Ambient operating temperature:	–10 °C to +50 °C {14 °F to 122 °F} In wearing: -10 °C to +45 °C {14 °F to 113 °F}
Ambient operating humidity:	Less than 90 % (no condensation)
Continuous operating time:	Approx. 5 hours (at normal temperature, at the time of purchase when charged fully)
Battery:	WV-TB311 (Lithium-ion battery) only
Dimensions:	45 mm (W) x 75 mm (H) x 41 mm (D) {1-25/32 inches (W) x 2-15/16 inches (H) x 1-5/8 inches (D)} (Excluding the cable and projection.)
Mass:	**WV-TW310L**: Approx. 210 g {0.46 lbs.} **WV-TW310S**: Approx. 160 g {0.35 lbs.}
Cable Length:	**WV-TW310L**: 950 mm {37-3/8 inches} **WV-TW310S**: 600 mm {23-5/8 inches}
Finish:	Black

● Camera

Image sensor:	1/4 type MOS image sensor
Effective pixels:	Approx. 1.3 megapixels
Scanning area:	3.60 mm (H) x 2.70 mm (V) {5/32 inches (H) x 11/100 inches (V)}
Scanning system:	Progressive
Minimum illumination:	Color: 1.5 lx {1.5 footcandle} BW: 1.0 lx {1.0 footcandle}
Gain (AGC):	On(High)/ On(Mid)/ On(Low)/ Off
Wide dynamic range:	On/Off
Adaptive black stretch:	On/Off
Back light compensation:	On/Off
Light control mode setting:	Indoor scene (50 Hz/60 Hz)/ ELC
Maximum exposure time:	1/30, 3/100, 3/120, 2/100, 2/120, 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000
Day & Night (electrical):	Off/Auto
White balance:	ATW1/ ATW2/ AWC
Digital noise reduction:	High/Low

● Lens

Focal length:	0.82 mm
Maximum aperture ratio:	1:2.6
Angular field of view:	Horizontal: 180° Vertical: 140°

● **Network**

Network:	10BASE-T/100BASE-TX, RJ45 connector
Resolution:	Aspect ratio: 4:3 H.264 1280×960 JPEG 640×480 (Only HTML on PC, 5 fps)
Image compression method:	H.264 Transmission type: Unicast Video bit rate: 2048 kbps/ 4096 kbps/ 8192 kbps Frame rate priority: 15 fps/ 30 fps
Audio compression method:	G.726 (ADPCM) 32 kbps
Protocol:	IPv6: HTTP, FTP IPv4: HTTP, FTP, DHCP
OS *1 *2:	Microsoft Windows 7 Microsoft Windows Vista Microsoft Windows XP SP3
Browser:	Windows Internet Explorer 9.0 (32-bit) Windows Internet Explorer 8.0 (32-bit) Windows Internet Explorer 7.0 (32-bit) Microsoft Internet Explorer 6.0 SP3
Maximum concurrent access number:	10 at JPEG, 4 at H.264
Compatible SDHC memory card (option):	Manufactured by Panasonic SDHC memory card: 32 GB, Class 10

*1 Refer to "Notes on Windows®/ Internet Explorer® versions" (included in the CD-ROM) for further information about system requirements for a PC and precautions when using Microsoft Windows 7, Microsoft Windows Vista or Internet Explorer.

*2 When using IPv6 for communication, use Microsoft Windows 7 or Microsoft Windows Vista.

Standard accessories

Installation Guide (this document) ..... 1 pc.
Warranty card*1 ..... 1 pc.
CD-ROM*2 ..... 1 pc.

*1 P models only
*2 The CD-ROM contains the operating instructions and the software.

Optional accessories

Battery Container (Li-ion 3.7 V DC, 2450 mAh, 9.1 Wh) WV-TB311

Conversion Box WV-TC312
User License Accessory (For H.264) ..... BB-HCA8A (P model)
BB-HCA8CE (E model, Korea)

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.

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
Three Panasonic Way, Secaucus,
New Jersey 07094 U.S.A.

Panasonic Canada Inc.
5770 Ambler Drive, Mississauga,
Ontario, L4W 2T3 Canada
(905)624-5010
www.panasonic.ca

For Europe and other countries:

Panasonic Corporation
http://panasonic.net

Importer's name and address to follow EU rules:

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

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