

Panasonic

ideas for life

Wearable Camera WV-TW310 Series

Wearable Camera (Long cable)
WV-TW310L

Wearable Camera (Short cable)
WV-TW310S

Battery Container
WV-TB311

Conversion Box
WV-TC312

Body-Worn Evidence Capture

180 degree wide angle of view



Wearable Camera WV-TW310 Series

WV-TW310 Series Wearable Cameras are battery-powered cameras that are used to record images while being worn on a human body. Each camera has a fisheye lens that achieves extremely wide angles of view. H.264 images are recorded on the SDHC memory card of the camera. Panasonic's long-term camera technology cultivated for security is being utilized for this wearable camera.



180 Degree Wide Angle

WV-TW310 Wearable Camera offers a 180 degree wide angle lens and high-resolution to record the entire party or objects that would be in a camera's wide angle view whether they are at close range or at a distance.

- 1.3 megapixel resolution
- Wide Angle Fish-eye Lens can cover approximately 180° horizontal view and 140° vertical view beyond the human field-of-view.
- Wide Dynamic Range allows the camera to capture details in dark and light areas simultaneously.
- High-color reproduction by primary color filter
- Day/Night function available for automatic Color / Black & white mode switching.

Wide angle Fish-eye Lens



Wide Dynamic Rang



H.264 Recording

Images are encoded to H.264 and saved on the SDHC memory card. It is possible to record up to approximately 32 hours*1 depending on the video bit rate. Panasonic technology with the UniPhier LSI enables high compression and high quality.



UniPhier

- 1280 x 960 image size, up to 30fps
- H.264 bit rate can be selected from 8192kbps/4096kbps/2048kbps
- Pre recording is possible up to 30 seconds*2
- Audio recording using built-in microphone with G.726(ADPCM) 32kbps

*1: When the recording bit rate is 2048kbps.
*2: Can be selected when the bit rate is 4096kbps or 2048kbps.

SDHC memory card(optional)

Recommended SD memory card
Manufactured by Panasonic
SDHC memory card
(Class10, 32GB)



Possible time of H.264 image that can be saved on the SDHC card. (32GB)

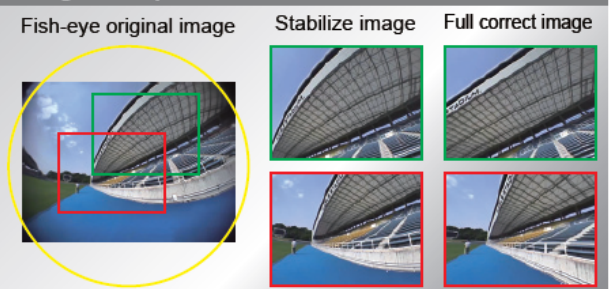
Recording bit rate		
2048kbps	4096kbps	8192kbps
Approx. 32 hours	Approx. 16 hours	Approx. 8 hours

Image Correction

Wearable Camera Viewer Software enables the images to playback with stabilization and distortion correction. By the gyroscope compensation, the picture would always be easy to view even if the camera's direction is rotated.

- Gyro Compensation;**
By 3-axis gyro sensor, the vibration image occurring when walking or running can be reduced and stabilized.
- Image Compensation;**
The stabilized image cut out from original fisheye image can be corrected by image compensation technology.

Image Compensation



How to record?

Start recording

1. Connect the battery container.
2. Press the Power button on the battery.
3. Press the REC button on the camera.

Stop recording

1. Press and hold the REC button for 2 seconds or more.
- Recording can be stopped with the timer setting.
 - Audio can be selected whether or not to perform audio recording during recording or pre recording.
 - Audio recording can be switched to mute/unmute by pressing the REC button during recording.*





*When [Key function] is set to [Audio mute/unmute]



The battery container's indicators light help you with understanding the status of the camera.

- Power (battery) status
- Recording (images/audio) status
- SD memory status

WV-TW310 Components

<p>Wearable Camera WV-TW310L (Long cable)</p> 	<p>Wearable Camera WV-TW310S (Short cable)</p> 	<p>Battery Container WV-TB311</p> 	<p>Conversion Box WV-TC312</p> <p>* With Stand</p> 
---	--	--	--

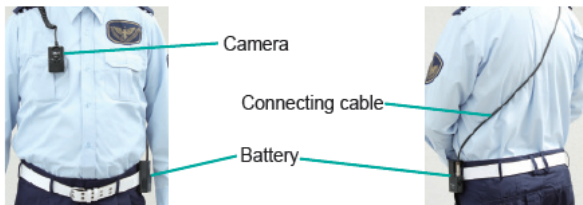
Rugged Design

WV-TW310 Series Wearable Cameras are rugged and have two different lengths of cable fit to the various applications. Design for two pieces allows the battery to be changed without removing the camera from clothing. These camera units and battery also allow you to function under conditions including wind and rain.

- Continuous operating time is approximately 5 hours*³ when the battery charged fully.
- Recharging the battery within 3.5 hours under normal conditions.
- IP65-compliant Dust and Water-resistant

*3: At normal temperature, at the time of purchase.

Example of wearing TW310L



Example of wearing TW310S



The camera clip can be attached in 4 directions to the camera depending on where you want to fix the camera.

Tamper Proof Video

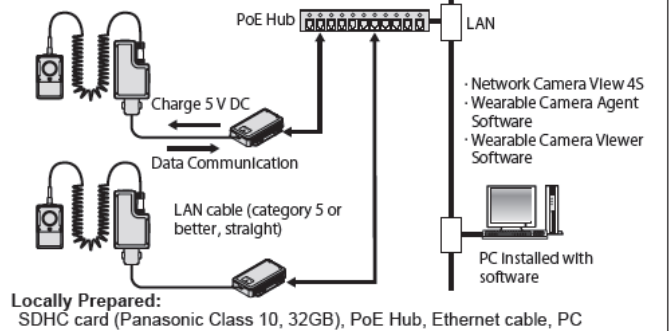
The Video image data can be scrambled and the scrambled image data uploaded to a PC can be verified by the Viewer Software.

Network Configuration with Power over Ethernet

The video saved on the camera can be uploaded to a PC automatically and the camera battery can be charged by connecting to a LAN with a PoE device.*⁴

*4: Charging begins automatically when the temperature enters the allowable range.

System Connection Example



Easy camera settings with web browser

<Example of IPv4 access>
http://URL registered IP address

Live image Setup menu

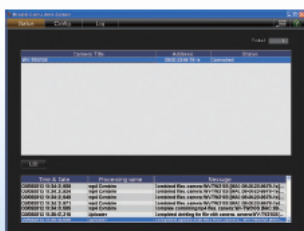
How to play images?

WV-TW310 series includes two PC software applications. It is necessary to install Wearable Camera Agent Software and Wearable Camera Viewer Software to play recorded data with the camera.

Agent Software

The video image data on the camera is automatically uploaded to a PC combining the multiple video image data via the conversion box.

- Upload and save video data
- Remove the recorded data from the Camera after uploading
- Help to find wearable camera



Viewer Software

Viewer software enables the fisheye original picture images to play back with stabilization by gyro information and distortion correction.

- Playback
- Click centering, EL zoom
- Snapshot
- Verifying (Integrity Check)



Correction Mode Settings

Flip ON Stabilize ON

Correction Mode OFF Full Correct ON

Specifications

WV-TW310(Wearable Camera)

Camera	Image sensor	1/4 type MOS 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)
	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
Gain (AGC)	On(Low)/ On(Mid)/ On(High)/ Off	
Day & Night (electrical)	Off/Auto	
White balance	ATW1 / ATW2 / AWC	
Digital noise reduction	High/Low	
Personal ID (OSD)	Up to 50 alphanumeric characters	
Focal length	0.82 mm	
Maximum aperture ratio	1 : 2.6	
Angular field of view	Horizontal : 180° Vertical : 140°	
Resolution	Aspect ratio : 4:3	
	H.264 1280×960 JPEG 640×480 (Only HTML on PC, 5 fps)	
Image compression method	H.264 Video bit rate : 2048 kbps/ 4096 kbps/ 8192 kbps Frame rate : 15 fps/ 30 fps	
Audio compression method	G.726 (ADPCM) 32 kbps	
Recording duration	Auto/Continue/10min/15min/20min/30min/60min/90min	
Pre recording duration	Off/15s/30s	
Overwrite	On/Off	
Audio	On1(not mute during pre recording)/On2(mute during pre recording)/Off	
Compatible SDHC memory card (option)	Manufactured by Panasonic SDHC memory card : 32 GB, Class 10	
Network IF	10BASE-T/100BASE-TX	
Protocol *1	IPv6 : HTTP, FTP IPv4 : HTTP, FTP, DHCP	
OS *2 *3	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	UP to 10 at JPEG, UP to 4 at H.264	
Power source	12 V DC, PoE (IEEE802.3af compliant)	
Power consumption	12 V DC*: 650 mA, PoE: 220mA 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]	
Ambient operating humidity	While worn on body : -10 °C to +45 °C [14 °F to 113 °F] Less than 90 % (no condensation)	
Continuous operating time	About 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	

WV-TB311(Battery Container)

Basic	Rated voltage and capacity	3.7 V DC/ 2450 mAh/ 9.1 Wh
	Battery type	Rechargeable Li-ion battery
	Ambient operating temperature	-10 °C to +50 °C [14 °F to 122 °F]
	Humidity	Less than 90 % (no condensation)
	Dimensions	60 mm (W) x 100 mm (H) x 36.5 mm (D) [2-3/8 inches (W) x 3-15/16 inches (H) x 1-7/16 inches (D)]
	Mass	Approx. 150 g [0.33 lbs.]
	Finish	Black

WV-TC312(Conversion box)

Network	Network	10BASE-T/100BASE-TX, RJ45 connector
	Power source	12 V DC, PoE (IEEE802.3af compliant)
Basic	Power consumption	12 V DC*: 650 mA, PoE: 220mA 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]
	Ambient operating humidity	Less than 90 % (no condensation)
	Dimensions	97 mm (W) x 97 mm (H) x 155 mm (D) [3-13/16 inches (W) x 3-13/16 inches (H) x 6-3/32 inches (D)] (Including the stand. Excluding the cable and projection.)
	Mass	Approx. 300 g [0.66 lbs.] (Including the stand.)
	Finish	Black
LED	POWER (GREEN)	

*1 Only use IPv4 for transmissions between the Wearable Camera Agent Software and the camera.

*2 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.

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

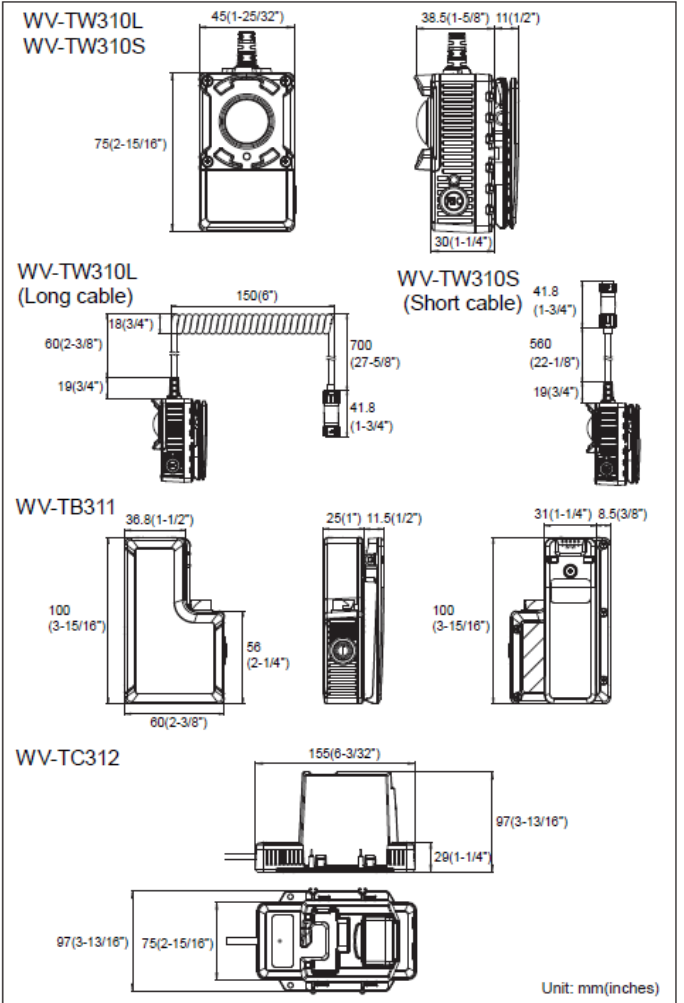
Trademarks and registered trademarks

-Microsoft, and Windows are registered trademarks of Microsoft Corporation in the U.S. and other countries.
-All other trademarks identified herein are the property of their respective owners.

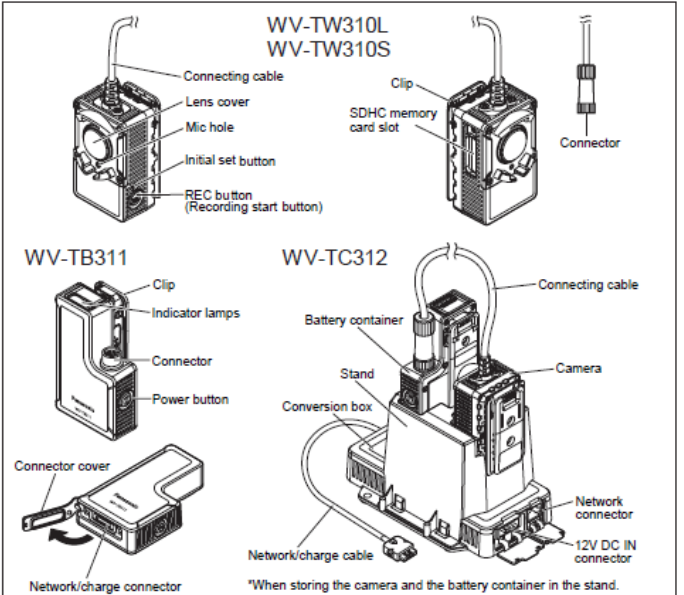
Important

- Panasonic recommends a dedicated PC to prevent installation errors and to keep best performance.
- Safety Precaution: carefully read the operating instructions and installation manual before using this product.
- Panasonic can not be responsible for network performance and/or other manufacturer products that reside on the network.

Appearance



Part Names and Functions



- All TV pictures are simulated.
- Masses and dimensions are approximate.
- Specifications are subject to change without notice.
- These products may be subject to export control regulations.

DISTRIBUTED BY :

Panasonic[®]

<http://panasonic.net/security/>

Printed in Japan (2Y-002A)