



Web Guide

WV-X67700-Z3-3/ WV-X67700-Z3L3/
WV-X67701-Z3L3/ WV-X67710-Z3-1/
WV-X67710-Z3-3/ WV-X67710-Z3L1/
WV-X67710-Z3L3/ WV-X67711-Z3L3/
WV-X67300-Z4-3/ WV-X67300-Z4L3/
WV-X67301-Z4L3/ WV-X67310-Z4-1/
WV-X67310-Z4-3/ WV-X67310-Z4L1/
WV-X67310-Z4L3/ WV-X67311-Z4L3

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1. Set up
 - 1.1 Recommended Procedures for Installing this product
-

1. Set up



For detailed instructions on installation, refer to the following.

[Installation section](#)

1.1 Recommended Procedures for Installing this product

The URL of the movie is as follows.

<https://www.youtube.com/playlist?list=PLTQfvT0fJHvDwcZc7o8FG86wG8mLsPQf4>

- 2. Connect to the camera
 - 2.3 Access the camera
-

2. Connect to the camera

2.1 i-PRO Configuration Tool (iCT)

This is a tool for managing the image monitoring system at a glance.



For more information about i-PRO Configuration Tool (iCT), see the Technical Information website at <Control No.: C0133>.

→[Click here for more information about i-PRO Configuration Tool](#)

2.2 IP Setting Software

Cameras or recorders on the same network can be automatically detected and set up in the network.



For more information on the IP Setting Software, see the Technical Information website at <Control No.: C0123>.

→[Click here for more information on the IP Setting Software](#)

2.3 Access the camera

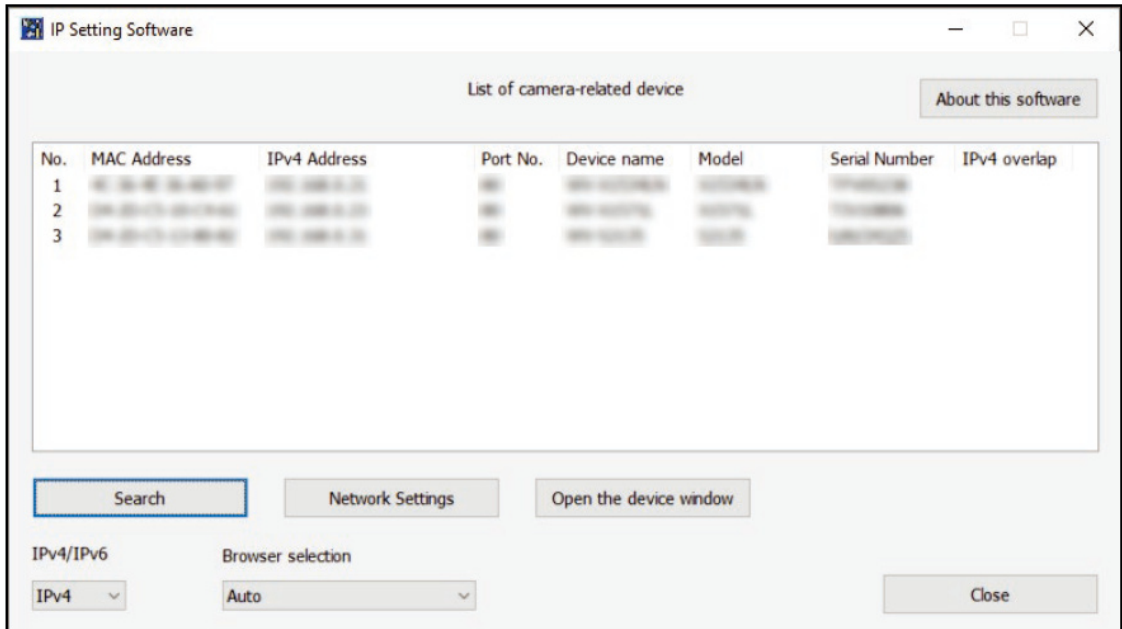
1. Launch a IP Setting Software
 - The model number and MAC address of the detected camera are displayed.
 - The default for [Network Settings] is [DHCP].



•If you cannot obtain an IP address from the DHCP server, set the IP address to 192.168.0.10.

2. Connect to the camera
 - 2.3 Access the camera
-

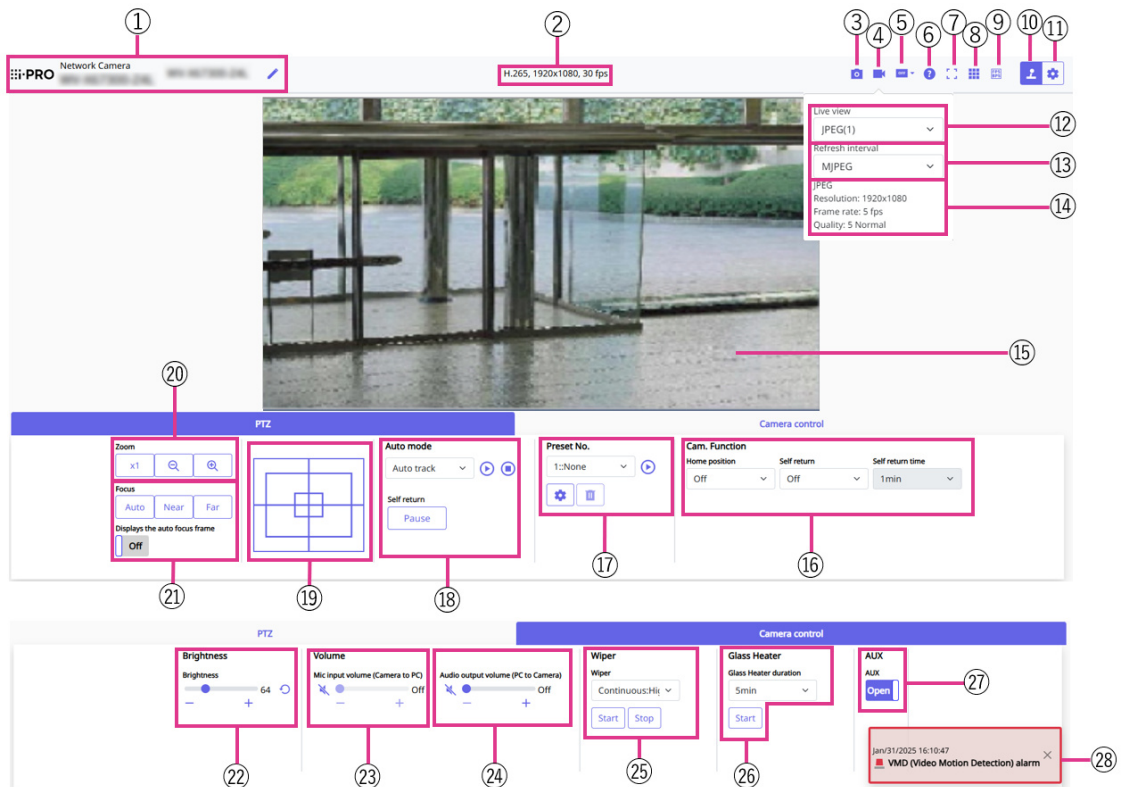
2. Double-click on the camera's IP address
 - The browser starts and the administrator registration screen is displayed.
 - You need to register as an administrator.



3. Enter administrator username and password
 - The screen for setting the language and date and time is displayed.
4. Set the language, date and time, and screen
 - You can set the language and date and time and change the background color of the screen and the layout of the operation panel.
5. Press [Set]
 - Live image pages is displayed.

2. Connect to the camera
- 2.4 About Live image pages

2.4 About Live image pages



- 1 Camera title
- 2 Stream information display
- 3 Snap shot button
- 4 Stream selection display button
- 5 Before/after image comparison switching button
- 6 Support button
- 7 Full screen button
- 8 [Grid display] buttons
- 9 Frame rate / bit rate display button
- 10 Camera control panel display button
- 11 [Setup] buttons (Settings panel display button)
- 12 Stream - [Live view] pull-down menu
- 13 Stream - [Refresh interval] pull-down menu
- 14 Stream - Stream information display
- 15 Main area
- 16 PTZ panel - [Cam. Function]

2. Connect to the camera
2.4 About Live image pages

- 17 PTZ panel – [Preset]
- 18 PTZ panel – [Auto mode]
- 19 PTZ panel – Control pad/buttons
- 20 PTZ Panel [Zoom] Buttons
- 21 PTZ Panel [Focus] Buttons
- 22 Camera control panel – [Brightness]
- 23 Camera control panel – [Mic input volume (Camera to PC)]
- 24 Camera control panel – [Audio output volume (PC to Camera)]
- 25 Wiper button
- 26 Glass Heater button
- 27 Camera control panel – [AUX] button
- 28 Alarm occurrence notification

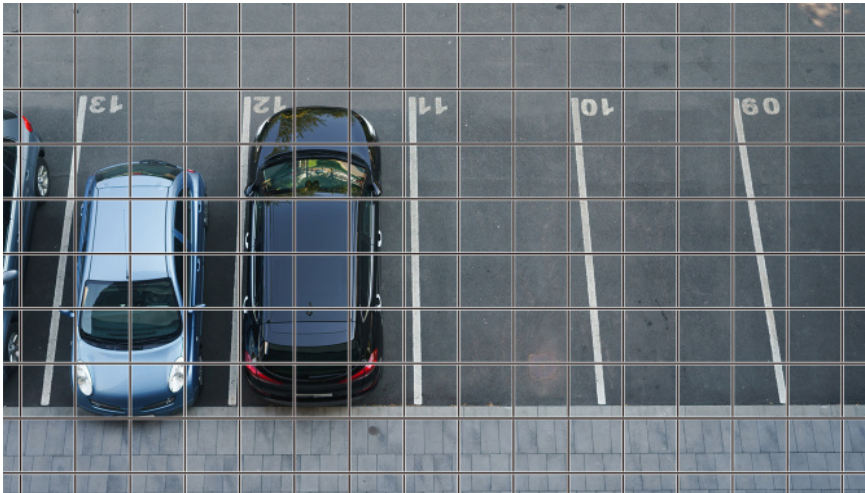
- 3. Set the camera
 - 3.2 Adjust the image quality
-

3. Set the camera

3.1 Check whether the object is of the proper size.

When using our Extension software, you can check the number of grids to see if it is the right size to recognize object. Refer to <Control No.: C0320> on the following technical information website.

→[For more information about the recommended sizes of Extension software](#)



3.2 Adjust the image quality

This section explains how to adjust the image quality when installing the camera.

3.2.1 Set the light intensity control mode depending on the installation location and installation area.

Use [Light control mode] to set the light intensity appropriate for the installation location and area.

- Live image pages configuration panels>Clicking the [Image quality] tabs enables you to set the image quality.

3. Set the camera
3.2 Adjust the image quality

1. Select [Light control mode]
 - To install outdoors: Set [Outdoor scene].
 - For indoor installation: Set [Indoor scene(50Hz)] or [Indoor scene(60Hz)].
50 Hz/60 Hz can be used differently depending on the region.



- Basically, [Fix shutter] is not used.
- For more information about the light control mode, refer to the User Manual.

3.2.2 Set white balance depending on the lighting environment you install.

Use [White balance] to set the white balances appropriate for the installation location and area.

- Live image pages configuration panels>[Detailed setting]>[Camera detailed setting]>[Image] or [Image/Audio] of the Advanced menus on the left>[Image adjust] in the [Image quality] tabs>When [Setup] is clicked, the image quality adjustment setting window is displayed.

1. Select [White balance]
 - Select from [ATW1], [ATW2], and [AWC].

[ATW1]

Set the automatic color temperature tracking mode. The camera continuously checks the color temperature of the light source and automatically adjusts the white balance.

The operating range is about 2700 K to 6000 K.

[ATW2]

Set the automatic color temperature tracking mode. The camera automatically adjusts the white balance under a sodium lamp.

The operating range is from about 2000 K to 6000 K.

[AWC]

Set the automatic white balance control mode. Since the light source is fixed, it is suitable for shooting in a place where the lighting environment does not change.

The operating range is from approximately 2000 K to 10000 K.



Colors may not be reproducible faithfully if the following conditions are met: In such cases, set it to [AWC].

- Largely dark object
- Clear blue sky or the sun at dusk

- 3. Set the camera
 - 3.2 Adjust the image quality
-

• Object with too low illumination

3.2.3 Sets night time black-and-white switching mode

You can switch to color or black-and-white images by using [Day & Night(IR)] when shooting at night.



The items that can be set differ depending on the part number. Check it against the part number of your camera.

< WV-X67700-Z3L3/ WV-X67710-Z3L1/ WV-X67710-Z3L3/
WV-X67300-Z4L3/ WV-X67310-Z4L1/ WV-X67310-Z4L3 >

(IR LED Light models only)

➤ Live image pages configuration panels>Clicking the [Image quality] tabs enables you to set the image quality.

1. Select [Day & Night(IR)]
 - Select from [Off], [On(IR Light Off)], [On(IR Light On)], [Auto1(IR Light Off)], and [Auto2(IR Light On)].

[Off]

This function is used for shooting colored images at night as well.

[On(IR Light Off)]

The picture is always taken in black and white.

[On(IR Light On)]

The picture is always taken in black and white. This setting is used when near-infrared lighting is used at night.

[Auto1(IR Light Off)]

The color image and black-and-white image are automatically switched depending on the brightness (illumination) of the image.

[Auto2(IR Light On)]

The color image and black-and-white image are automatically switched depending on the brightness (illumination) of the image. This is set when the near-infrared illumination is used at

night.

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WV-X67711-Z3L3/
WV-X67300-Z4-3/ WV-X67301-Z4L3/ WV-X67310-Z4-1/ WV-X67310-Z4-3/
WV-X67311-Z4L3 >

(IR LED Light No-models and White LED Light models only)

➤ Live image pages configuration panels>Clicking the [Image quality] tabs enables you to set the image quality.

1. Select [Day & Night(IR)]

- Select from [Off], [On(IR Light Off)], [On(IR Light On)], [Auto1(IR Light Off)], [Auto2(IR Light On)], and [Auto3(SCC)] .

[Off]

This function is used for shooting colored images at night as well.

[On]

The picture is always taken in black and white.

[Auto1(Normal)]

The color image and black-and-white image are automatically switched depending on the brightness (illumination) of the image.

[Auto2(IR Light)]

The color image and black-and-white image are automatically switched depending on the brightness (illumination) of the image. This is set when the near-infrared illumination is used at night.

[Auto3(SCC)]

Set this when you want to maintain a color image even when the light source is dark. The Super Chroma Compensation (SCC) function maintains the color image to low illumination.

3.2.4 Setting White Light at night

You can make them brighter by using [White Light] to illuminate dark areas when shooting at night.

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- 3. Set the camera
 - 3.4 Hide some of the images
-

(White LED Light models only)

➤ Live image pages configuration panels>Clicking the [Image quality] tabs enables you to set the image quality.

1. Set [White Light] to [On]



•To adjust the intensity of white illumination, set [White Light intensity]. For more information about [White Light intensity], refer to the User Manual.

3.3 Adjust the zoom/focus

You can manually or automatically adjust the zoom or focus of the displayed image.

➤ You can set zoom and focus by clicking [Camera control] on the Live image pages.

1. Configuring [Zoom], [Focus], and [Displays the auto focus frame] on the [PTZ] tabs
 - Left-click the control pad to adjust the horizontal position (PAN) and vertical position (TILT) of the image.
 - Right-click the control pad to adjust the zoom and focus. Zoom can also be adjusted with the mouse wheel operation.



•For more information about zoom and focus, refer to the User Manual.

3.4 Hide some of the images

If you set the area to be hidden, you can move the camera's field angle while holding the area to be hidden.

➤ Live image pages configuration panels>[Detailed setting]>[Camera detailed setting]>[Image/Audio] of the Advanced menus on the left>[Privacy zone] in the [Image quality] tabs>When [Setup] is clicked, the Privacy Zone setting window is displayed.

- 3. Set the camera
 - 3.6 Set the camera operation
-



1. Set [Privacy zone].
 - Set the [Privacy zone Display type] to [On]/[Off].
2. Select the number of the zone you want to set from [Zone No] pull-down menu.
3. Specify four vertices on the image and press [Set] button.

3.5 Display the angle, direction, magnification, etc. in the image

You can select the information displayed in the image when you manually operate it.

- Live image pages configuration panels>[Detail setting]>[Camera detailed setting]>Clicking [PTZ] on the Advanced menu on the left displays the [Cam. Function] menu.
1. From the [Camera position display] pull-down menu, select the information you want to view and press [Scene change detection].

3.6 Set the camera operation

Set the camera operation, preset position, and auto tracking.

- Live image pages configuration panels>[Detail setting]>[Camera detailed setting]>When [PTZ] is clicked on the advanced menu on the left, the settings pages for the respective functions are displayed.

3.6.1 Limit the camera's operating range

When you want to shoot in a specific area, you can control the shooting area by limiting the camera's operation in the PAN direction and the TILT direction.

- Live image pages configuration panels>[Detail setting]>[Camera detailed setting]>[PTZ] of the Advanced menus on the left>[Position] tabs>Clicking [Advanced settings] on the

3. Set the camera
3.6 Set the camera operation

right-hand side of the [Pan/tilt range setting] displays the configuration pages.

1. Set the [Pan/tilt range setting] to [On] and set the angle of view in each direction.

3.6.2 Move the camera automatically

The selected operation can be started from the [Auto mode] in the [PTZ] pane of the Live image pages. Settings for each operation are made from the Advanced menu.

3.6.2.1 Automatically track and shoot objects

When movement is detected in the set alarm area, the target is automatically tracked and shot.

- Live image pages configuration panels>[Detail setting]>[Camera detailed setting]>[PTZ] of the Advanced menus on the left>Clicking on the [Auto track setting] tabs displays the auto-tracking settings window.
 1. Set items by clicking [Basic settings]
 - Select the object or size to be detected.
 2. Set auto-tracking by clicking [Auto track activation setting]
 - Select whether to automatically track auto pan, preset sequence, etc.
 3. Set auto-tracking by clicking [Auto track activation setting (Area)]
 - Select whether or not to automatically track [Detection object] in the area you set up.

3.6.2.2 Shoot automatically in the PAN direction

Turn the set range of movement of the PAN automatically to take a picture.

- Live image pages configuration panels>[Detail setting]>[Camera detailed setting]>[PTZ] of the Advanced menus on the left>[Position] tabs>Clicking [Advanced settings] on the [Auto pan] displays the auto pan setting window.
 1. Set the left and right endpoints using the [Zoom], [Focus], and Control pads/buttons.
 2. Set the stopping time/speed/turn direction with [Auto pan].

3.6.2.3 Take pictures around the designated area

Move the preset position registered as the area you want to shoot in order from the lowest preset number.

- Live image pages configuration panels>[Detail setting]>[Camera detailed setting]>[PTZ] of the Advanced menus on the left>[Position] tabs>Clicking [Advanced settings] on the [Preset sequence setting] displays the preset sequence setting window.

3. Set the camera

3.7 Set up Wiper

1. Select [Preset sequence 1]
 - The preset position selection screen is displayed.
2. Select the number of the preset position to shoot and set it.

3.6.2.4 Set up patrols

The patrol function stores PAN/TILT/ZOOM/Focus and reproduces the stored operation. When you register a patrol, a patrol is displayed on the [Auto mode] of the Live image pages.

- Live image pages [Scene change detection]>[Detail setting]>[Camera detailed setting]>[PT Z]>[Position]>The [Patrol] [Advanced settings] displays the patrol settings window.
1. Select the number of patrols to be stored and the number of patrols to be set.
 2. Set [Zoom], [Focus], Control Pad, [Brightness], [Preset]



- For more information on patrols, refer to the User Manual.
- The settings saved in Advanced Settings can be changed by Live image pages.

3.7 Set up Wiper

Due to its characteristics, this server is installed in a harsh environment. Therefore, the front glass can be dirty. Therefore, by clicking [Start] button on the screen to control the wiper. This function removes the dirt from the front glass. When [Stop] is clicked, control of the wiper is stopped.

In [Wiper], [Continuous:High], [Continuous:Low], [1shot], or [Washer] can be selected.

[Continuous:High], [Continuous:Low] and [1shot] are used when the front glass is dirty.

[Washer] is used when the wiper-controlled state is dry and there is a condition where the dirt cannot be removed in one direction.

- Live image pages camera control panel display button>You can set in [Wiper] on the [Camera control] panel.
1. Select [Wiper] operation from the pull-down menu.
 - Select [Continuous:High], [Continuous:Low], [1shot], or [Washer].
 2. [Start] button is clicked.
 - Starts the operation selected with 1.

[Continuous:High]

The wiper wipes the front glass once every 6 seconds.

[Continuous:Low]

The wiper wipes the front glass once every 11 seconds.

[1shot]

The wiper wipes the front glass 4 times.

[Washer]

Install a washer nozzle on the camera body. Spray washer liquid on the front glass from the installed washer nozzle and wipe it off automatically with a wiper.



- [Washer] can be selected only when [Washer control] is set in [Relay output] on [Basic] > [Basic] tab of Live image pages Settings panel > [Detailed setting] > [Camera detailed setting] > Advanced menu on the left. At that time, the [Washer control] link is displayed in the item.
- During washer operations, [Wiper] [Start] and [Stop], pan/tilt/zoom/focus control, [Auto mode] [Start], preset action, and Settings in [Image/Position] Tab cannot be operated.
- When [Continuous:High] or [Continuous:Low] is selected and the [Start] button is clicked, the wiper will stop after a maximum of 5 minutes from when the [Start] button was clicked.
- During pan/tilt/zoom controls, [Start] may not be able to be operated for the washer.
- If the wiper or washer operations are started during auto tracking operations, the wiper may be detected and tracked.



- Refer to the User Manual for instructions on details on each setting method of [Washer control]

3.8 Set up Glass Heater

[Glass Heater] is used when the front glass becomes cloudy and the image becomes difficult to see in a low-temperature environment.

- Live image pages camera control panel display button>You can set in [Glass Heater] on the [Camera control] panel.
- 1. Select [Glass Heater duration] from the pull-down menu.
 - Select [5min], [10min], [15min], [20 min], [30min], [45 min], [60min], [90 min], [120 min], or [180 min].
- 2. [Start] button is clicked.
 - The [Glass Heater] will start operating for the specified [Glass Heater duration].



•If the camera gets hot, [Glass Heater] may stop automatically.

3.9 Identify sounds with AI

Image monitoring can be enhanced by identifying and detecting human cries, broken glass sounds, horns, guns, and other sounds.

- Live image pages configuration panels>[Detail setting]>[Camera detailed setting]>[Alarm] of the Advanced menus on the left>Clicking on the [Audio detection] tabs displays the configuration pages.



AI Sound ClassificationSee below for more information.

→WHITE PAPER

1. Set [Audio detection] to [On] to set sound detection.
2. Select Sensitivity of Detection with [Detection sensitivity].
3. Select the sound to be detected by [AI analytics target].
 - Selection of [Other] is not recommended in conjunction with other sounds detected. For example, when a gun sound is detected with the settings for detecting two sounds: [Gunshot] and [Other], it is detected as two sounds.

3.10 Set up events

You can set the alarm to detect the operation of an area or interference to the camera, or the operation when the alarm is detected.

- Live image pages configuration panels>[Detailed setting]>[Camera detailed setting]>[Easy Setup] of the Advanced menus on the left>Clicking on the [Event action] tabs displays the configuration pages.



- Refer to the User Manual for instructions on configuring events.
- Refer to the User Manual for instructions on how to configure Internet disclosure.

3.10.1 Detect object movements

When an alarm is activated, the camera operates as set. There are patterns for the alarms when the specified area moves and when the camera is blocked.

- Live image pages configuration panels>[Detailed setting]>[Camera detailed setting]>[Alarm] of the Advanced menus on the left>Clicking on the [VMD area] tabs displays the configuration pages.



Refer to the user manual for details of all alarms.

3.10.1.1 Set the area for detecting the movement of an object

Set the area for detecting the movement of an object using the motion detection function using video images.



3. Set the camera

3.13 Set the overlay image function

1. Select the preset position number to be set for the motion detection area and press [Start].
 - The Set Operation Detection Area screen is displayed.
2. Drag through the image to set the area.
 - You can set the areas in order.
3. Adjust the [Detection area] and [Detection sensitivity] using the slider bar and then press [Set].

3.11 Enhance communication security

Setting up HTTPS encrypts camera access and enhances communication security.

- Refer to the following support videos for the HTTPS setting method (pre-installation).
→[Support video](#)
- For information about how to configure HTTPS (CA certificate), refer to the following supported videos.
→[Support video](#)
- Refer to the following support videos for the HTTPS setting method (pre-installation).
- For information about how to configure HTTPS (CA certificate), refer to the following supported videos.

3.12 Set the resolution and frame rate

- Live image pages configuration panels>[Stream] tabs>Set in [Image capture mode] of [Common].



- Refer to the User Manual for details on settings and frame rates.
- For more information on resolution, see the following.
→[About Image capture mode and Image capture size](#)

3.13 Set the overlay image function

You can specify the position to overlay the uploaded image or specify the color to be transmitted. Refer to the User Manual for details on how to configure the settings.

- Live image pages configuration panels>[Detail setting]>[Camera detailed setting]>[Basic] of the Advanced menus on the left>Configure in the [Overlay image] tabs.
 1. Select an image with [Overlay] set to [On].
 2. Set [Position], [Permeation], and [Selection of color to be penetrated]
 3. Press [Set]

3.14 Set the image stream

3.14.1 About the Setting of Stream

You can configure whether to deliver streams, whether to use H.265 or H.264 compression, the resolution, image quality, and how to deliver streams.

- Live image pages configuration panels>Use the [Stream] tabs. The streams of H.265 and H.264 images are set in [Stream] on the [Stream] tabs.
 - Refer to the following for how to distribute.
 - [About delivery volume control \(bit rate\)](#)
 - For the image compression method, refer to the following.
 - [Reducing Data Capacity with Smart Coding](#)
 - Refer to the User Manual for details of each setting method.

3.14.2 About delivery volume control (bit rate)

The following types of delivery modes are used to control the amount of delivery (bit rate) of the stream, and settings are made accordingly. You can also use smart coding, such as [Smart VIQS], to reduce the amount of data. For information about controlling the amount of stream delivery, see the following. Refer to the User Manual for details.

→[Reducing Data Capacity with Smart Coding](#)

- **Fixed bit rate:**

The H.265 (or H.264) images are delivered at the bit rate set by [Max bit rate (per client) *].

- **Variable bit rate:**

The H.265 (or H.264) images are delivered at the frame rate set by [Frame rate*] while maintaining the image quality level set by [Image/Privacy]. At this time, the bit rate is varied within the maximum bit rate set by [Max bit rate (per client) *]. The recording capacity varies

- 3. Set the camera
 - 3.14 Set the image stream
-

depending on the [Image/Privacy] settings and the object status.

- **Specify Frame Rate:**

H.265 (or H.264) images are delivered at the frame rate set by [Frame rate*].

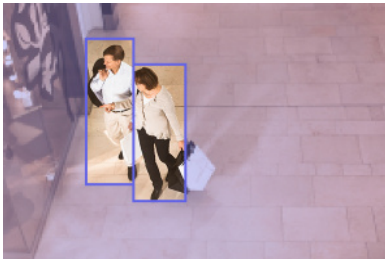
- **Best effort delivery:**

Depending on the bandwidth of the networks, H.265 (or H.264) images are delivered with varying bit rates within the maximum bit rate set by [Max bit rate (per client) *].

3.14.3 Reducing Data Capacity with Smart Coding

Smart coding is a data-compression technique that optimizes the compression ratio by reducing compression and high compression in the background to clearly show the human face, and by object.

- Live image pages configuration panels>[Detail setting]>[Camera detailed setting]>[Image] or [Image/Audio] of the Advanced menus on the left>Clicking [Image] displays the Smart Coding configuration.



This image is an image. This is different from the actual view of the screen.

[Smart VIQS]

The image quality of the area where the object (head, people, automobiles, and motorcycles) is displayed is maintained at a high level. Images other than objects are delivered in such a way that low or medium image quality is maintained and the amount of data is reduced.

[Smart P-picture control]

In order to reduce the amount of data, data generation (macroblock) is reduced in areas other than where objects (head, people, automobiles, and motorcycles) are displayed.

[GOP control]

You can reduce the amount of data.

- 3. Set the camera
 - 3.15 Displaying the Power Monitor on the screen
-

3.15 Displaying the Power Monitor on the screen

The Power Monitor feature displays on-screen power information currently used by the camera.

- Live image pages configuration panels>[Detailed setting]>[Camera detailed setting]>[Maintenance] of the Advanced menus on the left>When the [Status] tabs are clicked, the screen containing the items for [Power Monitor] is displayed.
1. Displays the [Power Monitor] option in [Status] window of [Maintenance].
 2. If you press [Confirm] in the [Power Monitor] section, the [Power Monitor] window appears.



•For more information on [Power Monitor] window, refer to the User Manual.

4. Clean up



- Turn off the power before starting operation. Doing so may result in injury.
- Do not apply or use organic solvents such as benzene and thinner. The case may become discolored. Follow the precautionary statement when using chemical foil.
- Do not loosen or remove the screws not specified in the operation manual.

4.1 Cleaning of front glass



- Clean with lens cleaning paper (for cleaning cameras and eyeglasses).
- The front glass may be scratched if dust or other objects are attached to it. If it is very dirty, clean it with water.

5. Specifications

5.1 PC environment required

CPU:	Intel® Core™ Processor family <When using an image capture size of 1920 x 1080 or lower> -Intel® Core™ i5-6500 or more -Intel® Core™ i7-6700 or higher recommended <When using an image capture size higher than 1920 x 1080> -Intel® Core™ i7-11700 or higher recommended
Memory:	<When using an image capture size of 1920 x 1080 or lower> Recommended at least 4 GB (2 GB x 2, dual channel) <When using an image capture size higher than 1920 x 1080> Recommended at least 16 GB (8 GB x 2, dual channel)
Network function:	10BASE-T/100BASE-TX/1000BASE-T 1 port
Sound function:	Sound Card (for voice function)
Image display function:	Image capture size: 1920 x 1080 pixels or more <When using an image capture size of 3840 x 2160> High Image capture size monitoring: 3840 x 2160 pixels or more Color: 24 bits or more of True Color
Compatible OS:	Microsoft Windows 11 Microsoft Windows 10
Web browser:	Google Chrome™ Firefox Microsoft Edge (after Chromium)
Other:	Adobe® Reader® or Acrobat Reader® (For viewing PDF files)

5.2 About Image capture mode and Image capture size



- The bit rate of streams is restricted to [Bandwidth control(bit rate)] on the [Network] tabs of network pages.
- If the refresh interval is short, the bit rate may be exceeded depending on the object.
- Depending on the number of concurrent users or the combination of functions used, the bit rate may be lower than the set value. Confirm the image delivered after setting.

5.2.1 Image capture size

It's Image capture size. The initial value is underlined.

WV-X67700-Z3-3/ WV-X67700-Z3L3/ WV-X67701-Z3L3/ WV-X67710-Z3-1/ WV-X67710-Z3-3/ WV-X67710-Z3L1/ WV-X67710-Z3L3/ WV-X67711-Z3L3

Image capture mode	Stream (1)	Streams(2)	Streams(3)	Streams(4)	JPEG(1)*1	JPEG(2)
16:9 (30fps)	<u>3840x2160</u>	3840x2160			<u>3840x2160</u>	
	2560x1440	2560x1440*2			2560x1440	
16:9 (25fps)		<u>1920x1080</u>			1920x1080	
		1280x720	<u>1280x720</u>	1280x720	1280x720	
		640x360	640x360	<u>640x360</u>	640x360	<u>640x360</u> *3
		320x180	320x180	320x180	320x180	
	(A)*4	Max 30(25) fps*5*6	Max 15(12.5) fps	Max 15(12.5) fps	Max 15(12.5) fps	Max 5(4.2) fps*7*8
(B)*4	Max 15(12.5) fps	Max 30(25) fps*5*6	Max 30(25) fps*5*6	Max 30(25) fps*5*6		

*1 Only the same image capture sizes set for “Stream(1)”, “Stream(2)”, “Stream(3)”, “Stream(4)” and “JPEG(2)” are selectable.

*2 “2560x1440” of “Stream(2)” can be selected in case of “Stream(1)” is set to “2560x1440”.

*3 “JPEG(2)” is set to [1280x720] if [640x360] is not selected for the resolution set in “Streams(1)”, “Streams(2)”, “Streams(3)”, “Streams(4)”, and “JPEG(1)” and four resolutions are set.

*4 The maximum frame rates of “Stream(1)” to “Stream(4)” are either the combination of

5. Specifications

5.2 About Image capture mode and Image capture size

(A) or (B).

- *5 When "3840 x 2160" or "2560 x 1440" is selected for "Stream(2)", the frame rate will be limited to max. "15 fps (12.5 fps)".
- *6 When "1280 x 720" is selected for "Stream(4)", the frame rate will be limited to max. "15 fps (12.5 fps)".
- *7 When the image capture size is "3840 x 2160", the refresh interval is limited to 1 fps max. and when the image capture size is "2560 x 1440", the refresh interval is limited to 2 fps max. (2.1 fps).
- *8 When [Off] is selected for [Stream transmission] for all of "Stream(1)", "Stream(2)", "Stream(3)", and "Stream(4)", the maximum frame rate is 30 fps (25 fps).

WV-X67300-Z4-3/ WV-X67300-Z4L3/ WV-X67301-Z4L3/ WV-X67310-Z4-1/ WV-X67310-Z4-3/ WV-X67310-Z4L1/ WV-X67310-Z4L3/ WV-X67311-Z4L3

Image capture mode	Stream (1)	Streams(2)	Streams(3)	Streams(4)	JPEG(1)	JPEG(2)
16:9(60fps)	1920x1080	1920x1080			1920x1080	
16:9(50fps)	1280x720	1280x720	1280x720		1280x720	
	640x360	640x360	640x360	640x360	640x360	640x360
	320x180	320x180	320x180	320x180	320x180	
	Max 60(50) fps	Max 10(8.3) fps	Max 10(8.3) fps	Max 10(8.3) fps	Max 5(4.2) fps ^{*1}	Max 15(12.5) fps ^{*1}
<u>16:9(30fps)</u>	<u>1920x1080</u>	1920x1080			<u>1920x1080</u>	
16:9(25fps)	1280x720	<u>1280x720</u>	1280x720		1280x720	
	640x360	640x360	<u>640x360</u>	<u>640x360</u>	640x360	<u>640x360</u>
	320x180	320x180	320x180	320x180	320x180	
	Max 30(25) fps	Max 30(25) fps	Max 30(25) fps	Max 30(25) fps	Max 5(4.2) fps ^{*1}	Max 15(12.5) fps ^{*1}
4:3(30fps)	1280x960	1280x960			1280x960	
4:3(25fps)	640x480	640x480	640x480	640x480	640x480	640x480
	320x240	320x240	320x240	320x240	320x240	
	Max 30(25) fps	Max 30(25) fps	Max 30(25) fps	Max 30(25) fps	Max 5(4.2) fps ^{*1}	Max 15(12.5) fps ^{*1}
4:3(15fps)	2048x1536				2048x1536	
4:3(12.5fps)		1280x960			1280x960	
		640x480	640x480	640x480	640x480	640x480
		320x240	320x240	320x240	320x240	

5. Specifications

5.2 About Image capture mode and Image capture size

WV-X67300-Z4-3/ WV-X67300-Z4L3/ WV-X67301-Z4L3/ WV-X67310-Z4-1/ WV-X67310-Z4-3/ WV-X67310-Z4L1/ WV-X67310-Z4L3/ WV-X67311-Z4L3 (continued)

Image capture mode	Stream (1)	Streams(2)	Streams(3)	Streams(4)	JPEG(1)	JPEG(2)
	Max 15(12.5) fps	Max 15(12.5) fps	Max 15(12.5) fps	Max 15(12.5) fps	Max 5(4.2) fps*2	Max 15(12.5) fps

*1 When [Off] is selected for [Stream transmission] for all of “Stream(1)”, “Stream(2)”, “Stream(3)”, and “Stream(4)”, the maximum frame rate is 30 fps (25 fps).

*2 When [Off] is selected for [Stream transmission] for all of “Stream(1)”, “Stream(2)”, “Stream(3)”, and “Stream(4)”, the maximum frame rate is 15 fps (12.5 fps).

5.2.2 Restrictions

WV-X67700-Z3-3/ WV-X67700-Z3L3/ WV-X67701-Z3L3/ WV-X67710-Z3-1/ WV-X67710-Z3-3/ WV-X67710-Z3L1/ WV-X67710-Z3L3/ WV-X67711-Z3L3

Image capture mode	Extension software	Stabilizer	Smart coding	Super Dynamic	Intelligent auto	Privacy zone	Auto tracking
16:9(30/25fps)	Yes*1	Yes*2 *3	Yes	Yes*4	Yes	Yes*5	Yes

*1 When Extension software is running, the frame rate will be limited to max. “15 fps (12.5 fps)”.

*2 When [Stabilizer] is set to [On], [Super Dynamic] setting is [Off].

*3 When [Stabilizer] is set to [On], the frame rate will be limited to max. “15 fps (12.5 fps)”.

*4 When [Super Dynamic level] is set to 30 or more, the frame rate will be limited to max. “15 fps (12.5 fps)”.

*5 When [Privacy zone] is set to [On], the frame rate will be limited to max. “15 fps (12.5 fps)”.

5. Specifications
5.3 DORI

WV-X67300-Z4-3/ WV-X67300-Z4L3/ WV-X67301-Z4L3/ WV-X67310-Z4-1/ WV-X67310-Z4-3/ WV-X67310-Z4L1/ WV-X67310-Z4L3/ WV-X67311-Z4L3

Image capture mode	Extension software	Stabilizer	Smart coding	Super Dynamic	Intelligent auto	Privacy zone	Auto tracking
16:9(60/50fps)	No	Yes*1	Yes	No	Yes	Yes	No
16:9(30/25fps)	Yes	Yes*1	Yes	Yes	Yes	Yes	Yes
4:3(30/25fps)	Yes	Yes*1	Yes	Yes	Yes	Yes	Yes
4:3(15/12.5fps)	No	Yes*1	Yes	Yes	Yes	Yes	No

*1 When [Stabilizer] is set to [On], [Super Dynamic] setting is [Off].

5.3 DORI

WV-X67700-Z3-3/ WV-X67700-Z3L3/ WV-X67701-Z3L3/ WV-X67710-Z3-1/ WV-X67710-Z3-3/ WV-X67710-Z3L1/ WV-X67710-Z3L3/ WV-X67711-Z3L3

	WIDE	TELE
Detect (25 ppm/8 ppf)	127.8 m	3519.7 m
	419.3 ft	11547.6 ft
Observe (62.5 ppm/19 ppf)	51.1 m	1407.9 m
	167.7 ft	4619.0 ft
Recognize (125 ppm/38 ppf)	25.6 m	703.9 m
	83.9 ft	2309.5 ft
Identify (250 ppm/76 ppf)	12.8 m	352.0 m
	41.9 ft	1154.8 ft

WV-X67300-Z4-3/ WV-X67300-Z4L3/ WV-X67301-Z4L3/ WV-X67310-Z4-1/ WV-X67310-Z4-3/ WV-X67310-Z4L1/ WV-X67310-Z4L3/ WV-X67311-Z4L3

	WIDE	TELE
Detect (25 ppm/8 ppf)	59.1 m	2315.7 m
	194.0 ft	7597.6 ft

5. Specifications

5.5 Extension software (AI application)

WV-X67300-Z4-3/ WV-X67300-Z4L3/ WV-X67301-Z4L3/ WV-X67310-Z4-1/ WV-X67310-Z4-3/ WV-X67310-Z4L1/ WV-X67310-Z4L3/ WV-X67311-Z4L3 (*continued*)

Observe (62.5 ppm/19 ppf)	23.7 m	936.3 m
	77.6 ft	3039.0 ft
Recognize (125 ppm/38 ppf)	11.8 m	463.1 m
	38.8 ft	1519.5 ft
Identify (250 ppm/76 ppf)	5.9 m	231.6 m
	19.4 ft	759.8 ft

5.4 Streaming performance

- Up to 14 users are accessible at the same time.
- The maximum bandwidth is 50 Mbps.

5.5 Extension software (AI application)

Information about the number and capacity of Extension software (applications) that can be installed.

WV-X67700-Z3-3/ WV-X67700-Z3L3/ WV-X67701-Z3L3/ WV-X67710-Z3-1/ WV-X67710-Z3-3/ WV-X67710-Z3L1/ WV-X67710-Z3L3/ WV-X67711-Z3L3

Number of installable applications	ROM capacity	RAM capacity
3	150 MB	250 MB

WV-X67300-Z4-3/ WV-X67300-Z4L3/ WV-X67301-Z4L3/ WV-X67310-Z4-1/ WV-X67310-Z4-3/ WV-X67310-Z4L1/ WV-X67310-Z4L3/ WV-X67311-Z4L3

Number of installable applications	ROM capacity	RAM capacity
2	100 MB	100 MB

5. Specifications

5.5 Extension software (AI application)

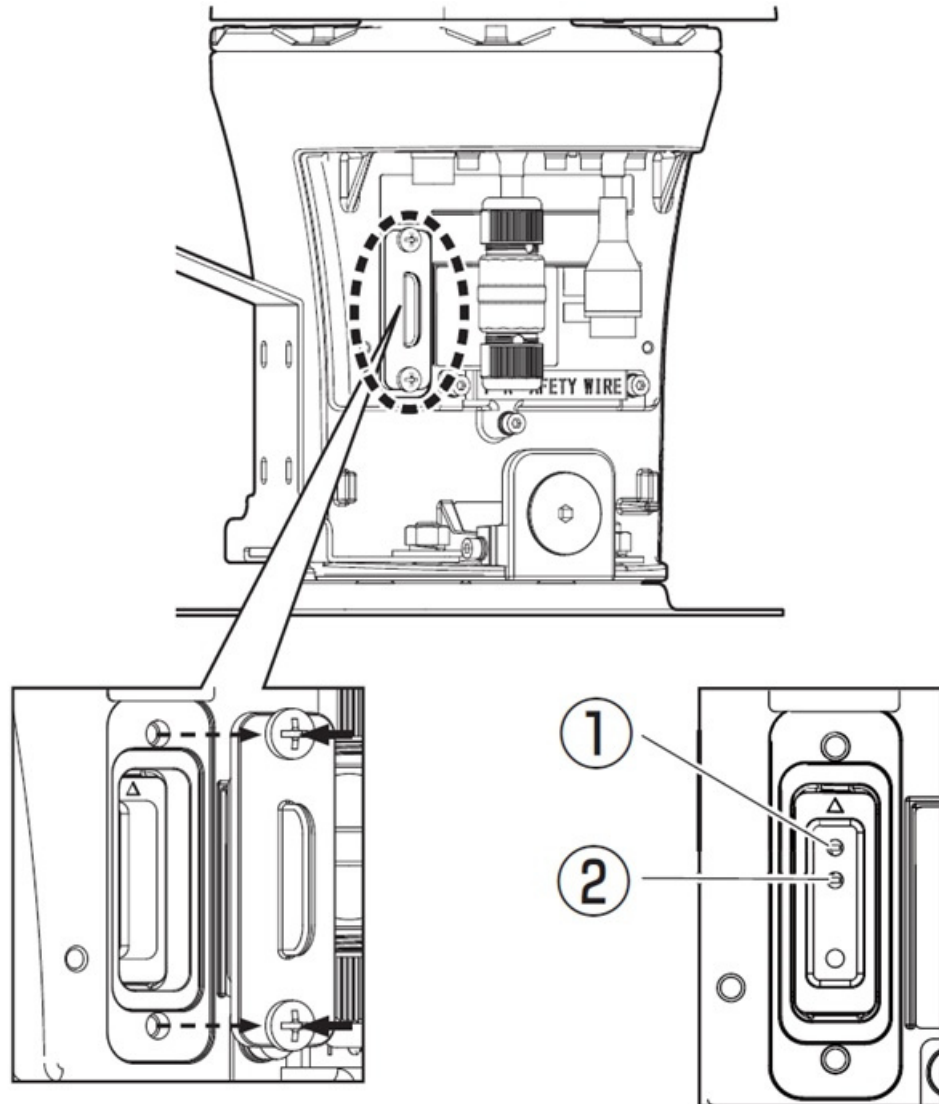


For the latest software (AI application) support status and restrictions, please check the technical information <Control No.: C0103> on our website.

→[Technical information website](#)

Software (AI apps)	Pre-install	Support status
AI-VMD	Yes	Supported
AI Privacy Guard	No	Supported
AI Face Detection	No	Supported
AI People Detection	Yes	Supported
AI Vehicle Detection	No	Supported
AI Non-Mask Detection	No	Not supported
AI Occupancy Detection	No	Supported
AI Scene Change Detection	No	Supported

5.6 Lamp



- ① LINK indicator (orange)
- ② ACT indicator (green)

5.6.1 Lighting of the lamp

LINK indicator

When communication with connected devices becomes possible

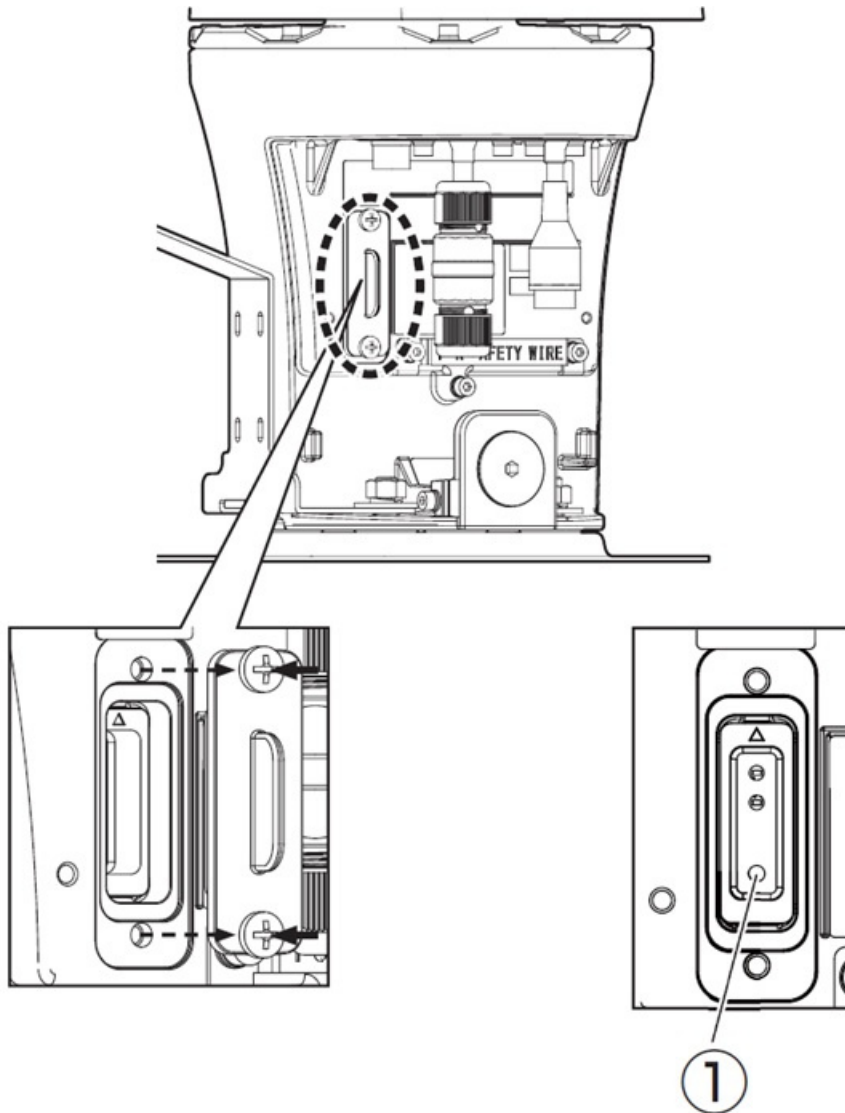
- Orange LED is ON

ACT indicator

When the camera sends and receives data

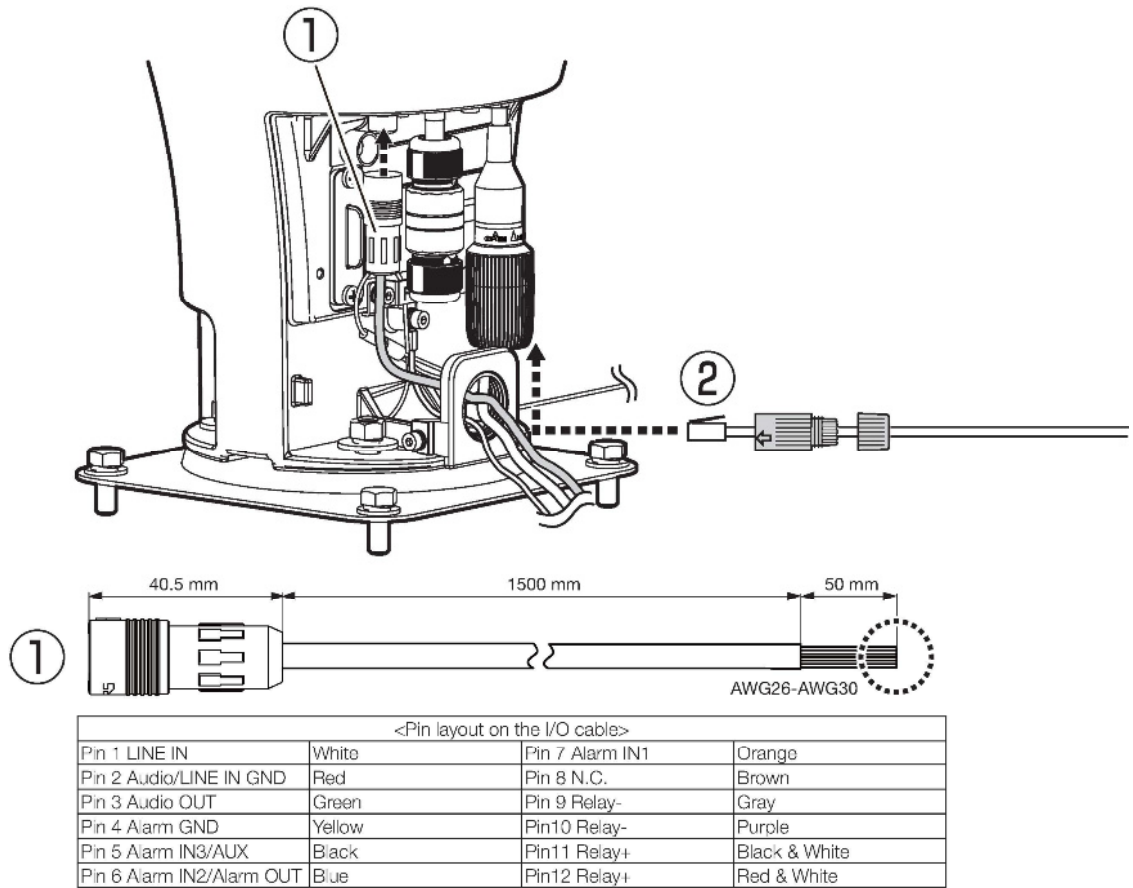
- Green LED is flashing (accessed)

5.7 Button



- ① INITIAL SW (Initial switch)

5.8 Cable



- ① I/O Cable (Option: WV-QCA502)
- ② Ethernet cable with RJ45 plug (category 5e or better, straight, all 4 pairs (8 pins), less than 100 m {328 feet})

6. Other

6.1 Initialize

The INITIAL SW (Initial switch) can be turned ON to initialize the body. For the position of the INITIAL SW (Initial switch), refer to the following.

→[Button](#)

1. Turn off the power of this product.
2. Turn on the power of this product while pressing the INITIAL SW (Initial switch).
3. Press the INITIAL SW (Initial switch) for 15 seconds or longer after the power is turned on.
4. Release the INITIAL SW (Initial switch)
 - Approximately two minutes later, this product is started and the settings containing the network settings are initialized. If it does not start normally, try again.

6.2 Check the software version

The functions of this product are implemented in software. We recommend that you first check the current software version if there is a problem with the operation of this product.

➤ Live image pages configuration panels>[Detailed setting]>[Camera detailed setting]>[Maintenance] of the Advanced menus on the left>Clicking on the [Upgrade] tabs displays the versioning window.

1. Check software versions with [Firmware version]
 - The current software version can be checked.



Up-to-date versions of software may contain modifications to specific problems.

6.3 Upgrade software

➤ Live image pages configuration panels>[Detailed setting]>[Camera detailed setting]>[Maintenance] of the Advanced menus on the left>When the [Upgrade] tabs are clicked, the software-upgradeable window is displayed.

1. Download the latest software to the PC
2. Click Select Files to specify the software you downloaded, and then click [Execute].



- Use a PC on the same subnet as this product to upgrade the version.
- Do not turn off the power of this product during version upgrading. Do not perform any operation until the version upgrade is completed.
- Be sure to check the version after upgrading. Also, delete the temporary Internet file.

6.4 Order of setting when adjusting image quality

It is recommended to set the settings for image quality in the following order: Adjustment of visibility → Adjustment of color → Removal of noise.

1. Adjust the visibility
 - [Light control mode], [Intelligent auto], [Super Dynamic], [Contrast level], [High light compensation(HLC)], [Adaptive black stretch], [Adaptive highlight stretch], [Maximum gain], [Maximum shutter], [Pedestal level]
2. Adjust the color
 - [White balance], [Chroma gain level]
3. Remove the noise
 - [Digital noise reduction], [Sharpness level]



Refer to the User Manual for details of each function.



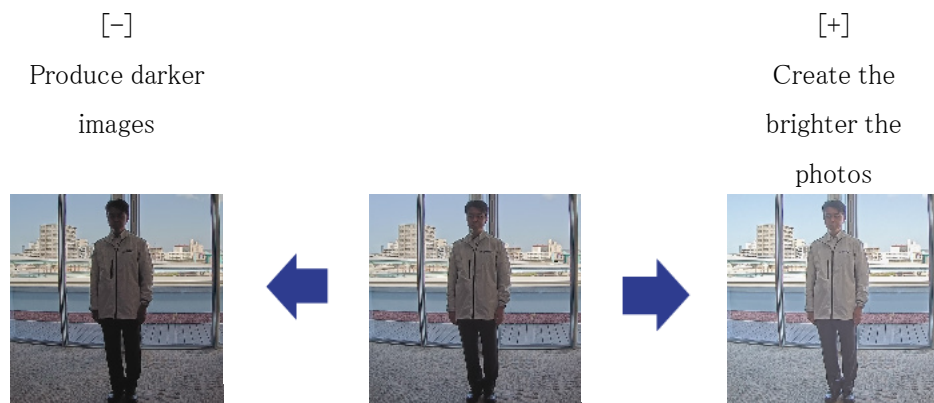
- The image quality adjustment function may affect each other.
- If necessary, adjust the brightness level of the screen.

6.5 Adjusting object brightness (bright scenes)

6.5.1 Adjusting brightness

Adjust the object brightness.

- Live image pages configuration panels>Clicking the [Image quality] tabs enables you to set the image quality.
- 1. Adjust the [Brightness] of [Image quality]
 - Moving in the [+] direction brightens the image.
 - Move in the [-] direction to darken the image.



6.6 Adjusting object brightness (dark scenes)

6.6.1 Adjust the maximum gain

In dark scenes, the image becomes brighter by increasing the maximum gain.

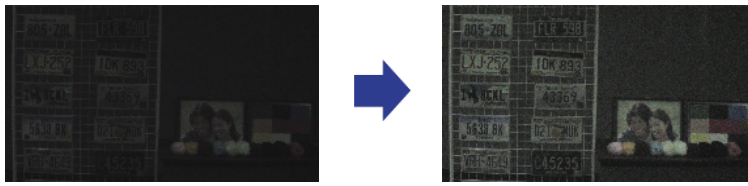
- Live image pages configuration panels>Clicking the [Image quality] tabs enables you to set the image quality.
- 1. Adjust the [Maximum gain] to [+]

Maximum gain: 6

Maximum gain: 11

6. Other

6.7 Reducing white flickering and blacking on the screen



Increasing the maximum gain increases noise.

6.6.2 Adjust the maximum shutter

Increasing the maximum shutter makes the images brighter.

➤ Live image pages configuration panels>Clicking the [Image quality] tabs enables you to set the image quality.

1. Select [Maximum shutter]

- Selecting [Maximum shutter] longer than [Max 1/30s] brightens the image because the amount of light entered increases.



Increasing the maximum shutter increases the blur.

Maximum shutter : 1/30



Maximum shutter : 4/30



6.7 Reducing white flickering and blacking on the screen

6.7.1 Set Super Dynamic

When Super Dynamic is set to ON, both bright and dark areas are reproduced faithfully, even when shooting in a place with a large brightness difference.

6. Other

6.7 Reducing white flickering and blacking on the screen

- Live image pages configuration panels>Clicking the [Image quality] tabs enables you to set the image quality.

1. Set [Super Dynamic] to [On]



Set [Super Dynamic] to [Off] when the following phenomena are observed depending on the lighting condition.

- If flicker or color change occurs
- Noise in the bright area on the screen

Super Dynamic: Off



Super Dynamic: On



6.7.2 Set the backlight compensation

By setting [Backlight Corrector], the darkness of the indoor object is suppressed (brighter indoor object).

- Live image pages configuration panels>[Detail setting]>[Camera detailed setting]>[Image] or [Image/Audio] of the Advanced menus on the left>[Image adjust] in the [Image quality] tabs>When [Advanced settings] is clicked, the image quality adjustment setting window is displayed.

1. Set to [Back light compensation(BLC)] in the [Super Dynamic] [BLC/ HLC]



If [Super Dynamic] is set to [On] or [Intelligent Auto] is set to [On], [Backlight Compensation] cannot be set.

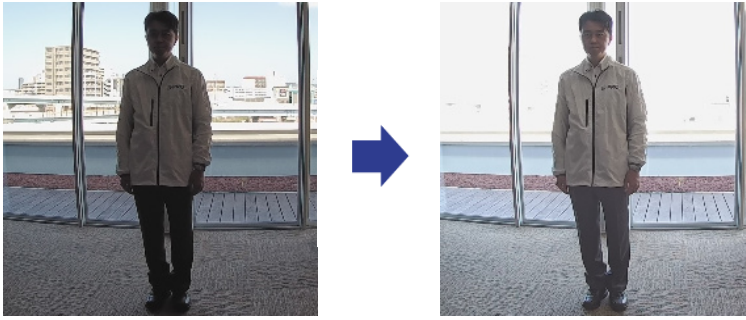
Back Light Correction: Off

Back light correction: On

Level: 16

6. Other

6.7 Reducing white flickering and blacking on the screen



6.7.3 Set the high light compensation

By setting [High light compensation(HLC)], bright lights such as car headlights suppress the brightness of the object.

- Live image pages configuration panels>[Detailed setting]>[Camera detailed setting]>[Image] or [Image/Audio] of the Advanced menus on the left>[Image adjust] in the [Image quality] tabs>When [Setup] is clicked, the image quality adjustment setting window is displayed.

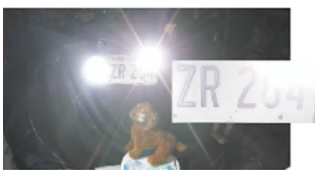
1. Select [High light compensation(HLC)] in [Super Dynamic]-[BLC/ HLC]



[High light compensation(HLC)] can be set only when Super Dynamic and Intelligent Auto are off.

High light compensation :

Off



High light compensation :

On



6.7.4 Adjust the adaptive black stretch

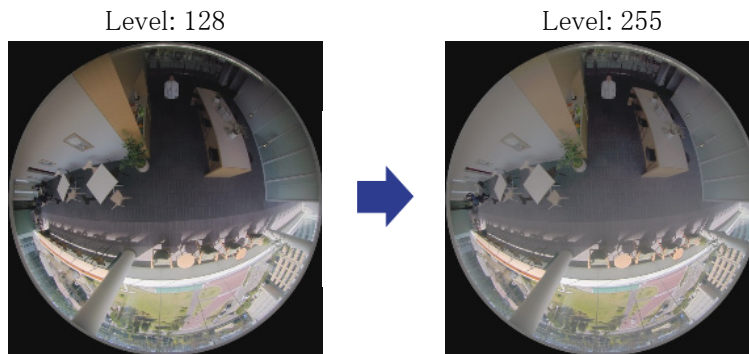
Adjust the [Adaptive black stretch] to brighten the dark areas of the images.

- Live image pages configuration panels>[Detail setting]>[Camera detailed setting]>[Image] or [Image/Audio] of the Advanced menus on the left>[Image adjust] in the [Image quality] tabs>When [Advanced settings] is clicked, the image quality adjustment setting window is displayed.

1. Adjust [Detail setting] [Adaptive black stretch] levels to [+]

6. Other

6.8 Adjust the object contrast



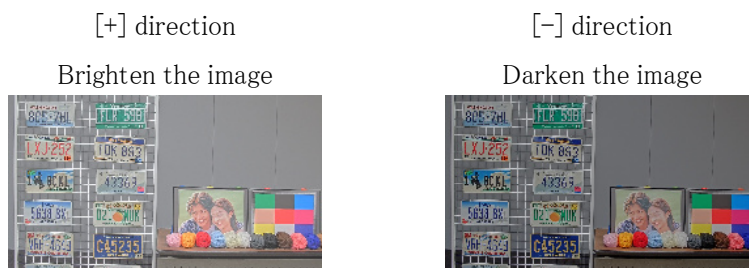
6.7.5 Adjust the [Pedestal level]

Adjust the [Pedestal level] to adjust the black level of the image.

- Live image pages configuration panels>[Detailed setting]>[Camera detailed setting]>[Image] or [Image/Audio] of the Advanced menus on the left>[Image adjust] in the [Image quality] tabs>When [Setup] is clicked, the image quality adjustment setting window is displayed.

1. Adjust the pedestal level of the [Detailed setting].

- Moving in the [+] direction brightens the image.
- Move in the [-] direction to darken the image.



6.8 Adjust the object contrast

6.8.1 Adjust the contrast

By adjusting the [Contrast level] to increase the contrast between the light and dark images, visibility of the object with less contrast can be improved.

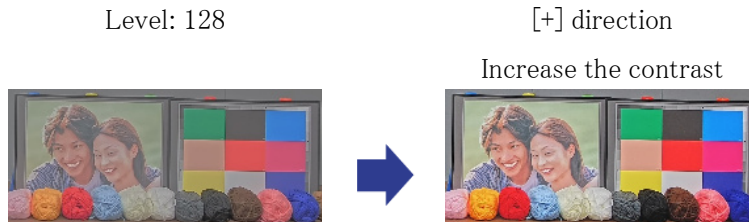
- Live image pages configuration panels>[Detailed setting]>[Camera detailed setting]>[Image] or [Image/Audio] of the Advanced menus on the left>[Image adjust] in the [Image quality]

6. Other

6.10 Reducing the blur of object (bright scenes)

tabs>When [Setup] is clicked, the image quality adjustment setting window is displayed.

1. Adjust [Detailed setting] [Contrast level] levels to [+]



6.9 Reduce flicker

Flickers are automatically corrected by using [Light control mode].

- Live image pages configuration panels>Clicking the [Image quality] tabs enables you to set the image quality.

1. Select [Indoor scene (50 Hz)] or [Indoor scene (60 Hz)] for [Light control mode].
 - Use 50 Hz/60 Hz depending on the region.

6.10 Reducing the blur of object (bright scenes)

6.10.1 Set intelligent auto (motion priority level)

Using [Intelligent Auto], the camera identifies object with scenes (backlights, outdoors, night scenes, etc.) and facial movements of people. The camera automatically adjusts the amount, gain, shutter speed, and contrast of light entering the camera from the camera's lenses to make it easier to see a moving object.

- Live image pages configuration panels>[Detail setting]>[Camera detailed setting]>[Image] or [Image/Audio] of the Advanced menus on the left>[Image adjust] in the [Image quality] tabs>When [Advanced settings] is clicked, the image quality adjustment setting window is displayed.
1. Adjust [Face priority level (Brightness)] and [Motion priority level (Shutter)] with [Intelligent Auto] set to [On].
 - By adjusting in the [+] direction, blurring of the object will be reduced.

6. Other

6.10 Reducing the blur of object (bright scenes)



Increasing the level in a low illumination environment increases noise.

Off (person blurred)



On (less blurring)



6.10.2 Adjust the maximum shutter

Shortening the maximum shutter reduces blur.

➤ Live image pages configuration panels>Clicking the [Image quality] tabs enables you to set the image quality.

1. Selecting a shorter [Maximum shutter] than [Max. 1/30s]

- If [Maximum shutter] is set to a shorter time than [Max. 1/30s], blur is reduced.

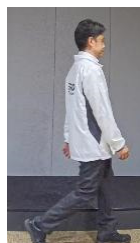


In low illumination environments, shortening the maximum shutter will darken the object and increase the noise.

Maximum shutter :
1/30



Maximum shutter :
1/250



6.11 Reducing object blur (dark scenes)

6.11.1 Adjust digital noise reduction

Reducing the effects of noise reduction by adjusting the [Digital noise reduction] reduces the blur.

➤ Live image pages configuration panels>Clicking the [Image quality] tabs enables you to set the image quality.

1. Adjust the [Digital noise reduction] in the [-] direction.



If the effect of noise reduction is reduced, the noise will increase.

Level: 128



Level: 100

Reduce the blur



6.12 Sharpen the outline of the subject

6.12.1 Adjust the sharpness level

Adjust the [Sharpness level] to sharpen the outline of the images.

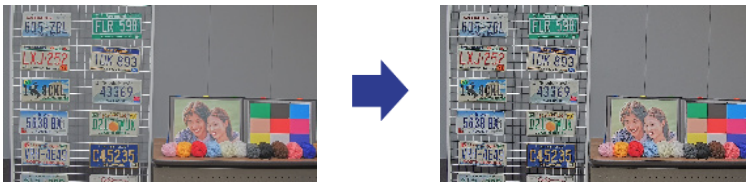
➤ Live image pages configuration panels>Clicking the [Image quality] tabs enables you to set the image quality.

1. Adjust the [Sharpness level] to [+]

Level: 10

Level: 31

Sharpen the outline of the image



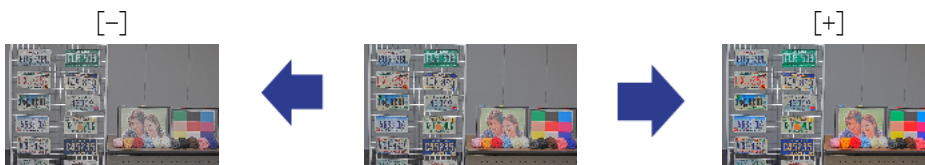
6.13 Adjust the color

6.13.1 Adjust color density

Adjust the [Chroma gain level] to adjust the darkness.

➤ Live image pages configuration panels>[Detailed setting]>[Camera detailed setting]>[Image] or [Image/Audio] of the Advanced menus on the left>[Image adjust] in the [Image quality] tabs>When [Setup] is clicked, the image quality adjustment setting window is displayed.

1. Adjust [Chroma gain level] in [Basic Adjustment] or [Detailed setting]
 - If you move the slider in the “+” direction, the colors will become loud and vivid.
 - If you move the slider in the “-” direction, the colors will become subdued.



6.13.2 Adjust the white balance

If the color is affected by a sodium lamp, use [White balance] to adjust the color.

➤ Live image pages configuration panels>[Detailed setting]>[Camera detailed setting]>[Image] or [Image/Audio] of the Advanced menus on the left>[Image adjust] in the [Image quality] tabs>When [Setup] is clicked, the image quality adjustment setting window is displayed.

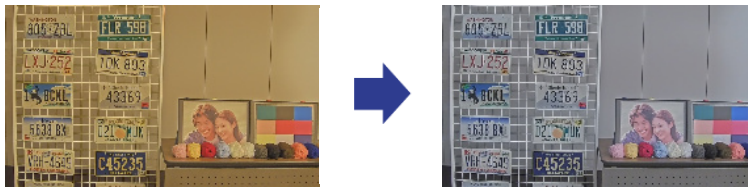
1. Select [ATW2] in [White balance]
 - The camera automatically adjusts the white balance under a sodium lamp.

Effect of sodium lamp

No effect of sodium lamp

6. Other

6.15 Reducing object noise (dark scenes)



6.14 Reducing object noise (bright scenes)

6.14.1 Adjust the sharpness level

Adjusting the [Sharpness level] to make the images soft reduces the noise around the object.

➤ Live image pages configuration panels>Clicking the [Image quality] tabs enables you to set the image quality.

1. Adjust the [Sharpness level] in the [-] direction.

Level: 31

Level: 5

Soften the outline of the image



6.15 Reducing object noise (dark scenes)

6.15.1 Adjust digital noise reduction

By adjusting the [Digital noise reduction] and increasing the effects of noise reduction, noise is reduced.

➤ Live image pages configuration panels>Clicking the [Image quality] tabs enables you to set the image quality.

1. Adjust the [Digital noise reduction] to [+]



Increasing the effects of noise reduction increases blur.

Level: 90



Level: 255

Reduce noise



6.16 Troubleshooting

Check the symptoms on this table before asking for repair.

Contact the dealer from whom you purchased the watch if you do not recover from any of these problems or if you have symptoms other than those listed in this table.

Phenomenon	Cause	Countermeasures	Reference
Be not powered on/ The server does not start up properly.	For PoE++ power •PoE++(IEEE802.3bt compliant to the operating environment. The power supply may not be selected.	•Select one of the following according to the operating temperature. 90 W PoE++ :-50 °C to +65 °C 60 W PoE++ :-30 °C to +65 °C	Installation

Phenomenon	Cause	Countermeasures	Reference
	<ul style="list-style-type: none"> •Some power supply devices that can connect multiple PoE++ terminal devices will not supply power if the total power supply exceeds the limit. 	<ul style="list-style-type: none"> •Refer to the instruction manual for the PoE++ power supply. 	
	<p>For 100 V to 240 V AC/ 24 V AC/ 24 V DC power supply</p> <ul style="list-style-type: none"> •Is the power cable securely connected to the power supply that meets the specifications of the machine? •Is the power supply waterproof connector assembled correctly and attached securely to the machine? 	<ul style="list-style-type: none"> •Check if it is connected. •Make sure that the connectors are wired and securely attached to the server. 	
The camera does not face the position set.	The camera may be out of orientation from the set position.	The position is corrected when position refresh is executed. When position refresh is set with the schedule function, the camera direction deviation can be corrected periodically. In some cases, reset the preset position.	User Manual

6. Other
6.16 Troubleshooting

Phenomenon	Cause	Countermeasures	Reference
		Moving the preset in an environment below -40°C may cause displacement. PT can be improved by limiting the maximum panning/tilting speed. Eg, Maximum panning/tilting speed $50^{\circ}/\text{s}$	User Manual
Camera stops during PAN/TILT operation and machine sounds.	The camera may have been misaligned.	In the [Initialization] tabs of the Advanced menus, refresh the positions.	User Manual
Automatically rotate the camera	Noise may have an effect.	Check for external noise.	User Manual
	Position refresh operation may be performed automatically to increase the position accuracy of PAN, TILT, and ZOOM at low temperature startup. However, this is not a failure.	—	—
The LINK lamp does not illuminate orange when the network cable is connected.	<ul style="list-style-type: none"> •Is the Ethernet cable connected correctly to the machine? •Is the hub or router to which the machine is connected working correctly? •Is the Ethernet cable connected to the machine broken? 	<ul style="list-style-type: none"> •Connect the Ethernet cable properly. •Check that your hub or router is working correctly. •Replace with another Ethernet cable. 	—

6. Other

6.16 Troubleshooting

Phenomenon	Cause	Countermeasures	Reference
Camera operation noise is too loud.	This is improved by adjusting the camera operation speed.	Decrease the camera speed.	—
Generate noise in the audio input	The following may be considered. <ul style="list-style-type: none"> •The grounding of the camera, switching hub, and peripheral equipment is not grounded. •Power lines, etc. are connected nearby. •There are equipment that generates strong electric and magnetic fields in the vicinity (such as television and radio transmission antennas, air conditioner motors, power transformers, etc.). 	If the peripheral is not improved, connect an audio output with low output impedance.	Installation
Dirt adheres to the front glass, making it difficult to see the site conditions.	Removal of rain particles on the front glass may help.	Execute the Wiper function to remove rain grains from the front glass easily.	—
Incorrect auto focus (AF)	The focus may not be adjusted automatically in the following locations or object.	Adjust the focus manually from the top of the software screen.	—

Phenomenon	Cause	Countermeasures	Reference
	<ul style="list-style-type: none"> • There is a big move. • Large variation in illumination intensity • Low illuminance • Be extremely bright or reflective • Over windows • Locations where the front glass is prone to contamination. • White walls and other light and darkness are low. • Flashing is severe. 		

6.17 Precautions pertaining to usage

- **Impact on image/image quality**

Image quality may deteriorate or the image may be difficult to see under the installation conditions below.

- In the case of rain drops adhering to the front glass due to wind during rainfall
- When snow adheres to the front glass due to the wind during snow accumulation (the degree of snow attachment depends on the amount of snow fall and the snow quality)
- Contamination of the front glass due to dust in the air or exhaust gas from automobiles

- **IR LED Light/ White LED Light When dew condenses on fronts**

Condensation may form on the White LED Light of IR LED Light/ after installation or during use. This is not a malfunction. Condensation can be removed by turning on the camera. IR LED Light/ White LED Light is turned off for about 2 hours, and the dew condensation disappears in about 10 minutes.

- **Using in low temperature environments**

This product is equipped with an internal heater unit for use in cold climates.

The heater will automatically turn on when the outside temperature drops below 5° C {41° F} and turn off when it rises above 10° C {50° F}.

When this product is installed and operated in low temperatures below -20°C $\{-4^{\circ}\text{F}\}$, it may require time to start up since the camera will wait to be warmed up internally by the internal heater right after the power is turned on.

Also, the camera may not function properly, if it is installed and operated in an environment where the temperature is below -25°C $\{-13^{\circ}\text{F}\}$. 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.

When used at a low temperature, the moisture adhering to the wiper rubber may freeze and become difficult to move.

- **Batteries**

The battery is built into this product. Do not leave the battery in an environment exposed to excessive heat from sunlight or fire.

- **Do not touch the front glass**

If dirty, image quality may deteriorate.

- **When "WARMING UP-PLEASE WAIT" is displayed on the screen during use**

The inside temperature of this product is low. Wait for the interior to warm up before this product restarts automatically. Please wait for a while.

- **If this product is no longer in use, do not leave it unattended and must be removed.**

- **Using the Wiper**

Do not use the Wiper unless it is on rain/snow or when a Washer is used. When used in the dry condition, the Wiper rubber will become worn. Note that the Wiper will automatically stop running after 5 minutes.

- **Consumables**

The following parts are consumables. Replace the watch with a new one based on the life time. The lifetime varies depending on the operating environment and conditions. The life time is a rough guide when used at $+35^{\circ}\text{C}$.

- Lens, PAN motor, TILT motor, Thin-wire coaxial cable for TILT, PAN main gear, TILT main gear, gear unit: About 3.7 million cycles, Cooling fan: About 52,000 hours, Slip ring: About 3.7 million cycles, Wiper rubber: About 0.12 million cycles (about 2 years), Wiper motor: About 0.8 million cycles

- * If the set position movement operation is continued for a long time, dust may accumulate on the slip ring. Position refresh can be prevented by periodically (about once a week) by setting a schedule.

For information about the slip ring of this product, refer to our technical information

website <Control No.: C0125>.

• **Lens/turntable**

If the lens or the pan-tilt turntable is not operated for a long period of time, the viscosity of the grease applied to the inside may increase and the product may not move. Move the lens or pan-tilt rotating table periodically or refresh the position periodically.

• **Installation in Coastal Areas**

- Especially when installing the server in a coastal area or a place where a snow melter is sprayed and not exposed to rain water, it is recommended to clean the server regularly by flushing it with water to remove salinity adhering to it.
- When installing the unit in a coastal area or an area where snow-melting agent is sprayed, periodically inspect the condition of the unit. (Replace the parts if necessary.)

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6.19 NETWORK RELATIONSHIP

Since this product is connected to the network, it may be damaged as follows.

- ① Leakage or leakage of information via this product
- ② Malicious operation of this product by a malicious third party
- ③ Interference or stoppage of this product by a malicious third party

In order to prevent such damage, take adequate network security measures including the following measures under the responsibility of the customer.

- Use this product on a secure network using firewalls, etc.
- Confirm that computer viruses and malicious programs are regularly checked and exterminated when the computer is connected to the system.
- Use user authentication, set user names and passwords, and restrict users who can log in to protect against unauthorized attacks.
- To prevent image data, authentication information (user name, password), alarm mail information, FTP server information, DDNS server information, etc., from being leaked on the network, measures such as restricting access by user authentication are implemented.
- All browsers must be closed after administrator access to this product.
- The password of the administrator is changed periodically. In addition, authentication information (user name, password) shall be appropriately stored so that it is not visible to third parties.
- Do not install this product or cables in a place where they are easily destroyed.