



Web Guide

WV-X86531-Z2

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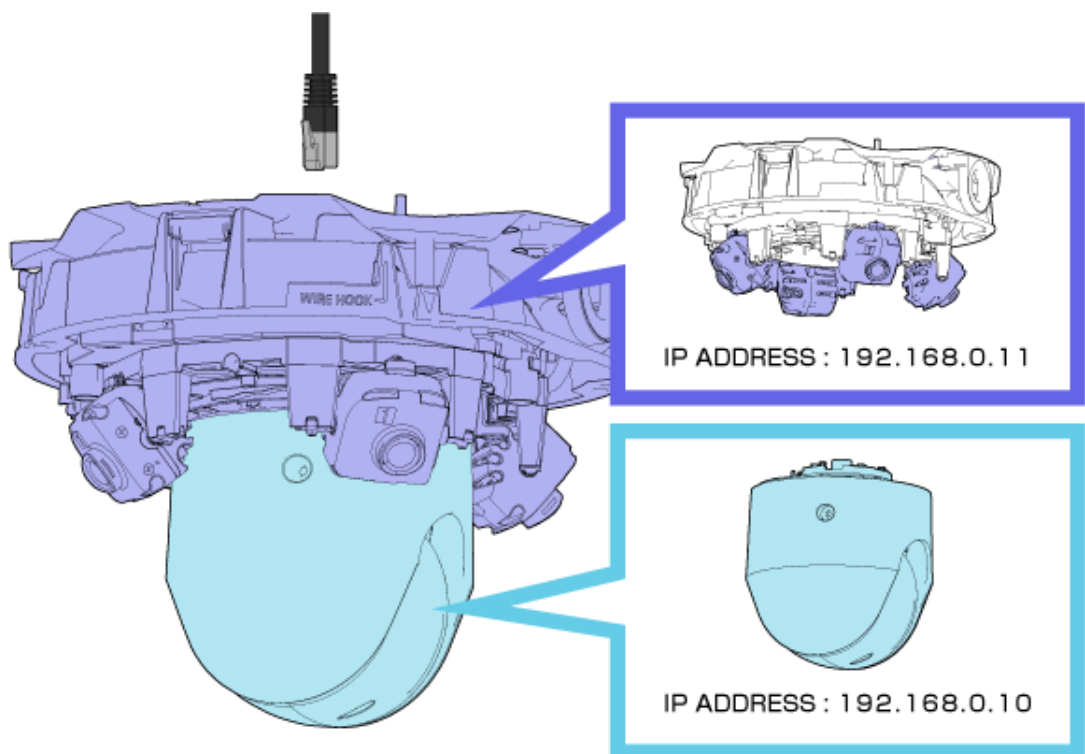
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1. Unique features

This unit is a Dome surveillance cameras used outdoors.

- The PTZ camera (hereinafter referred to as the "PTZ" part) is mounted in the center, and several Multi-directional cameras are mounted in the vicinity of the camera to adjust the tilt.
- By configuring and coordinating the IP addresses of the multi part and PTZ part, the IP addresses of the multi part and PTZ part can be linked and controlled.
- The AI function reduces the load on the entire system by identifying objects (people/vehicles) and analyzing images.
- You can install up to six AI apps (four in the multi part and two in the PTZ part) freely.

The default IP address for each camera without a DHCP server.



- Only one LAN cable is needed for this camera.
- Some settings, such as IP addresses and administrator registrations, are required for both the multi part and PTZ part.

2. Set up



Please refer to the following manual for details of installation.

[Installation Guide](#)

2.1 Install on the ceiling

2.1.1 Ceiling surface mount installation

The URL of the movie is as follows.

<https://youtu.be/zgECqil2VFE>

2.2 Wall pendant mount installation

The URL of the movie is as follows.

<https://youtu.be/JmGmO8RCE4Y>

2.3 Ceiling embedded mount installation

The URL of the movie is as follows.

<https://youtu.be/Xxzsud47Jc>

2.4 Use the TILT adjusting lever to determine the shooting range

The TILT adjusting lever allows you to change the TILT angle of all multi part cameras simultaneously.

When operating the TILT adjustment lever, slide it to the right and left with the lever pinched and raised slightly. The multi part cameras move in the TILT direction. For the TILT adjustment lever, refer to the following.

→[TILT adjusting lever](#)

2.4.1 Change the TILT adjustment angle

The TILT adjustment lever can change the angle of the multi part cameras to the following three levels. The angle of tilt of the camera relative to ceiling and horizontal conditions is shown.

Refer to the installation video for the TILT adjustment lever operation.

→[Set up](#)

- [N](Near):47°
- [M](Middle):40°
- [F](Far):33°



- The factory shipping position is [M].
- Depending on the improvement of the product, the appearance may differ from the actual product to the extent that it does not affect the product operation.

(1) Slide the TILT adjustment lever to the right and left by lifting the lever with your finger.

- Slide to the right to adjust to the angle of [N]. Use to shoot near areas.
- Slide to the left to adjust to the angle of [F]. Use to shoot far areas.



After adjusting the angle with the TILT adjusting lever, change the [Tilt adjustment lever position] on the camera-side screen to apply the adjusted angle to the PTZ. Positioning accuracy may be affected by clicking or centering movement.

2. Set up

2.4 Use the TILT adjusting lever to determine the shooting range

2.4.2 Scope of shooting

This section describes the range of shooting with each TILT angle.

2.4.2.1 Installation height: 6 m

	[F]	[M]	[N]
Shooting range	Infinite (whole area)	Radius 53.4 m (175.2 ft)	Radius 20.6 m (67.6 ft)
Dead angle	Radius of 2.4 m (7.9 ft)	Radius of 1.6 m (5.2 ft)	Radius of 0.8 m (2.6 ft)

2.4.2.2 Installation height: 3 m

	[F]	[M]	[N]
Shooting range	Infinite (whole area)	Radius 15.3 m (50.2 ft)	Radius 5.9 m (19.4 ft)
Dead angle	Radius of 1.2 m (3.9 ft)	Radius of 0.8 m (2.6 ft)	Radius of 0.4 m (1.3 ft)

- 3. Connect to the camera
 - 3.2 Access the camera
-

3. Connect to the camera

3.1 IP Setting Software

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



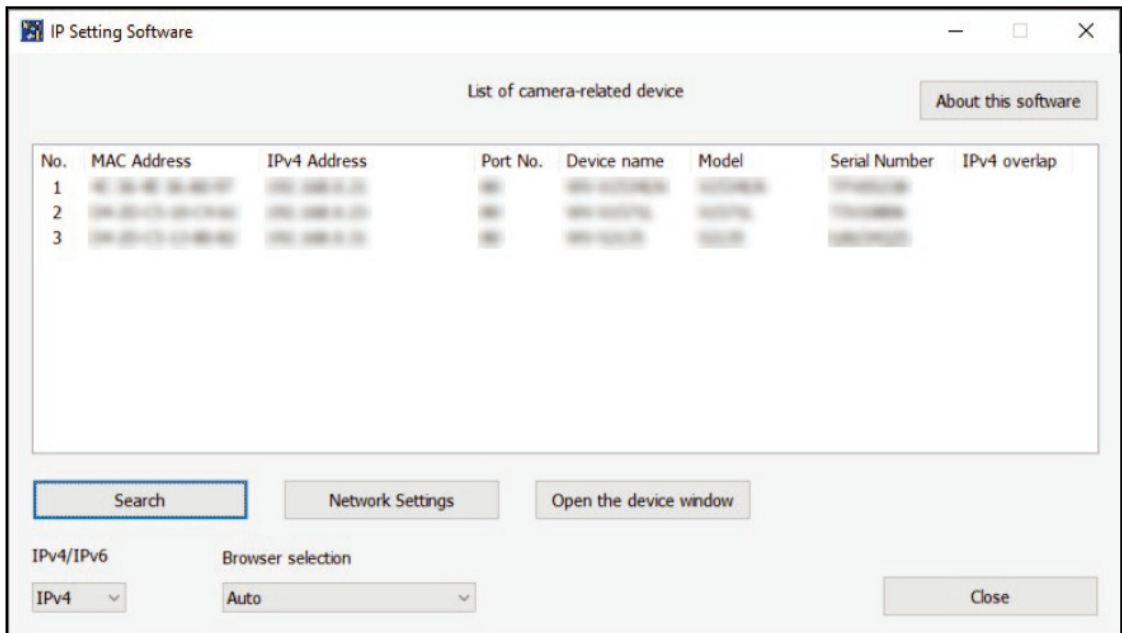
Refer to the following for details on the IP Setting Software.

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

3.2 Access the camera

- (1) Launch an IP Setting Software
 - The model number and MAC address of the detected camera are displayed.
 - The default setting for the [Network Settings] of the PTZ and multi parts is [DHCP].
- (2) Double-click the camera's IP address
 - The browser starts and the administrator registration screen is displayed.
 - Double-click the IP address of the PTZ part and the IP address of the multi part.
Administrator registration is required for each camera.

- 3. Connect to the camera
 - 3.2 Access the camera
-



- (3) Enter administrator username and password
 - Enter the username and password in both the PTZ and multi parts.
 - When [Set both cameras] is checked, the information entered in either the PTZ part or the multi part is set to both cameras.

- 3. Connect to the camera
 - 3.2 Access the camera
-

Administrator registration

The initial setup of the administrator name and password is required on this screen.
Manage them safely and be sure not to forget them.

Perform the initial setting of both the PTZ camera and the multi-directional camera.

Set to both cameras

<p>PTZ Camera</p> <p>User name (1 to 32 characters)</p> <input type="text"/>	<p>Multi-directional camera</p> <p>User name (1 to 32 characters)</p> <input type="text"/>
<p>Password (8 to 32 characters)</p> <input type="password"/>	<p>Password (8 to 32 characters)</p> <input type="password"/>
<p>Retype password</p> <input type="password"/>	<p>Retype password</p> <input type="password"/>

Note:

- (1) If you want to operate the PTZ camera and multi-directional camera in cooperation with screen clicking or alarm notification, Set the same user name and password on both cameras.
- (2) Distinguish between upper- and lower cases.
- (3) Entry of the following is not allowed as a user name: 2-byte characters, and 1-byte symbols " & ; ¥
- (4) Entry of the following is not allowed as a password: 2-byte characters, and 1-byte symbols " &
- (5) For the password, use three or more types of characters from upper- and lowercase alphabetic characters, numbers, and symbols.
- (6) Keep the user name and password at hand so as not to lose.
- (7) It is recommended to change the password periodically.
- (8) Set the password which does not include the user name.

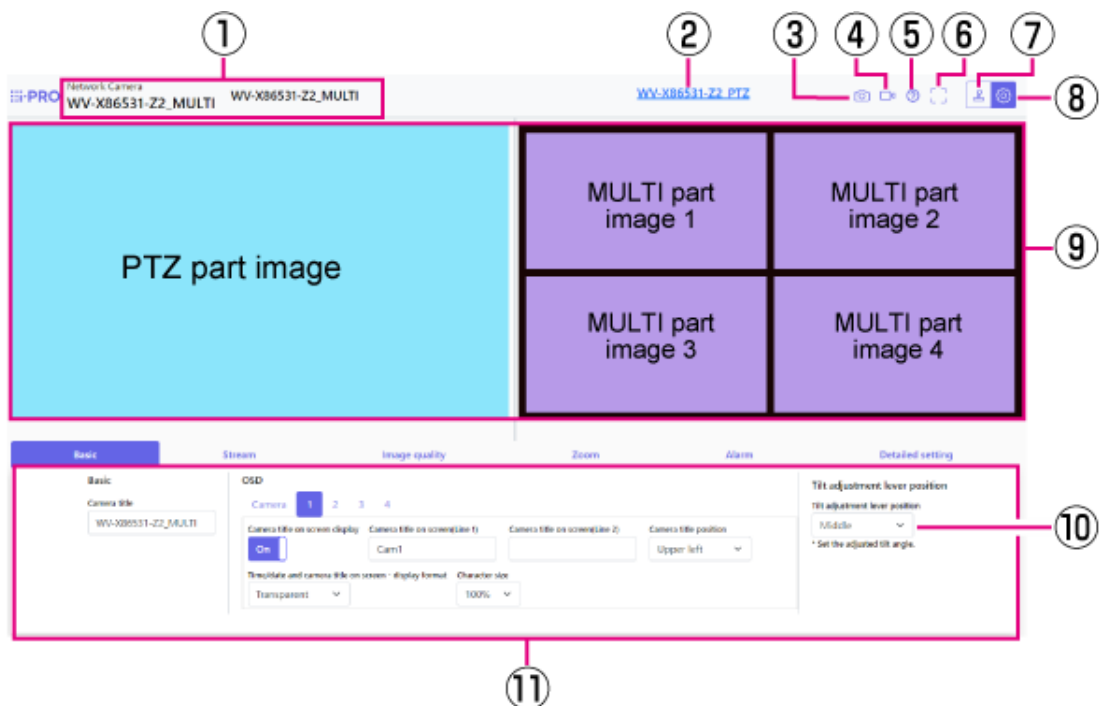
- (4) Set the language, date and time, and screen
 - You can set the language and date and time and change the background color of the screen and the layout of the operation panel.
- (5) Click [Set]
 - The Installation Settings window is displayed.

- 3. Connect to the camera
 - 3.3 About live image pages
-

- (6) Select the position of the TILT adjustment lever set when the camera is installed.
 - Live image pages are displayed.

3.3 About live image pages

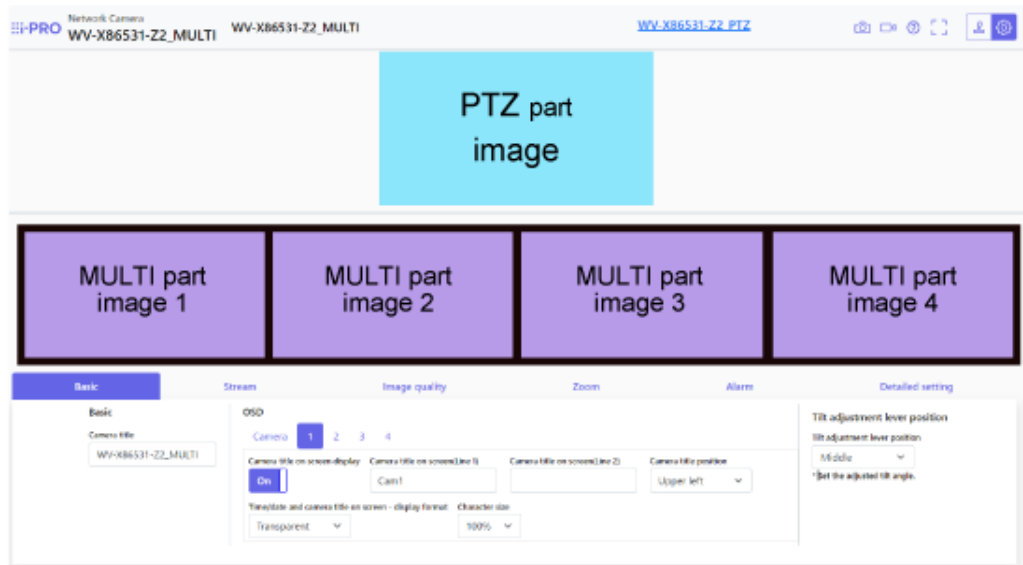
3.3.1 Live image page in the multi part



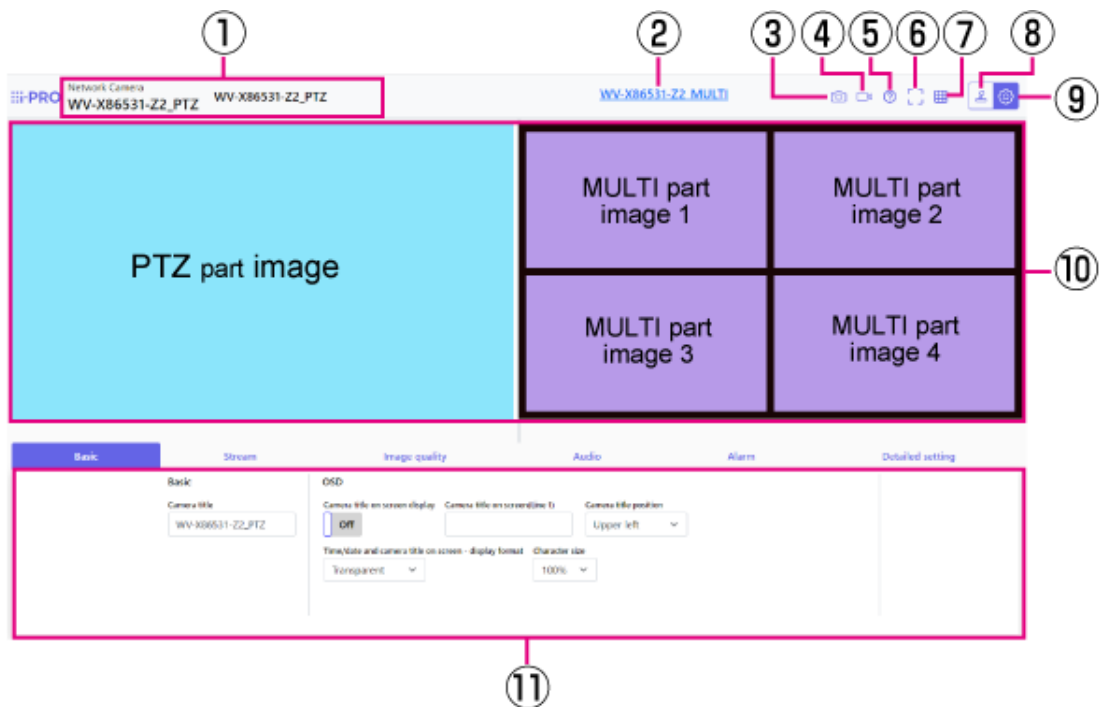
- ① The currently selected camera is displayed.
- ② PTZ part switching button
- ③ Snapshot button
- ④ Stream selection display button
- ⑤ Support button
- ⑥ Full Screen View button
- ⑦ Camera control panel display button
- ⑧ [Set] button
- ⑨ Main area
- ⑩ [Tilt adjustment lever position] can be used to change the position of the TILT levers.
- ⑪ Basic settings are available on the [Basic] tab.

- 3. Connect to the camera
- 3.3 About live image pages

When the layout is [Up/Down] (multi part)



3.3.2 Live image page in the PTZ part



- ① The currently selected camera is displayed.
- ② Multi part switching button
- ③ Snapshot button

3. Connect to the camera
3.3 About live image pages

- ④ Stream selection display button
- ⑤ Support button
- ⑥ Full Screen View button
- ⑦ [Grid display] button
- ⑧ Camera control panel display button
- ⑨ [Set] button
- ⑩ Main area
- ⑪ Basic settings are available on the [Basic] tab.

When the layout is [Up/Down](PTZ part)



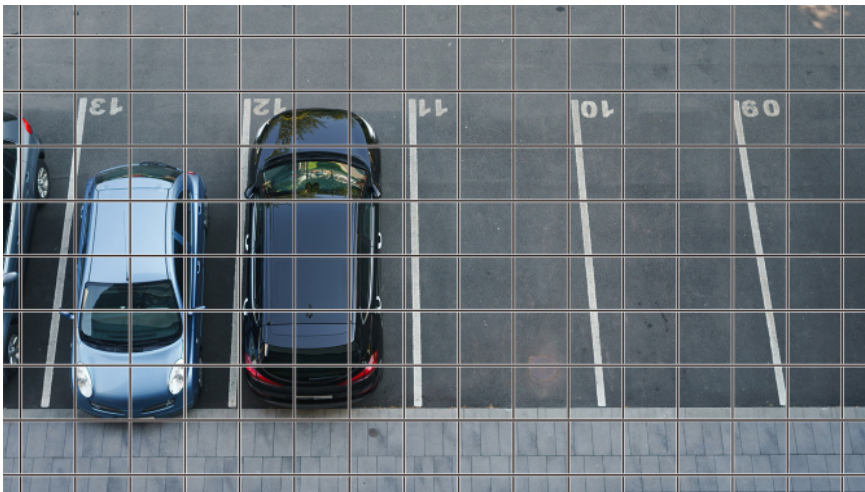
If you set the layout for both the PTZ and multi part live images, you should use only one browser for viewing. If you use multiple browsers, the operation may become unstable.

4. Set the camera

4.1 Check whether the object is of the appropriate size

When using our function extension software, you can check the number of grids to see if the size is adequate to recognize the object.

→[For more information about the recommended size of the extension software](#)



4.2 Hide some of the images

You can set the area you do not want to display during shooting as a privacy zone.

- See the following for how to set up the PTZ part.
→[Hide some of the images](#)
- Refer to the following for the setting method of the multi part.
→[Hide some of the images](#)

4.3 Adjust the image quality

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

4.3.1 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 page setup panel>Clicking the [Image quality] tab enables you to set the image quality.

(1) Select [Light control mode]

- For outdoor installation: Set [Outdoor scene] or [ELC].
- For indoor installation: Set [Indoor scene(50Hz)] or [Indoor scene(60Hz)].
50 Hz/60 Hz can be used differently depending on the region.



[Fix shutter] is not used under normal circumstances.

4.3.2 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 page setup panel>[Detailed setting]>[Camera detailed setting]>[Image] or [Image/Audio] in the Advanced menu on the left>[Image adjust] in the [Image quality] tab>Click [Setup] to display the image quality adjustment setting screen.

(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.

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 about 2000 K to 10000 K.



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

- Mostly dark colored objects
- Clear blue sky or the sun at dusk
- Object with very low illumination

4.3.3 Sets night time black-and-white switching mode

Use [Choose black-and-white] to set the mode suitable for night shooting conditions.

➤ Live image page setup panel > Clicking the [Image quality] tab enables you to set the image quality.

(1) Select [D&N]

- Select from [Off], [Auto1(Normal)], and [Auto2(IR Light)].

[Off]

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

[Auto1(Normal)]

The color image and black-and-white image are automatically switched depending on the brightness (illumination) of the image. Select this when IR-LED is not used.

[Auto2(IR Light)]

The color image and black-and-white image are automatically switched depending on the brightness (illumination) of the image. Select this when using the IR-LED.

[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.

4.4 Recording setting (SD Memory Card)

4.4.1 Install the SD Memory Card

- (1) Remove the enclosure
- (2) Insert a microSD memory card into the slot



Use the SD Memory Card formatted on this unit.



To remove the SD Memory Card, select [SD memory card] [Not use] from the [Basic] > [SD memory card] tabs in the Advanced menu. Remove the SD Memory Card.

4.4.2 Record using SD Memory Card

Set the schedule type to [SD memory recording] and record on an SD. This section describes the procedures for turning [Save trigger] to [Manual save].

Refer to the following for how to mount the SD card.

→[Install the SD Memory Card](#)

➤ Live image page setup panel > [Detailed setting] > [Camera detailed setting] > [Display] > Advanced Menu > [Basic] > When [SD memory card] is clicked, the SD Memory Card setup page is displayed.

- (1) Select [Recording format] streams
- (2) Select [Save trigger] and click [Set].
- (3) Click [Live] in the upper left corner and click the camera control panel button.
 - The camera control panel is displayed.
- (4) Click [Start] on [Rec. on SD]

- Start recording to the SD Memory Card manually.
- You can stop recording by clicking [Stop]. After stopping, you can resume recording by clicking [Start].



- The SD Memory Card cannot be used when the imaging mode of the PTZ is [16:9 mode (60 pfs mode/50 fps mode)].
- There are separate SD Memory Cards and Setting windows for the multi and PTZ part.

4.4.3 Play back images stored on the SD Memory Card

You can play back images stored on the SD Memory Card.

- Camera control panel of the live image page>Clicking [Playback of recording (Log disp.)] displays the log list.
 - (1) Display the live image page and click the camera control panel button.
 - (2) Click the [Log/Play] [Start] button
 - The Log List screen is displayed in a separate window.
 - (3) Click the shooting date and time displayed below [Time]
 - The playback page is displayed and the saved image is played.

4.5 Set up events

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

- Live image page setup panel>[Detailed setting]>[Camera detailed setting]>[Set]>Advanced Menu>[Easy Setup]>Clicking on the [Event action] tab displays the configuration page.



- Refer to the User manual for the event setup procedure.
- Refer to the User manual for instructions on how to configure Internet disclosure.

4.5.1 Detect the movement of the object

When an alarm is activated, the camera operates as configured. The alarm has a pattern that

4. Set the camera

4.6 Set the integrateion between the PTZ and multi part

detects the movement of the specified area or when the camera is blocked.

- Live image page setup panel>[Detailed setting]>[Camera detailed setting]>[Display]>Advanced Menu>Clicking [Alarm] displays the configuration page.



Refer to the user manual for details of all alarms.

4.5.1.1 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.



- (1) (PTZ only)Select the preset position number to be set for the motion detection area and click [Start].
 - The Set Operation Detection Area screen is displayed.
- (2) Drag in 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 click [Set].

4.6 Set the integrateion between the PTZ and multi part

4.6.1 AI-VMD and PTZ integration

When the multi section detects moving objects such as people and cars with AI-VMD, the PTZ part automatically moves the angle of view and starts automatic tracking.

4. Set the camera

4.6 Set the integrateion between the PTZ and multi part

The URL of the movie is as follows.

<https://youtu.be/hUY1xJ18PdU>

➤ Live image page setup panel>[Detailed setting]>[Camera detailed setting]>[Ext. software] in the Advanced menu on the left>Clicking [Setup >>] in [AI-VMD (Camera 1)], [AI-VMD (Camera 2)], [AI-VMD (Camera 3)], and [AI-VMD (Camera 4)] displays the setting window.

(1) Click [Ext. software] in the Advanced menus

(2) Select the camera you want to set from [AI-VMD (camera 1)], [AI-VMD (camera 2)], [AI-VMD (camera 3)], and [AI-VMD (camera 4)], and click [Setup >>].

- The AI-VMD setting screen is displayed.

(3) Select [Detection mode] in [1.Area setting] and set up detection areas.

(4) Click [2.Detailed setting] to set the detection sensitivity, detection time, and size of the person to be detected.



- The maximum detection area is 8 areas x 4 cameras.

- It is recommended to widen the detection area. If the detection area is narrow, it may not be tracked.

4.6.2 Manual integration

The angle of view of the PTZ part can be automatically moved to the position where you clicked in the multi part.

The URL of the movie is as follows.

<https://www.youtube.com/watch?v=FANAOpd9WHQ>

(1) Select the desired part by dragging or clicking on the multi part screen of the live image page.

- The PTZ part aligns the angle of view with the selected part and is displayed on the screen.



Refer to the User manual for details.

4.7 Enhance communication security

Setting up HTTPS encrypts camera access and enhances communication security.

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

4.8 Detect data falsification

If you set Falsification Detection, you can detect falsified data on the SD Memory Card using the dedicated software.

Refer to the following support video for how to set up falsification detection.

→[Support video](#)

4.9 Set the resolution and frame rate

➤ Live image page setup panel>[Stream] tab>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.

→[Image capture mode and Image capture size](#)

4.10 Set the overlay image function

You can specify the position to overlay the uploaded image or specify the color to be transmitted. In models that support SD Memory Card recording, the overlay displayed images are recorded during recording.

Refer to the User manual for details on how to configure the settings.

- Live image page setup panel>[Detailed setting]>[Camera detailed setting]>[Basic] in the Advanced menu on the left>Configure in the [Overlay image] tab.
- (1) Select an image with [Overlay] set to [On].
- (2) Set [Position], [Permeation], and [Selection of color to be penetrated]
- (3) Click [Set]

4.11 Set the image stream

4.11.1 About the Setting of Stream

You can configure whether to deliver streams, whether to use H.265 or H.264 compression, and what resolution, image quality, and streaming method to use.

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

4.11.2 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:**

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

- **Variable bit rate:**

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 quality]. At this time, the bit rate is varied within the maximum bit rate set by [Max bit rate (per client) *]. The recording capacity varies depending

on the [Image quality] settings and object conditions.

- **Specify Frame Rate:**

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

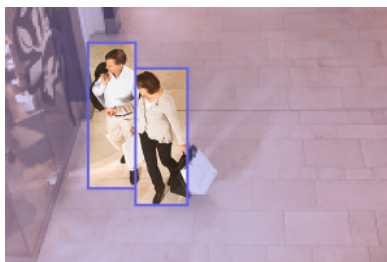
- **Best effort delivery:**

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

4.11.3 Reducing Data Capacity with Smart Coding

Smart coding is a data compression technology that minimizes compression to clearly capture a person's face, high compression to the background, and optimises compression by the object.

- Live image page setup panel > [Detailed setting] > [Camera detailed setting] > [Image] or [Image/Audio] in the Advanced menu on the left > Clicking [Image] displays the Smart Coding configuration.



This image is for reference. It 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 high quality. 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.

4.12 i-PRO Configuration Tool (iCT)

This is a tool for managing the image monitoring system in one place.



For more information about i-PRO Configuration Tool (iCT), see the following.

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

5. Set the camera (PTZ part)

5.1 Adjust the zoom/focus

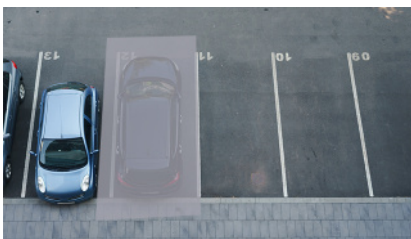
You can manually or automatically adjust the zoom or focus of the displayed image.

- You can set zoom and focus by clicking the [Camera control] buttons on the live image page.
 1. Configure [Zoom], [Focus], and [Displays the auto focus frame] on the [PTZ] tab
 - 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.

5.2 Hide some of the images

If you set an area to be hidden, you can move the camera's field of view while keeping the area hidden.

- Live image page setup panel > [Detailed setting] > [Camera detailed setting] > [Image/Audio] in the Advanced menu on the left > [Privacy zone] in the [Image quality] tab > Click [Setup] to open the Privacy Zone Setting window.



- (1) Select the [Privacy zone] view format
- (2) Select the number of zones you want to set in [Zone No].
- (3) Drag the desired area with the mouse and click the [Set] button.
 - The privacy zone is set.

5.3 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 page setup panel>[Detailed setting]>[Camera detailed setting]>Clicking [PTZ] in 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 click [Set].

5.4 Set the camera operation

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

- Live image page setup panel>[Detailed setting]>[Camera detailed setting]>When [PTZ] is clicked in the Advanced menu on the left, the settings pages for the respective function is displayed.

5.4.1 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 page setup panel>[Detailed setting]>[Camera detailed setting]>[PTZ] in the Advanced menu on the left>[Position] tab>To Advanced Settings on the right-hand side of the [Pan/tilt range setting]>>Click [Click] to display the setting page.

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



The [Left end] angle should be smaller than the [Right end] angle and the [Bottom end] angle should be larger than the [Top end] angle. If [Upside-down] is set to [On], the [Bottom end] angle must be less than the [Top end] angle.

5.4.2 Move the camera automatically

The selected action can be started from the [Auto mode] on the [PTZ] pane of the live image

page. Settings for each operation are made from the Advanced menu.

5.4.2.1 Automatically track and shoot objects

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

➤ Live image page setup panel>[Detailed setting]>[Camera detailed setting]>[PTZ] in the Advanced menu on the left>Clicking on the [Auto track setting] tab 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.

5.4.2.2 Shoot automatically in the PAN direction

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

➤ Live image page setup panel>[Detailed setting]>[Camera detailed setting]>[PTZ] in the Advanced menu on the left>[Position] tab>To Advanced Settings in [Auto pan]>>Click the [Auto Pan] button to open 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].

5.4.2.3 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 page setup panel>[Detailed setting]>[Camera detailed setting]>[PTZ] in the Advanced menu on the left>[Position] tab>To Advanced Settings in [Preset sequence setting]>>Click the [button] to display the preset sequence setting window.

- (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.

5.4.2.4 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 page.

➤ [Set] of live image pages>[Detailed setting]>[Camera detailed setting]>[PTZ]>[Position]>To Advanced Settings in [Patrol]>>Click this button to display the setting screen of the patrol.

- (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 contents registered in the advanced settings can be changed on the live image page.

5.5 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 page setup panel>[Detailed setting]>[Camera detailed setting]>[Display]>Advanced Menu>[Alarm]>Clicking on the [Audio detection] tab displays the configuration pages.



For more information about AI Sound Classification, see below.
→[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.



For validated external microphones, see below.
→[Verification result of external microphones](#)

5.6 Record sound

Audio data can be recorded to SD recording when an alarm is detected.

- (1) Select whether to record audio data in the SD recording setting screen.
 - [On] : Audio data is saved in videos (MP4 format).
 - [Off]: Audio data is not saved in videos (MP4 format).

6. Setting Camera (Multi part)

6.1 Hide some of the images

- Live image page setup panel>[Detailed setting]>[Camera detailed setting]>[Image] in the Advanced menu on the left>[Privacy zone] in the [Image quality] tab>Click [Setup] to open the Privacy Zone Setting window.



- (1) Select the camera for which you want to set the privacy zone in [Camera selection].
- (2) On the image, specify four vertices of the area you want to hide and click [Set].
 - Privacy zones are set in order from Area 1.
- (3) Select [Status] to view privacy zones
 - Set up the privacy zone in [On]/[Off].

7. Clean up



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

7.1 Cleaning of lenses



- Clean with lens cleaning paper (for cleaning cameras and eyeglasses).
- Alcohol should be used when solvents are used. Do not use glass cleaners or thinners.

7.2 Cleaning of Dome covers



- If the Dome covers are dirty, clean them with lens cleaning paper (for cleaning cameras and eyeglasses).

8. Specifications

8.1 PC environment required

CPU:	Intel®Core™ processor family -Intel®Core™ i5-6500 or more -Intel®Recommended at least Core™ i7-6700
Memory:	Recommended at least 4 GB (2 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 : 1024 x 768 pixels or more 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)

8.2 Image capture mode and Image capture size



- The bit rate of streams is restricted to [Bandwidth control(bit rate)] on the [Network] tab of the network page.
- It is recommended that the bit rate of the stream be set to 8192 kbps or less for all the cameras in the multi part. The same applies to cameras in the PTZ part. If the value is larger than 8192 kbps, a recording continuity error may occur due to the writing speed of the SD cards in the multi and PTZ part.
- When 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

8. Specifications

8.2 Image capture mode and Image capture size

used, the bit rate may be lower than the set value. Confirm the image delivered after setting.

8.2.1 Resolution (PTZ part)

Resolution of the PTZ part. The initial value is underlined.

Image capture mode	Stream (1)	Stream(2)	Stream(3)	Stream(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 5(4.2) 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 5(4.2) fps ^{*1}
4:3(30fps)	1280x960	1280x960			1280x960	
4:3(25fps)	VGA	VGA	VGA	VGA	VGA	VGA
	QVGA	QVGA	QVGA	QVGA	QVGA	
	Max 30(25) fps	Max 30(25) fps	Max 30(25) fps	Max 30(25) fps	Max 5(4.2) fps ^{*1}	Max 5(4.2) fps ^{*1}
4:3(15fps)	2048x1536				2048x1536	
4:3(12.5fps)		1280x960			1280x960	
		VGA	VGA	VGA	VGA	VGA
		QVGA	QVGA	QVGA	QVGA	
	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 5(4.2) fps ^{*2}

*1 If [Off] is selected with [Stream transmission], the maximum frame rate is 30 fps (25 fps).

*2 If [Off] is selected with [Stream transmission], the maximum frame rate is 15 fps (12.5 fps).

8. Specifications

8.2 Image capture mode and Image capture size

8.2.2 Resolution (Multi part)

This is the resolution of the multi part. The initial value is underlined.

Image capture mode	Stream(1)	Stream(2)	JPEG(1)
16:9(15fps)	3072x1728		3072x1728
16:9(12.5fps)	2560x1440		2560x1440
	1920x1080		1920x1080
		1280x720	1280x720
		640x360	640x360
		320x180	320x180
	Max 15(12.5) fps	Max 15(12.5) fps	Max 5(4.2) fps*2
16:9(15fps) Quad mode	3072x1728		3072x1728
16:9(12.5fps) Quad mode	2560x1440		2560x1440
	1920x1080		1920x1080
		1280x720	1280x720
		640x360	640x360
	Max 15(12.5) fps	Max 15(12.5) fps	Max 5(4.2) fps*2
<u>4:3(15fps)</u>	3072x2304		3072x2304
4:3(12.5fps)	<u>2560x1920</u>		2560x1920
		<u>VGA</u>	<u>VGA</u>
		QVGA	QVGA
	Max 15(12.5) fps	Max 15(12.5) fps	Max 5(4.2) fps*2
4:3(15fps) Quad mode	3072x2304		3072x2304
4:3(12.5fps) Quad mode	2560x1920		2560x1920
		1280x960	1280x960
		VGA	VGA
	Max 15(12.5) fps	Max 15(12.5) fps	Max 5(4.2) fps*2

*1 When Image capture size is 3072 x 1728 (3072 x 2304), the refresh interval is limited to 1 fps max. and when Image capture size is 2560 x 1440 (2560 x 1920), the refresh interval is limited to 2 fps max. (2.1 fps).

*2 If [Off] is selected with [Stream transmission], the maximum frame rate is 15 fps (12.5 fps).

8.2.3 Restrictions

PTZ part

Image capture mode	SD recording	Extension software	Intelligent Auto	Smart coding	Automatic tracking
16:9(60/50fps)	No	No	Yes	Yes	No
16:9(30/25fps)	Yes	Yes	Yes	Yes	Yes
4:3(30/25fps)	Yes	Yes	Yes	Yes	Yes
4:3(15/12.5fps)	Yes	No	Yes	Yes	No

Multi part

Image capture mode	SD recording	Extension software	Intelligent Auto	Smart coding
16:9(15/12.5 fps)	Yes	Yes* ²	Yes	Yes* ²
16:9(15/12.5 fps) Quad mode	Yes	Yes* ²	Yes	Yes* ²
4:3(15/12.5 fps)	Yes	Yes* ²	Yes	Yes* ²
4:3(15/12.5 fps) Quad mode	Yes	Yes* ²	Yes	Yes* ²

*1 H.265/H.264:15 fps is limited to 7.5 fps max. and 12.5 fps to 6.25 fps max.

*2 JPEG: 15 fps is limited to 7.5 fps max. and 12.5 fps to 6.25 fps max, when [Off] is selected for [Stream transmission].

8.3 DORI

	Multi part		PTZ part	
	WIDE	TELE	WIDE	TELE
Detect (25 ppm/8 ppf)	45.1 m	147.7 m	51.9 m	1293.8 m
	148.0 ft	484.6 ft	170.3 ft	4244.9 ft
Observe (62.5 ppm/19 ppf)	18.0 m	59.1 m	20.8 m	517.5 m
	59.2 ft	193.8 ft	68.1 ft	1697.9 ft
Recognize (125 ppm/38 ppf)	9.0 m	29.5 m	10.4 m	258.8 m
	29.6 ft	96.9 ft	34.1 ft	849.0 ft
Identify (250 ppm/76 ppf)	4.5 m	14.8 m	5.2 m	129.4 m

8. Specifications

8.6 About the Function Extension Software Available

ppm/76 ppf)	14.8 ft	48.5 ft	17.0 ft	424.5 ft
-------------	---------	---------	---------	----------

8.4 Delivery Performance (PTZ part)

- Up to 14 users can access the PTZ part at the same time.
- The maximum bandwidth is 50 Mbps.

8.5 Delivery Performance (Multi part)

- Up to 24 users can access the multi part at the same time.
- The maximum bandwidth is 200 Mbps.

8.6 About the Function Extension Software Available

This is information about the number of pre-installed extended software and their capacities.

	Number of applications installed	App capacity (ROM capacity)	App capacity (RAM capacity)
Multi part	4	150 MB	200 MB
PTZ part	2	100 MB	100 MB (*RAM Extended mode ON: 150 MB)



For information on the latest software and restrictions during use, refer to the Technical information website(C0103).

→[Technical information website](#)

PTZ part

App name	Pre-installed	Support status
AI-VMD	Yes	Supported
AI Privacy Guard	No	Supported
AI Face Detection	No	Supported
AI People Detection	Yes	Supported

8. Specifications

8.6 About the Function Extension Software Available

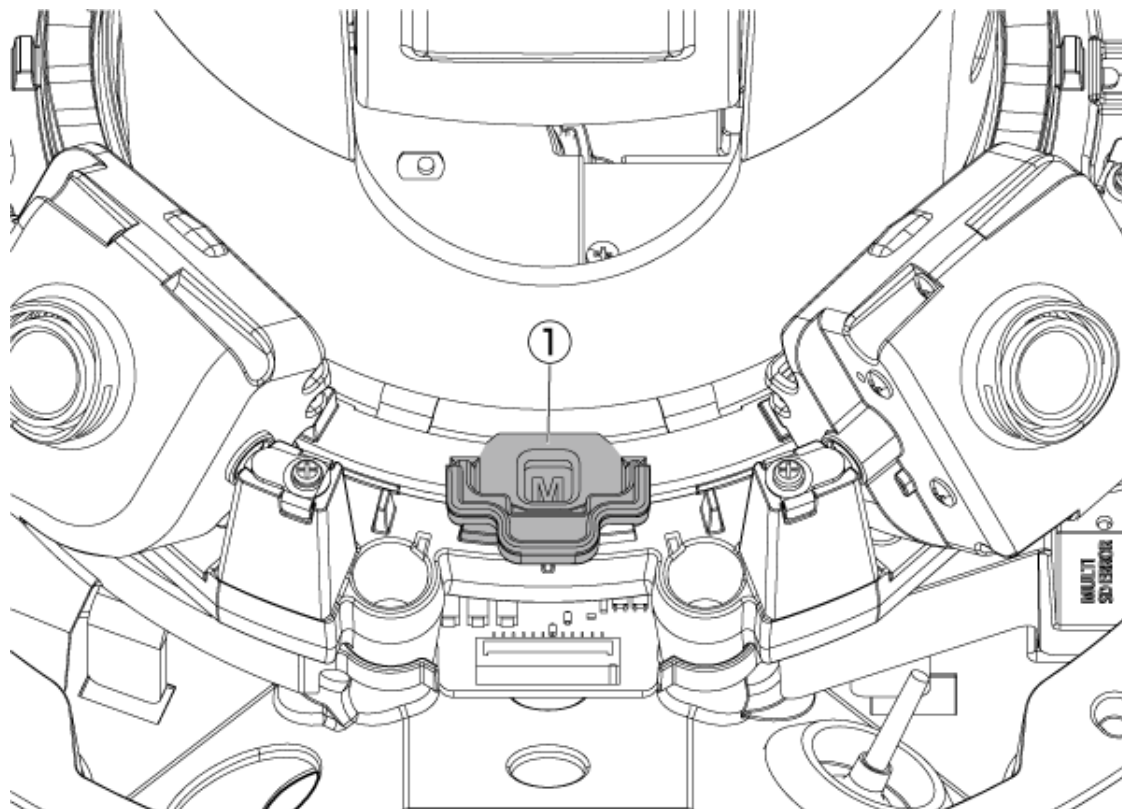
PTZ part (*continued*)

AI Vehicle Detection	No	Supported
AI Non-Mask Detection	No	Supported
AI Occupancy Detection	No	Supported
AI Scene Change Detection	No	Supported

Multi part

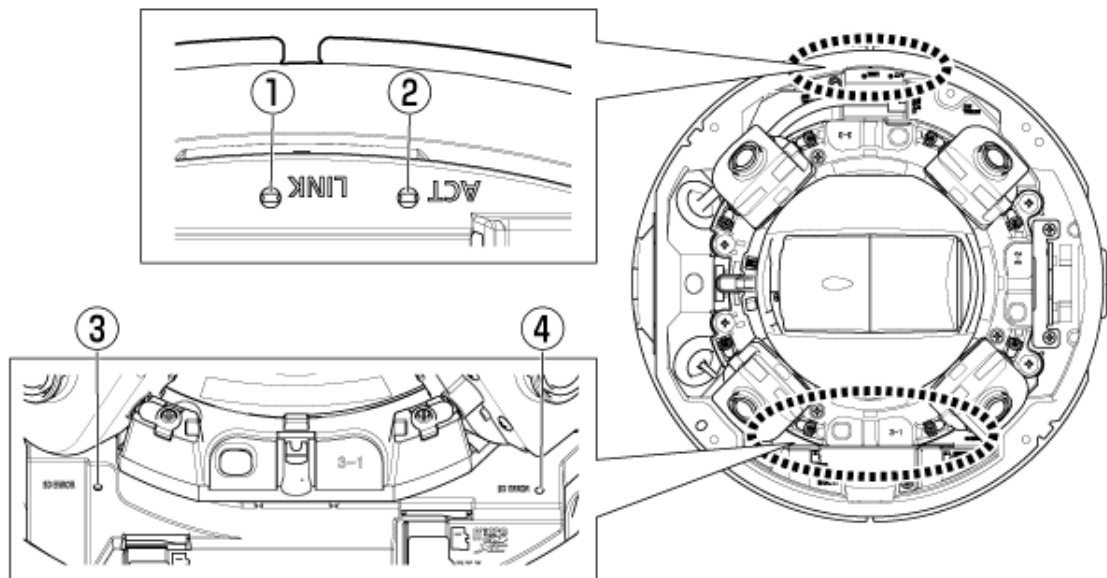
App name	Pre-installed	Support status
AI-VMD	Yes	Supported
AI Privacy Guard	No	Not supported
AI People Detection	No	Supported
AI Face Detection	No	Supported
AI Vehicle Detection	No	Supported
AI Non-Mask Detection	No	Supported
AI Occupancy Detection	No	Supported
AI Scene Change Detection	No	Supported

8.7 TILT adjusting lever



① TILT adjusting lever

8.8 Lamp



- ① LINK lamp
- ② ACT lamp
- ③ Multi part SD/ERROR lamps
- ④ PTZ part SD/ERROR lamps

8.9 Lighting of the lamp

LINK lamp

When communication with connected devices becomes possible

- Orange LED is ON

ACT lamp

When the computer is sending and receiving data

- Green LED is flashing (accessed)

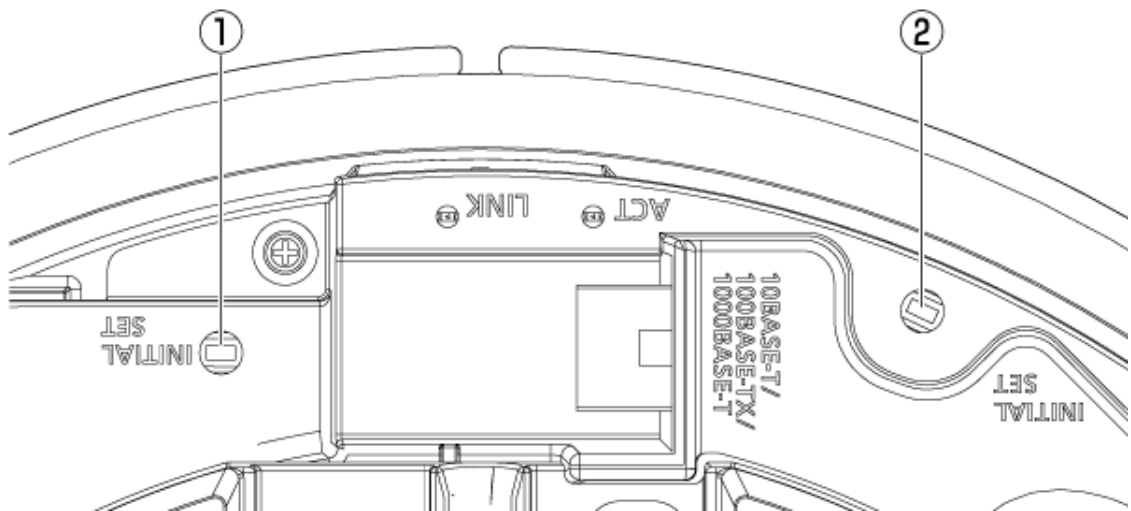
SD ERROR lamp

- Machine is running
 - Red ON
- When the SD Memory Card is successfully recognized
 - Red LED is ON → OFF
- If the SD slot is not used or an SD Memory Card error is detected after startup
 - Red ON



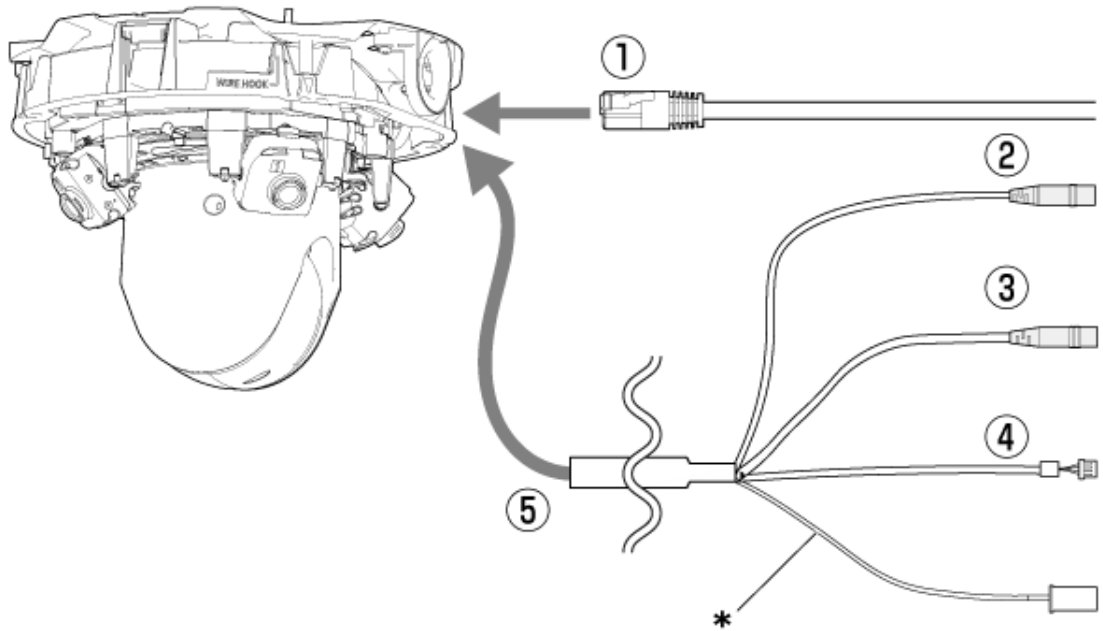
For more information about lamps, refer to the User manual.

8.10 Button



- ① INITIAL SET Button (Multi part)
- ② INITIAL SET Button (PTZ part)

8.11 Cable



* This cable is not used. Waterproof it with the other cables.

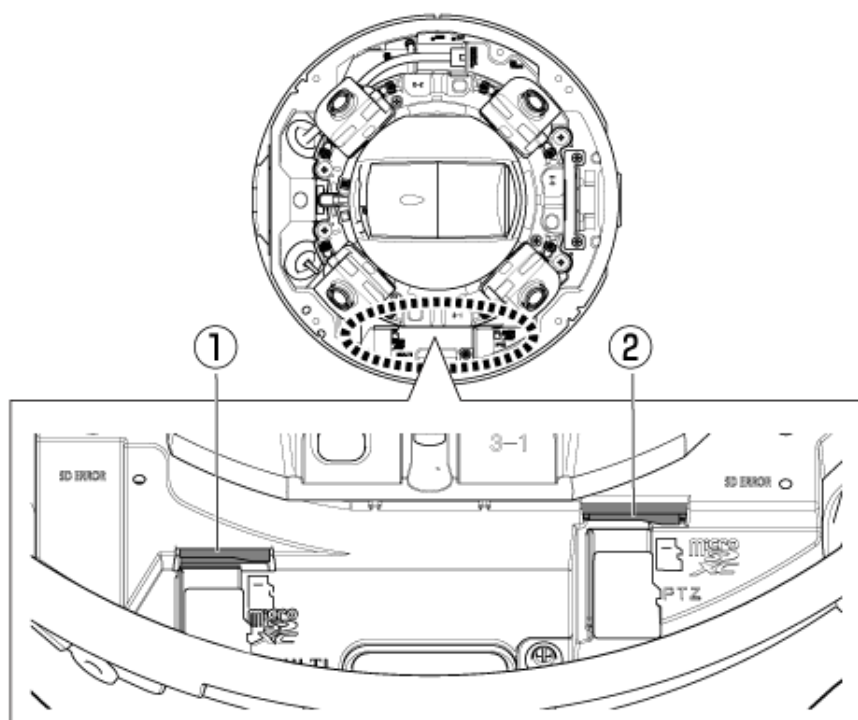
- ① RJ45 network cable
- ② Audio input cable (white)
- ③ Audio output cable (black)
- ④ External I/O cable
- ⑤ I/O Cable (optional)

8.12 MicroSD memory card slot

The microSD Memory Card is inserted into the slots of the PTZ and multi parts.

8. Specifications

8.12 MicroSD memory card slot



① MicroSD slot (multi part)

② MicroSD slot (PTZ part)

9. Other

9.1 Initialize

Press the INITIAL SET button to initialize the main unit. See below for the position of the INITIAL SET button.

→[Button](#)

- (1) Disconnect the Ethernet cable from the computer and turn off the computer.
- (2) Turn on the computer while pressing the [INITIAL SET] button.
- (3) [INITIAL SET] button holds pressing for 15 seconds or more after power is turned on
- (4) Release the [INITIAL SET] button
 - Approximately two minutes later, the computer is started and the settings containing the network settings are initialized. If it does not start normally, try again.



Initialize one at a time. It is OK to initialize either the PTZ part or the multi part first.

9.2 About 802.1X of this unit

When using the 802.1X function, use a switch that allows multiple supplicants to connect to a single port. For details, refer to the following.

→[Our technical information website \(C0141\)](#)

9.3 Check the software version

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

- Clicking on the Live image pages Settings panels > [Detailed setting] > [Camera detailed setting] > [Maintenance] > [Upgrade] tabs in the Advanced menus to the left will bring up a window with versions.
- (1) Check software versions with [Firmware version]
 - You can check the current software version.



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

9.4 Upgrade software

- Clicking on the Live image pages Settings panels > [Detailed setting] > [Camera detailed setting] > Advanced menu [Maintenance] > [Upgrade] tab on the left will bring up the software-upgrade window. The available screen is displayed.

To upgrade the software, follow the procedure below. Refer to the user manual for details.

- (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 the machine to upgrade the version.
- Do not turn off the computer 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.



The PTZ part and the multi part are different firmware. Update each firmware individually when updating.

Also, the PTZ and multi part versions must be the same.

9.5 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.

9. Other

9.6 Adjust brightness of the object (bright scene)

- (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.

9.6 Adjust brightness of the object (bright scene)

9.6.1 Adjust brightness

Adjust the brightness of the object.

- Live image page setup panel>Clicking the [Image quality] tab enables you to set the image quality.

- (1) Adjust the [Brightness] of [Image quality]
 - Moving in the [+] direction brightens the image.
 - Moving in the [-] direction darkens the image.

[-]

Darkens the
image

[+]

brightens the
image

9. Other

9.7 Adjust the brightness of the object (dark scene)



[Image quality] in the multi part live image page>[Brightness] cannot be set when [Common(Cam. 1-2)] is selected in [Camera selection]. To configure [Brightness], select anything other than [Common(Cam. 1-2)].

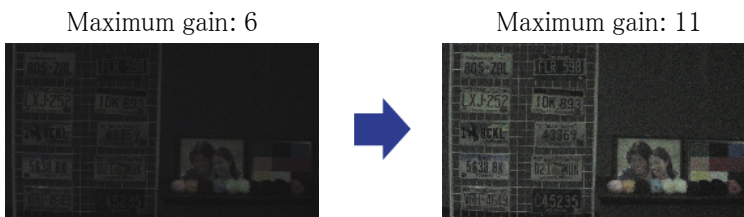
9.7 Adjust the brightness of the object (dark scene)

9.7.1 Adjust the maximum gain

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

➤ Live image page setup panel>Clicking the [Image quality] tab enables you to set the image quality.

(1) Adjust the [Maximum gain] to [+]



- Increasing the maximum gain increases noise.
- [Image quality] in the multi part live image page>[Maximum gain] cannot be set when [Common(Cam. 1-2)] is selected in [Camera selection]. To configure [Maximum gain], select anything other than [Common(Cam. 1-2)].

9.7.2 Adjust the maximum exposure time

Increasing the maximum exposure time brightens the image.

➤ Live image page setup panel>Clicking the [Image quality] tab enables you to set the image

9. Other

9.8 Reduce white flickering and blacking on the screen

quality.

(1) Select [Maximum shutter] of [Light control mode]

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



- Increasing the maximum exposure time increases blurs.

- [Image quality] in the multi part live image page > [Maximum shutter] cannot be set when [Common(Cam. 1-2)] is selected in [Camera selection]. To configure [Maximum shutter], select anything other than [Common(Cam. 1-2)].

Maximum shutter: 1/30



Maximum shutter: 4/30



9.8 Reduce white flickering and blacking on the screen

9.8.1 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.

➤ Live image page setup panel > Clicking the [Image quality] tab 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 bright areas on the screen

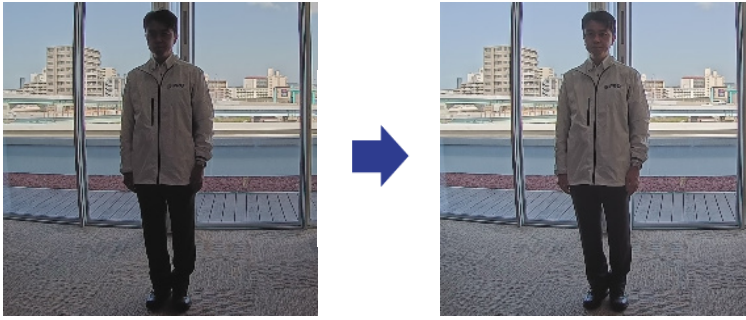
Super Dynamic: Off

Superdynamic:

On-crlf-Level: 28

9. Other

9.8 Reduce white flickering and blacking on the screen



9.8.2 Set the back light compensation

Setting [Back light compensation] prevents black clipping of the object indoors in an outdoor environment where strong light enters (brightens the object indoors).

- Live image page setup panel>[Detailed setting]>[Camera detailed setting]>[Image] or [Image/Audio] in the Advanced menu on the left>[Image adjust] in the [Image quality] tab> Click [Setup] to display the image quality adjustment setting screen.

- (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 compensation:
Off



Back light compensation:
On
Level: 16



9.8.3 Set the high light compensation

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

9. Other

9.8 Reduce white flickering and blacking on the screen

- Live image page setup panel>[Detailed setting]>[Camera detailed setting]>[Image] or [Image/Audio] in the Advanced menu on the left>[Image adjust] in the [Image quality] tab> Click [Setup] to display the image quality adjustment setting screen.

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



If [Super Dynamic] is set to [On] or [Intelligent Auto] is set to [On], it cannot be set to [High light compensation(HLC)].

High light Compensation:
Off



High light Compensation:
On

Level: 31



9.8.4 Adjust the adaptive black stretch

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

- Live image page setup panel>[Detailed setting]>[Camera detailed setting]>[Image] or [Image/Audio] in the Advanced menu on the left>[Image adjust] in the [Image quality] tab> Click [Setup] to display the image quality adjustment setting screen.

- (1) Adjust [Detailed setting] [Adaptive black stretch] level to [+]

Level: 128



Level: 255



9.8.5 Adjust the [Pedestal level]

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

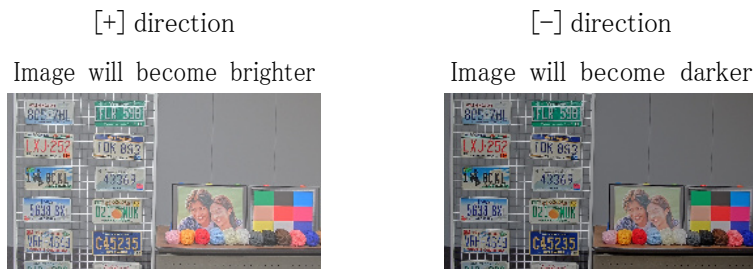
9. Other

9.9 Adjust the contrast of the object

- Live image page setup panel>[Detailed setting]>[Camera detailed setting]>[Image] or [Image/Audio] in the Advanced menu on the left>[Image adjust] in the [Image quality] tab> Click [Setup] to display the image quality adjustment setting screen.

(1) Adjust the [Pedestal level] of the [Detailed setting].

- Moving in the [+] direction brightens the image.
- Moving in the [-] direction darkens the image.



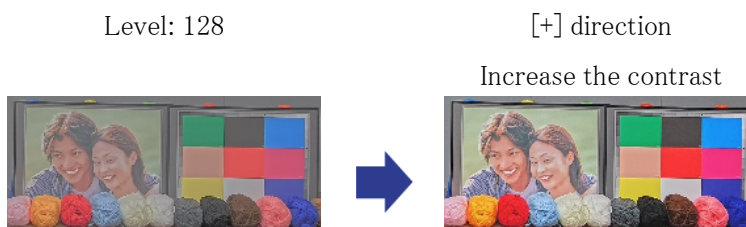
9.9 Adjust the contrast of the object

9.9.1 Adjust the contrast

By adjusting the [Contrast level] and increasing the contrast of the images, you can improve the visibility of the object with less contrast.

- Live image page setup panel>[Detailed setting]>[Camera detailed setting]>[Image] or [Image/Audio] in the Advanced menu on the left>[Image adjust] in the [Image quality] tab> Click [Setup] to display the image quality adjustment setting screen.

(1) Adjust [Detailed setting] [Contrast level] levels to [+]



9.10 Reduce flicker

Flickering is automatically corrected by using [Light control mode].

- Live image page setup panel>Clicking the [Image quality] tab enables you to set the image quality.
- (1) Select [Flickless (50 Hz)] or [Flickless (60 Hz)] for [Light control mode].
 - Use 50 Hz/60 Hz depending on the region.

9.11 Reduce the blur of an object (bright scene)

9.11.1 Set intelligent auto (motion priority level)

By using [Intelligent Auto], the camera identifies objects with movement such as scenes (backlights, outdoors, night scenes, etc.) and faces of people. The camera automatically adjusts the amount, gain, shutter speed, and contrast of light entering the camera from the lens to make it easier to view moving objects.

- Live image page setup panel>[Detailed setting]>[Camera detailed setting]>[Image] or [Image/Audio] in the Advanced menu on the left>[Image adjust] in the [Image quality] tab>Click [Setup] to display the image quality adjustment setting screen.
- (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 is reduced.



Increasing the level in a low illumination environment increases noise.

Off (person
blurred)

On (less blurring)



9.11.2 Adjust the maximum exposure time

Reducing the maximum exposure time reduces blurs.

➤ Live image page setup panel>Clicking the [Image quality] tab enables you to set the image quality.

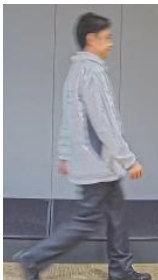
(1) Select a [Light control mode] [Maximum shutter] shorter than [1/30 (default)].

- If [Maximum shutter] is set to a shorter time than [1/30 (default)], blurs will be reduced.



In low illumination environments, the object becomes dark and noise increases when the maximum exposure time is shortened.

Maximum
shutter:
1/30



Maximum
shutter:
1/250



9.12 Redue the blur of an object (dark scene)

9.12.1 Adjust digital noise reduction

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

➤ Live image page setup panel>Clicking the [Image quality] tab enables you to set the image

9. Other

9.13 Sharpen the contour of the object

quality.

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



- If the effect of noise reduction is reduced, the noise will increase.
- [Image quality] in the multi part live image page > [Digital noise reduction] cannot be set when [Common(Cam. 1-2)] is selected in [Camera selection]. To configure [Digital noise reduction], select anything other than [Common(Cam. 1-2)].

Level: 128



Level: 100

Reduce the blur



9.13 Sharpen the contour of the object

9.13.1 Adjust the sharpness level

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

- Live image page setup panel > Clicking the [Image quality] tab enables you to set the image quality.

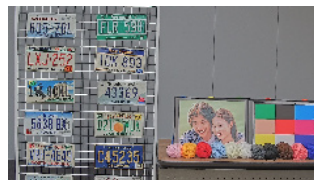
- (1) Adjust the [Sharpness level] to [+]

Level: 10



Level: 31

Sharpen the contour



9.14 Adjust the color

9.14.1 Adjust color density

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

- Live image page setup panel>[Detailed setting]>[Camera detailed setting]>[Image] or [Image/Audio] in the Advanced menu on the left>[Image adjust] in the [Image quality] tab> Click [Setup] to display the image quality adjustment setting screen.

- (1) Adjust the [Chroma gain level] of [Basic adjustment]
 - Moving in the [+] direction produces a bright color.
 - Moving in the [-] direction produces a calm color.

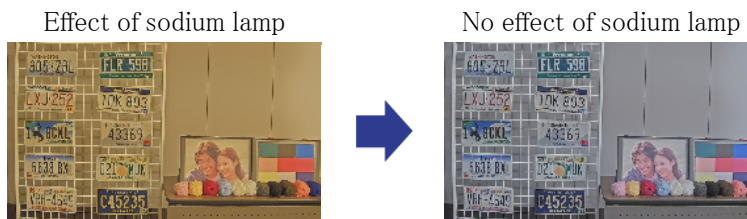


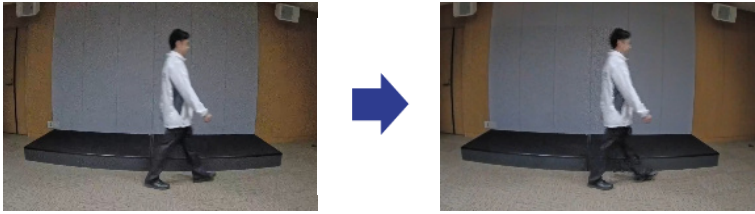
9.14.2 Adjust the white balance

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

- Live image page setup panel>[Detailed setting]>[Camera detailed setting]>[Image] or [Image/Audio] in the Advanced menu on the left>[Image adjust] in the [Image quality] tab> Click [Setup] to display the image quality adjustment setting screen.

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





9.17 Troubleshooting

Check the issues on this table before asking for repair.

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

Issue	Cause	Countermeasures	Reference
Power is not turned on.	<ul style="list-style-type: none"> • Does the PoE++ (IEEE802.3bt compliant) power supply and Ethernet cable of this equipment have a connection? • 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"> • Check if it is connected. • Refer to the instruction manual for the PoE++ power supply. 	Installation Guide

9. Other

9.17 Troubleshooting

(PTZ part) The camera does not face the position set.	<ul style="list-style-type: none"> •The camera may be out of orientation from the set position. 	<ul style="list-style-type: none"> •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
(PTZ part) Camera stops during PAN/TILT operation and makes mechanical sounds.	<ul style="list-style-type: none"> •The camera may have been misaligned. 	<ul style="list-style-type: none"> •In the [Initialization] tab of the Advanced menu, refresh the positions. 	User manual
(PTZ part) Camera automatically rotates	<ul style="list-style-type: none"> •Noise may have an effect. •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. 	<ul style="list-style-type: none"> •Check for external noise. 	User manual
Cannot be accessed from a Web browser	<ul style="list-style-type: none"> •Are cables of category 5e or higher connected to the network connector? 	<ul style="list-style-type: none"> •Connect a cable with Category 5e or higher. 	Operation Manual Installation

•Is the link lamp (LINK) illuminated? If the LED is not illuminated, the LAN is not connected correctly or the host network is not operating normally.	•Check the cable for faulty contact and wiring.	Operation Manual Installation
•Is this unit turned on?	•Check that this unit is turned on.	Operation Manual Installation
•Are valid IP addresses set for this unit?	•Check whether the IP address is valid.	User manual

	<ul style="list-style-type: none">•Have you accessed the wrong IP address?	<ul style="list-style-type: none">•Confirm the connection using the following method. At the Windows command prompt, enter the following. >Ping "IP address set for the computer" If Reply is returned from the computer after input, it is operating normally. If Reply is not returned, check the connection using the PC connected to the same network as the camera using the following method. If the firewall setting of the PC is enabled, temporarily cancel the firewall setting before setting the camera.•Start the IP Easy Configuration Software, check the camera IP address, and access the IP address.	
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	<ul style="list-style-type: none"> •If the network settings (IP address, subnet mask, and default gateway) are incorrect, restart the camera and change the network settings using the IP easy configuration software within 20 minutes. •In an environment without a DHCP server, restart this unit with the Initialize button and initialize it. The IP address is set to 192.168.0.10. Then access this unit to reset the IP address (which initializes all settings). 	
<ul style="list-style-type: none"> •Is 554 configured for the HTTP port number? 	<ul style="list-style-type: none"> •Use ports other than 20, 21, 22, 23, 25, 42, 53, 67, 68, 69, 110, 123, 161, 162, 443, 554, 995, 1883, 883, 10689, 10670, 59000–61000. 	User manual
<ul style="list-style-type: none"> •Is the set IP address overlapping with other devices? Is there a conflict between the configured address and the destination network subnet? 	<ul style="list-style-type: none"> •Check the set IP address. 	–

	<p>When this unit and the computer are connected in the same subnet</p> <ul style="list-style-type: none"> •Are the IP addresses of this unit and the PC set to the same subnet? Also, is "Using a Proxy Server" set on the PC? 	<ul style="list-style-type: none"> •When accessing this unit within the same subnet, it is recommended that the address of this unit be set to "Remove from proxy". 	
	<p>When this unit and the PC are connected to different subnets</p> <ul style="list-style-type: none"> •Is the default gateway set to this unit incorrectly? 	<ul style="list-style-type: none"> •Check the default gateway values. 	
	<ul style="list-style-type: none"> •Have you accessed the HTTPS function with "http://"? 	<ul style="list-style-type: none"> •To use HTTPS, refer to https://. You must also enter the port number. 	User manual
Camera cannot be accessed from the Internet	<ul style="list-style-type: none"> •Are the network settings for this unit incorrect? 	<ul style="list-style-type: none"> •Configure the default gateway or DNS server address correctly. When using the DDNS service, make sure that it is set correctly. 	User manual
	<ul style="list-style-type: none"> •Is [Default gateway] set or is it set correctly? 	<ul style="list-style-type: none"> •Set the [Default gateway] correctly. <p>For IPv4</p> <ul style="list-style-type: none"> •Configure [Default gateway] correctly for [Set]-[Network]-[IPv4 network]. 	

<ul style="list-style-type: none"> •Does the router have port forwarding? 	<ul style="list-style-type: none"> •If your router does not have the UPnP feature, you must configure port forwarding to allow access to this unit from the Internet. Refer to your router's Instruction Manual for how to configure.
<ul style="list-style-type: none"> •Is the UPnP feature on the router disabled? 	<ul style="list-style-type: none"> •Enable the UPnP function by referring to your router's instruction manual.
<ul style="list-style-type: none"> •Does the router have packet filtering, etc. to prohibit access from the Internet? 	<ul style="list-style-type: none"> •Configure your router to be accessible via the Internet. Refer to your router's instruction manual for how to configure this function.
<ul style="list-style-type: none"> •Is it accessed by the IP address (local address) used on the local network? 	<ul style="list-style-type: none"> •Confirm the IPv4 network settings, IPv6 network settings, and DDNS settings, and access the global address (or URL registered with the DDNS service) as the IP address of this unit for use on the Internet with this unit's port number.

The authentication screen is displayed continuously	<ul style="list-style-type: none"> •Has the username or password been changed? 	<ul style="list-style-type: none"> •If you change the user name or password of a logged-in user in another Web browser while accessing this unit, the authentication screen is displayed each time the screen is switched. Close the Web browser and access this unit again. 	User manual
	<ul style="list-style-type: none"> •Have you changed the [Authentication method] settings? 	<ul style="list-style-type: none"> •If you change the [Authentication method] setting, close the Web browser and re-access the Web browser. 	
Takes longer to display	<ul style="list-style-type: none"> •Have you accessed this unit on the same local network via proxy? 	<ul style="list-style-type: none"> •Configure the PC so that it does not go through the proxy. 	-
	<ul style="list-style-type: none"> •Are multiple users referring to camera images at the same time? 	<ul style="list-style-type: none"> •If multiple users refer to a camera image at the same time, it may take a long time to display the screen or the camera image may be refreshed slowly. 	
Camera cannot be	Case of a mobile device		User manual

accessed from mobile or tablet device	<ul style="list-style-type: none"> •URL is wrong. Or, is "/cam" not entered at the end of the URL? 	<ul style="list-style-type: none"> •Check that the URL is entered correctly. When accessing this unit from a mobile device, it is necessary to enter "/cam" at the end of the URL used when accessing this unit from the PC. 	
	<p>For a tablet device</p> <ul style="list-style-type: none"> •Is the URL wrong? 	<ul style="list-style-type: none"> •Check that the URL is entered correctly. 	
	<ul style="list-style-type: none"> •Is the SSL encryption method of the HTTPS of the mobile device or tablet device different from that of this unit? 	<ul style="list-style-type: none"> •Set the HTTPS [Connection] to [HTTP] to re-access the HTTPS. 	
	<ul style="list-style-type: none"> •Have you accessed the HTTPS function with "http://"? 	<ul style="list-style-type: none"> •To use HTTPS, refer to https://. You must also enter the port number. 	
	<ul style="list-style-type: none"> •About SOFTBANK Mobile's mobile devices 	<ul style="list-style-type: none"> •SOFTBANK Mobile devices are prohibited from being accessed from other than Port 80, so they can only be used for cameras set as Port 80. 	

9. Other
9.17 Troubleshooting

No image	<ul style="list-style-type: none"> Your mobile/device terminal does not support 320 x 240 pixels or 640 x 480 pixels of resolution. Or, is the size of image data that can be displayed by a mobile device or a tablet device exceeded? 	<ul style="list-style-type: none"> Refer to the instruction manual for your mobile device and tablet device for the limitations on the image data size that can be displayed on the mobile device or tablet device. 	–
Image is blurry	<ul style="list-style-type: none"> Is the focus correctly adjusted? 	<ul style="list-style-type: none"> Check the focus adjustment. 	User manual
(PTZ part) The camera is not focused immediately after the power is turned on.	<ul style="list-style-type: none"> Focus and ZOOM are adjusted after starting the camera, and the camera is not focused for a certain period of time. 	<ul style="list-style-type: none"> The camera is not focused for a certain period of time. Wait for a while for the camera to focus. 	–
Image is not refreshed	<ul style="list-style-type: none"> Depending on the web browser or version, images may not be refreshed or other problems may occur. 	–	User manual
	<ul style="list-style-type: none"> Images may stop being displayed due to network congestion or concentration of access to this unit. 	<ul style="list-style-type: none"> Request the acquisition of images by pressing the [F5] key on the PC keyboard. 	–
The camera image is not displayed (dark).	<ul style="list-style-type: none"> Is the [Brightness] set to darken? 	<ul style="list-style-type: none"> Press the brightness [Normal] button. 	User manual

Image is whitish	<ul style="list-style-type: none"> •Is the [Brightness] set to brighten? 	<ul style="list-style-type: none"> •Press the brightness [Normal] button. Move the [Adaptive black stretch] slider bar in the [-] direction to darken the dark area of the image. 	User manual
Image flickers	<ul style="list-style-type: none"> •If flickering is a concern, set [Light control mode] to [Indoor scene]. 	-	User manual
Image not saved on SD Memory Card	<ul style="list-style-type: none"> •Is the SD Memory Card mounted correctly? 	<ul style="list-style-type: none"> •Check that it is mounted correctly. 	User manual
Failed to write to or read from SD Memory Card	<ul style="list-style-type: none"> •Is the SD Memory Card formatted? 	<ul style="list-style-type: none"> •Format the SD Memory Card. 	User manual
(SD Memory Card supported models only)	<ul style="list-style-type: none"> •Is [----- MB] displayed on the [Remaining capacity] in the [SD memory card] tab? 	<ul style="list-style-type: none"> •Format the SD Memory Card. 	
	<ul style="list-style-type: none"> •Is [####MB/####MB] displayed on the [Remaining capacity] in the [SD memory card] tab? 	<ul style="list-style-type: none"> •Check the password lock setting. 	
	<ul style="list-style-type: none"> •If you are using the mail notification or TCP alarm notification [Diag.] function, have you received recognition errors for SD Memory Cards? 	<ul style="list-style-type: none"> •Format the SD Memory Card. 	

9. Other

9.17 Troubleshooting

	<ul style="list-style-type: none"> •Is [<SD> Recognition error] displayed in the [Maintenance]-[Status]-[SD memory card] log? 	<ul style="list-style-type: none"> •Format the SD Memory Card. 	
	<ul style="list-style-type: none"> •Is the SD memory card malfunctioning? 	<ul style="list-style-type: none"> •The SD Memory Card has a limited number of rewrites. Replace the SD Memory Card with a new one if it is rewritten frequently because it may have reached its service life. 	–
Cannot transmit voice (Only for voice supported models)	<ul style="list-style-type: none"> •Are the microphone and speakers connected correctly? 	<ul style="list-style-type: none"> •Check that the connection is correct. Voice transmission can only be used when connected with HTTPS. 	Operation Manual Installation
No audio from our network disk recorder or PC software package (Only for voice supported models)	<ul style="list-style-type: none"> •Some of our network disk recorders and PC software packages do not support [G.711] [G726]. 	<ul style="list-style-type: none"> •Set the earpiece speech compression method to [AAC-LC]. 	User manual
The image on the live image page is not displayed.	<ul style="list-style-type: none"> •Press the [F5] key on the PC keyboard or press the [Live] button. 	–	User manual
The shortcut icon for the camera is not displayed on the [Network].	<ul style="list-style-type: none"> •Do you have additional Windows components for UPnP? 	<ul style="list-style-type: none"> •Add the UPnP Windows component to your PC. 	User manual

Image not refreshed or displayed successfully	<ul style="list-style-type: none"> The port of this unit may have been filtered by the firewall function of virus check software. 	<ul style="list-style-type: none"> Change the HTTP port number of this unit to a port number that is not filtered. 	–
The lamps are not lit.	<ul style="list-style-type: none"> Is the lamp setting set to [Off] in the [Basic] in the setting menu? 	<ul style="list-style-type: none"> Set the lamp setting to [On]. 	User manual
H.265 (or H.264) image does not appear smoothly.	<ul style="list-style-type: none"> Refer to the right. 	–	→ Image capture mode and Image capture size
Clicking the Back button on the Web browser does not display the correct screen.	<ul style="list-style-type: none"> Press the [F5] key on the PC keyboard to refresh the screen. 	–	–
Image does not match display frame	<ul style="list-style-type: none"> If the DPI setting of the image is 120 DPI or higher, the image may not be displayed correctly. 	<ul style="list-style-type: none"> Right-click the PC screen and select [Display Settings].> Set the [Resize text, app, and other items] slide bar to [100% (recommended)]. Use [Orientation] with [Horizontal] set. 	–
"Access is concentrated. Run after a while" is displayed on the live image page.	<ul style="list-style-type: none"> Change the [Initial display stream] setting to the lower [Max bit rate (per client) *] stream. If the problem persists, change the [Bit Rate* per Client] setting on the stream to a lower value. 	–	User manual

(PTZ part) Camera operation noise is too loud.	•This is improved by adjusting the camera operation speed.	•Decrease the camera speed.	–
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9.18 Precautions pertaining to usage

- **Do not subject dome cover to strong impact.**

Doing so may cause damage or immersion.

- **Do not directly touch the lens and domecover with your bare hands.**

A dirty dome cover or lens causes deterioration of picture quality.

- **Do not hold the Dome cover, (PTZ part)**

Dome cover, rotate. When you remove the camera, turn it by holding the fixing part of the camera.

- **Cleaning this product body (PTZ part)**

The camera position may be moved inadvertently while cleaning the camera body. Restart the product or refresh the camera position (position refresh) to correct the camera position. Refer to the User manual for further information.

- **About the stabilizer function (PTZ part)**

Depending on the conditions in the installation area, effects of the stabilizer function may not be fully achieved.

- **Consumable parts (PTZ part)**

The following are consumables: Replace them in accordance with their operating lifetimes. Their operating lifetimes vary depending on the usage environment and conditions. The operating lifetimes below are just guides for when using the camera at +35 ° C {95 ° F}.

- Consumables: Lens unit, panning motor, tilting motor, thinwire coaxial cable, flat cable for tilting
- Lifetime: approx. 3.7 million operations (Approx. 20000 hours)

- **Lens/PAN and TILT Movable Areas (PTZ part)**

If the lens or the part of the lens that moves with the PAN and TILT is not operated for a long time, the grease coating inside these parts may become sticky. That may obstruct the parts from moving. To prevent this, move the lens or pan/tilt head periodically. Or perform position refresh periodically in the manner described in “Position refresh”.

- **Effects on images and image quality**

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

see.

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

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

- **This product has no power switch.**

When turning off the power, disconnect the power supply from the 12 V DC power supply or the PoE device.

- **About the battery**

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

- **Installing in low temperature environments**

This product is equipped with an internal heater unit for use in cold climates. The heater unit turns on automatically when the temperature inside the product drops below around -15°C (5°F). When this product is installed and operated in low temperatures below -20°C (-4°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°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.

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• **About HEVC High Efficiency Video Coding patents**

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9.20 Network security

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

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

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

- Use this unit in a network secured by a firewall, etc.
- If this unit is connected to a network that includes PCs, make sure that the system is not infected by computer viruses or other malicious entities (using a regularly updated anti-virus program, anti-spyware program, etc.).
- To prevent unauthorized access, use user-authentication, set user names and passwords, and limit which users can log in.
- Apply measures such as user authentication to protect your network against leakage or theft of information, including image data, authentication information (user names and passwords), alarm mail information and DDNS server information.
- After the unit is accessed by the administrator, make sure to close the browser.
- Change the administrator password periodically. Additionally, save user authentication information (user names and passwords) in such a way that it is kept out of the hands of third parties.
- Do not install the camera in locations where the camera or the cables can be destroyed or damaged by persons with malicious intent.