



Web Guide

WV-S32402-F2L/ WV-S32302-F2L

Contents

1.	Set up	1
<hr/>		
1.1	Install directly on the ceiling	1
2.	Connect to the camera	2
<hr/>		
2.1	IP Setting Software	2
2.2	Access the camera	2
2.3	About Live image pages	4
3.	Set the camera	6
<hr/>		
3.1	Check whether the object is of the proper size.	6
3.2	Adjust the image quality	6
3.2.1	Set the light intensity control mode depending on the installation location and installation area.	6
3.2.2	Sets night time black-and-white switching mode	7
3.2.3	Set white balance depending on the lighting environment you install.	8
3.3	Recording setting (SD Memory Card)	8
3.3.1	Install the SD Memory Card	8
3.3.2	Install the SD Memory Card	9
3.3.3	Record using SD Memory Card	9
3.3.4	Play back images stored on the SD Memory Card	10
3.4	Adjust the zoom	10
3.5	Hide some of the images	10
3.6	Identify sounds with AI	11
3.7	Record sound	11
3.8	Set up events	12
3.8.1	Detect object movements	12
3.9	Enhance communication security	13
3.10	Detect data falsification	13
3.11	Set the Image capture size and frame rates	13

3.12	Set the overlay image function	14
3.13	Set the image stream	14
3.13.1	About the Setting of Stream	14
3.13.2	About delivery volume control (bit rate)	14
3.13.3	Reducing Data Capacity with Smart Coding	15
3.14	i-PRO Configuration Tool (iCT)	16
4.	Clean up	17
<hr/>		
4.1	Cleaning of lenses	17
4.2	Cleaning of Dome covers	17
5.	Specifications	18
<hr/>		
5.1	PC environment required	18
5.2	About Image capture mode and Image capture size	18
5.2.1	Image capture size	19
5.2.2	Symbol restrictions	21
5.3	DORI	22
5.4	Delivery performance	22
5.5	About Available Extension software	22
5.6	Lamp	24
5.6.1	Lighting of the lamp	25
5.7	Button	26
5.8	Cable	27
6.	Other	28
<hr/>		
6.1	Initialize	28
6.2	Check the software version	28
6.3	Order of setting when adjusting image quality	29
6.4	Adjusting object brightness (bright scenes)	29
6.4.1	Adjusting brightness	29
6.5	Adjusting object brightness (dark scenes)	30
6.5.1	Adjust the maximum gain	30
6.5.2	Adjust the maximum shutter	30
6.6	Reducing white flickering and blacking on the screen	31
6.6.1	Set Super Dynamic	31

6.6.2	Set the backlight compensation	32
6.6.3	Set the high light compensation	32
6.6.4	Adjust the adaptive black stretch	33
6.6.5	Adjust the [Pedestal level]	34
6.7	Adjust the object contrast	34
6.7.1	Adjust the contrast	34
6.8	Reduce flicker	35
6.9	Reducing the blur of object (bright scenes)	35
6.9.1	Set intelligent auto (motion priority level)	35
6.9.2	Adjust the maximum shutter	36
6.10	Reducing object blur (dark scenes)	36
6.10.1	Adjust digital noise reduction	36
6.11	Delineate the object	37
6.11.1	Adjust the sharpness level	37
6.12	Adjust the color	38
6.12.1	Adjust color density	38
6.12.2	Adjust the white balance	38
6.13	Reducing object noise (bright scenes)	39
6.13.1	Adjust the sharpness level	39
6.14	Reducing object noise (dark scenes)	39
6.14.1	Adjust digital noise reduction	39
6.15	Troubleshooting	40
6.16	Precautions pertaining to usage	41
6.17	Disclaimer	43
6.18	NETWORK RELATIONSHIP	44

1. Set up



For detailed instructions on installation, refer to the following.

[Installation](#)

1.1 Install directly on the ceiling

The URL of the movie is as follows.

<https://youtu.be/NOM-0l3TDZ4>

2. Connect to the camera

2.1 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](#)

2.2 Access the camera

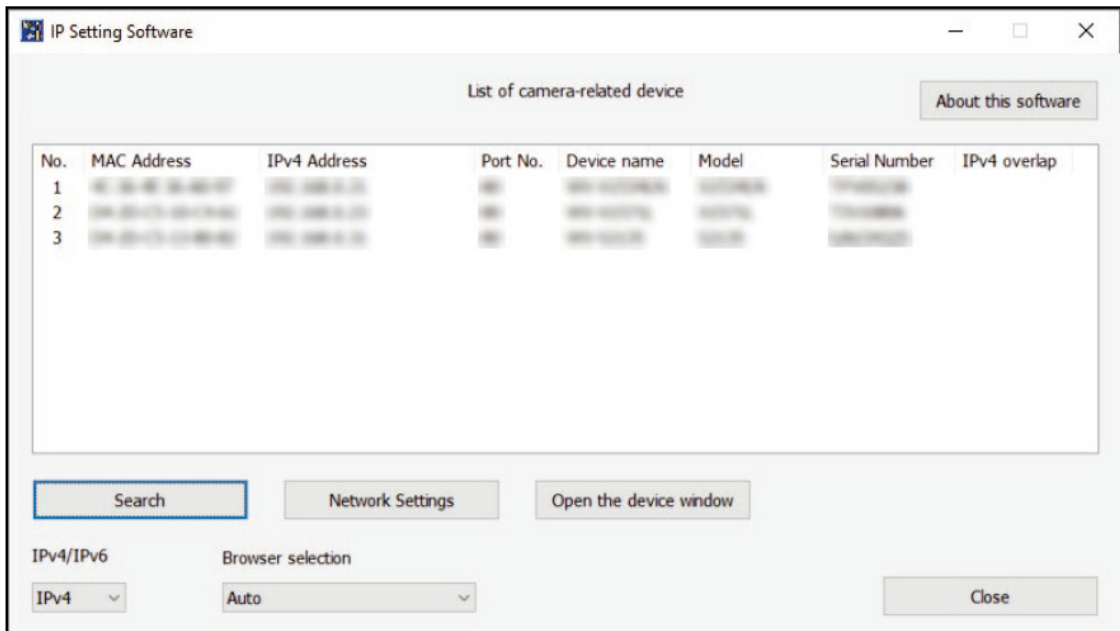
1. Launch a IP Setting Software
 - The model number and MAC address of the detected camera are displayed.
 - The default for [Network Settings] is [DHCP].



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

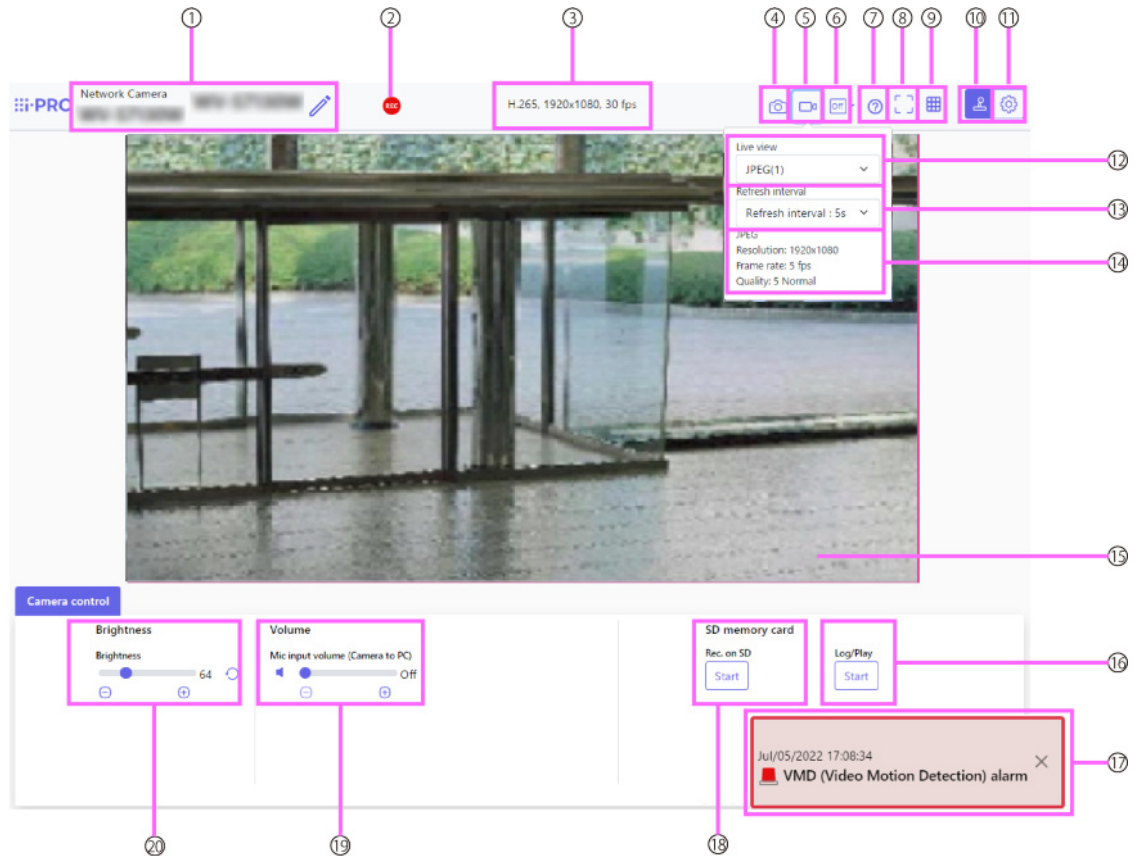
2. Double-click on the camera's IP address
 - The browser starts and the administrator registration screen is displayed.
 - Double-click the IP address. You need to register as an administrator.

2.2 Access the camera



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.

2.3 About Live image pages



- ① Camera title
- ② SD Storage Status Display
- ③ Stream information display
- ④ Snapshot button
- ⑤ Stream selection display button
- ⑥ Before/after image comparison switching button
- ⑦ Support button
- ⑧ Full Screen View button
- ⑨ Grid view button
- ⑩ Camera control panel display button
- ⑪ Setup buttons
- ⑫ Select Streams-[Live only] pull-down menu
- ⑬ Select Streams-[Refresh Rate] pull-down menu
- ⑭ Select Stream-Display Stream Information

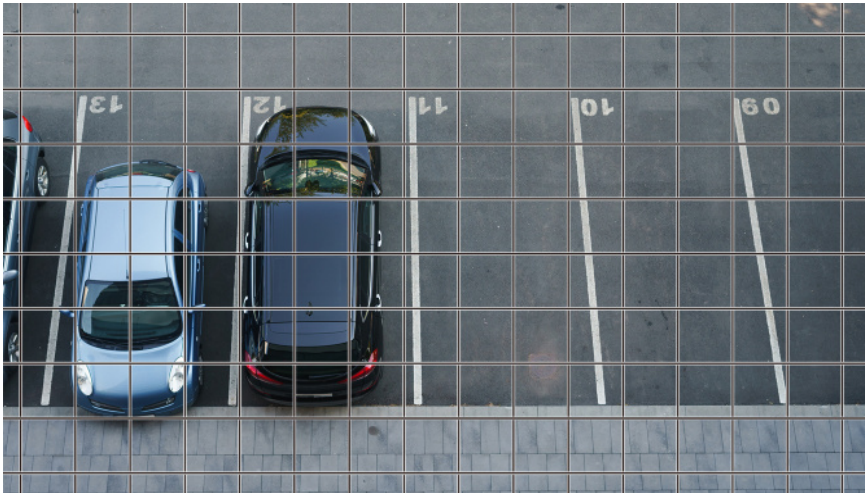
- ⑮ Main area
- ⑯ Camera Control Panel-SD Memory Card-[Log/Play]
- ⑰ Alarm notification
- ⑱ Camera Control Panel-SD Memory Card-[Rec. on SD]
- ⑲ Camera Control Panel-[Mic input volume (Camera to PC)]
- ⑳ Camera Control Panel-[Brightness]

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.

→[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.

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

3.2.2 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.

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

1. Select [Day & Night(IR)]
 - Select [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(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.

[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.

3.2.3 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>[Detail setting]>[Camera detailed setting] [Advanced settings page]>[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. 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
- Object with too low illumination

3.3 Recording setting (SD Memory Card)

3.3.1 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 product.



To remove the SD Memory Card, [Basic] the Advanced menu.>On the [SD memory card] tab, select [SD memory card] as [Not use]. Remove the SD Memory Card from the computer.

3.3.2 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 product.



[Basic] of the Advanced menu>Execute [Insert/Remove SD memory card mode] of the SD Memory Card on the [SD memory card] tab. Execute [Insert/Remove SD memory card mode] and then install or remove the SD Memory Card.

3.3.3 Record using SD Memory Card

This section describes the procedures for turning [Save trigger] to [Manual save].

- Live image pages configuration panels>[Detail setting]>[Camera detailed setting]>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 press [Scene change detection].
 - (3) Click [Live] in the upper left corner and click the camera operation panel display button.
 - The camera control panel is displayed.
 - (4) Clicking [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].

3.3.4 Play back images stored on the SD Memory Card

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

- Live image pages cameras control panels>Clicking [Log/Play] displays the log list.
 1. View Live image pages and click the camera operation panel display button.
 2. Press the [Log/Play] [Start] button
 - The Log List screen is displayed in a separate window.
 3. Press the shooting date and time displayed below [Time]
 - The playback page is displayed and the saved image is played.

3.4 Adjust the zoom

Adjust the zoom of the displayed image manually.

- Live image pages configuration panels>Clicking on the [Zoom] tabs displays the settings window.
 1. Adjust the [Extra zoom]

3.5 Hide some of the images

- Live image pages configuration panels>[Detail setting]>[Camera detailed setting] [Advanced settings page]>[Image] of the Advanced menus on the left>[Privacy zone] in the [Image quality] tabs>When [Advanced settings] is clicked, the Privacy Zone setting window is displayed.



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 [Scene change detection].
 - Privacy zones are set in order from Area 1.
3. Select [Status] to view privacy zones
 - Set up the privacy zone in [On]/[Off].

3.6 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]>[Topic]>Advanced Menu>[Alarm]>Clicking on the [Audio detection] tabs displays the configuration pages.



AI Sound Classification See 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.

3.7 Record sound

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

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

3.8 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>[Detail setting]>[Camera detailed setting]>[Scene change detection]>Advanced Menu>[Easy Setup]>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.

3.8.1 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>[Detail setting]>[Camera detailed setting]>[Topic]>Advanced Menu>Clicking [Alarm] displays the configuration pages.



Refer to the user manual for details of all alarms.

3.8.1.1 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. Drag through the image to set the area.
 - You can set the areas in order.
2. Adjust the [Detection area] and [Detection sensitivity] using the slider bar and then press [Scene change detection].

3.9 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.

3.10 Detect data falsification

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

Refer to the following support videos for how to set up tampering detection.

→[Support video](#)

3.11 Set the Image capture size and frame rates

➤ 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 about Image capture size, see the following.
→[About Image capture mode and Image capture size](#)

3.12 Set the overlay image function

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

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

- Live image pages configuration panels>[Detail setting]>[Camera detailed setting] [Advanced settings page]>[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 [Scene change detection]

3.13 Set the image stream

3.13.1 About the Setting of Stream

You can configure whether to deliver streams, whether to compress streams with H.265 or H.264, Image capture size, 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.
 - 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.

3.13.2 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 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 the object status.

- **Specify Frame Rate:**

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

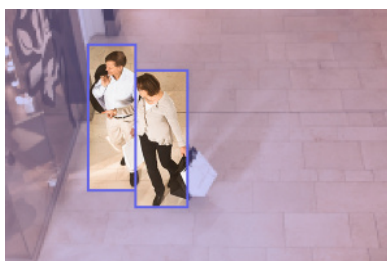
- **Best effort delivery:**

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) *].

3.13.3 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] [Advanced settings page] > [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.

3.14 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 following.

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

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 enclosure 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 lenses



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

4.2 Cleaning of Dome covers



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

5. Specifications

5.1 PC environment required

CPU:	Intel®Core™Processor family -Intel®Core™i5-6500 or more -Intel®Core™i7-6700 or higher recommended
Memory:	Recommended at least 4 GB (2 GB x 2, dual channel)
Network function:	10BASE-T/100BASE-TX 1 port
Sound function:	Sound Card (for voice function)
Image display function:	Image capture size : 1024 x 768 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-S32402-F2L>

Image capture mode	Stream (1)	Stream(2)	Stream(3)	JPEG(1)	JPEG(2)
16:9(30fps) 2688x1520* ¹ 16:9(25fps) 2688x1520* ¹	2688x1520 1920x1080 1280x720	1920x1080 1280x720 640x360 320x180	640x360 320x180	2688x1520* ² 1920x1080* ² 1280x720* ² 640x360* ² 320x180* ²	<u>640x360</u> Max 15 (12.5) fps* ⁵
16:9(30fps) 16:9(25fps)	<u>2560x1440</u> 1920x1080 1280x720	1920x1080 <u>1280x720</u> 640x360 320x180* ⁶	640x360 <u>640x360</u> 320x180* ⁶	<u>2560x1440</u> * ² 1920x1080* ² 1280x720* ² 640x360* ² 320x180* ^{2*6}	<u>640x360</u> Max 15 (12.5) fps* ⁵
4:3(30fps)* ¹ 4:3(25fps)* ¹	1280x960 640x480 320x240	1280x960 640x480 320x240	640x480 320x240	1280x960 640x480 320x240	640x480 Max 15 (12.5) fps* ⁵
4:3(15fps)* ¹ 4:3(12.5fps)* ¹	2048x1536	1280x960 640x480 320x240	640x480 320x240	2048x1536 1280x960 640x480 320x240	640x480 Max 15(12.5) fps
	Max 30(25) fps	Max 30(25) fps* ³	Max 30(25) fps* ³	Max 5(4.2) fps* ^{4*5}	Max 15 (12.5) fps* ⁵
	Max 30(25) fps	Max 30(25) fps	Max 30(25) fps	Max 5(4.2) fps* ⁵	Max 15 (12.5) fps* ⁵
	Max 15(12.5) fps	Max 15(12.5) fps	Max 15(12.5) fps	Max 5(4.2) fps* ⁷	Max 15(12.5) fps

*1 If you select "16:9 (30 fps/25 fps) 2688 x 1520" or "4:3" in [Image capture mode], you cannot set "90°" or "270°" in [Image rotation].

*2 Only the same Image capture size as that set in streams (1), streams (2), streams (3), and JPEG (2) can be selected.

5.2 About Image capture mode and Image capture size

- *3 If Stream (1) is set to "Off" and Stream (2) Image capture size is set to "1920 x 1080", the maximum frame rate for Stream (2) (3) is "15(12.5) fps".
- *4 If you select "2688 x 1520" or "2560 x 1440" in [Image capture size], the maximum frame rate is 2 fps (2.1 fps).
- *5 If [Off] is selected in [Stream transmission], the maximum frame rate is 30 fps (25 fps).
- *6 If "320 x 180" is selected in [Image capture size], you cannot set "90° " or "270° " in [Image rotation].
- *7 If [Off] is selected in [Stream transmission], the maximum frame rate is 15 fps (12.5 fps).

<WV-S32302-F2L>

Image capture mode	Stream (1)	Stream(2)	Stream(3)	Stream(4)	JPEG(1)	JPEG(2)
16:9(60fps)* ¹	1920x1080	1920x1080			1920x1080	
16:9(50fps)* ¹	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* ³	Max 15 (12.5) fps* ³
<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* ²	320x180* ²	320x180* ²	320x180* ²	320x180* ²	
	Max 30(25) fps	Max 30(25) fps	Max 30(25) fps	Max 30(25) fps	Max 5(4.2) fps* ³	Max 15 (12.5) fps* ³
4:3(30fps)* ¹	1280x960	1280x960			1280x960	
4:3(25fps)* ¹	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* ³	Max 15 (12.5) fps* ³
4:3(15fps)* ¹	2048x1536				2048x1536	
4:3(12.5fps)* ¹		1280x960			1280x960	
		640x480	640x480	640x480	640x480	640x480
		320x240	320x240	320x240	320x240	
	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* ⁴	Max 15(12.5) fps

5.2 About Image capture mode and Image capture size

*1 If you select "16:9 (60/50 fps)" or "4:3" in [Image capture mode], you cannot set "90°" or "270°" in [Image rotation].

*2 If "320 x 180" is selected in [Image capture size], you cannot set "90°" or "270°" in [Image rotation].

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

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

5.2.2 Symbol restrictions

<WV-S32402-F2L>

Image capture mode	Extension software	Stabilizer	SD recording	Smart coding	Super Dynamic	Intelligent auto	Privacy zone	Auto tracking
16:9(30/25fps) 2688x1520	Yes	–	Yes	Yes	Yes* ¹	Yes	Yes	–
16:9(30/25fps)	Yes	–	Yes	Yes	Yes* ¹	Yes	Yes	–
4:3(30/25fps)	Yes	–	Yes	Yes	Yes* ¹	Yes	Yes	–
4:3(15/12.5fps)	No	–	Yes	Yes	Yes	Yes	Yes	–

*1 If the [Super Dynamic] level is set to 30 or higher, the maximum frame rate is 15 fps (12.5 fps).

<WV-S32302-F2L>

Image capture mode	Extension software	Stabilizer	SD recording	Smart coding	Super Dynamic	Intelligent auto	Privacy zone	Auto tracking
16:9(60/50fps)	No	–	No	Yes	No	Yes	Yes	–
16:9(30/25fps)	Yes	–	Yes	Yes	Yes	Yes	Yes	–

Image capture mode	Extension software	Stabilizer	SD recording	Smart coding	Super Dynamic	Intelligent auto	Privacy zone	Auto tracking
4:3(30/25fps)	Yes	-	Yes	Yes	Yes	Yes	Yes	-
4:3(15/12.5fps)	No	-	Yes	Yes	Yes	Yes	Yes	-

5.3 DORI

	WV-S32402-F2L	WV-S32302-F2L
Detect (25 ppm/8 ppf)	29.0 m	17.1 m
	95.0 ft	56.1 ft
Observe (62.5 ppm/19 ppf)	11.6 m	6.8 m
	38.0 ft	22.4 ft
Recognize (125 ppm/38 ppf)	5.8 m	3.4 m
	19.0 ft	11.2 ft
Identify (250 ppm/76 ppf)	2.9 m	1.7 m
	9.5 ft	5.6 ft

5.4 Delivery performance

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

5.5 About Available Extension software

This is the preinstalled Extension software count and size.

<WV-S32402-F2L>

Number of applications installed	Capacity of application (ROM capacity)	Appli capacity (RAM capacity)
1	100 MB	50 MB

<WV-S32302-F2L>

Number of applications installed	Capacity of application (ROM capacity)	Appli capacity (RAM capacity)
2	100 MB	100 MB



Please refer to the Technical Information Website (C0103) for information on the latest software responses and restrictions during use.

→ [Technical information website](#)

<WV-S32402-F2L>

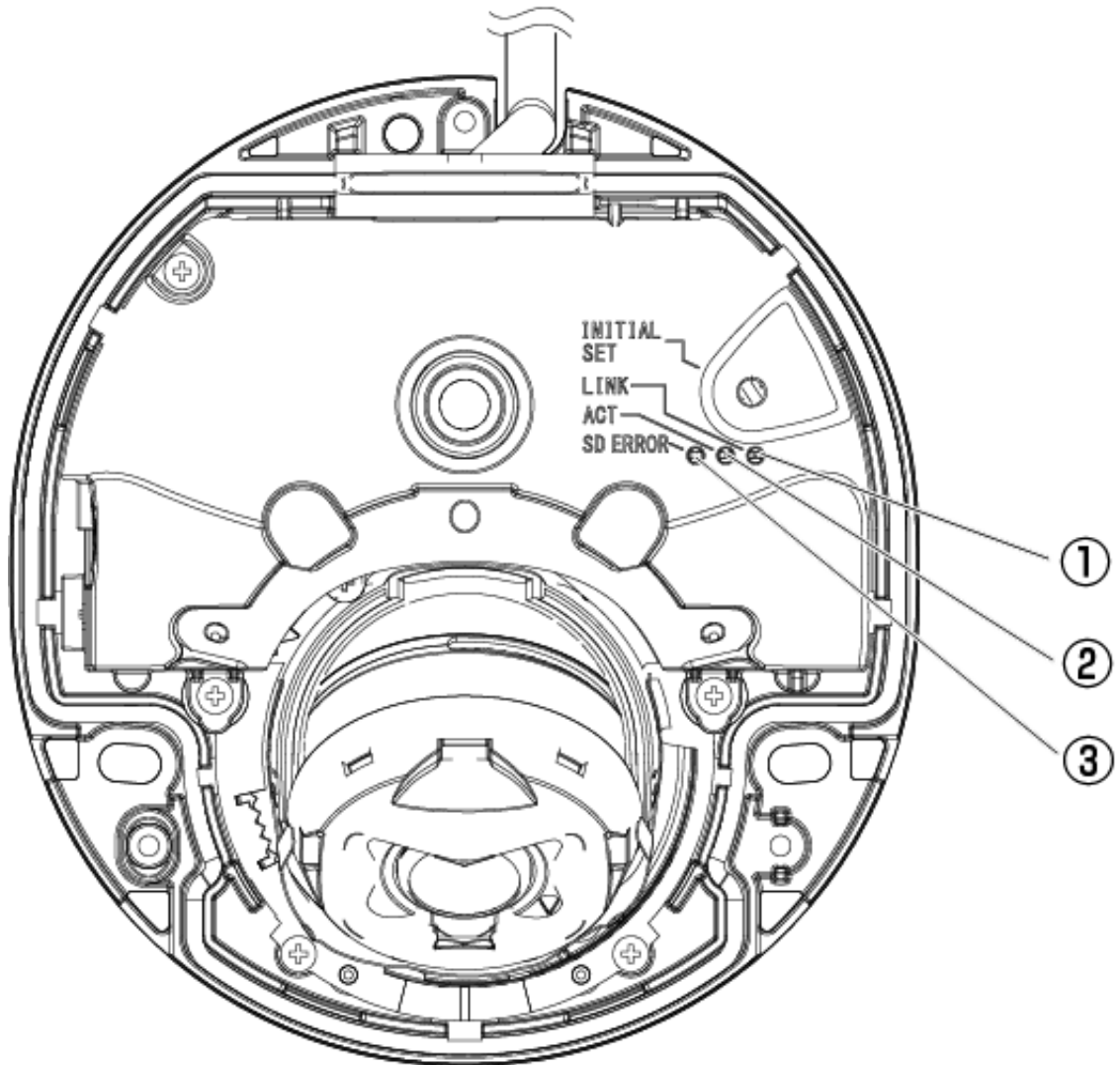
Software name	Pre-installation	Support status
AI-VMD	Yes	Supported
AI Privacy Guard	No	Not supported
AI Face Detection	No	Supported
AI People Detection	No	Supported
AI Vehicle Detection	No	Supported
AI Non-Mask Detection	No	Supported
AI Occupancy Detection	No	Supported
AI Scene Change Detection	No	Supported

<WV-S32302-F2L>

Software name	Pre-installation	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	Supported
AI Occupancy Detection	No	Supported

Software name	Pre-installation	Support status
AI Scene Change Detection	No	Supported

5.6 Lamp



- ① LINK lamp
- ② ACT lamp
- ③ SD ERROR lamp

5.6.1 Lighting of the lamp

LINK lamp

When communication with connected devices becomes possible

- Orange LED is ON

ACT lamp

When the camera sends and receives data

- Green LED is flashing (accessed)

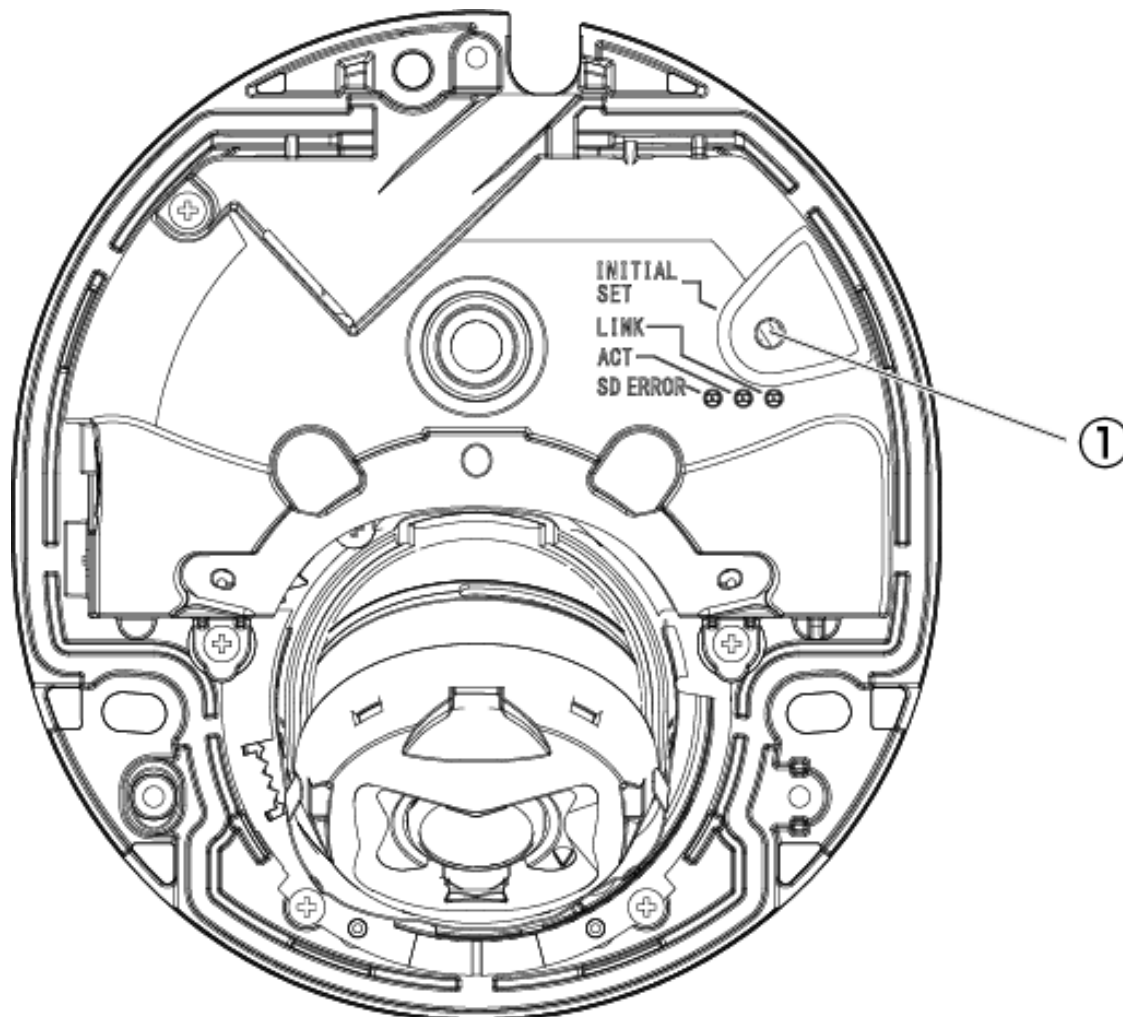
SD ERROR lamp

- During this product startup
 - 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



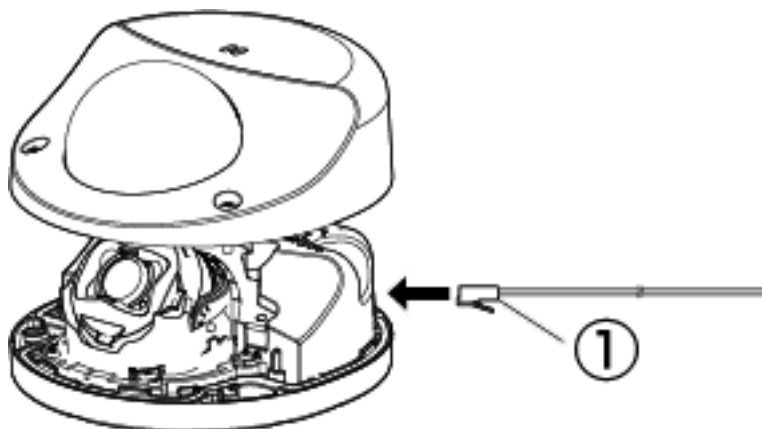
For more information about lamps, refer to the User Manual.

5.7 Button



① INITIAL SET button

5.8 Cable



- ① Ethernet cable (category 5e or more, straight, 4 pairs (8 cores), less than 100m (328 feet))

6. Other

6.1 Initialize

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

→ [Button](#)

1. Disconnect the Ethernet cables from the this product and turn off the this product.
2. Turn on the this product while pressing [INITIAL SET]
3. Press the [INITIAL SET] button for 15 seconds or longer after the power is turned on.
4. Release the INITIAL SET button
 - Approximately two minutes later, this product is started to initialize the settings that contain the networking settings. If it does not start normally, try again.

6.2 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.

➤ Live image pages configuration panels > [Detail 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 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.



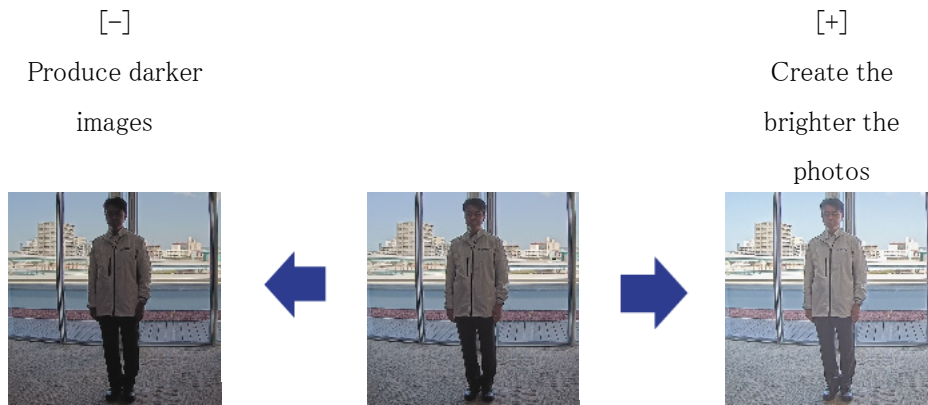
- The image quality adjustment function may affect each other.
- If necessary, adjust the brightness level of the screen.

6.4 Adjusting object brightness (bright scenes)

6.4.1 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.



6.5 Adjusting object brightness (dark scenes)

6.5.1 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 [+]



Increasing the maximum gain increases noise.

6.5.2 Adjust the maximum shutter

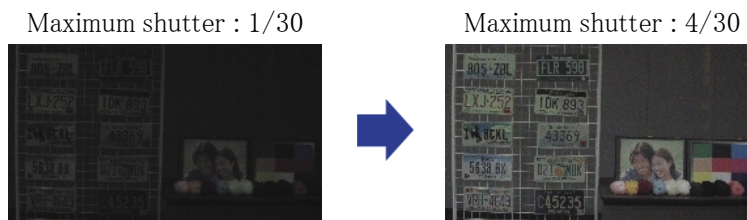
Increasing the maximum shutter makes the images brighter.

➤ 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.



6.6 Reducing white flickering and blacking on the screen

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

1. Set [Super Dynamic] to [On]



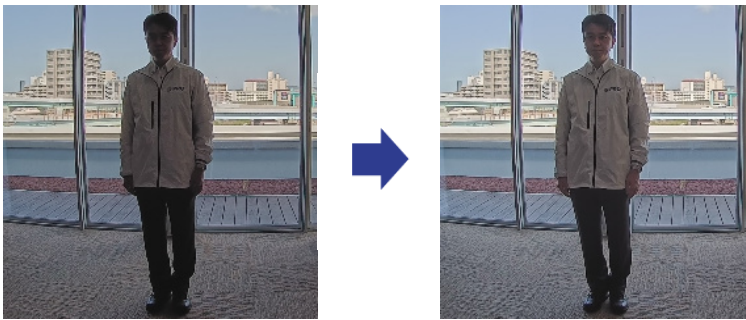
Set [Super Dynamic] to [Off] when the following phenomena are observed depending on the lighting condition.

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

Super Dynamic: Off

Super Dynamic: On

Level: 28



6.6.2 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] [Advanced settings page]>[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



6.6.3 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>[Detail setting]>[Camera detailed setting] [Advanced settings page]>[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. 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



6.6.4 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] [Advanced settings page]>[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 [+]

Level: 128



Level: 255



6.6.5 Adjust the [Pedestal level]

Adjust the pedestal level to adjust the black level of the image.

- Live image pages configuration panels>[Detail setting]>[Camera detailed setting] [Advanced settings page]>[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 the pedestal level of the [Detail setting].

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

[+] direction

Create the brighter the photos



[-] direction

Produce darker images



6.7 Adjust the object contrast

6.7.1 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>[Detail setting]>[Camera detailed setting] [Advanced settings page]>[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] [Contrast level] levels to [+]

Level: 128

[+] direction

Increase the contrast



6.8 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 [Flickless (50 Hz)] or [Flickless (60 Hz)] for [Light control mode].
 - Use 50 Hz/60 Hz depending on the region.

6.9 Reducing the blur of object (bright scenes)

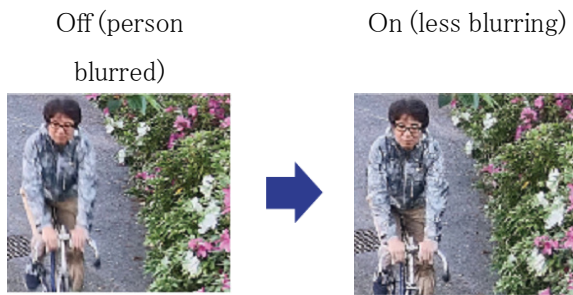
6.9.1 Set intelligent auto (motion priority level)

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] [Advanced settings page]>[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.



Increasing the level in a low illumination environment increases noise.



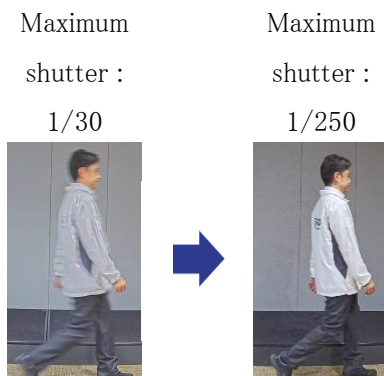
6.9.2 Adjust the maximum shutter

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.



6.10 Reducing object blur (dark scenes)

6.10.1 Adjust digital noise reduction

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

6.11 Delineate the object

➤ 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



6.11 Delineate the object

6.11.1 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.

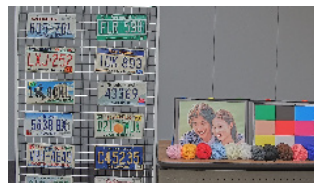
1. Adjust the [Sharpness level] to [+]

Level: 10



Level: 31

Sharpen the contour



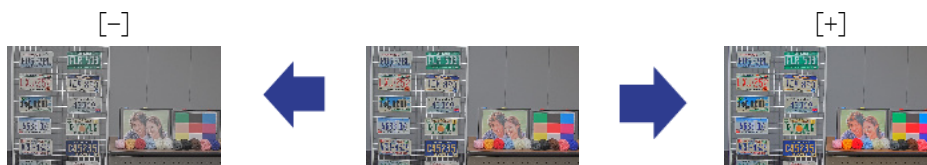
6.12 Adjust the color

6.12.1 Adjust color density

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

➤ Live image pages configuration panels>[Detail setting]>[Camera detailed setting] [Advanced settings page]>[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 the [Chroma gain level] of [Basic adjustment]
 - Moving in the [+] direction produces a bright and bright color.
 - Move in the [-] direction to make a calm color.

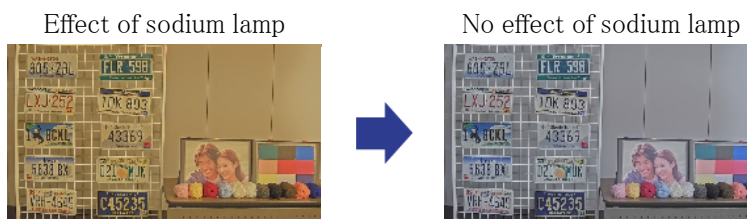


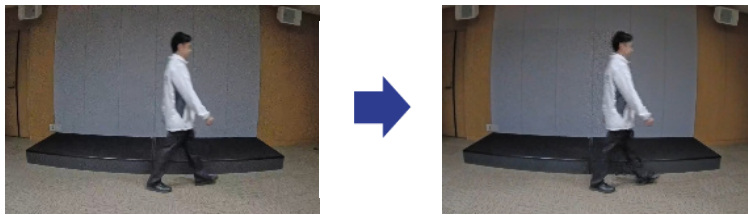
6.12.2 Adjust the white balance

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

➤ Live image pages configuration panels>[Detail setting]>[Camera detailed setting] [Advanced settings page]>[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. Select [ATW2] in [White balance]
 - The camera automatically adjusts the white balance under a sodium lamp.





6.15 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	For a PoE power supply <ul style="list-style-type: none"> •Is the network cable connected to the power supply device for PoE (IEEE 802.3af)? •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 operation manual of the PoE power supply system. 	Installation
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. 	—

Phenomenon	Cause	Countermeasures	Reference
The SD ERROR lamp illuminates red.	•An SD Memory Card read/write error has occurred. Is an abnormal memory card inserted?	Replace the SD Memory Card with a normal one.	—
Removing the enclosure and checking the screen may reveal shadows in four corners.	Depending on the position of the light shielding rubber on the lens, it may appear on the shooting screen.	If the enclosure is attached to the camera, the light shielding rubber returns to the normal position. This is not a problem with the camera.	—
White spots or bars may appear on the screen when shooting black and white using IR LED Light.	When adjusting the image angle of the camera, the IR LED Light may be reflected back to the camera enclosure at about 70° -85° TILT and 50° -100° YAW and may be reflected in the video.	Adjust TILT to less than 70 degrees or YAW to less than 50 degrees to avoid the effects of reflections.	—

6.16 Precautions pertaining to usage

- **Do not touch lenses or Dome covers directly.**

If dirty, image quality may deteriorate.

- **Impact on image/image quality**

Depending on the installation conditions, dirt may adhere to the Dome covers or lenses, causing image quality to deteriorate or obscuring images.

- **About the built-in microphone**

– If water adheres to the opening of the built-in microphone, the sound volume may drop.

Allow it to dry thoroughly before use.

- When cleaning the opening of the built-in microphone, do not stick it with a sharp object. Failure to heed this warning may result in failure.

- **Batteries**

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

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

- **Open Source Software**

- This product includes open source software licensed under GNU General Public License (GPL), GNU Lesser General Public License (LGPL), and others.
- You may obtain the source code of such software and reproduce, distribute and modify it in accordance with GPL or LGPL.
- For more information on licensing open source software and source code, refer to the [Support] page [For information on OSS used in this system] on the computer's configuration menu to view the information displayed.
- Please note that you cannot answer questions about the source code.

- **Copyright**

Except for open source software licensed under GPL/LGPL or otherwise, transfers, copying, disassembly, decompilation, and reverse engineering of the software contained in this product are prohibited. In addition, any act of export that violates the export laws and regulations of all software included in this product is prohibited.

- **For trademarks and registered trademarks**

- Microsoft, Windows, Windows Media, Internet Explorer, Microsoft Edge, and ActiveX are registered trademarks or trademarks of Microsoft Corporation in the United States and other countries.
- Intel, Intel Core is a trademark of Intel Corporation or its subsidiaries in the United States and/or other countries.
- Adobe, Acrobat Reader and Adobe Reader are trademarks of Adobe.
- The microSDXC Logo is a trademark of SD-3C, LLC.
- iPad and iPhone are trademarks of Apple Inc. registered in the United States and other countries.
- Android and Google Chrome are trademarks of Google LLC.
- Firefox is a trademark of the Mozilla Foundation in the United States and other countries.
- Other company names and product names described in this manual are trademarks or registered trademarks of each company.

6.17 Disclaimer

IN NO EVENT SHALL i-PRO Co., Ltd. BE LIABLE TO ANY PARTY OR ANY PERSON, EXCEPT FOR REPLACEMENT OR REASONABLE MAINTENANCE OF THE PRODUCT, FOR THE CASES, INCLUDING BUT NOT LIMITED TO BELOW:

1. ANY LOSS OR DAMAGE, INCLUDING WITHOUT LIMITATION, DIRECT OR INDIRECT, SPECIAL, CONSEQUENTIAL OR EXEMPLARY, ARISING OUT OF OR RELATING TO THE PRODUCT;
2. ANY INCONVENIENCE, LOSS, OR DAMAGE CAUSED BY INAPPROPRIATE USE OR NEGLIGENT OPERATION OF THE USER;
3. ALL MALFUNCTIONS OR TROUBLES FROM UNAUTHORIZED DISASSEMBLE, REPAIR OR MODIFICATION OF THE PRODUCT BY THE USER, REGARDLESS OF THE CAUSE OF THE MALFUNCTION OR TROUBLE;
4. INCONVENIENCE OR ANY LOSS ARISING WHEN IMAGES ARE NOT DISPLAYED, DUE TO ANY REASON OR CAUSE INCLUDING ANY FAILURE OR PROBLEM OF THE PRODUCT;
5. ANY PROBLEM, CONSEQUENTIAL INCONVENIENCE, OR LOSS OR DAMAGE, ARISING OUT OF THE SYSTEM COMBINED BY THE DEVICES OF THIRD PARTY;
6. ANY CLAIM OR ACTION FOR DAMAGES BROUGHT BY ANY PERSON OR ORGANIZATION AS A PHOTOGRAPHED SUBJECT DUE TO VIOLATION OF PRIVACY CONCERNING A SURVEILLANCE CAMERA'S PICTURE OR SAVED DATA, FOR SOME REASON (INCLUDING USE WHEN USER AUTHENTICATION ON THE AUTHENTICATION SETTING SCREEN IS SET TO OFF), BECOMING PUBLIC OR BEING USED FOR ANY PURPOSE;
7. LOSS OF REGISTERED DATA CAUSED BY ANY FAILURE (INCLUDING INITIALIZATION OF THE PRODUCT DUE TO FORGOTTEN AUTHENTICATION INFORMATION SUCH AS A USERNAME AND PASSWORD).

Limitation of liability

THIS PUBLICATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR NON-INFRINGEMENT OF THE THIRD PARTY'S RIGHT.

THIS PUBLICATION COULD INCLUDE TECHNICAL INACCURACIES OR TYPOGRAPHICAL ERRORS. CHANGES ARE ADDED TO THE INFORMATION HEREIN, AT

ANY TIME, FOR THE IMPROVEMENTS OF THIS PUBLICATION AND/OR THE CORRESPONDING PRODUCT (S).

6.18 NETWORK RELATIONSHIP

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

- ① Leakage or leakage of information via the machine
- ② Malicious operation of the Aircraft by a malicious third party
- ③ Interference or stoppage of the Aircraft 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 the machine 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 the machine.
- 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 the equipment or cables in a place where they are easily destroyed.