i-PRO

Operating Instructions

Extension Software
(AI Video Motion Detection)

Model No. WV-XAE200W

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

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

Contents

Introduction

Preface

The Extension Software WV-XAE200W (hereafter referred to as this product) is a software for more conveniently using the AI network camera (option, hereafter referred to as the camera). Install this product on your camera and register the Registration Key for using the following functions.
- Count with the "Cross Line Counting function" that counts the number of human, cars (four-wheel vehicles), motorcycles and bicycles (two-wheel vehicles) that cross a line.
- Activate an alarm with the "AI-VMD function (hereinafter, AI-VMD)" that automatically identifies the detected moving bodies.

Important
- This product is necessary for each camera.
- See the URL below for information such as the models supported by this software, the software version, etc.
  https://i-pro.com/global/en/surveillance/training-support/support/technical-information

Features

■ **Cross Line Counting function**
- It counts human, vehicles (four-wheel vehicles), motorcycles and bicycles (two-wheel vehicles) crossing a line, and can provide statistics on the count data.

■ **AI-VMD**
- With AI technology, AI-VMD determines whether the detected moving body is a vehicle (four-wheel), a motorcycle or a bicycle (two-wheel), or a human.
- AI-VMD can detect moving bodies in the four modes below and then alarms occur.
  - INTRUDER: Detects if moving bodies intrude into the predetermined area.
  - LOITERING: Detects if moving bodies loiter in the predetermined area beyond the fixed time.
  - DIRECTION: Detects if moving bodies move in the direction you specified within the predetermined area.
  - CROSS LINE: Detects if moving bodies cross the predetermined line in the direction you specified.
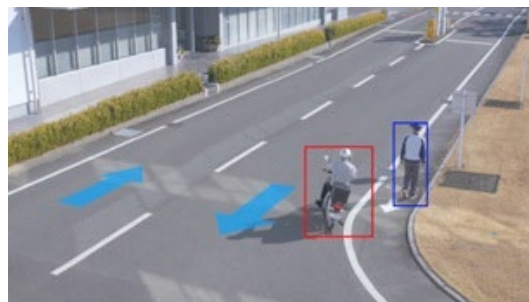 Below are examples of each detection. The example of DIRECTION is a case where bicycles are set as the detection objects.

INTRUDER

An alarm occurs when moving bodies are detected intruding into the predetermined area.

DIRECTION

An alarm occurs when moving bodies are detected moving in the direction you specified within the predetermined area.

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Introduction (continued)

LOITERING

An alarm occurs when moving bodies are detected intruding into the predetermined area.

CROSS LINE

An alarm occurs when moving bodies are detected crossing the predetermined line in the direction you specified.

About the Operating Instructions

This manual explains the method of installing this product in a camera, settings that need to be made before starting to operate this software, and the method of operation for using this product. Since this product is used after being installed on a camera, before using this product always be sure to also read the Operating Instructions of the camera with which this product is to be used.
Based on the specific model of a camera which is used, its screen may be different from the screen shown in this manual.

In this manual, a personal computer is referred to as a PC.

In this manual, "moving body(s)" is sometimes written as "object(s)" to suit the display.

System requirements for a PC

For the requirements of PC, and supported browsers which are used for settings refers to the Operating Instructions of a camera.

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- Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation.
- ONVIF is the trademark of ONVIF Inc.

On open source software used

- This product uses the open source software below.

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cwebsocket	The MIT License
libjpeg-turbo	• The IJG (Independent JPEG Group) License • The Modified (3-clause) BSD License • The zlib License

- For the corresponding license statement, see "Open Source Software" on page 28.

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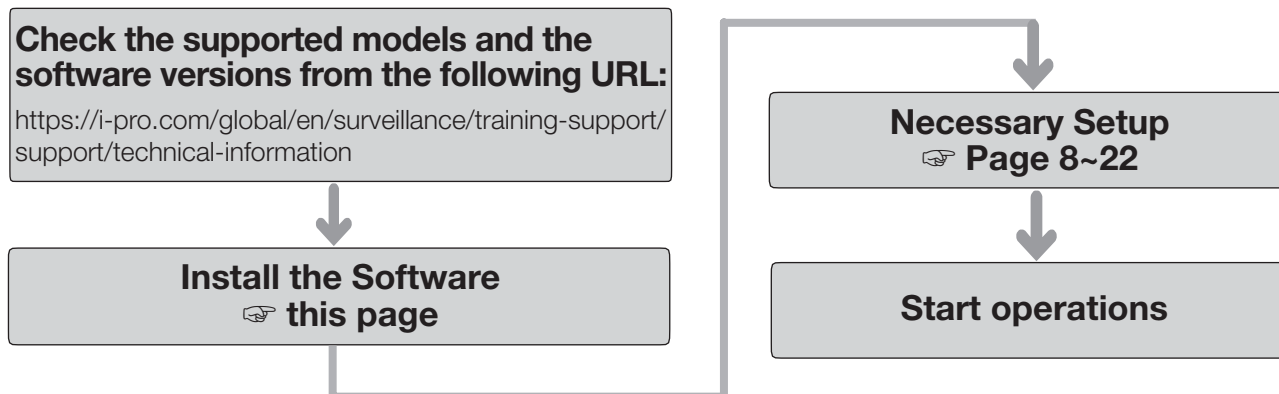
Before using this product

The following cases may cause difficulty in detecting a subject or motion, or cause lost or false alarms or reduce measurement accuracy.
- The background and the moving photographic subject are equally bright.
- The video brightness is low, which can happen at night.
- The photographic subject is moving too fast or too slow.
- The photographic subject is too small or too large.
- The light condition is subject to change, which can happen outdoors or near windows.
- Sunlight, car headlights, and other outside light has come in.
- There are flickering fluorescent lights.
- There are water drops or stains on the camera dome.
- The photographic subject is moving directly toward the camera.
- There are too many moving bodies.
- The camera is quivering.
- The weather is significantly unfavorable.
- More than one human comes in.
- Shadows interfere in the detection areas.
- The subject is out of focus.
- The subject is shaking.
- The subject is moving toward or away from the camera at the periphery of the image.
- Only part of the target person is visible because he is hidden by a privacy zone or another subject. (Estimate: Only 2/3 or less of the vehicle is shown)
- There are too many subjects. (Estimate: Accuracy may be reduced when persons/vehicles exceed 40)
- Multiple subjects are intersecting.
- A strong external light has placed the subject or other areas in shadow.
- The illumination varies, for example due to a light turning on and off.
- Vehicle signs and posters appear
- A vehicle is reflected in the windscreen.
- If the vehicle has an XX attached to it, such as a trailer. (E.g., trailer, boat, etc.)
- The person is lying down or collapsed.
- The person is short. (Estimate: 120cm tall or less)
- The person is holding a large piece of baggage. (E.g., pushing a luggage carrier, stroller or wheelchair)
- The person is not walking independently. (E.g., a baby being carried)
- Light conditions are likely to change, such as near a window.
- An animal or an insect appears.
- Posters of human and mannequins appear.
- The camera is not facing downwards.

Other cautions are explained below.
- If the camera [Data Encryption] is On, the camera image may not appear on the camera image screen or demo screen.
- If there are factors for false detection in the screen such as trees shaking, roads (with moving cars), water surfaces (with reflected light), etc., you can set mask areas (☞ page 11) to reduce false detections.
- When you set up AI-VMD, configure the area setting so that they suit the installation condition of the camera and the expected movement of photographic subjects (☞ page 11), and check whether the camera operates appropriately during the day and at night.
- False detection may occur for approximately 1 minute after turning on the camera, changing the camera settings, or changing the angle of field of the camera.
- As long as detectable objects exist on the screen, an alarm occurs at specified intervals. Thus, e-mails and TCP alarms are also notified at specified intervals. (See [Alarm deactivation time] on the [Alarm] tab of the camera setup menu).
- Based on the camera which is used, the transmission frame rate is limited when using AI-VMD. Refer to the following URL for details.
  https://i-pro.com/global/en/surveillance/training-support/support/technical-information
  <Control No.: C0103>
- i-PRO Co., Ltd. shall not be responsible for any inconveniences, losses, or damages caused by the settings of AI-VMD or as a result thereof.
- AI-VMD is not for preventing theft, disaster, etc. i-PRO Co., Ltd. shall not bear any liabilities whatsoever for any accidents or losses.

Operation flow

Check the supported models and the software versions from the following URL:
https://i-pro.com/global/en/surveillance/training-support/support/technical-information

↓

Install the Software
☞ **this page**

Necessary Setup
☞ **Page 8~22**

↓

Start operations

Note:
* If you are using a camera with the software pre-installed, read "Necessary Setup".
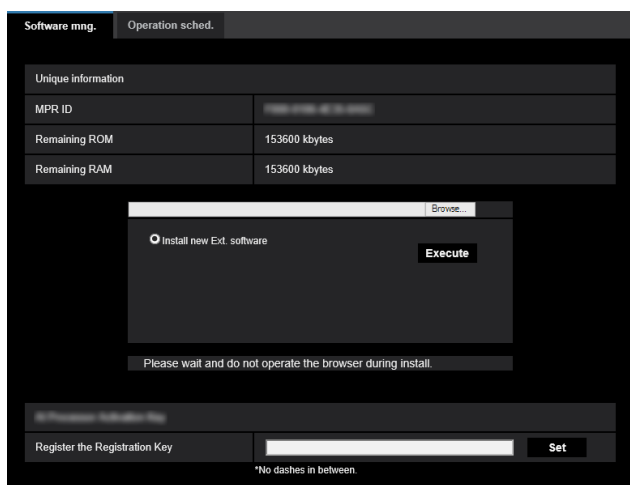

Install the Software

Follow the steps below to download this product and install it on your camera.

(1) Access the following URL to download "AI Video Motion Detection" and save it onto the PC.
https://i-pro.com/global/en/surveillance/training-support/documentation-database-list

Important:
* A space cannot be used in the name of the saving directory.

(2) Select the [Setup] - [Ext. software] - [Software mng.] tab of the camera.

Software mng.	Operation sched.

Unique information	
MPR ID	
Remaining ROM	153600 kbytes
Remaining RAM	153600 kbytes

Browse...
◉ Install new Ext. software   **Execute**

Please wait and do not operate the browser during install.

Register the Registration Key   **Set**
*No dashes in between.

Important:
* Check "Remaining ROM" and "Remaining RAM" of the camera. If disk space is insufficient, uninstall any other extension software already installed. For how to uninstall, refer to the "Operation settings" section in the Operating Instructions of the camera.
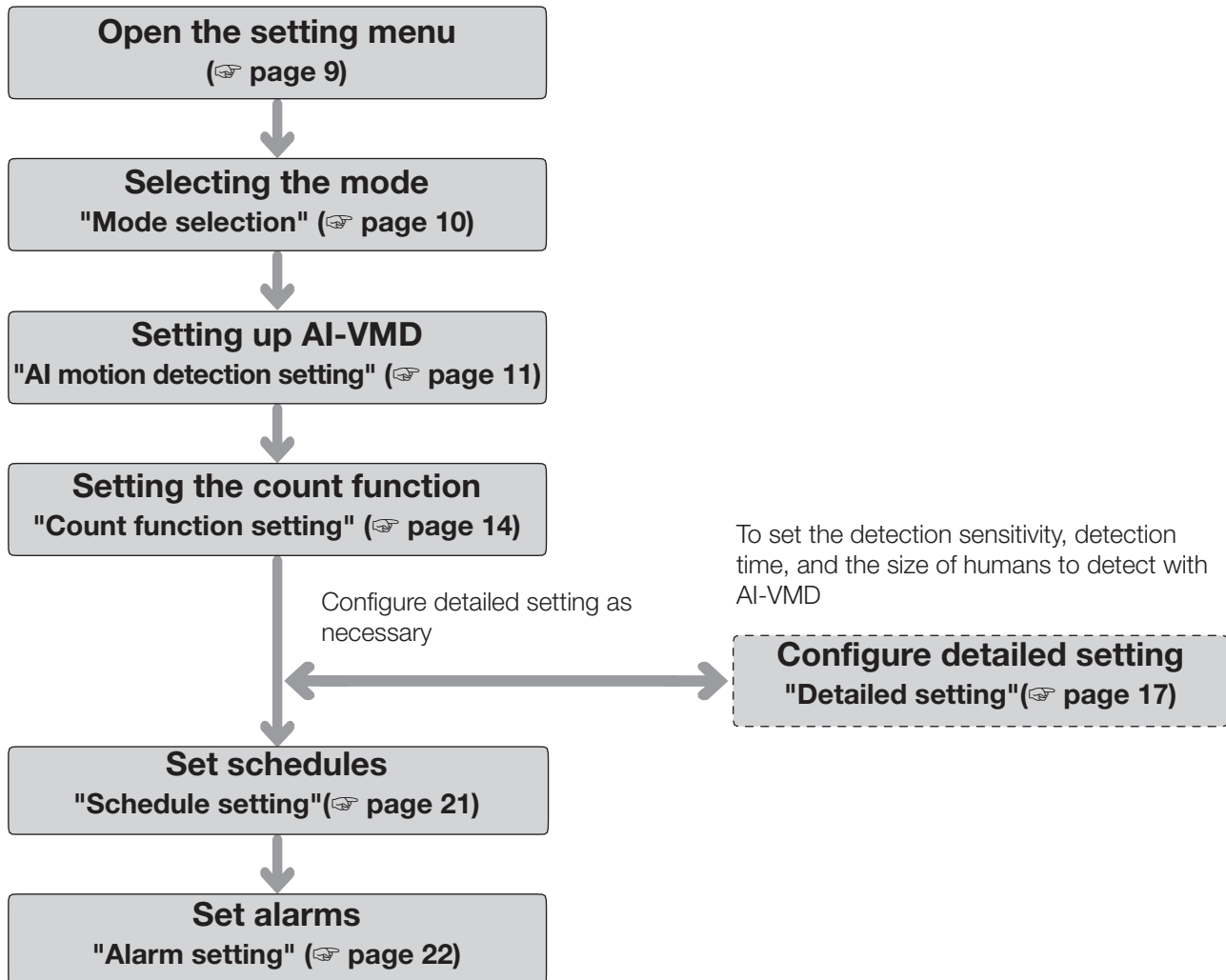
(3) Click the [Browse...] button and designate the downloaded "AI Video Motion Detection".

(4) Make sure that "Install new Ext. software" is selected and click the [Execute] button.
Then the software installation will begin.
When the installation is completed, "AI-VMD" will be added to the list of extended software and the "Software mng." screen. (The names may be partially omitted.)

Important:
* Do not turn off the power of the camera when installing the software.
* Do not perform any operations until the installation is completed.

Necessary Setup

On the setting procedure

Open the setting menu
(☞ page 9)

↓

Selecting the mode
"Mode selection" (☞ page 10)

↓

Setting up AI-VMD
"AI motion detection setting" (☞ page 11)

↓

Setting the count function
"Count function setting" (☞ page 14)

Configure detailed setting as necessary

To set the detection sensitivity, detection time, and the size of humans to detect with AI-VMD

Configure detailed setting
"Detailed setting"(☞ page 17)

↓

Set schedules
"Schedule setting"(☞ page 21)

↓

Set alarms
"Alarm setting" (☞ page 22)

Important

• For settings on cameras that support Internet Explorer, you need to install the plug-in software for displaying "Network Camera View 4S (ActiveX)" on the PC beforehand.
  For more information, refer to the Operating Instructions of the camera.

Necessary Setup (continued)

1. Open the setting menu

Once AI Video Motion Detection is installed, "AI-VMD" menu is added to the camera "Setup" menu - "Ext. software" page - "Software mng." tab.

AI-VMD

Setup
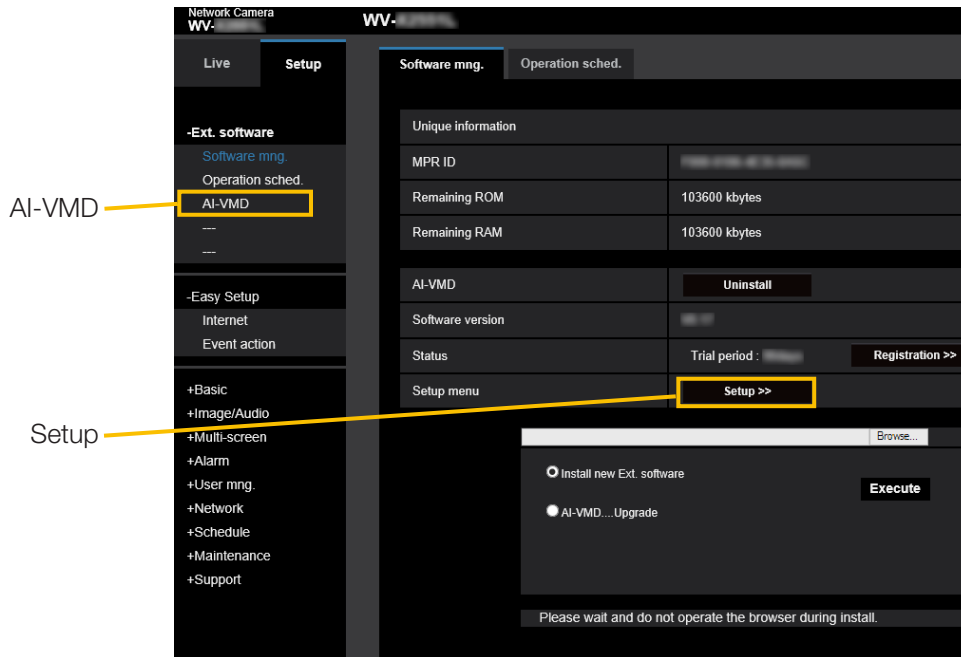
The "AI-VMD Setting Screen" has six setting screens: "① Mode selection", "② AI motion detection setting", "③ Count function setting", "④ Detailed setting", "⑤ Schedule setting", and "⑥ Alarm setting".

Note:
- Without "① Mode selection", then "② AI motion detection setting" and subsequent settings cannot be made.

Necessary Setup (continued)

2. Selecting the mode

Select Normal angle mode on the camera to be used.

2 modes are available: Normal angle mode and Perpendicular angle mode, and the functions available in each mode are as follows.

- Normal angle mode: AI motion detection, count function (Detection object: Human , vehicles, two-wheel vehicles).
- Perpendicular angle mode: AI motion detection, count function (Detection object: Human).
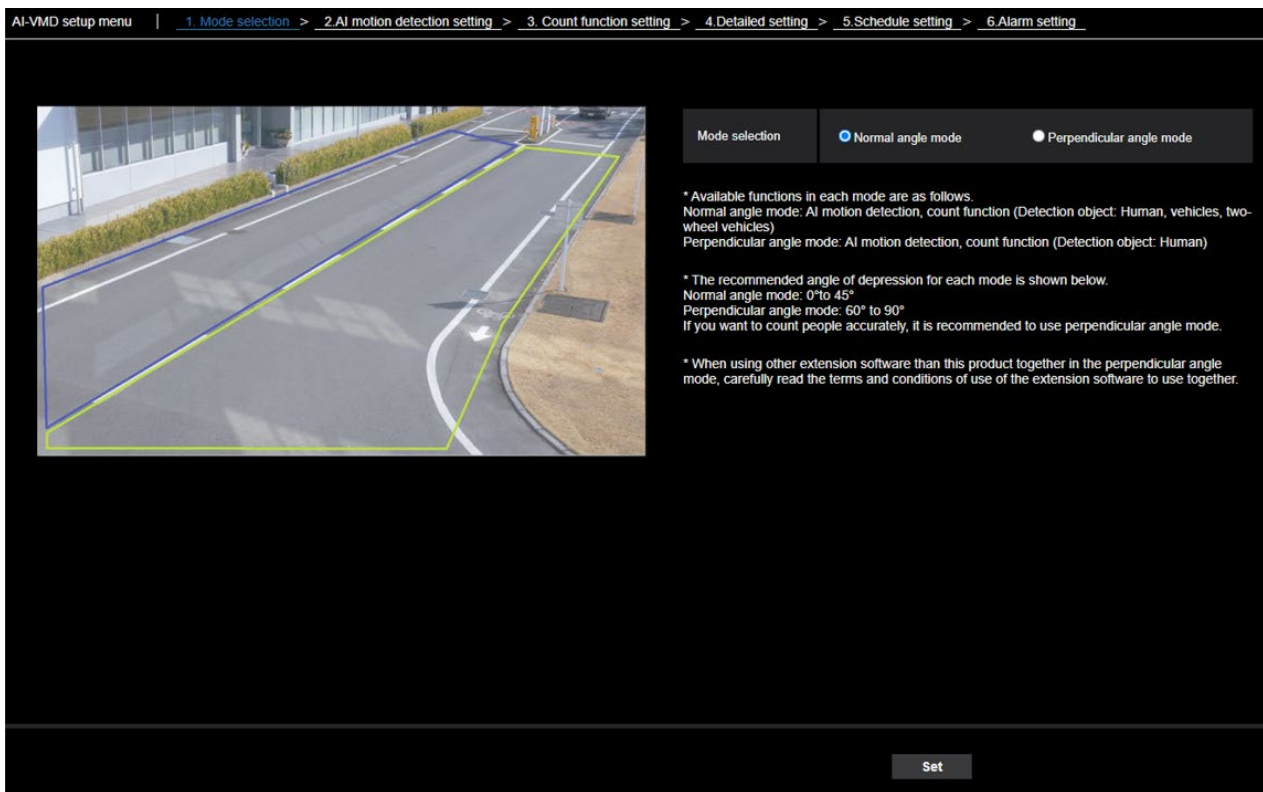
Note:

- To count human with high accuracy, it is recommended to operate in the Perpendicular angle mode. However, it is necessary to install the camera facing downwards.
- When using other extension software with this product together in the Perpendicular angle mode, carefully read the terms and conditions of use of the extension software to use together.

3. AI motion detection setting

In this setting, you can set the area and conditions with which AI-VMD detects moving bodies.
Select the detection objects in each detection area from humans, vehicles, bicycles. Select the detection mode from INTRUDER, LOITERING, DIRECTION, and CROSS LINE. Up to 8 detection areas and mask areas can be set respectively. Up to 2 combinations of areas and detection conditions can be set, which can be saved as "Detection program 1" and "Detection program 2".

■ Alarm notification area

When AI-VMD detects moving bodies, the alarm icon and the icons for the four detection modes turn on.
Click the alarm icon to clear the alarm state and turn off all the icons.

Icon	Label
	ALARM ICON
	CROSS LINE
	INTRUDER
	LOITERING
	DIRECTION

■ Drawing area (for setting the detection areas)
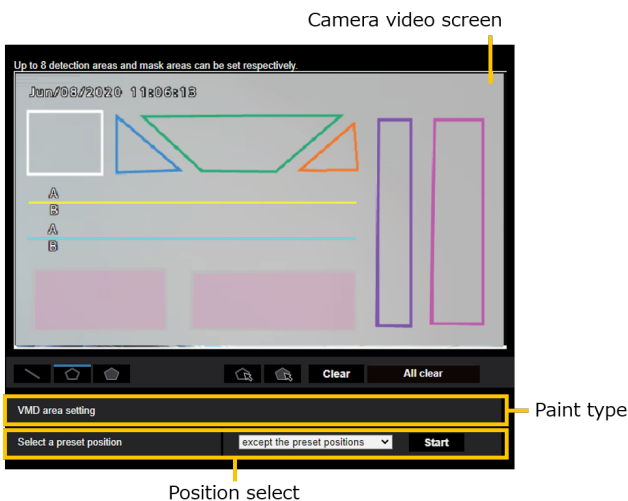
Camera video screen

Paint type

Position select

Camera video screen

You can draw the detection areas or detection lines on this screen.
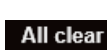To start drawing, select either "Detection area (polygon)" icon or "CROSS LINE" icon from "Paint type" according to what you want to draw, and drag it to the "Camera video screen".
An alarm occurs if moving bodies are cetected in the detection areas set by drawing.
An alarm also occurs when moving bodies cross the predetermined detection lines.

Paint type

Click the icon to select the drawing shape.

Icon	Description
	CROSS LINE: Draw a detection line for CROSS LINE.
	Detection area (polygon): Draw a detection area as a polygon (with up to 16 sides).
	Mask area (polygon): Draw a mask area as a polygon (with up to 16 sides).
	Detection area (select): Select a detection area (detection line) you have drawn.
	Mask area (select): Select a mask area you have drawn.
Clear	Clear: Clear the selected detection area (detection line) or mask area.
All clear	All clear: Clear all detection areas (detection lines) and mask areas you have drawn.

Note:

- In drawing a detection area (polygon) or a mask area (polygon), you can finish the area setting by selecting the starting point at the end.
- You can change the size, length and shape of detection areas, detection lines or mask areas that you select in "Detection area (select)" or "Mask area (select)" by dragging the corners of the frames or the end points of the lines. Also, you can move them by dragging the inside of frames or lines.
- In clearing detection areas or detection lines, if more than one detection area or detection line is overlapping, clicking the left mouse button in the overlapping areas switches the selected frame in turn.
- Detection frame (☞ page 27) the center of the lower edge is regarded as the position of the detection frame. Set the detection area so that the position of this detection frame is in the detection area.
- You cannot select more than one detection area, detection line, or mask area at the same time.
- In the initial setting, the entire drawing area is set as the detection area.
- If you change "Image capture mode" or "Image rotation" in the "Setup" menu of the camera, the detection area and mask area settings will return to the default settings.
- The mask area is the same in "Detection setting 1", "Detection setting 2", and the count function setting.

Necessary Setup (continued)

Position selection (PTZ camera only)
with PTZ cameras, set the detection area and mask area for each preset position.
Select a preset position where settings are made as follows.

    Preset positions 1 to 16 : Preset positions 1 to 16 settings
    Other preset positions   : Preset positions 17 to 256 and settings other than preset positions (common)

Start (PTZ camera only)
Click to move to the selection of the preset position.

> **Note:**
> • No alarm is notified during camera PTZ operation.

Demo screen display
Click to view the demon screen.

■ Detection condition setting

Detection program 1 and Detection program 2
Select "Detection program 1" tab and/or "Detection program 2" tab to set either or both detection conditions. The two conditions can be executed at the same time or separately depending on schedule setting (☞ page 21).

> **Note:**
> • In the initial setting of the schedule, Detection program 1 and Detection program 2 are always valid.
> • When using i-PRO Active Guard, only alarms generated by Detection program 1 will be notified as events.

Detection area
Up to 8 settings of detection areas and detection lines are distinguished by the color of the drawing lines.
The color of the drawing line shows the order of setting, with "1 (White)" coming first.

Detection object
Check the object (moving body) to detect in each detection area.
The following are the 3 types of detection objects.
• Human
• Bicycle (motorcycle, bicycle)
• Vehicle (ordinary car, bus, truck)
Initial setting: Human, bicycle and vehicle are checked

> **Note:**
> • You can combine the three detection objects.
> • Check all three of them to detect all moving bodies.
> • In the case when multiple numbers of detection objects are candidates, the results will be output in the priority sequence of vehicles, bicycles and humans. Better results will be obtained by removing the unnecessary detection objects checkmark.
> For example, in the case of a human standing in front of a vehicle, the human may be output as a vehicle. The human will be detected as a human by removing the vehicle checkmark.

Detection mode
Select the detection mode for each predetermined detection area and detection line.

    INTRUDER   : Detects that moving bodies have intruded the detection area.
    LOITERING   : Detects that moving bodies have loitered in the detection area for the fixed time.
    DIRECTION   : Detects that moving bodies have moved in the direction you specified within the detection area.
    CROSS LINE : Detects that moving bodies have crossed the detection line in the direction you specified.
Initial setting: INTRUDER

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Necessary Setup (continued)

Direction setup

Set the detection direction when the detection mode is "DIRECTION" or "CROSS LINE".

For "DIRECTION", you can select from the 8 directions below.

    Upper   : Detects upper movement.
    Upper right: Detects upper right movement.
    Right   : Detects rightward movement.
    Lower right: Detects lower right movement.
    Lower   : Detects lower movement.
    Lower left : Detects lower left movement.
    Left   : Detects leftward movement.
    Upper left : Detects upper left movement.
Initial setting : Left

For "CROSS LINE", you can select from the 3 directions below.

    A → B: Detects movement from A to B.
    B → A: Detects movement from B to A.
    A ⇔ B: Detects movement from A to B or from B to A.
Initial setting: B → A

[Set] button

Click to save the currently displayed contents on the Area setting tab.

Area setting procedure

(1) Make sure that the "AI motion detection setting" menu is selected.
(2) Make sure that the "Detection program 1" tab is selected.
(3) Draw the area for detection (hereinafter referred to as the detection area) in the drawing area.
Draw the area to exclude from detection (hereinafter referred to as the mask area) in the detection area.
You can set 8 detection areas and 8 mask areas respectively.
(4) For each detection area, select the detection mode from INTRUDER, LOITERING, DIRECTION, and CROSS LINE.
(5) Set "Direction setup" when the detection mode is "DIRECTION" or "CROSS LINE".
(6) Click [Set] to save the detection conditions in "Detection program 1".
(7) Select the "Detection program 2" tab and save the detection conditions in "Detection program 2" according to steps (3) to (6).

4. Setting the count function

Set the count function.
Select from human, vehicles and two-wheel vehicles as the detection object for each line. Up to 8 detection lines and mask areas can be set respectively.
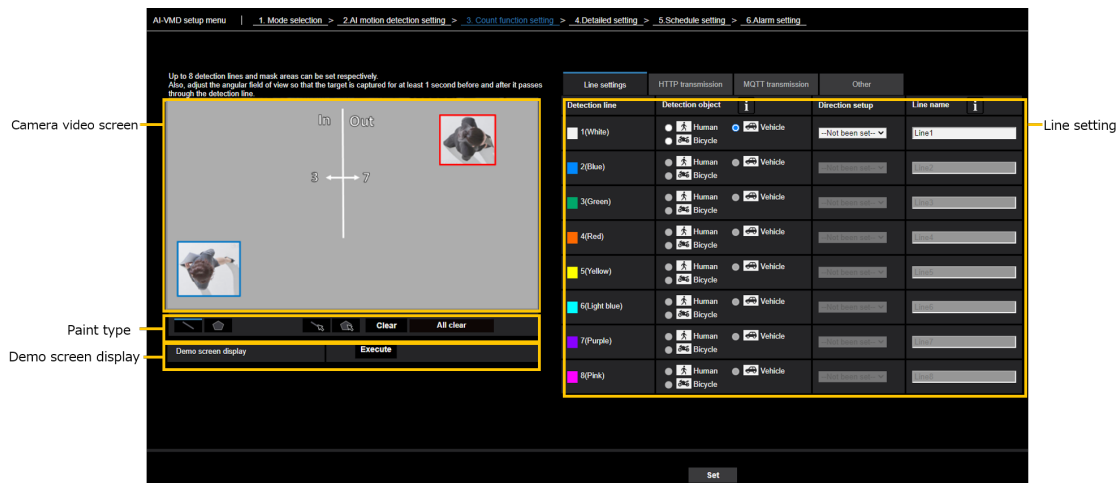
Camera video screen

You can draw the detection areas or detection lines on this screen.
To start drawing, select either "Detection area (polygon)" icon or "CROSS LINE" icon from "Paint type" according to what you want to draw, and drag it to the "Camera video screen".
An alarm occurs if moving bodies are detected in the detection areas set by drawing.
An alarm also occurs when moving bodies cross the predetermined detection lines.

Paint type

Click the icon to select the drawing shape.

CROSS LINE: Draw a detection line for CROSS LINE.

Detection area (polygon): Draw a detection area as a polygon (with up to 16 sides).

CROSS LINE (select): Select the drawn detection line.

Mask area (select): Select a mask area you have drawn.

Clear: Clear the selected detection area (detection line) or mask area.
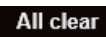
All clear: Clear all detection areas (detection lines) and mask areas you have drawn.

Demo screen display

Click to view the demonstration screen.

■ Line setting

Detection object

For each detection area, select the objects (moving) to be detected.
The following 3 types of detection objects are available.
- Human
- Vehicle (standard car, bus, truck)
- Two-wheel vehicles (motorcycles and bicycles)
Default setting:
When Perpendicular angle mode is selected: Human
When Normal angle mode is selected: Vehicles

Note:
- Detectable objects vary depending on the selected mode.
  Perpendicular angle mode: Human
  Normal angle mode: Human, vehicles, two-wheel vehicles

Direction setup

Specify the direction for counting.
Inward, Outward, In/Outward
Default setting: In/Outward

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Necessary Setup (continued)

Detection line name

Set a name up to 20 characters for each area. The set detection area name will be displayed on the i-PRO Active Guard dashboard.
Default setting: Line 1~8
Unavailable characters: Half-width symbols """ "&"

[Set] button

Click to save the contents of the currently displayed line settings tab.

■ HTTP transmission

Set the transmission interval and the transmission destination (1 to 4) to which count data will be sent via HTTP.

Transmission destination 1, Transmission destination 2, Transmission destination 3, Transmission destination 4

Count data can be notified individually in up to 4 locations. The setting for the 4 transmission destinations are the same.

Transmission

Check the box to send.
Default setting: Unchecked

Destination address

Enter the IP address of the transmission destination. (excluding 0.0.0.0)

Destination path name

Input the path name of the transmission destination. Enter single-byte alphanumerics or symbols, up to 128 characters.

SSL

Select whether to use SSL for transmission.
Default setting: On

Destination port number

Set the port number of the transmission destination.
1 ～ 65535

User name

Input the user name for authentication with the transmission destination. Enter single-byte alphanumerics or symbols, up to 128 characters.

Password

Input the authentication password for the transmission destination. Enter single-byte alphanumerics or symbols, up to 63 characters.

Transmission interval

Select the time interval for transmission.
  5sec, 10sec, 15sec, 1 min, 5 min, 10 min, 15 min, 30 min, 60 min
Default setting: 5 min

Note:
  • Please refer to the "AI-VMD I/F Specification" in the URL below for the contents of the HTTP interval transmission.
    https://biz.panasonic.com/jp-ja/productsservices_security_support_technicalinformation <C0323>

■ MQTT transmission

Set the transmission content and transmission interval for count data transmission via MQTT.

Transmission

Check the box to send.
Default setting: Unchecked

Necessary Setup (continued)

To MQTT transmission setting

Click to display the MQTT setting screen of the camera.

Topic

Enter the name of the MQTT topic to be sent. Enter single-byte alphanumerics or symbols, up to 128 characters.

QoS

Select QoS level 0, 1, or 2. Communication quality is higher with 0<1<2.

0: Messages are delivered at most once with QoS0. There is no guarantee that the message will reach the server.

1: Messages are delivered at least once with QoS1. It is assured that the message will reach its destination, but it may be duplicated.

2: Messages are delivered exactly once with QoS2. It is assured that the message will arrive only once, no more no less.

Default setting: 1

Retain

Check this box to have the last notified message stored on the MQTT server.

Default: Unchecked

Transmission interval

Select the time interval for transmission.

    5sec, 10sec, 15sec, 1 min, 5 min, 10 min, 15 min, 30 min, 60 min
Default setting: 5 min

■ Other

Count data storage interval

Set the measurement interval of count data. A file will be created at every measurement interval.

    15 min / 1 hour / 12 hours / 24 hours
Default setting: 1 hour

Note:

- The storage time for count data is 732 days.
  * In fact, data will be stored for a longer period of time than the above storage time. The excess storage time will depend on the camera's time zone setting (maximum 23 hours).
    Example: If the time zone is +9.00
    732 days + 9 hours

The Interval for the transmission of ONVIF®

Set the transmission interval of ONVIF Metadata.
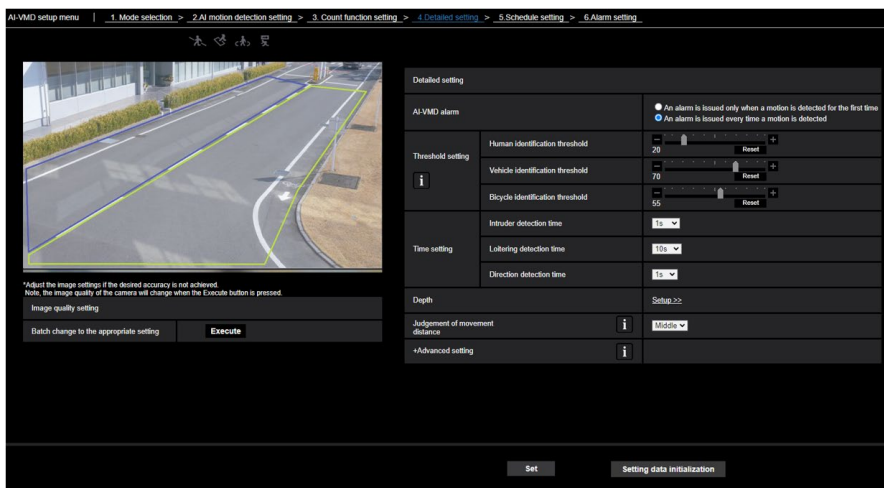
    5s, 10 s, 15 s, 1 min
Default setting: 5 s
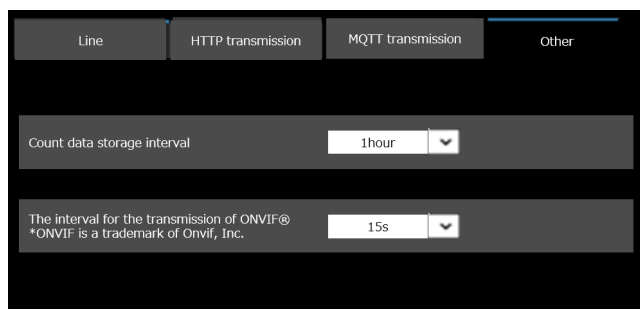
5. Detailed setting (as necessary)

Set the detection sensitivity, detection time, the size of humans to detect with AI-VMD.
Click [2. Detailed setting] at the upper part of the screen to open the "Detailed setting" menu.

■ **Detailed setting**

Image quality setting
[Batch change to the appropriate setting]
Click [Execute] to automatically set the appropriate image quality for AI-VMD in a batch.
The items changed in the batch setting are the following.

Super Dynamic	: Off
Light control speed	: 8
White balance adjustment speed	: 8
Digital noise reduction	: 128
Intelligent auto	: Off
Auto contrast adjust	: Off

Important
- If you select values larger than "Max. 1/30s" on [Image adjust] - [Light control mode] - [Maximum shutter], there may be loss of recognizability.

AI-VMD Alarm notification operation setting
Sets notification behavior for when alarm notification conditions are met.
An alarm is issued only when a motion is detected for the first time:
Notification the first time the alarm conditions are met only.
An alarm is issued every time a motion is detected:
Notification continuously as long as alarm conditions are met.
Default setting: An alarm is issued every time a motion is detected

Threshold setting
Set the threshold of AI-VMD. This setting applies to all detection conditions.

[Human identification threshold]
Set the detection threshold for detecting as a human. Smaller values lead to more probability of detection as a human, but more false detection occurs.
1 - 99

[Vehicle identification threshold]
Set the detection threshold for detecting as a vehicle. Smaller values lead to more probability of detection as a vehicle, but more false detection occurs.
1 - 99

[Bicycle identification threshold]
Set the detection threshold for detecting as a bicycle. Smaller values lead to more probability of detection as a bicycle, but more false detection occurs.
1 - 99

Time setting
Set how long it takes until an alarm occurs after detection.

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[Intruder detection time]

Set how long it takes until an alarm occurs after detection of intrusion.

   0.2 s, 0.4 s, 1 s, 2 s, 3 s, 4 s, 5 s, 10 s

Initial setting: 1 s

[Loitering detection time]

Set how long it takes until an alarm occurs after detection of loitering.

   10 s, 20 s, 30 s, 1 min, 2 min

Initial setting: 10 s

[Direction detection time]

Set how long an object needs to keep moving until an alarm occurs.

   1 s, 2 s, 3 s, 4 s, 5 s, 10 s

Initial setting: 1 s

Note:

- Depending on the movement of objects and other factors, the time it takes for an alarm occurs may be longer than the setting.

Depth

Set the depth. The depth setting applies to both Detection program 1 and Detection program 2.

If you set the depth, objects detected as "humans" with size clearly not that of "humans" do not trigger an alarm.

Click [Setup >>] to display the "Depth setting" menu.

■ Depth setting

Depth setting method

Select the depth setting method.

   On: Set depth manually to the camera.

   Off: Depth is not set.

Initial setting: Off

[Use "inch" as unit]

If checked, cm will change to inch.

Initial setting: Without check

Example with "Depth setting" set to "On"

■ Setting procedure

Draw marker 1 and marker 2 in two positions in the drawing area.

Then, enter each "Photographic subject size" for marker 1 and marker 2.

Click [Clear] to clear the drawn marker.
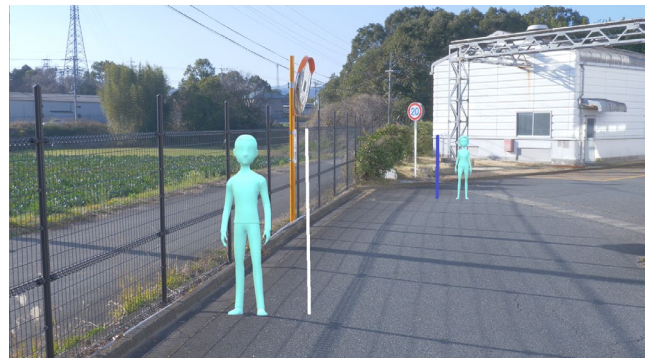
Example of depth setting

Note:

- Enter the "Photographic subject size" (height) between 100 cm and 200 cm. Also, draw straight line markers where the actual heights occupy.
- Draw the markers at two distant positions in the drawing area, one in front and one in the back. If the two markers are close together, depth may not be set properly.

When "Depth setting" is "Off"

There is no depth setting.

Necessary Setup (continued)

Note:

• If you often cannot detect humans with "On", you may be able to improve that by selecting "Off".

Size setting

When the depth setting is enabled, only the humans detected with sizes between the maximum and the minimum sizes trigger alarms.

Set the maximum and minimum size using a person of 160 cm (63 inches) in height as the reference size (100%).

Max. size

Set the maximum size of humans to detect.

100%, 150%, 200%, 250%, 300%, Unlimited
Initial setting: 300%

Min. size

Set the minimum size of humans to detect.

10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%
Initial setting: 50%

Note:

• Example of setting is shown below.
Example: Maximum size: 150%, minimum size: 30%. People between 48 cm (160 × 30%) and 240 cm (160 × 150%) will be the target of the alarm.
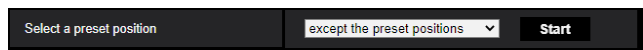
Select a preset position (PTZ camera only)

For PTZ cameras, the depth and size settings are set for each preset position.

Select a preset position where settings are made as follows.

Preset positions 1 to 16 : Preset positions 1 to 16 settings
Other preset positions : Preset positions 17 to 256 and settings other than preset positions (common)

Advanced settings
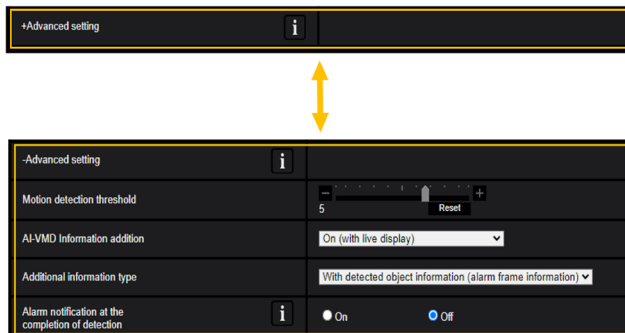
AI-VMD advanced settings. Click on the + sign to the left of the advanced settings, and the item will expand to display the detailed settings.

Click on the - sign to the left of the advanced settings, to return to the screen before the item is expanded.

[Motion detection threshold]

Sets the detection threshold with respect to the motion of the object to be detected. This setting is reflected in the detection threshold for all objects.

The smaller the value, the easier it is to detect, but the more likely it is to detect false positives.

1~7

[AI-VMD information addition]

Sets whether AI-VMD information (detection frame, detection object type) is added to the video data, and whether the detection frame and trajectory are displayed in the live video in the web browser.

When set to "On (with live display [with blue frame])", a blue frame is displayed when motion is detected on the screen. The color of the frame changes to red when the detected motion enters the detection area, and an alarm is triggered. It also displays the trajectory of the detected moving object with a green line. Displays the trajectory for the last approximately
3 seconds.

* Locus will not be displayed after V3.20.

The setting of AI-VMD information addition does not affect alarm operation.

Off: AI-VMD information is not appended. Neither detection frame nor locus are displayed.

On: AI-VMD information is added, but the detection frame and locus are not displayed.

On (with live display):
AI-VMD information is added, and the detection frame and trajectory are also displayed. Blue frames are not displayed.

Necessary Setup (continued)

On (with live display [with blue frame]):
AI-VMD information is added, and the detection frame and trajectory are also displayed. In addition to the red frame, a blue frame is also displayed.
Default setting: On (with live display)

[Additional Information Type]
Sets information to be added to the video data and the type of frame to be displayed in the live video in the web browser.
This setting is enabled when the above "AI-VMD information addition" setting is set to "On (with live display)" or "On (with live display [blue frame])" or "On".
* AI frame (green frame) will be hidden after V3.20.
With detection object information (alarm frame information):
Information on the detected object (human, vehicles, bicycles) and the location of the alarm frame (red frame) and motion detection frame (blue frame) is added.
With detection object information (AI frame information):
Information on detected objects (human, vehicles, bicycles) and the location of AI detected AI frames (green frames) are added.
Without detected object information:
Only the location information of the alarm frame (red frame) and motion detection frame (blue frame) is added. Detected object information (human, vehicles, bicycles) is not added.
Default setting: With detection object information (alarm frame information)

[Alarm notification at the completion of detection]
Select whether or not to notify an alarm when intrusion detection or dwell detection is completed.
Default setting: Off

Note:
• If the "Alarm notification at the completion of detection" is set to "On", an alarm may be notified regardless of the camera's "Alarm deactivation time".

[Movement amount judgment]
You can set the alarm threshold for moving objects.
• Off : The alarm will be triggered even when the movement of the object is tiny
• Low : The alarm will be triggered even when the movement of the object is small
• Middle : Default
• High : The alarm will be triggered when a significant movement of an object is detected.
"Off" and "Low" might be useful in scenes where the object moves from the back to the front and the camera tilt angle is shallow. "High" might be useful to reduce the number of false positive alarms caused by slight movements.

Note:
• The [Movement amount judgment] setting is only valid for detection objects that intrusion detection is selected as the detection mode.

[Set]
Click to save the currently displayed contents on the Detailed setting tab.

[Setting data initialization]
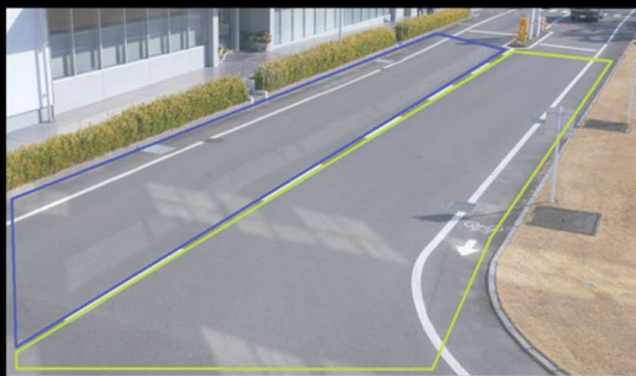Click to reset all the settings of AI-VMD.

Necessary Setup (continued)

6. Schedule setting

At the default,schedules of both "Detection setting 1" and "Detection setting 2" are active for 24 hours.
To perform the detailed settings for schedule, perform the settings on the setup menu of the camera.
Refer to Operating Instructions of the camera for details.

■ **Schedule setting**

AI-VMD setup menu   1. Mode selection>2. AI motion detection setting>3. Count function setting>4.Detailed setting>5.Schedule setting>6.Alarm setting

To perform the detailed settings for schedule, perform the settings on the setup menu of the camera.
To enable the schedule of the count function, enable "Detection setting 1" or "Detection setting 2".
At the default, schedules of both "Detection setting 1" and "Detection setting 2" are active for 24 hours.

Necessary Setup (continued)

7. Alarm setting

For the basic setting procedure for TCP alarm notification and other alarm setting procedures, refer to the Operating Instructions of the camera.
Click [6. Alarm setting] at the upper part of the screen to open the "Alarm setting" menu.

■ **Alarm setting**
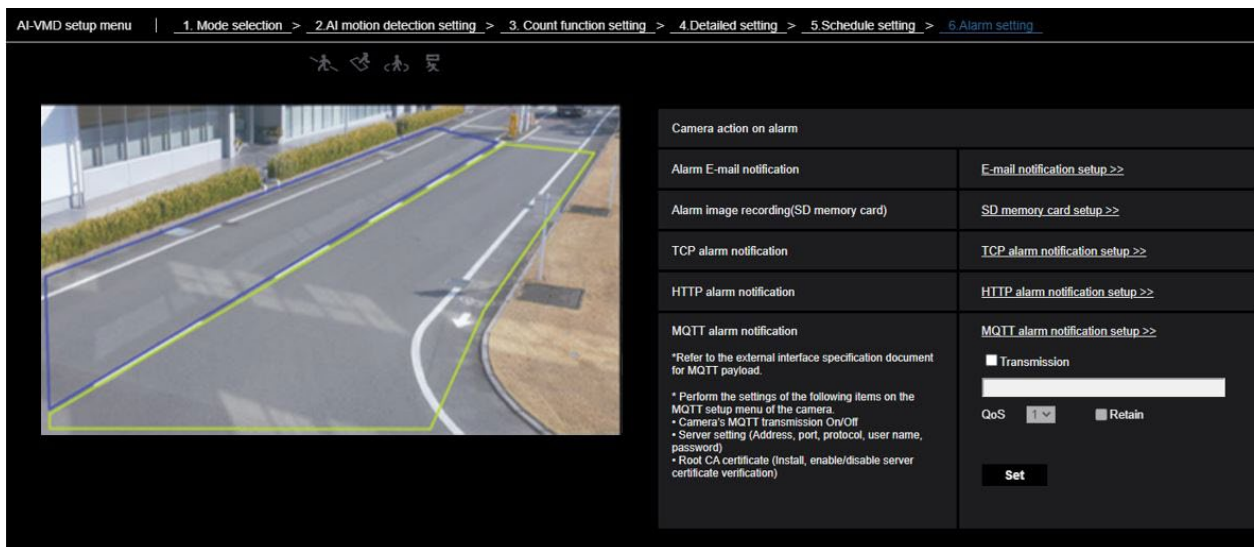
Alarm E-mail notification
[E-mail notification setup]
Click to display the E-mail setting screen of the camera.

Alarm image recording(SD memory card)
[SD memory card setup]
Click to display the SD memory card setting screen of the camera.

TCP alarm notification
[TCP alarm notification setup]
Click to display the TCP alarm notification setting screen of the camera.

HTTP alarm notification
[HTTP alarm notification setup]
Click to display the HTTP alarm notification setting screen of the camera.

MQTT alarm notification
[MQTT alarm notification setup]
Click to display the MQTT setting screen of the camera.

[Transmission]
Check the box to send.
Default setting: Unchecked

[Topic]
Enter the name of the MQTT topic to be sent. Enter single-byte alphanumerics or symbols, up to 128 characters.

[QoS]
Select QoS level 0, 1, or 2. Communication quality is higher with 0<1<2.
0: Messages are delivered at most once with QoS0. There is no guarantee that the message will reach the server.
1: Messages are delivered at least once with QoS1. It is assured that the message will reach its destination, but it may be duplicated.
2: Messages are delivered exactly once with QoS2. It is assured that the message will arrive only once, nomore no less.
Default setting: 1

[Retain]
Check this box to have the last notified message stored on the MQTT server.
Default: Unchecked

Demo screen

AI-VMD and the Count function each have a demo screen display button, and the demo screen can be displayed by clicking it.

AI-VMD
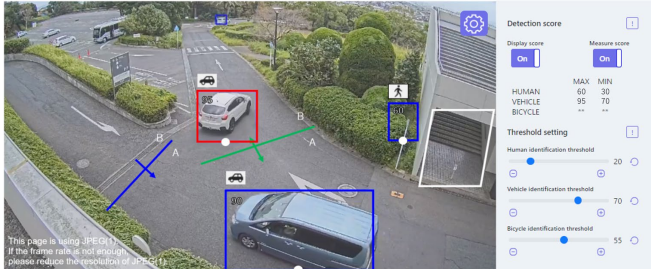
Count function

[Detection area]

The set detection area is displayed in color.

Area 1: White; Area 2: Blue; Area 3: Green;
Area 4: Red; Area 5: Yellow; Area 6: Light blue;
Area 7: Purple; Area 8: Pink

Solid line: Line set to "On"

Dashed line: Line set to "Off"

[Detection area]

The set detection area is displayed in color.

Area 1: White; Area 2: Blue; Area 3: Green;
Area 4: Red; Area 5: Yellow; Area 6: Light blue;
Area 7: Purple; Area 8: Pink

Solid line: Line set to "On"

Dashed line: Line set to "Off"

[Direction label]

Displays the direction labels for Cross Line Detection and Count functions (Cross Line Detection: A, B; Count function: In, Out).

[Detection frame]

A frame is displayed when a target object is detected.

Red frame: Displays the objects in the area where the alarm occurred and objects crossing the line in the set directions.

Blue frame: Displays the detected object.

[White dots in detection frame]

The white dot in the person detection frame shows the position of the person's feet.
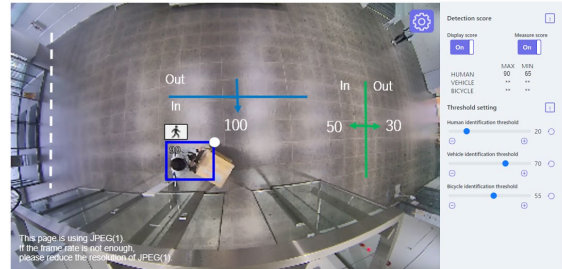
[Number of counts (Count function only)]

The count for target objects counted in the set direction is displayed in a color that corresponds to the line being counted.

Line 1: White; Line 2: Blue; Line 3: Green; Line 4: Red;
Line 5: Yellow; Line 6: Light blue; Line 7: Purple;
Line 8: Pink

[Settings] button

Click to display the [Display score] and [Measure score] toggle switch and threshold settings.

[Display score]

When the switch is "On", the Display score is displayed in the upper left corner of the detection frame.

"**" may be displayed when the detection score is below the threshold.

[Measure score]

When set to "On", measurement of the maximum and minimum detection score is started and the measurement result (MAX/MIN) will be displayed on the demo screen. When set to "Off," measurement is stopped.

[Icon]

When the Display score is "On", the icon of the detection object is displayed on the upper left of the detection frame.

Human: , Vehicle: ,

Two-wheel vehicles:

Demo screen (continued)

Note:
- Please use Mozilla Firefox, Google™ Chrome ™ or Microsoft Edge to display the demo screen. Internet Explorer is not supported.
- The demo screen can be displayed on only one browser. It does not support simultaneous access by multiple browsers.
  It also does not support a simultaneous display of demo screen for AI-VMD/Count function.
- AI-VMD/Count function setting screen/demo screen cannot display detection frames at the same time.
- If the data encryption is set to "On", the demo screen image will not be displayed.
- When used simultaneously with other extension software functions, the position of the person may be significantly misaligned with the detection frame on the demo screen.
- The demo screen is for demo purposes, thus not recommended for actual operation.
- If Display score is set to "Off", Measure score cannot be set to "On".

Combination with the AI On-site Learning application

This product can be used in combination with the AI On-site Learning application to perform the following.

- Add new detection objects
- Improve false detection and missed detection of humans, vehicles and bicycles

Refer to the following for details on how to use the AI On-site Learning application.
https://i-pro.com/products_and_solutions/en/AIOnsiteLearning/en/html/AIOnsiteLearning_webguide_en/index.html

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Note:

- Refer to the following for the information on the combination and restrictions of the AI On-site Learning application and camera.
  https://i-pro.com/products_and_solutions/ja/surveillance/learning-and-support/knowledge-base/compatibility
  <C0103>

■ Add new detection objects
(AI motion detection) Detection
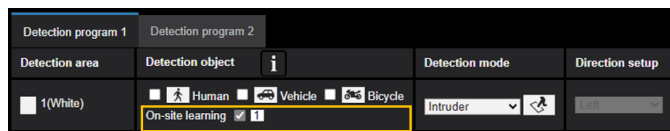
(Counting function) Line settings

List of on-site learning objects

Detection objects newly added in the AI On-site Learning application (hereinafter referred to as on-site learning objects), will be added as detection objects of this product. Up to 5 objects can be added.
Note that only the on-site learning objects for which [Adding a new detection object] is selected in the detection function will be added as detection objects for this product. The names of on-site learning objects and detection function can be found from the list of on-site learning objects.

Advanced settings
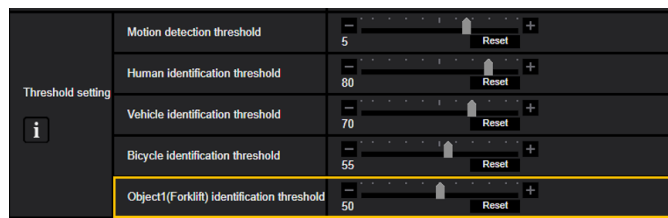
[Object 1~5 identification threshold]

Note that only the on-site learning objects for which [Adding a new detection object] is selected in the detection function will be added to the threshold settings of this product. The names of on-site learning objects are displayed in parentheses ( ). The smaller the value, the easier it is to detect the object as objects 1~5, but it will be easier to cause false detection.
  1~99

Note:

- Use in the normal angle mode.
- The names of on-site learning objects and detection function can only be set in the AI On-site Learning application.
- If you have changed the on-site learning object settings in the AI On-site Learning application, open the settings screen of the product again and update the settings information.


Combination with the AI On-site Learning application (continued)

■ **Improve false detection and missed detection of humans, vehicles and bicycles**

On-site learning object 🛈		
Object number	**Object name**	**Detection function**
1	Dog	Improving false detection(Human)
2	Bus	Improving missed detection(Vehicle)
3	Unused	Unused
4	Unused	Unused
5	Unused	Unused

If false detection or missed detection of humans, vehicles and bicycles has occurred with this product, accuracy can be improved by learning the corresponding scenes by the AI On-site Learning application.
You can check the on-site learning objects after learning from the list of on-site learning objects. Detection objects (humans, vehicles and bicycles) selected for improvement are displayed in parentheses ( ) of the detection function.

Note:

- On-site learning objects for which improving false detection or improving missed detection is selected for the detection function, will not be added as detection objects for this product.
- The names of on-site learning objects and detection function can only be set in the AI On-site Learning application.
- If you have changed the on-site learning object settings in the AI On-site Learning application, open the settings screen of the again product and update the settings information.

■ **Demo screen**

Refer to the AI On-site Learning application web manual for the demo screen.
https://i-pro.com/products_and_solutions/en/AIOnsiteLearning/en/html/AIOnsiteLearning_webguide_en/index.html

Operation

Once you have finished the necessary settings, open the web browser of the camera to display the video and start operation.

Alarm icon

Locus
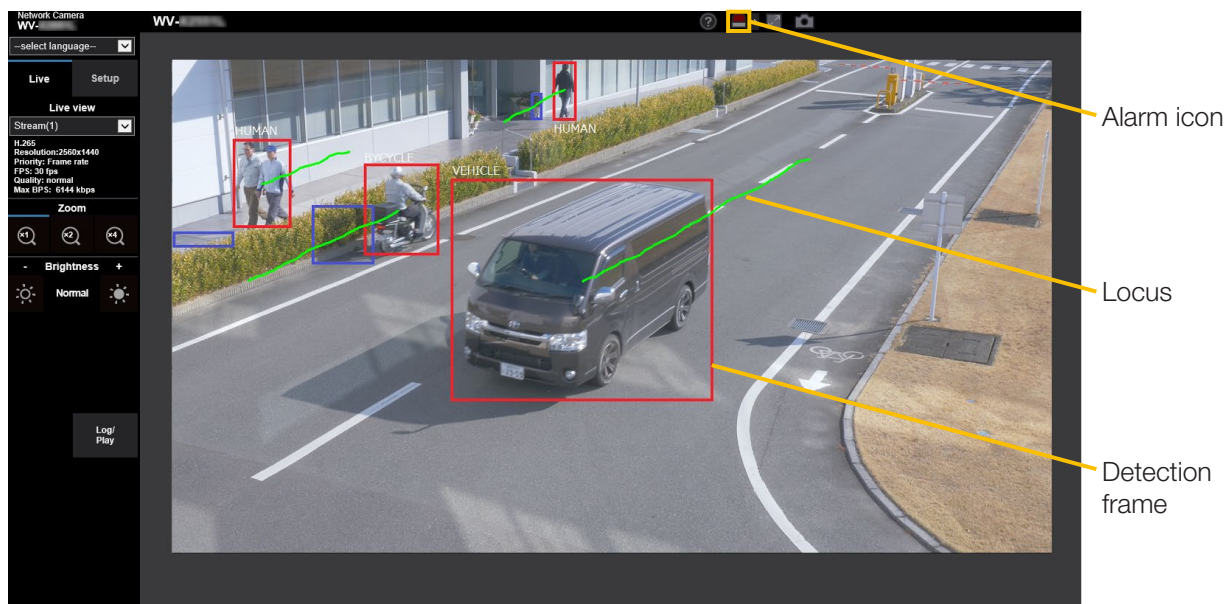
Detection frame

Alarm icon

The alarm icon turns on when AI-VMD detects a moving body.

Click [>] to the right of the icon to display the alarm status for each detection mode.

Icon	Label
🔴	ALARM ICON
	CROSS LINE
	INTRUDER
	LOITERING
	DIRECTION

A red frame is added to the icon of the corresponding detection mode when an alarm occurs. In addition, the details of the alarm are described to the right of the icon. Click [<] to hide the icon for each detection mode.

Clicking the alarm icon during an alarm resets all alarms.

Note:
- The alarm icon also turns on when an alarm input or a command alarm is received at a terminal alarm.

Detection frame (red frame, blue frame)

When a moving body is detected, a blue frame appears around the body. When the detected moving body intrudes into the detection area and triggers an alarm, a red frame appears around the body.
The frame display can be turned On/Off from the "AI-VMD information addition" setting.

Locus

The locus of the alarm frame (red frame) is displayed in green. The locus for about the last 3 seconds is displayed.
It is displayed when the alarm frame (red frame) is set to be displayed in the settings of "AI-VMD Information addition" and "Additional information type".
* After V3.20, the locus will not be displayed.

Important
- For cameras that support Internet Explorer, even if [Basic] - [Status update mode] in the camera setup menu is set to "Real time", the alarm notification may be delayed due to the network environment.
- If you change [Image/Audio] - [Image capture mode] or [Basic] - [Image rotation] in the camera setup menu after setting the detection areas of AI-VMD, then the detection areas, mask areas, and the depth may be shifted or initialized. After changing [Image capture mode] or [Image rotation], check the detection area setting, mask area setting, and depth setting again.
- If you change the zoom setting after setting the detection areas of AI-VMD, the detection areas and the mask areas may be shifted. After changing the zoom setting, check the detection area setting, mask area setting, and depth settings again.

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Open Source Software

Open Source Software (continued)

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