



# AI in the BOX

Operation Manual

*DV-1304*



Powered by **Direct IP**

# Before reading this manual

This operation manual contains basic instructions on installing and using DirectIP AI in the Box, an IDIS product. Users who are using this product for the first time, as well as users with experience using comparable products, must read this operation manual carefully before use and heed to the warnings and precautions contained herein while using the product. Safety warnings and precautions contained in this operation manual are intended to promote proper use of the product and thereby prevent accidents and property damage and must be followed at all times. Once you have read this operation manual, keep it at an easily accessible location for future reference.

- The manufacturer will not be held responsible for any product damage resulting from the use of unauthorized parts and accessories or from the user's failure to comply with the instructions contained in this operation manual.
- It is recommended that first-time users of this network camera and individuals who are not familiar with its use seek technical assistance from their retailer regarding product installation and use.
- If you need to disassemble the product for functionality expansion or repair purposes, you must contact your retailer and seek professional assistance.
- Both retailers and users should be aware that this product has been certified as being electromagnetically compatible for commercial use. If you have sold or purchased this product unintentionally, please replace with a consumer version.

## Safety Precautions

	<b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN	
<b>CAUTION:</b> TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

# Safety Precautions

## Important Safeguards

**1. Read Instructions** All the safety and operating instructions should be read before the appliance is operated.

**2. Retain Instructions** The safety and operating instructions should be retained for future reference.

**3. Cleaning** Unplug this equipment from the wall outlet before cleaning it. Do not use liquid aerosol cleaners. Use a damp soft cloth for cleaning.

**4. Attachments** Never add any attachments and/or equipment without the approval of the manufacturer as such additions may result in the risk of fire, electric shock or other personal injury.

**5. Water and/or Moisture** Do not use this equipment near water or in contact with water.

**6. Ventilation** Place this equipment only in an upright position. This equipment has an open-frame Switching Mode Power Supply (SMPS), which can cause a fire or electric shock if anything is inserted through the ventilation holes on the side of the equipment.

**7. Accessories** Do not place this equipment on an wall or ceiling that is not strong enough to sustain the camera. The equipment may fall, causing serious injury to a child or adult, and serious damage to the equipment. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer.



This equipment and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the equipment and cart combination to overturn.

**8. Power Sources** This equipment should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power, please consult your equipment dealer or local power company. You may want to install a UPS (Uninterruptible Power Supply) system for safe operation in order to prevent damage caused by an unexpected power stoppage. Any questions concerning UPS, consult your UPS retailer.

**9. Power Cord** Operator or installer must remove power and TNT connections before handling the equipment.

**10. Lightning** For added protection for this equipment during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the equipment due to lightning and power-line surges. If thunder or lightning is common where the equipment is installed, use a surge protection device.

**11. Overloading** Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.

**12. Objects and Liquids** Never push objects of any kind through openings of this equipment as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the equipment.

**13. Servicing** Do not attempt to service this equipment yourself. Refer all servicing to qualified service personnel.

### 14. Damage requiring Service

Unplug this equipment from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- A. When the power-supply cord or the plug has been damaged.
- B. If liquid is spilled, or objects have hit the equipment.
- C. If the equipment has been exposed to rain or water.
- D. If the equipment does not operate normally by following the operating instructions, adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the equipment to its normal operation.
- E. If the equipment has been dropped, or the cabinet damaged.
- F. When the equipment exhibits a distinct change in performance — this indicates a need for service.

### 15. Replacement Parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

### 16. Safety Check

Upon completion of any service or repairs to this equipment, ask the service technician to perform safety checks to determine that the equipment is in proper operating condition.

### 17. Field Installation

This installation should be made by a qualified service person and should conform to all local codes.

### 18. Correct Batteries

Warning: Risk of explosion if battery is replaced by an incorrect type. Replace only with the same or equivalent type. Dispose of used batteries according to the instructions. The battery shall not be exposed to excessive heat such as sunshine, fire or the like.

### 19. Tmra

A manufacturer's maximum recommended ambient temperature (Tmra) for the equipment must be specified so that the customer and installer may determine a suitable maximum operating environment for the equipment.

### 20. Elevated Operating Ambient Temperature

If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra).

### 21. Reduced Air Flow

Installation of the equipment in the rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.

### 22. Mechanical Loading

Mounting of the equipment in the rack should be such that a hazardous condition is not caused by uneven mechanical loading.



### 23. Circuit Overloading

Consideration should be given to connection of the equipment to supply circuit and the effect that overloading of circuits might have on over current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

### 24. Reliable Earthing (Grounding)

Reliable grounding of rack mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

## In-Text

Symbol	Type	Description
	<b>Caution</b>	Important information concerning a specific function.
	<b>Note</b>	Useful information concerning a specific function.

## User's Caution Statement

Caution: Any changes or modifications to the equipment not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

## FCC Compliance Statement

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE, IN WHICH CASE USERS WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT THEIR OWN EXPENSE.

**WARNING:** CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT. THIS CLASS OF DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE CAUSING EQUIPMENT REGULATIONS.



## WEEE (Waste Electrical & Electronic Equipment)

### **Correct Disposal of This Product**

***(Applicable in the European Union and other European countries with separate collection systems)***



This marking shown on the product or its literature, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

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Other company and product names are registered trademarks of their respective owners.

The information in this manual is believed to be accurate as of the date of publication even though explanations of some functions may not be included. We are not responsible for any problems resulting from the use thereof. The information contained herein is subject to change without notice. Revisions or new editions to this publication may be issued to incorporate such changes.

The software included in this product contains some Open Sources. You may obtain the complete corresponding source code from us. See the Open Source Guide on the software CD (OpenSourceGuide\OpenSourceGuide.pdf) or as a printed document included along with the User's Manual.

Covered by one or more claims of the patents listed at [patentlist.accessadvance.com](http://patentlist.accessadvance.com).

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# Part 1 – Introduction

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## Product Features

This AI in the Box (Artificial Intelligent in the Box) analyzes the live video from DirectIP cameras and transmits the video over Ethernet connections. This product offers the following features:

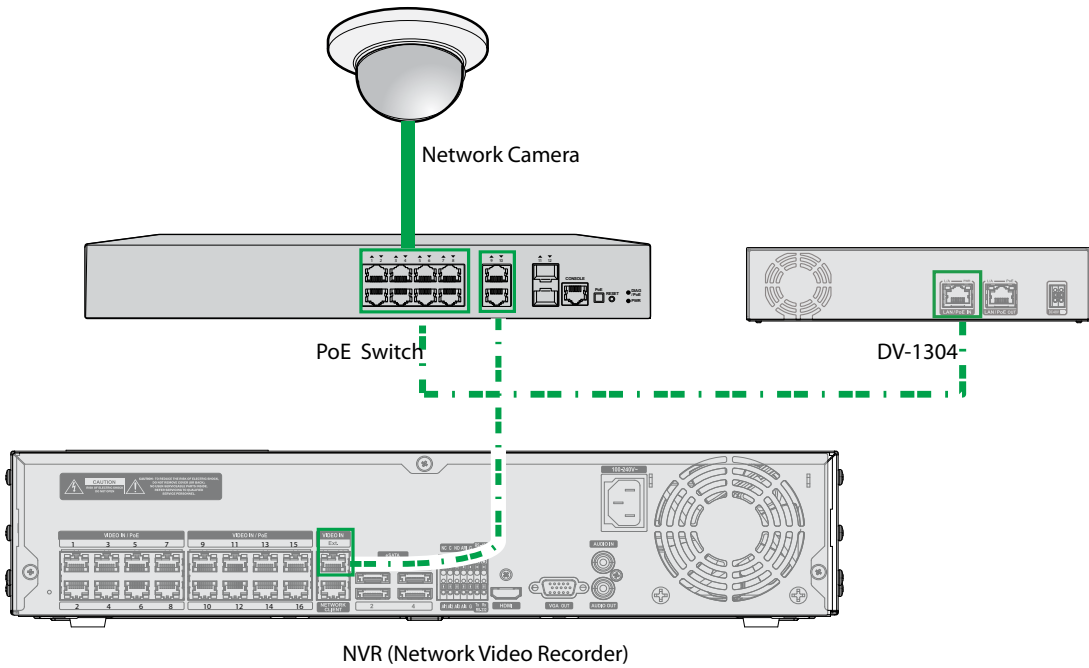
- Video Inputs : 4-channel H.264 and H.265 IP camera
- DirectIP protocol supported
- Convenient firmware upgrades via network
- Firmware duplication and auto recovery functions to enhance system stability
- Various image analysis function such as People Counting, Heat Map, Social Distancing Violation, Mask Rule Violation and Queue Monitoring
  - People Counting : Counts the number of people passing through the line on the video
  - Heat Map : Analyzes the person flows or traffic of the settings area on the video
  - Social Distancing Violation : Alarm occurs according to the condition by estimating and analyzing the distance between people detected in the video.
  - Mask Rule Violation : Selected camera detects a face and an event occurs depending on whether the face mask is worn or not.
  - Queue Monitoring : Monitors the number of people who have stayed in the setting zone
- Configuration of device settings and integrated management of multiple AI Boxes on the NVR (Network Video Recorder)



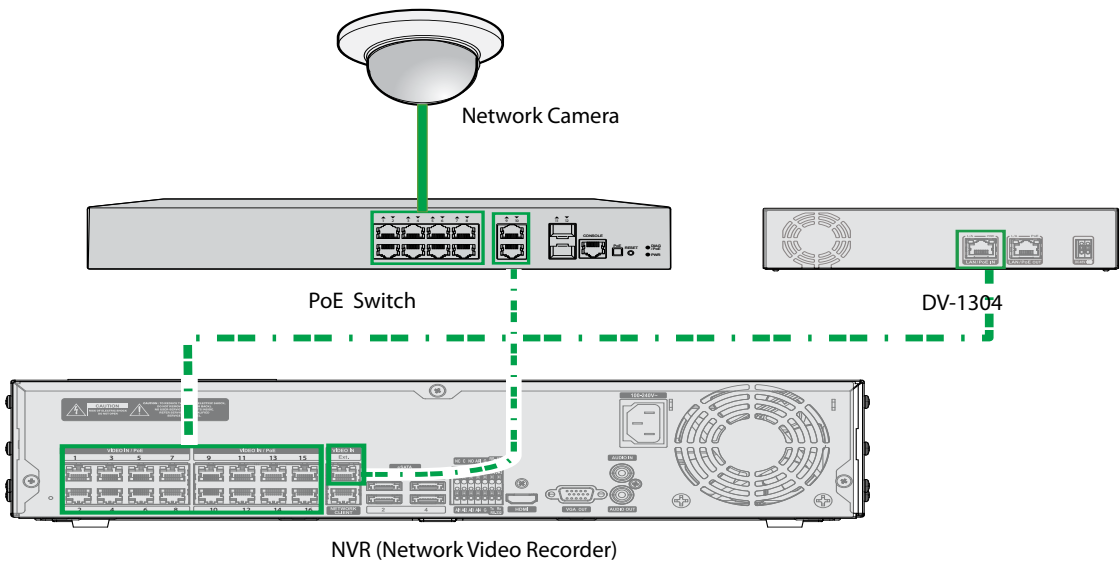
Check the following before connecting the product. (Only for the examples 1,2,3)

- Check if the Switch's PoE power per port supports 30W.

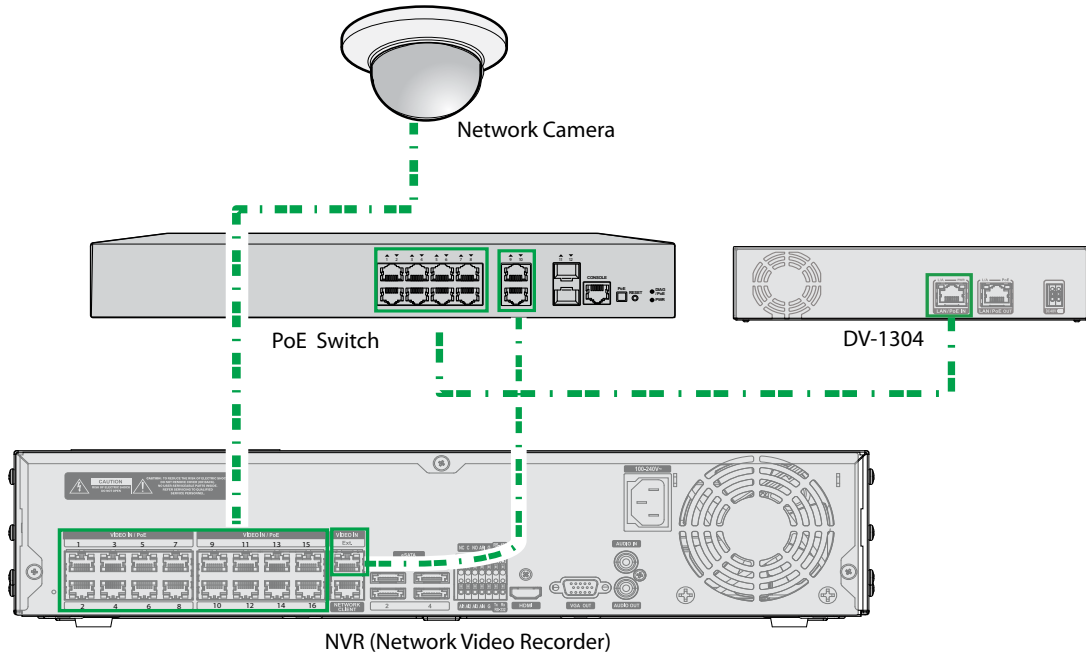
### Example 1 : Connection Diagram Using PoE Switch



### Example 2 : Connection Diagram Using PoE Switch



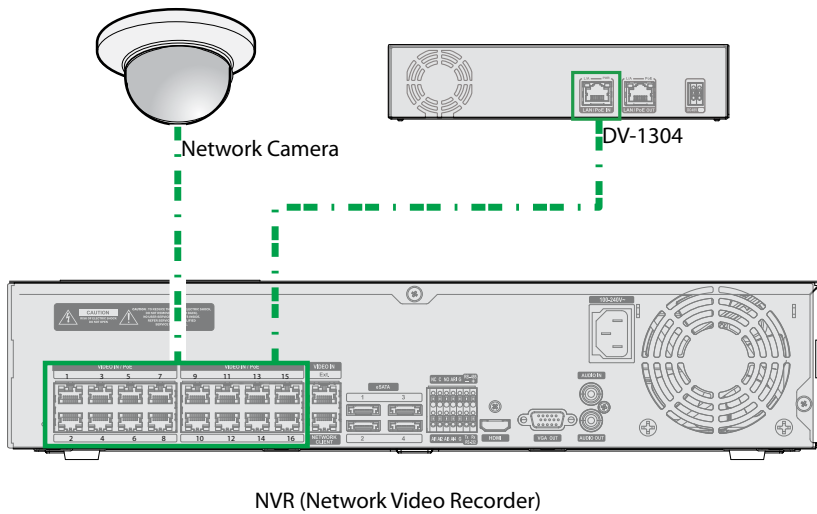
Example 3 : Connection Diagram Using PoE Switch



Check the following before connecting the product. (Only for the example 4)

- Check if the NVR's PoE power per port supports 30W.

Example 4 : Connection Diagram without PoE Switch

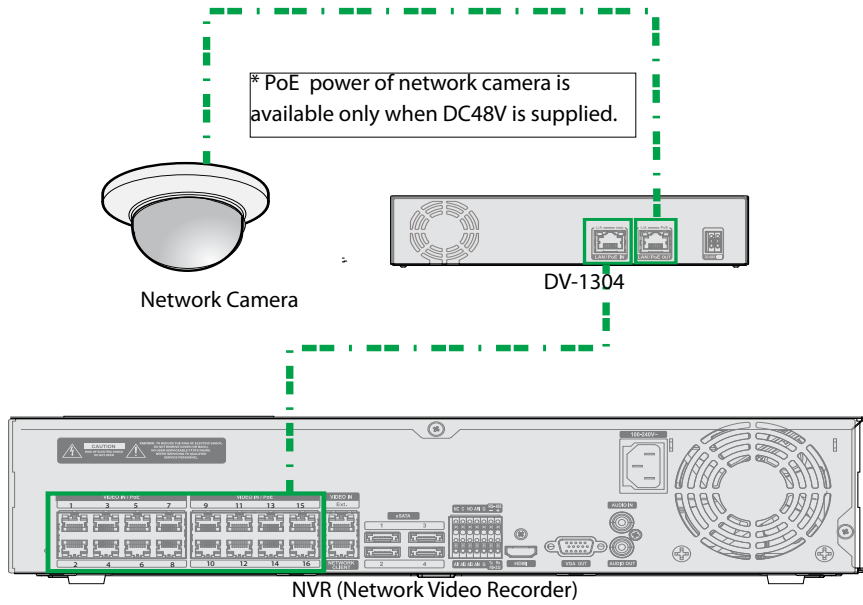


**Types of Cables**



LAN Cable (Data + PoE Power)

Example 5 : Sonnection Diagram without PoE Switch



**Types of Cables**



LAN Cable (Data + PoE Power)

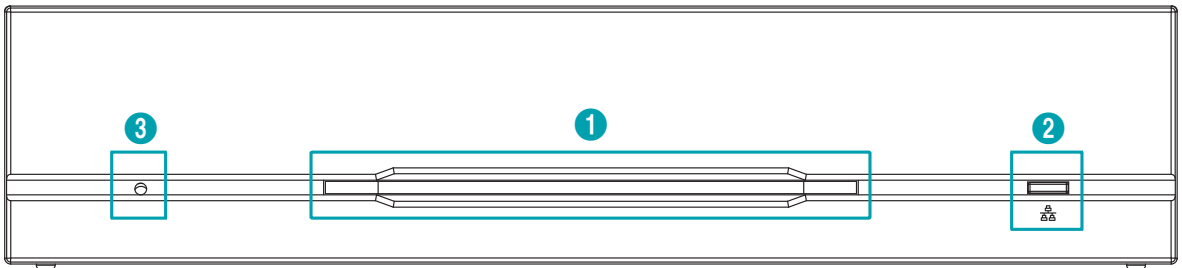
## Accessories

Upon unpacking the product, check the contents inside to ensure that all the following contents are included.

- All in the Box
- User Guide and Instruction Manual (This document)
- Rubber Foot (4EA)

## Overview

### Front Panel



①	<b>Power LED</b>	②	<b>Network LED</b>	③	<b>Factory Reset Switch</b>
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#### ① Power LED

Displays system operating status

#### ② Network LED

Displays network connection status

#### LED Status Indications

LED	Status	Description
Power LED	Off	No power connection
	Blinking	System booting or upgrading
	On	System operating
Network LED	On / Blinking	Normal network connection

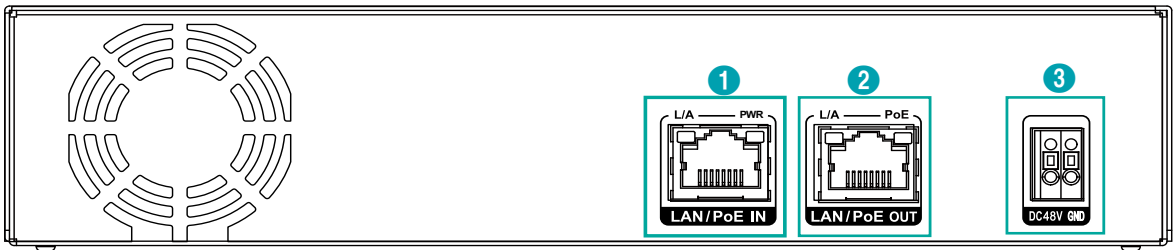
#### ③ Factory Reset Switch

Use to return all settings to the original factory settings. Connect the power and poke a straightened paperclip into the factory reset switch hole. Hold the reset switch until the VA Box's internal buzzer sounds twice. Release the reset switch, and all of the device settings are now at the original settings it had when it left the factory.



- **Factory Reset during system booting:** All of the AI Box's settings are now at the original settings it had when it left the factory.
- **Factory Reset during system operating:** The other settings except for system log are now at the original settings it had when it left the factory.
- **Factory Reset via the IDIS Discovery program:** The other settings except for system log and network settings are now at the original settings it had when it left the factory.
- **Factory Reset via the IDIS Discovery program(including network settings) :** The other settings except for system log are now at the original settings it had when it left the factory.

## Rear Panel



①	<b>Network + PoE Power Input</b>	②	<b>Camera + PoE Power Output</b>	③	<b>DC48V Input</b>
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### ① Network + PoE Power In

Connect a Cat5e cable with an RJ-45 jack. The device is capable of connecting to networks via an Ethernet connector and also receives power (PoE) from the NVR.

### ② Camera + PoE Power Output

Connect a network camera. PoE power of network camera is available only when DC48V is supplied. This product supports a camera with PoE-af (15.4 W) and a network bandwidth of 100 Mbps and does not support connecting multiple IP cameras.

### ③ DC48V Input

Connect the two wires of the power adapter to these ports. Be careful not to cross the DC48V and GND wires. Booting will commence once connected to a power supply.

- ✓ • The network connector is not designed to be connected directly with cable or wire intended for outdoor use.
- ⚠ • Organize the power cable so that it will not cause people to trip over or become damaged from chairs, cabinets, desks, and other objects in the vicinity. Do not run the power cable underneath a rug or carpet.
- Do not connect multiple devices to a single power outlet.
- Please wire within 3m(118") indoors for stable power supply when installing the adapter.

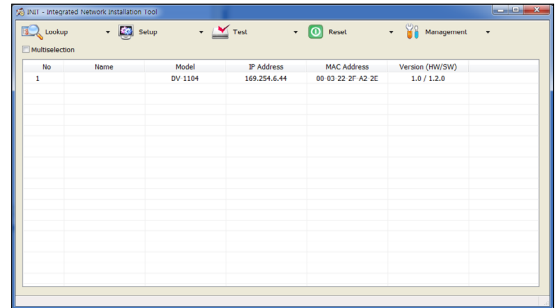
## Stream Setting Guide for AI Box Camera

### System Requirements

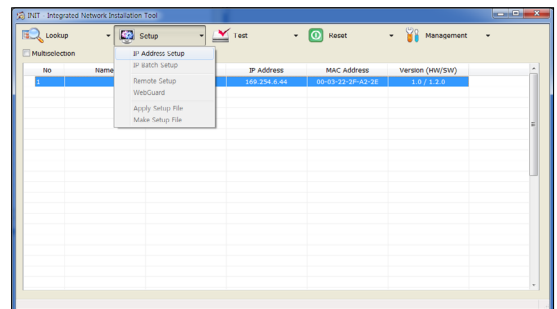
- **Resolution:** 640x360 to 1920x1080
  - **IPS:** 10 or higher
  - **Amount of Data:** 640x360 @ 10ips to 1920x1080 @ 10ips
- One of the three streams must match the above conditions.
- How to calculate the amount of data : Resolution (horizontal x vertical) x ips
- **Minimum Requirement**
    - **Resolution:** 640x360
    - **IPS:** 10
  - **Recommended Setting**
    - **Resolution:** 640x360
    - **IPS:** 15 or higher
- If the minimum requirement is not satisfied, AI function may be affected.
- If all three stream settings of the camera are set to exceed 1920x1080@10ips, the channel will stop analyzing.

### Network Setup (Alias IP)

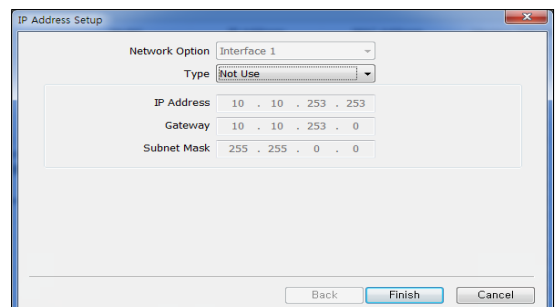
- 1 Launch the IDIS Discovery program and then select the AI in the BOX(DV-1304) from the main screen whose settings you wish to change.



- 2 Click on the Setup  icon.



- 3 Select the IP Address Setup from the Setup menu to load the the Alias IP setting screen. Alternatively, you can select DV-1304 from the main screen and then right-click to access the Alias IP setting screen.



- Configure this setting before registering on NVR.
- It supports DHCP and Manual IP settings

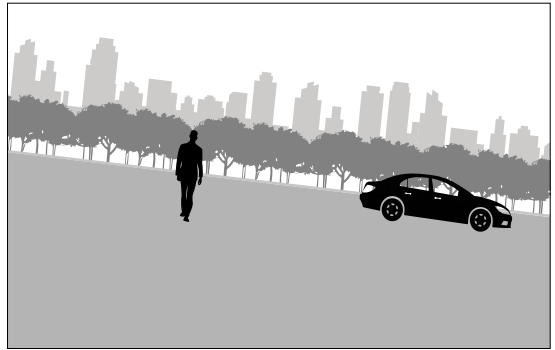
# Part 2 - IDLA Guide

## Camera Installation Guide for IDLA (IDIS Deep Learning Analytics) Features

In order for the camera and, in effect, various AI functions to operate properly, the following must be applied.

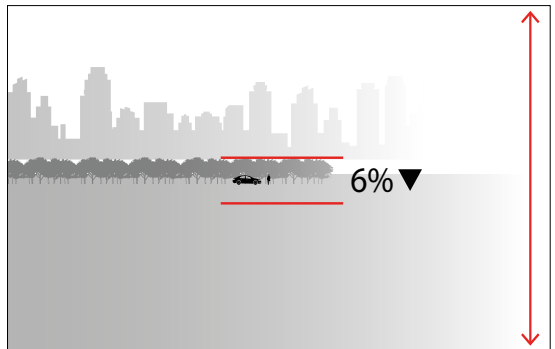
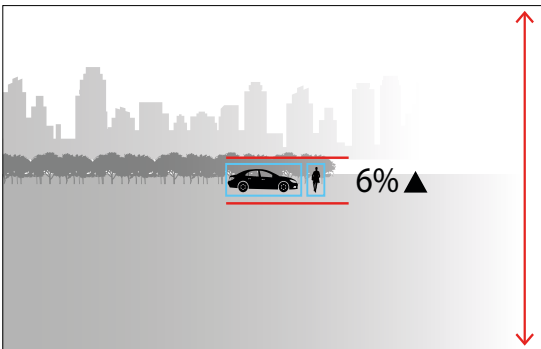
### Horizontal Angel

The image should be level with the horizon. The camera should be tilted no more than 30° from the horizontal.



### Object Size

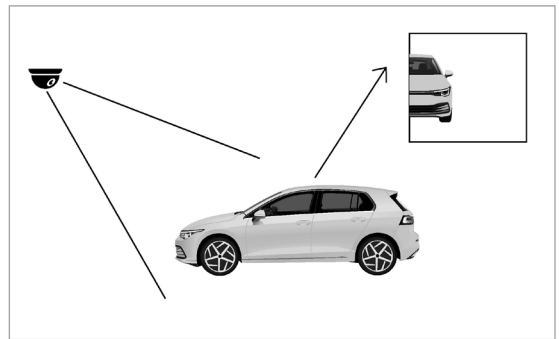
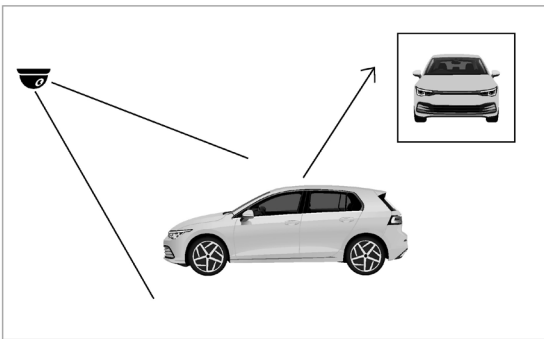
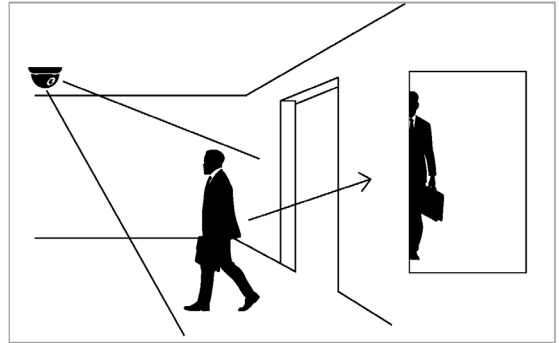
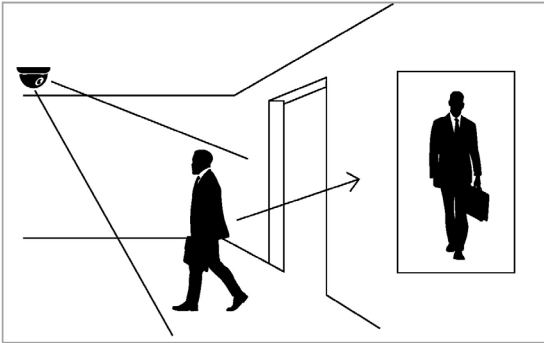
To reduce the risk of missed detections, the minimum height for humans and vehicles is at least 6% of the total image height based on resolution criteria.



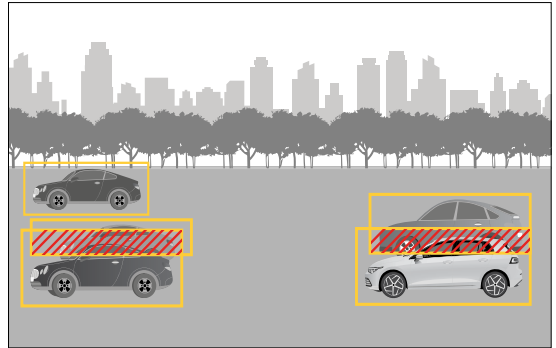
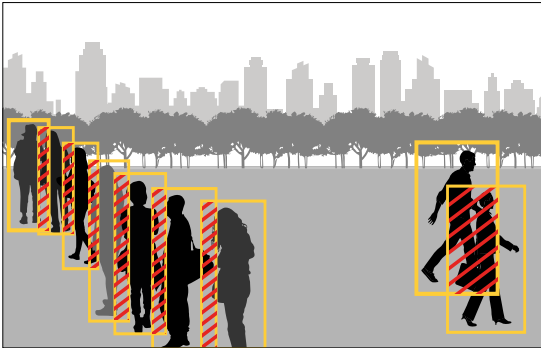
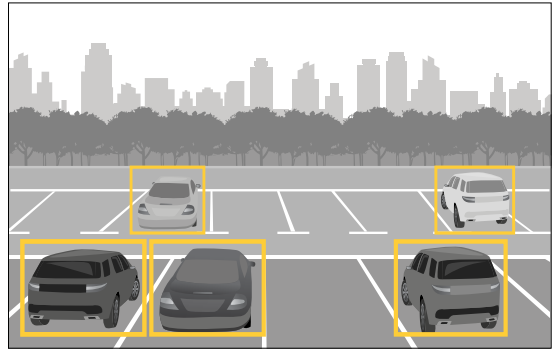
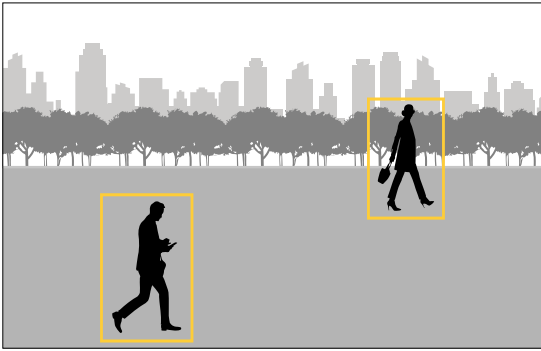
In the IDIS Center program, navigate to Menu > View > Pixel Counter.

## Object Visibility

Position cameras so that they can capture the entire object, such as people and vehicles in the image, rather than just a partial view.

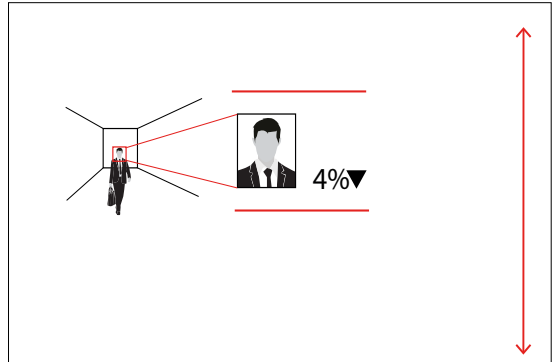
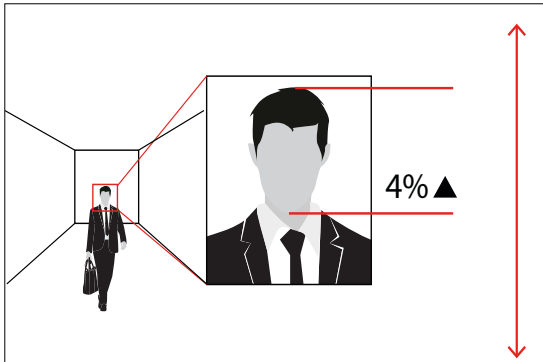


We recommend installing cameras diagonally to prevent objects from overlapping each other. (In crowded scenarios, frequent overlap can impact detection accuracy.)



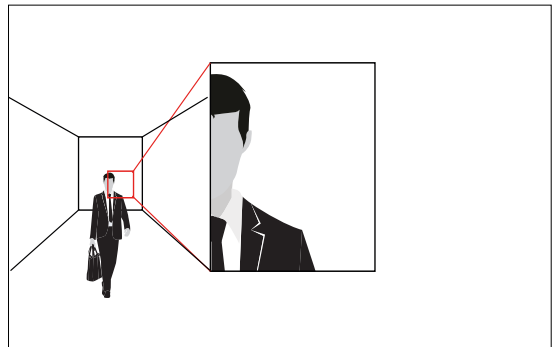
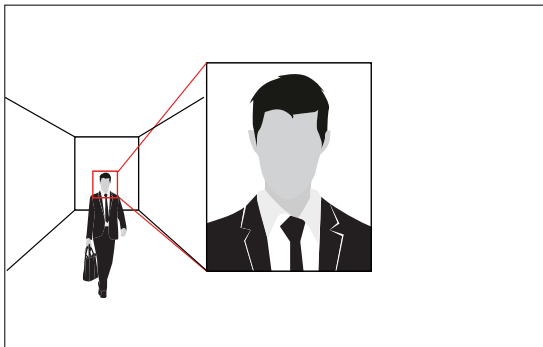
## Face Detection

To reduce the risk of missed detections, the person's face is at least 4% of the total image height based on resolution criteria.

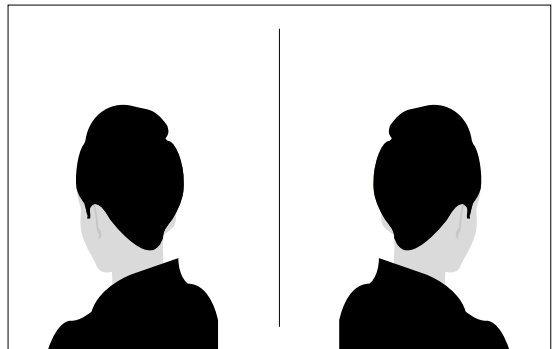
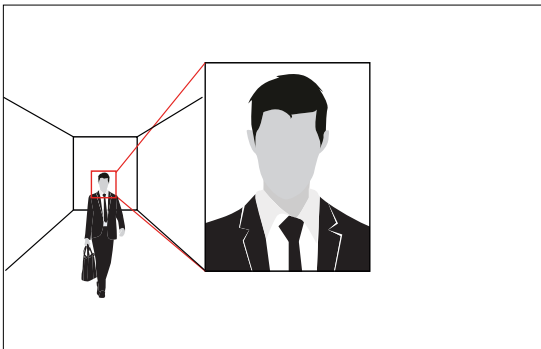
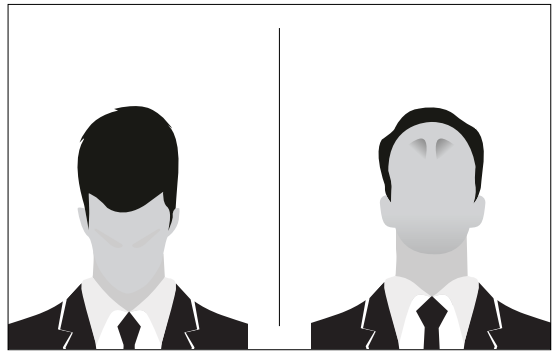
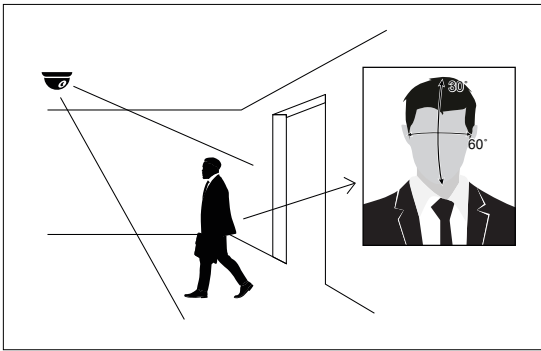


In the IDIS Center program, navigate to Menu > View > Pixel Counter.

1) Mount cameras to capture the entire face in the image and position them at the average height of a person for a good angle on faces.



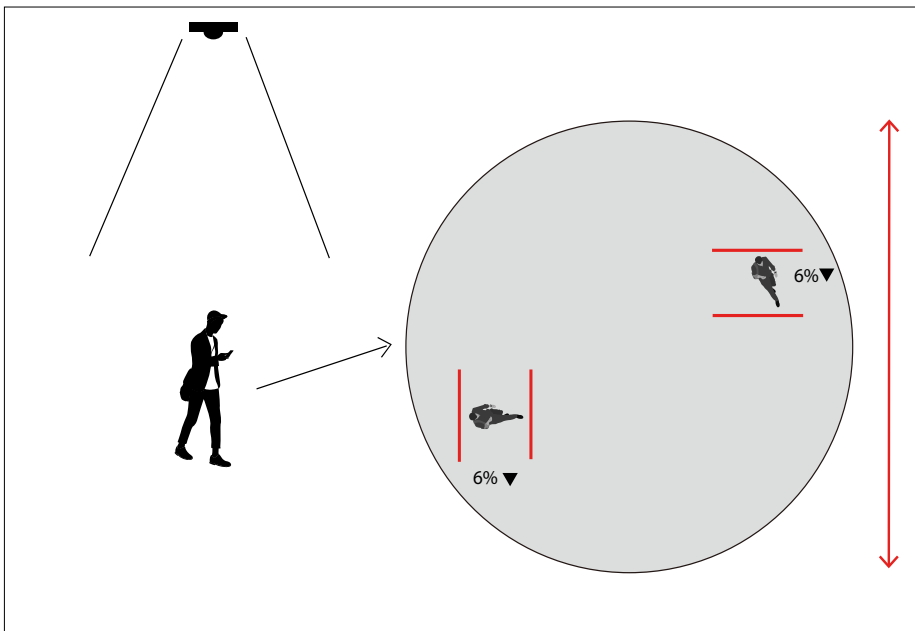
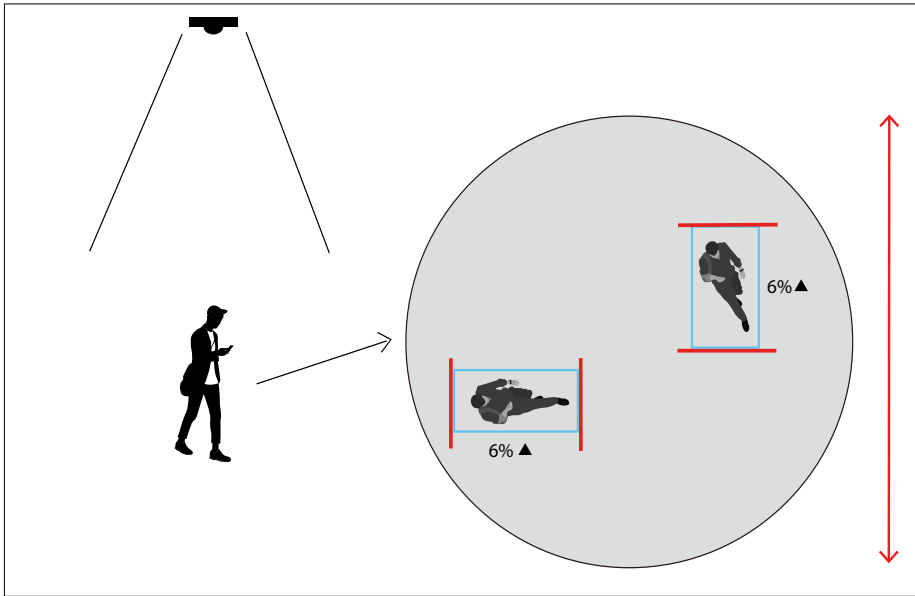
2) Mount the camera so that person in the image is front-facing and is not looking down or up. Face detection feature recognizes within 60 degrees from horizontal and 30 degrees from vertical.



## Fisheye View

Persons and vehicles must be installed at a height of at least 6% of the image height.

Fisheye lenses can produce distortion, especially near the edges of the image, which can reduce recognition accuracy.

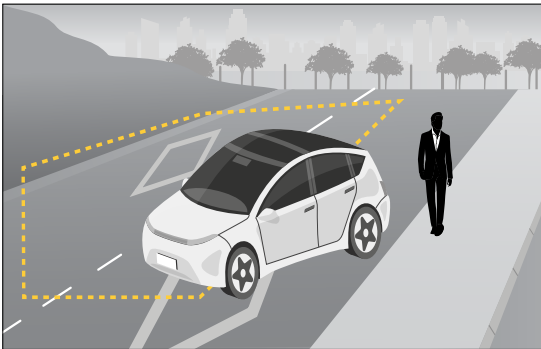




# IDLA (IDIS Deep Learning Analytics) Configuration Guide

## Zone Detection

To detect an object, the user-defined detection point for the object must be within the detection zone. In the case of humans, the point is at the feet, while for vehicles, the detection point is at the bottom.

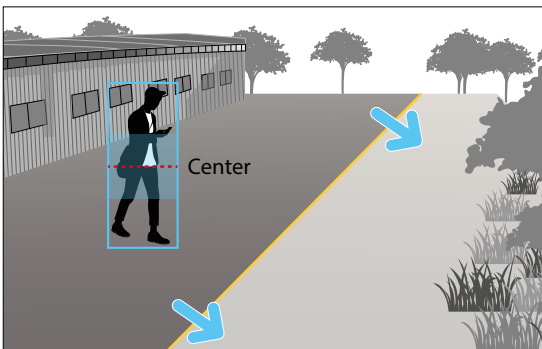


## Line Crossing Detection

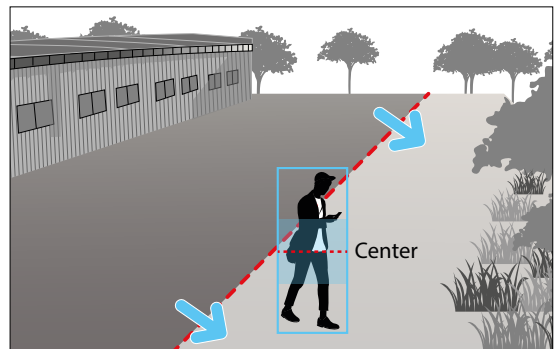
Detection occurs when the user-defined detection point for the object crosses the line.

(Line Crossing position is set to center (Center of object) by default, but you can modify it according to the installation environment in the settings)

[Pre-event]

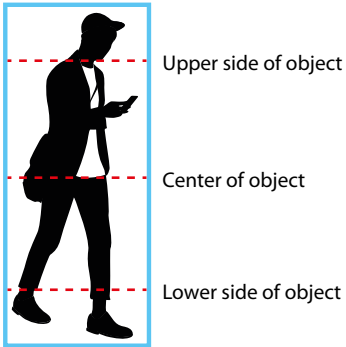


[Post-event]



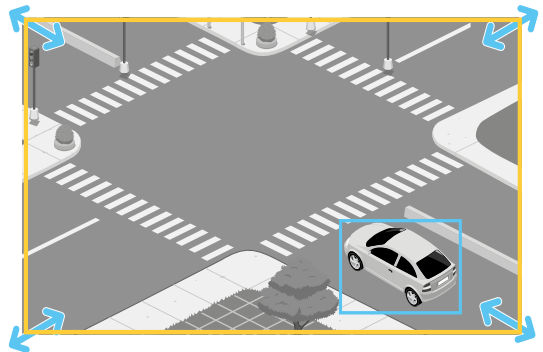
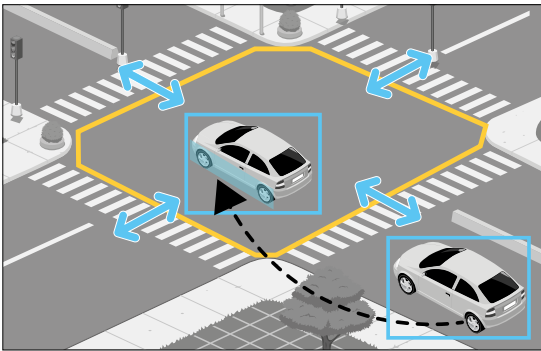
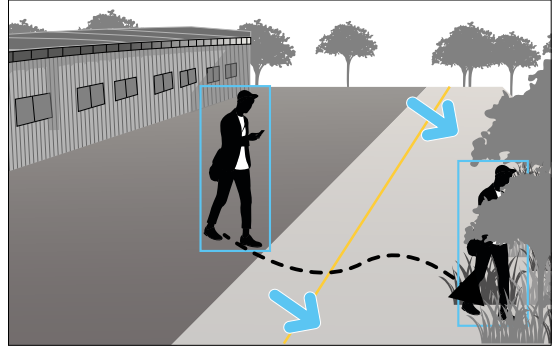
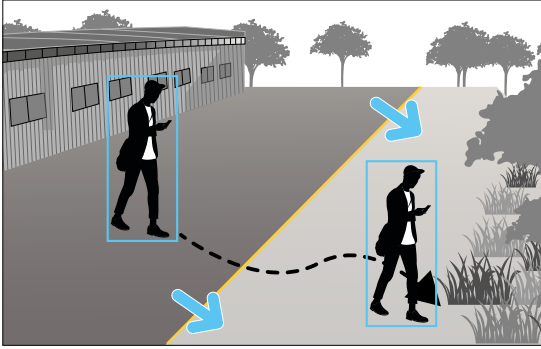
## Recommended Crossing Position Settings

- When the line is vertical, we recommend using the default setting.
- If the line is horizontal and the object passes through the area below the line too quickly compared to the area above the line, it is recommended to set the detection position to **Lower side of object**. Conversely, in the opposite scenario, setting it to **Upper side of object** is recommended.



## Analysis Conditions

Position it in the center to capture both the before and after moments of passing the virtual line or zone.



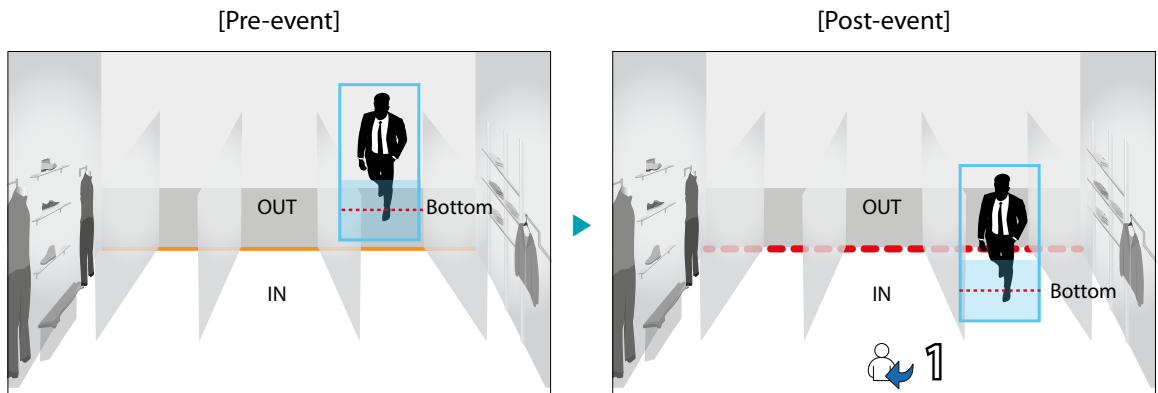
## People Counting

### Counting Condition

Detection occurs when the user-defined detection point for the object crosses the line.

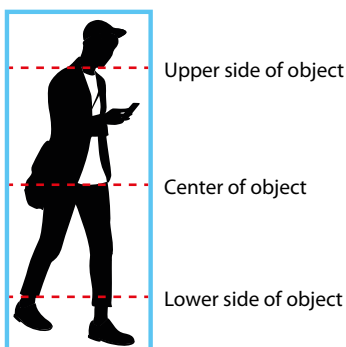
Actions trigger when objects cross the line in the direction defined by the user virtually. The user can set the detection point for the object to three options: **Upper side of object**, **Center of object** and **Lower side of object** according to the installation environment)

(The default setting is initially set to **Center of object**.)



### Recommended Counting Position Settings

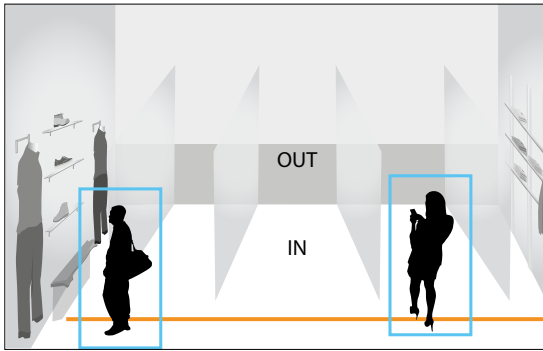
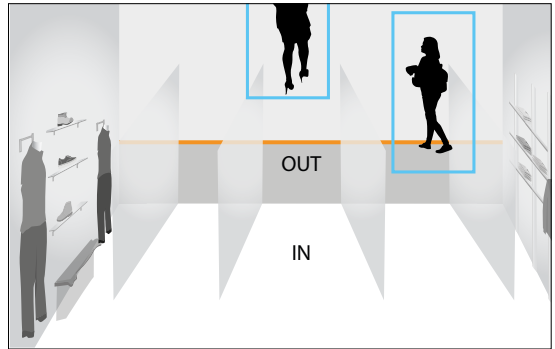
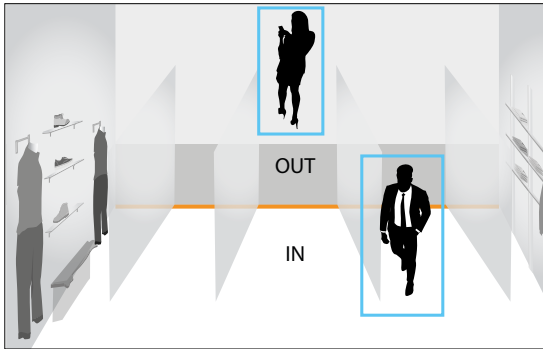
- If the line is horizontal and the object passes through the area below the line too quickly compared to the area above the line, it is recommended to set the detection position to the bottom. Conversely, in the opposite scenario, setting it to **Upper side of object** is recommended.
- If there is significant lateral movement of people and their heads consistently cross the line, it is recommended to set the detection position to **Lower side of object**. If people's legs frequently cross the line, setting it to **Upper side of object** is recommended.



## Line Configuration

Set a line to capture the person's full body in both In and Out spaces.

Set a line so that person walking along the line is not counted.



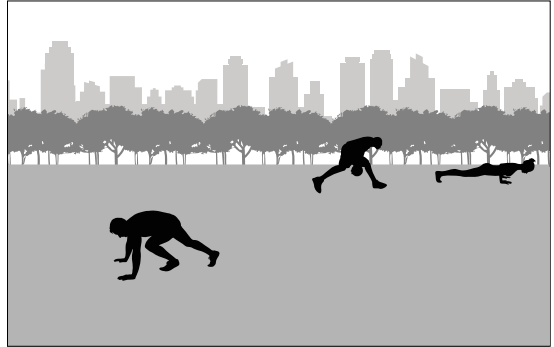
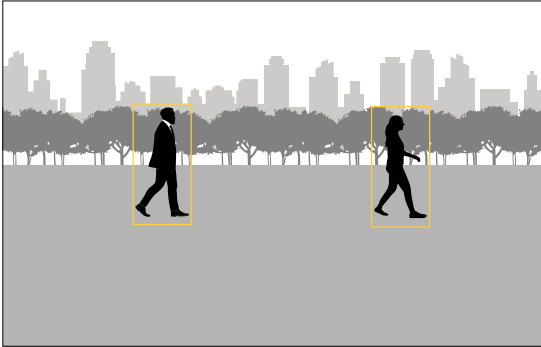
In the case of AI in the Box People Counting, the recognition rate may decrease in the following cases.

- If the gap between the person in front and the person behind passing through the line is narrow.
- If the environment around the counting line is crowded with people entering and exiting.
- An environment where people stay and loiter near the counting line.

## Wrong Examples

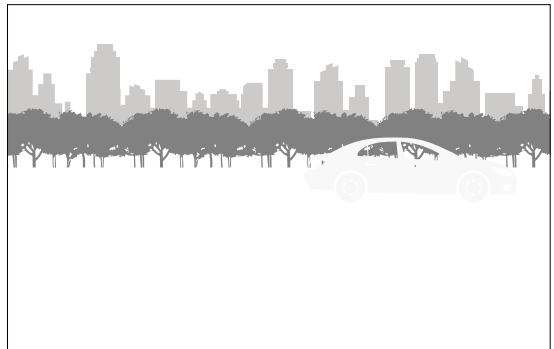
### Postures Other Than Upright Position

Humans should move in a somewhat upright position.

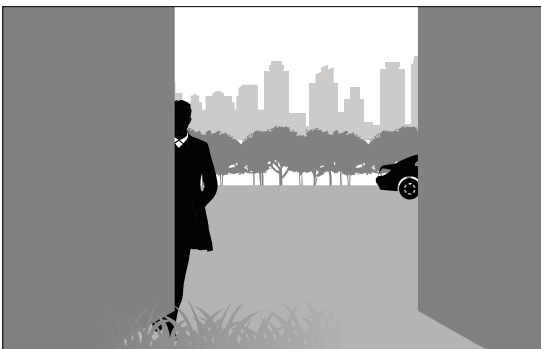
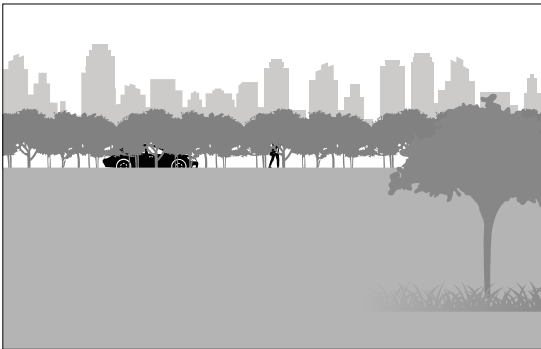
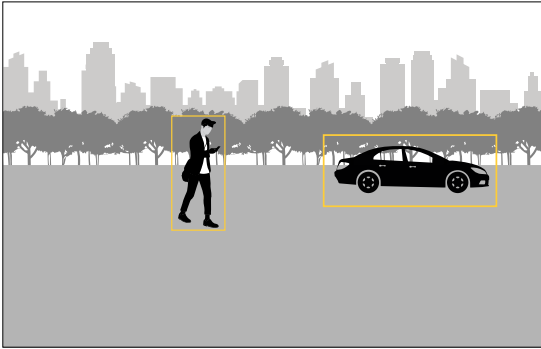


## Insufficient Dissimilarity Between Objects and the Background

There should be sufficient dissimilarity between objects and the background to distinguish the object from the background or other objects. Fog, direct light shining on the camera, or an excessive noisy image can cause contrast issues. You can adjust the level of illumination and adjust the image settings to enhance the level of contrast.

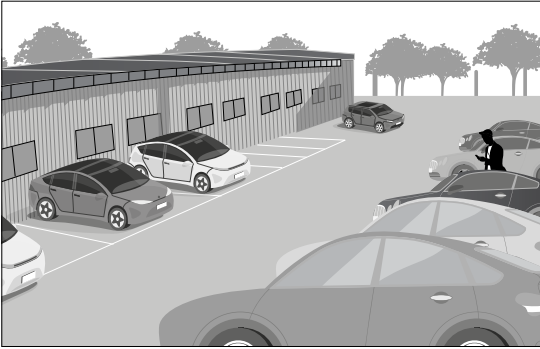


## When Obstacles such as Trees, Walls, or Fences Partially Obstruct the Object





## When a Person Is Nearly Obscured by a Parked Vehicle



## Conditions That Can Trigger False Alarms

### Environments

- Fog
- Heavy rain or snowfall
- Insects on the camera lens
- If water droplets form on the camera lens

## Environments

- Inadequate brightness or light
- Overly noisy image
- Direct light shining on the camera
- If the position of the camera differs from the direction of a light source and it makes a shadow.
- If an object is reflected on the floor, wall, glass, metal or water
- Strong light causing shadows.
- If the mirror is reflecting light
- A combination of car headlights and intense rain

## Other Conditions

- When several extremely fast moving objects appear randomly
- Human-size animals.

# Part 3 - VA in the Box Setting via NVR

## <Before You Configure VA settings>

Configure basic VA Box settings and all other system settings.

- ✓ Screen images may vary depending on the model.
- When using the camera with Intelligent Codec, it could delay the image analysis up to 10 seconds.

- ⚠ When the MAT (Motion Adaptive Transmission) function is active, the image analysis may not work properly.
- It is recommended that you do not use the MAT function of the associated camera to increase the accuracy of the image analysis.

## Camera Protocol

VA Box supports **DirectIP** protocol.

- **DirectIP** protocol:
  - Using with a DirectIP NVR enables VA Box use without the need to configure network settings.
  - The DirectIP NVR also allows you to control all VA Box settings directly from the NVR, without the need for a computer.

- ✓ For more information on configuring VA Box settings from a DirectIP™ NVR, refer to the **Part 3 - VA in the Box Setting via NVR on page 31**.

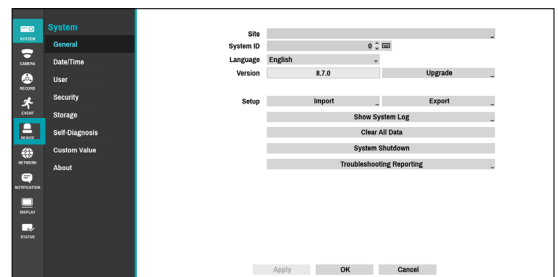
## Firmware Upgrade

Refer to the **Firmware Upgrade on page 31** to perform a firmware upgrade.

## VA Box Setup

Select **Device Setup-VA Box** from the setup menu. Login with an ID that has permission to access the setup menu is needed to access and make changes to the Setup menu.

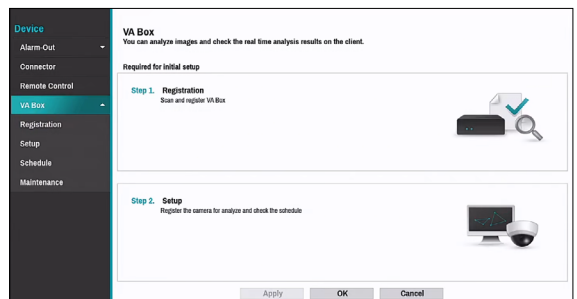
- 1 While in Live mode, press the remote control's **SETUP** button or select Live menu > Setup using the mouse.



- 2 Use the remote control's arrow buttons to select an option and then press the remote control's **↩** button or left-click on the option using the mouse.

## VA Box

By analyzing camera images, you can check real-time analysis results from a client program such as the IDIS Center.



- ✓ VA Box can only analyze the video from the camera using H.264 and H.265.

## VA Box\_Registration

You can register VA Box at remote locales.

No.	Title	Model	Camera	Analysis Type	Configuration	Reset
1	VA BOX1	DV-1304	9. CAM9	People Counting > 1		Reset
2	VA BOX2	DV-1304	9. CAM9	HeatMap		
3	VA BOX3	DV-1304	9. CAM9	Social Distancing Violation		
4	VA BOX4	DV-1304	9. CAM9	Mask Rule Violation		
5	VA BOX5	DV-1304-A	10. CAM10	Object Detection		Reset
6	VA BOX6	DV-1304-A	10. CAM10	Intrusion		
7	VA BOX7	DV-1304-A	10. CAM10	Loitering		
8	VA BOX8	DV-1304-A	10. CAM10	Line Crossing		
9	VA BOX9	None	None	None		
10	VA BOX10	None	None	None		
11	VA BOX11	None	None	None		
12	VA BOX12	None	None	None		
13	VA BOX13	None	None	None		
14	VA BOX14	None	None	None		
15	VA BOX15	None	None	None		
16	VA BOX16	None	None	None		

- **Title:** Edit the VA Box's name.
- **MAC Address:** Displays the VA Box's MAC address registered to the NVR.
- **Address:** Displays the VA Box's IP address registered to the NVR.
- **Model:** Indicates the VA Box's model.
- **Scan:** Select to scan and register the device connected to the NVR.

## Device Scan

Scan the device under **VA Box- Registration - Scan.**

VA Box - Device Scan

Protocol: DirectIP

Mode: Auto Scan(LAN) Scan

No.	MAC Address	Address	Model	Registered Device MAC Address	Status
1	00:03:22:81:8C:57	189.254.254.77	DV-1304-A(1)		Registered
2	00:03:22:81:8C:57	189.254.254.77	DV-1304-A(2)		Registered
3	00:03:22:81:8C:57	189.254.254.77	DV-1304-A(3)		Registered
4	00:03:22:81:8C:57	189.254.254.77	DV-1304-A(4)		Registered

Add VA Box Cancel

- **No.:** Select the number of the registered VA Box and click the **Add Box** button to register the camera.
- **MAC Address:** Displays the scanned device's MAC address.
- **Address:** Displays the scanned device's IP address.
- **Model:** Indicates the device model.
- **Registered Device MAC Address:** Displays the MAC address of the NVR to have registered VA Box.
- **Status:** "Registered" indicates the VA Box is registered to the NVR and "Not registered" indicates the VA Box is not registered to the NVR.

## VA Box\_Setup

Configure VA Box-related settings.

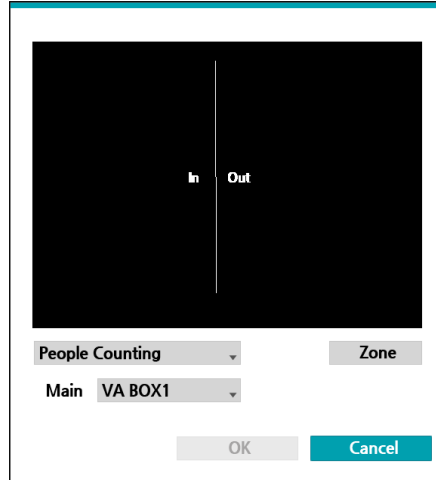
No.	Title	Model	Camera	Analytic Type	Configuration	Reset
1	VA BOX1	DV-1304	9. CAM9	People Counting > 1		Reset
2	VA BOX2	DV-1304	9. CAM9	HeatMap		
3	VA BOX3	DV-1304	9. CAM9	Social Distancing Violation		
4	VA BOX4	DV-1304	9. CAM9	Mask Rule Violation		
5	VA BOX5	DV-1304-A	10. CAM10	Object Detection		Reset
6	VA BOX6	DV-1304-A	10. CAM10	Intrusion		
7	VA BOX7	DV-1304-A	10. CAM10	Loitering		
8	VA BOX8	DV-1304-A	10. CAM10	Line Crossing		
9	VA BOX9	None	None	None		
10	VA BOX10	None	None	None		
11	VA BOX11	None	None	None		
12	VA BOX12	None	None	None		
13	VA BOX13	None	None	None		
14	VA BOX14	None	None	None		
15	VA BOX15	None	None	None		
16	VA BOX16	None	None	None		

- **Title:** Displays the name of a VA Box.
- **Model:** Indicates the VA Box's model.
  - The video analytics may not be supported depending on the model.
- **Camera:** Select the camera to analyze the video. Only one camera can be set for each VA Box channel.
- **Set up:** The settings appear differently depending on the Analytic Type. Refer to the setting items for each Analytic Type
- **Reset:** Resets the port or VA Box.
  - **PoE Reset:** Control the PoE Switch's port. This option is available when connecting to Video In/ PoE port or using a DirectIP PoE Switch (optional). Select PoE Reset to reboot VA Box.
  - **Soft Reset:** Reboots VA Box.
  - Use a client program such as IDIS Center to check the analysis results.
- **Analytic Type:**
  - **DV-1304 :** Select one among People Counting, HeatMap, Social Distancing Violation, Mask Rule Violation and Queue Monitoring.
  - **DV-1304-A :** Select one among Object Detection, Intrusion, Loitering, Line Crossing and Face Detection.

## <Types of Video Analytics >

### People Counting

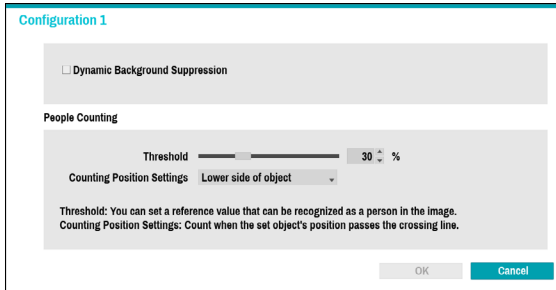
Count the number of people passing through the line on the live screen.



Right-click on the zone setup screen to bring up the People Counting Menu.

- **Main :** Add the total number of people by sending them to the desired channel. The channel designated as the main can use the Exceed Occupancy Limit event.
- **Boundary:** Set a virtual border to count the floating population.
  - Depending on the location of the boundary, the number of people may be incorrectly calculated.
- **Save:** Save the changes and exit the menu.
- **Cancel :** Exit the setup screen without saving the changes.

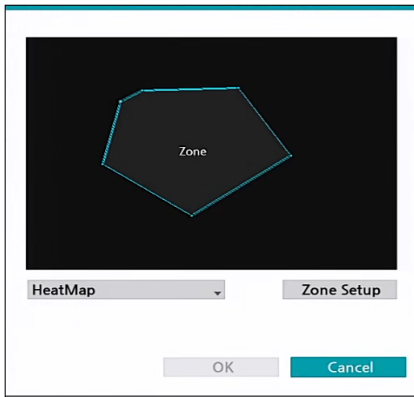
- **Configuration** : Set the environment of people counting. Select People Counting as the video analysis type, and then select Settings.



- **Dynamic background suppression** : Detects moving objects in video and removes the background.
- **Threshold** : Set the reference value that can be recognized as a person in the image.
- **Counting position setting**: Set the position of the reference point of a person to count the number of people passing through the boundary.

### HeatMap

Analyze the movement frequency in the zone of the live screen. Use the left mouse button to define the zone. Drag and drop the vertex to modify a previously set zone or click on the left mouse button to reset the zone.

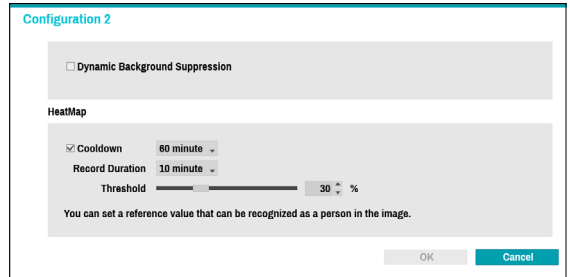


- ☑ Lines cannot cross when setting the zone.

Right-click on the zone setup screen to bring up the HeatMap Menu.

- **Undo** : Return to the previously set zone.
- **Save**: Save the changes and exit the menu.
- **Cancel** : Exit the setup screen without saving the changes.

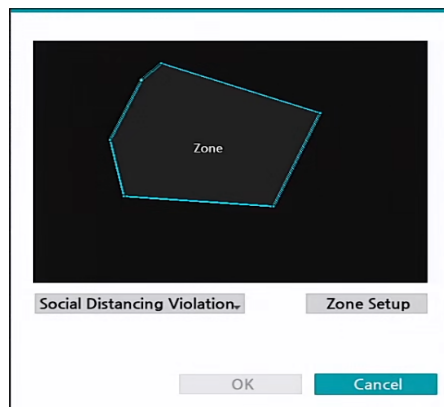
- **Configuration** : Set the environment of HeatMap. Select HeatMap as the video analysis type, and then select Settings.



- **Dynamic background suppression** : Detects moving objects in video and removes the background.
- **Cooldown** : Indicate on the screen the HeatMap information recorded before **Cooldown**.
- **Record Duration** : Set the recording interval to save the HeatMap data.
- **Threshold** : Set the reference value that can be recognized as a person in the image.

### Social Distancing Violation

Violation event occurs when the distance between detected people in the set area of the image is estimated and analyzed and the distance is less than the set interval. Use the left mouse button to define the zone. Drag and drop the vertex to modify a previously set zone or click on the left mouse button to reset the zone.

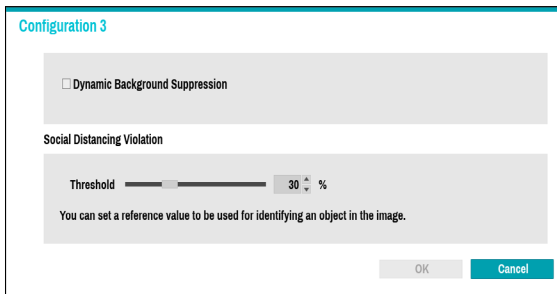


- ☑ Lines cannot cross when setting the zone.

### Part 3 - VA in the Box Setting via NVR

Right-click on the zone setup screen to bring up the Social Distancing Violation Menu.

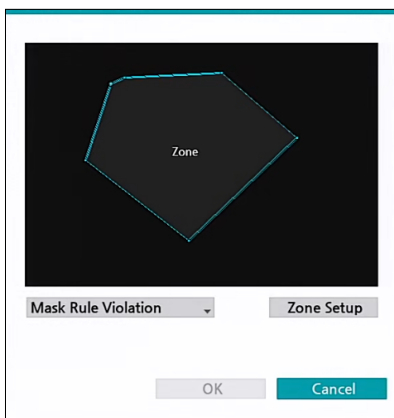
- **Undo** : Return to the previously set zone.
- **Save**: Save the changes and exit the menu.
- **Cancel** : Exit the setup screen without saving the changes.
- **Configuration** : Set the environment of Social Distancing Violation. Select Social Distancing Violation as the video analysis type, and then select Settings.



- **Dynamic background suppression** : Detects moving objects in video and removes the background.
- **Threshold** : Set the reference value that can be recognized as a person in the image.

### Mask Rule Violation

The camera detects the face and events occur according to the mask-wearing rule setting on the face. Use the left mouse button to define the zone. Drag and drop the vertex to modify a previously set zone or click on the left mouse button to reset the zone.

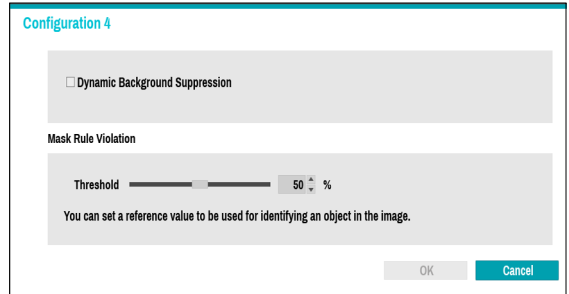


- ✓ Lines cannot cross when setting the zone.

Right-click on the zone setup screen to bring up the Mask Violation Menu.

- **Undo** : Return to the previously set zone.

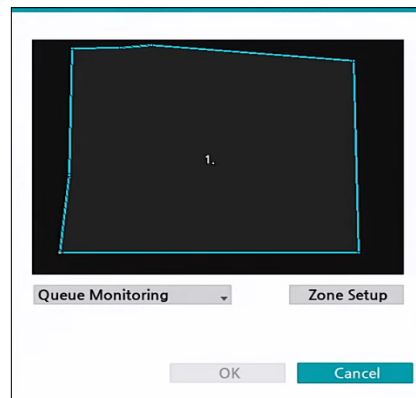
- **Save**: Save the changes and exit the menu.
- **Cancel** : Exit the setup screen without saving the changes.
- **Configuration** : Set the environment of Mask Rule Violation. Select Mask Rule Violation as the video analysis type, and then select Settings.



- **Dynamic background suppression** : Detects moving objects in video and removes the background.
- **Threshold** : Set the reference value that can be recognized as a person in the image.

### Queue Monitoring

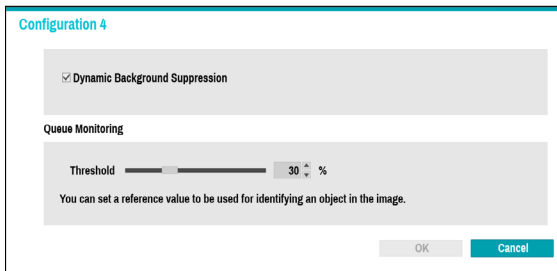
Congestion for each zone is determined by monitoring people in the queue in the zone of the live screen. Use the left mouse button to define the zone. Drag and drop the vertex to modify a previously set zone or click on the left mouse button to reset the zone.



- ✓ Lines cannot cross when setting the zone.

Right-click on the zone setup screen to bring up the Queue Monitoring Menu.

- **Delete** : Delete the zone selected in the image.
- **Undo** : Return to the previously set zone.
- **Edit name**: Set the name of the zone.
- **Save** : Save the changes and exit the menu.
- **Cancel** : Exit the setup screen without saving the changes.
- **Configuration** : Set the environment of Queue Monitoring. Select Queue Monitoring as the video analysis type, and then select Settings.



- **Dynamic background suppression** : Detects moving objects in video and removes the background.
- **Threshold** : Set the reference value that can be recognized as an object in the image.

## VA Box\_Schedule

Configure the schedule of the VA Box. Select the + button on the bottom left of the screen to add a schedule. Select Day to specify the Day setting or select All. Select Scope to specify the time frame.



- ☑ Deleting the schedules stops the real-time video analysis.

## VA Box\_Maintenance

When using NetFS, select Firmware Upgrade. You can select USB storage or NetFS. If not using NetFS, you can select USB storage only. Select USB storage to display USB search window and then select the corresponding upgrade package from the storage device connected to the NVR's USB port. After selecting an upgrade package, select Apply to upgrade the VA Box.



- ☑ • The VA Box will reboot after the upgrade and then reconnect automatically.

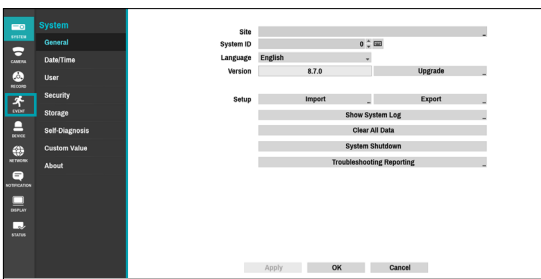


# Part 4 - Configuring Event Settings for VA in the Box via NVR

## Event Setup

Select **Event Setup-VA Box** from the setup menu. Login with an ID that has permission to access the setup menu is needed to access and make changes to the Setup menu.

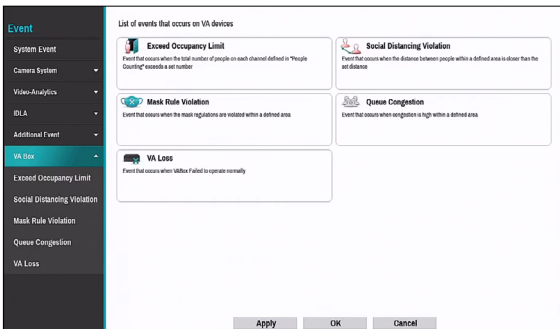
- 1 While in Live mode, press the remote control's **SETUP** button or select Live menu > Setup using the mouse.



- 2 Use the remote control's arrow buttons to select an option and then press the remote control's **←** button or left-click on the option using the mouse.

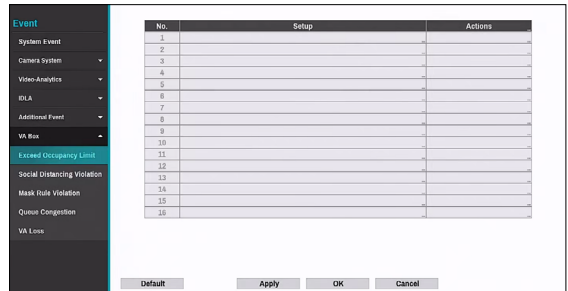
## VA Box

List of events that occur on VA Box.

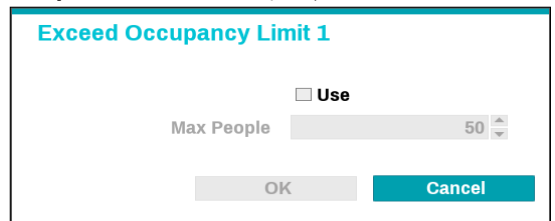


## VA Box\_ Exceed Occupancy Limit

Event occurs when the In/Out coefficient is detected and the coefficient of the relevant VA Box channel is added in real time to exceed the specified conditions.



- **Setup** : Set the Exceed Occupancy Limit event.



- **Max People** : An event occurs when a person in the area in excess of the number of people set by a person.

- To use the Exceed Occupancy Limit function, DV-1304's People Counting with Main should be set on the channel.

- **Actions**: Specify which actions to take when an event occurs.

- **Record**: Specify which cameras to begin linked recording on when an event occurs. If the schedule is set to Event or Time & Event mode, the selected cameras will begin linked recording when an event occurs.

- **Alarm-Out**: Designate event-triggered alarm-out channels (each for the NVR and camera) and beeps.

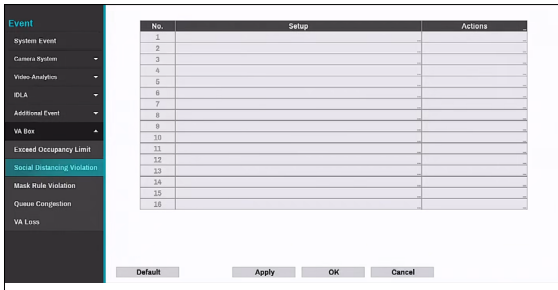
- **Notify**: Configure to be notified of events by Mail, LAN1 through 5, Push, FTP, and/or Alert Window.

- **PTZ**: Moves the PTZ camera to a specific preset position when an event occurs.

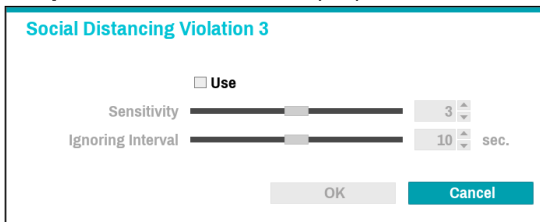
- **Event Monitoring**: Selects the cameras to monitor when an event occurs.

## VA Box\_Social Distancing Violation

Event occurs when the distance is less than the interval that is set by estimating the distance between people by human detection.



- **Setup :** Set the interval between people.



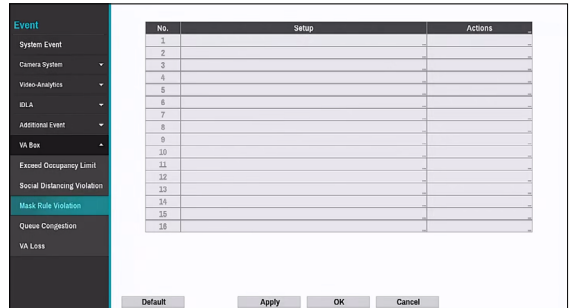
- **Sensitivity :** The higher the sensitivity value, the greater the probability of being detected as an event, if the distance between people is equal to the step relative value of the distance between people.
- **Ignoring Interval :** Event log and remote notification are not performed for Social Distancing Violation events detected within a certain period of time after the event was detected.

To use the Social Distancing Violation, the Social Distancing Violation must be set on that channel.

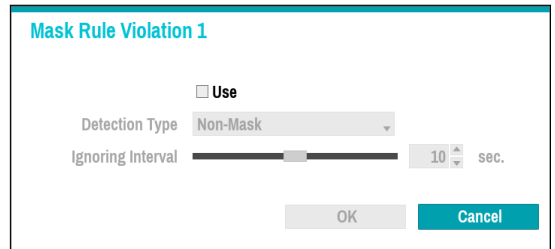
- **Actions:** Specify which actions to take when an event occurs.
  - **Record:** Specify which cameras to begin linked recording on when an event occurs. If the schedule is set to Event or Time & Event mode, the selected cameras will begin linked recording when an event occurs.
  - **Alarm-Out:** Designate event-triggered alarm-out channels (each for the NVR and camera) and beeps.
  - **Notify:** Configure to be notified of events by Mail, LAN1 through 5, Push, FTP, and/or Alert Window.
  - **PTZ:** Moves the PTZ camera to a specific preset position when an event occurs.
  - **Event Monitoring:** Selects the cameras to monitor when an event occurs.

## VA Box\_Mask Rule Violation

The camera detects a face and events occur according to Mask Rule Violation settings.



- **Setup :** Check the rules for wearing a mask on a person's face and set the event to occur when a violation occurs.



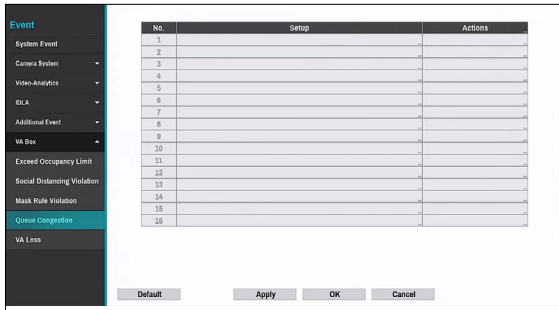
- **Detection Type:** Set the Non-Mask / Mask Rule.
- **Ignoring Interval :** Event log and remote notification are not performed for mask rule violation events detected within a certain period of time after the event was detected.

To use the mask rule violation, the mask rule violation must be set on that channel.

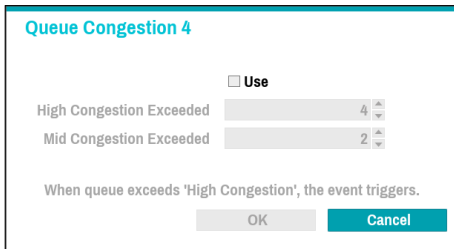
- **Actions:** Specify which actions to take when an event occurs.
  - **Record:** Specify which cameras to begin linked recording on when an event occurs. If the schedule is set to Event or Time & Event mode, the selected cameras will begin linked recording when an event occurs.
  - **Alarm-Out:** Designate event-triggered alarm-out channels (each for the NVR and camera) and beeps.
  - **Notify:** Configure to be notified of events by Mail, LAN1 through 5, Push, FTP, and/or Alert Window.
  - **PTZ:** Moves the PTZ camera to a specific preset position when an event occurs.
  - **Event Monitoring:** Selects the cameras to monitor when an event occurs.

## VA Box\_Queue Congestion

The camera detects queue congestion and events occur according to Queue Congestion settings.



- **Setup** : Set congestion level to issue an alert by detecting a queue in real time.



- **Mid Congestion Exceeded:** Set the mid congestion level for each selection area. You can check the information analyzed on the basis of exceeding the set value on remote program.
- **High Congestion Exceeded:** Set high congestion level for each selection area. You can check the information analyzed on the basis of exceeding the set value on remote program.

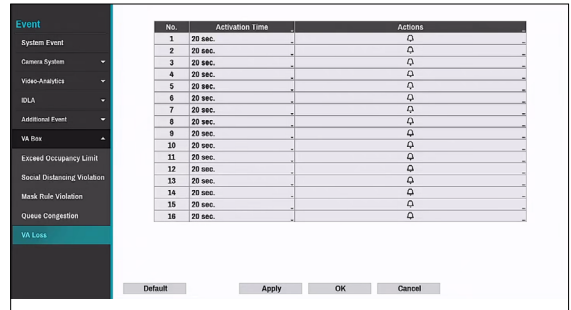


The event occurs only when **High Conestion** function is set.

- **Actions:** Specify which actions to take when an event occurs.
  - **Record:** Specify which cameras to begin linked recording on when an event occurs. If the schedule is set to Event or Time & Event mode, the selected cameras will begin linked recording when an event occurs.
  - **Alarm-Out:** Designate event-triggered alarm-out channels (each for the NVR and camera) and beeps.
  - **Notify:** Configure to be notified of events by Mail, LAN1 through 5, Push, FTP, and/or Alert Window.
  - **PTZ:** Moves the PTZ camera to a specific preset position when an event occurs.
  - **Event Monitoring:** Selects the cameras to monitor when an event occurs.

## VA Box\_VA Loss

This event occurs when VA Box does not operate normally.



- **Activation Time:** Specify how long VA loss has to last in order for it to be considered as an event. When the VA loss is not detected for the specified duration of time, it will not be considered as an event.
- **Actions:** Specify which actions to take when a VA loss event occurs.
  - **Record:** Specify which cameras to begin linked recording on when an event occurs. If the schedule is set to **Event** or **Time & Event** mode, the selected cameras will begin linked recording when an event occurs.
  - **Alarm-Out:** Designate event-triggered alarm-out channels (each for the NVR and camera) and beeps.
  - **Notify:** Configure to be notified of events by Mail, LAN1 through 5, Push, FTP, and/or Alert Window.
  - **PTZ:** Moves the PTZ camera to a specific preset position when an event occurs.
  - **Event Monitoring:** Selects the cameras to monitor when an event occurs.



In order to use the Callback feature, the NVR must be registered on the remote program.

# Part 5 - Appendix

## Troubleshooting

Problem	Check
Power LED will not turn on	<ul style="list-style-type: none"> <li>• Check the LAN cable.</li> <li>• Check that the power cable is connected or the NVR has power.</li> </ul>
The system is unable to recognize network interface	<ul style="list-style-type: none"> <li>• Check the LAN cable.</li> <li>• Check the network LED.</li> </ul>

## Specifications

Model	DV-1304	
Video	Input	4ch IP
	Compression	H.264 / H.265
Input/ Output	Ethernet	PoE In/Out Port : 10 Mbps / 100Mbps
	DC48V Input	Terminal Blocks
	LED	Power(Status), Network
	Button/Switch	Reset
Environmental Conditions	Operating Temperature	32°F to 104°F (0°C ~ 40°C)
	Operating Humidity	0% ~ 90%
General	Dimensions (W x H x D)	7.9" x 1.7" x 6.2" (200mm x 44mm x 157.6mm)
	Unit Weight	1.94 lbs. (0.88kg)
	Power Supply	48V $\overline{\text{---}}$ , PoE
	Power Input	ADAPTOR (INPUT : 100-240V~, 50/60Hz, 1.2A, OUTPUT : 48V $\overline{\text{---}}$ , 1.0A)
	Power Consumption	48V $\overline{\text{---}}$ , 0.8A, 38.4W PoE, IEEE 802.3at(Class 4), 25W DC OUTPUT : 48V $\overline{\text{---}}$ , 0.35A MAX
	Approval	KC, FCC, CE



These product specifications may change without prior notice.



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