



IDIS Co., Ltd.

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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

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
CAUTION: 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
	Caution	Important information concerning a specific function.
	Note	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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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.

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Part 1 – Introduction

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:

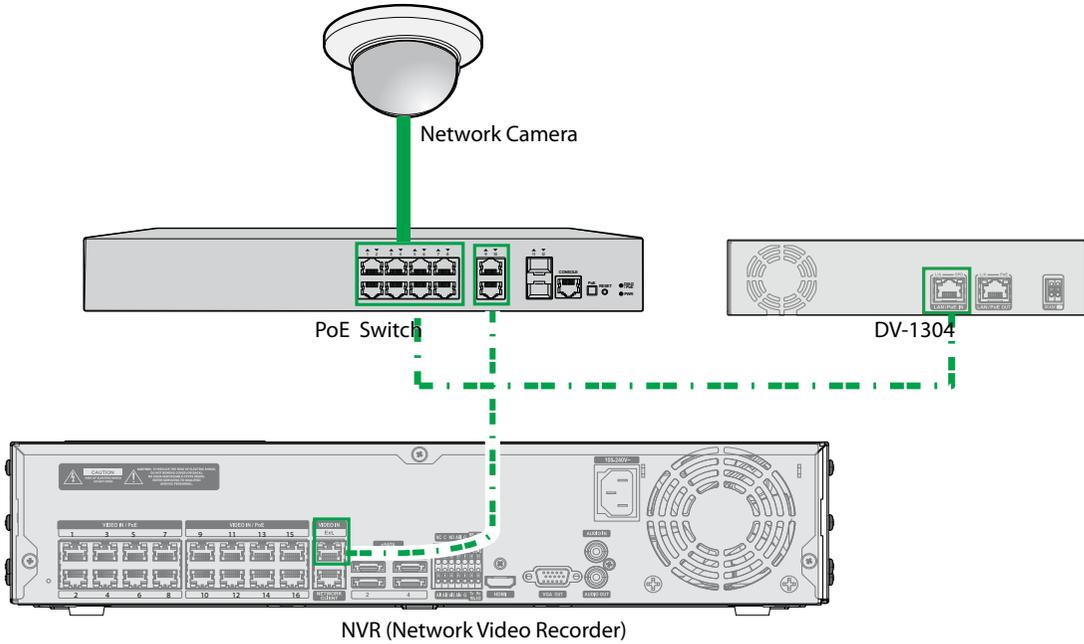
- Video Inputs : 4-channel H.264 and H.265 IP camera
- DirectIP protocol supported
- Convenient firmware upgrades via network
- Firmware duplication and auto recovery functions to enhance system stability
- Various image analysis function such as People Counting, Heat Map, Social Distancing Violation, 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)



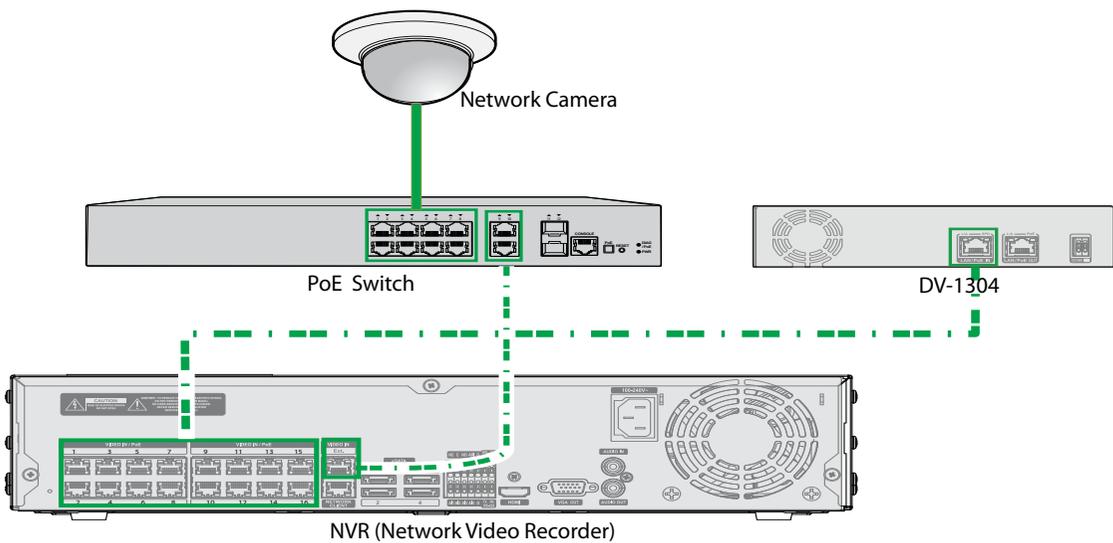
Check the following before connecting the product. (Only for the examples 1,2,3)

- Check if the Switch's PoE power per port supports 30W.
- Check your PoE switch has enough PoE power.

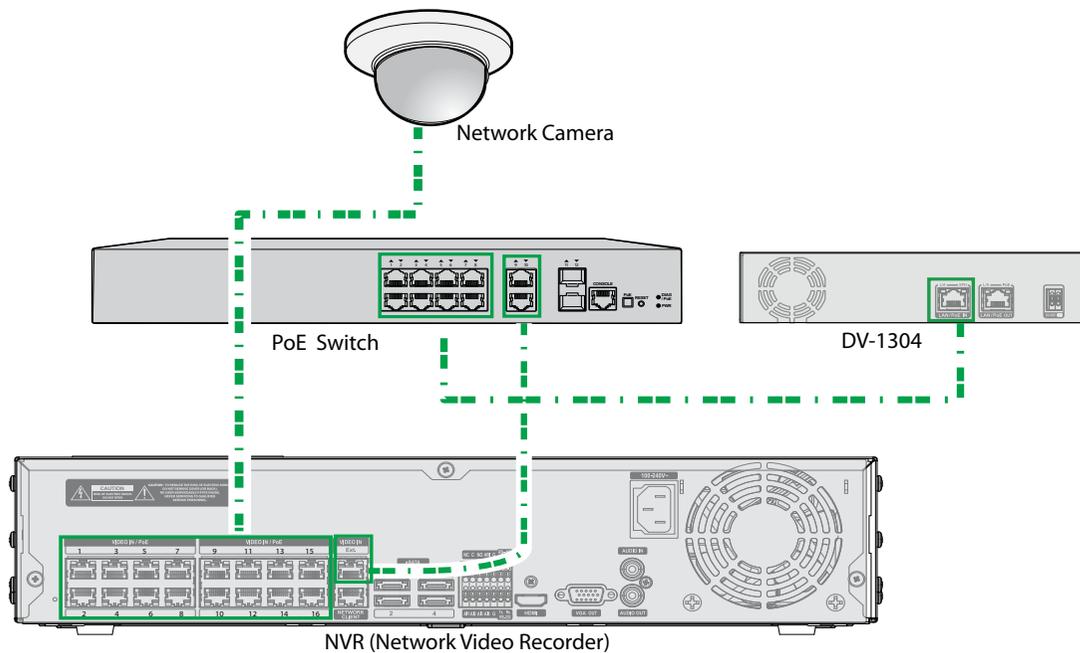
Example 1 : Connection Diagram Using PoE Switch



Example 2 : Connection Diagram Using PoE Switch

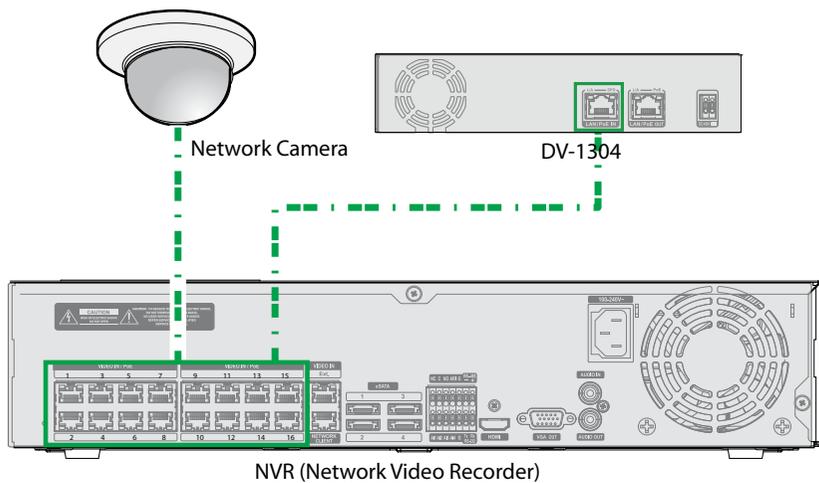


Example 3 : Connection Diagram Using PoE Switch



- Check the following before connecting the product. (Only for the example 4)
- Check if the NVR's PoE power per port supports 30W.
 - Check your NVR has enough PoE power.

Example 4 : Connection Diagram without PoE Switch

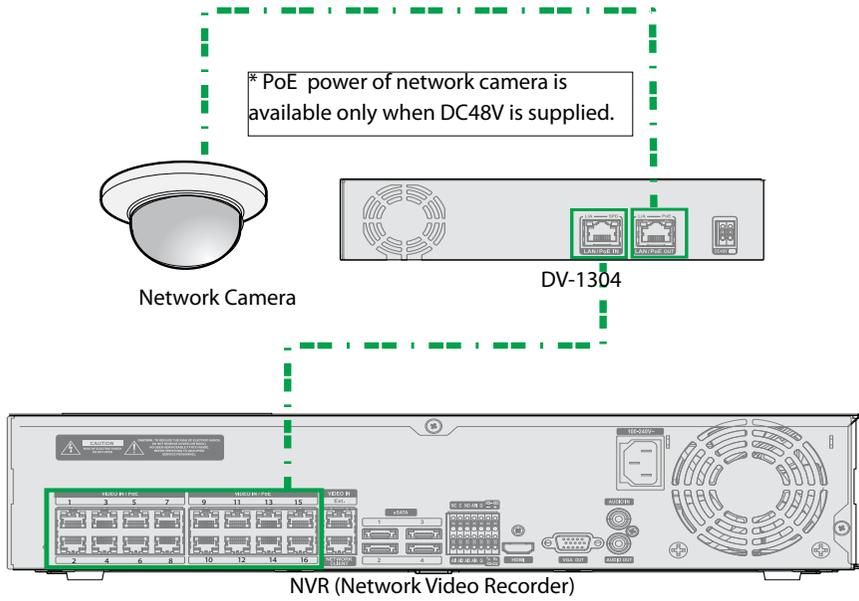


Types of Cables



LAN Cable (Data + PoE Power)

Example 5 : Sonnection Diagram without PoE Switch



Types of Cables

- - - - -	LAN Cable (Data + PoE Power)
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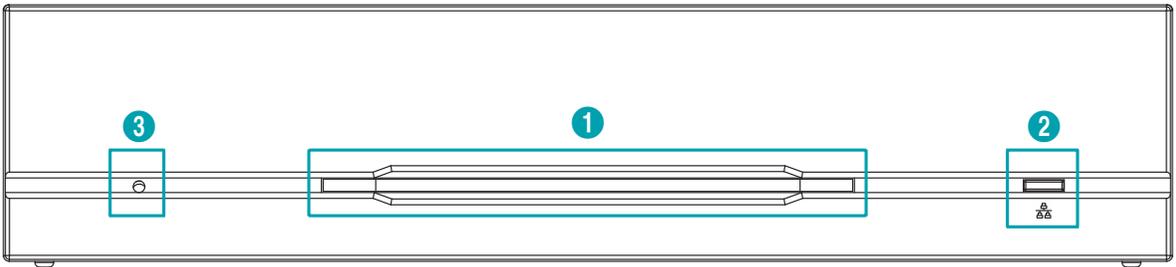
Accessories

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	Power LED	②	Network LED	③	Factory Reset Switch
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① Power LED

Displays system operating status

② Network LED

Displays network connection status

LED Status Indications

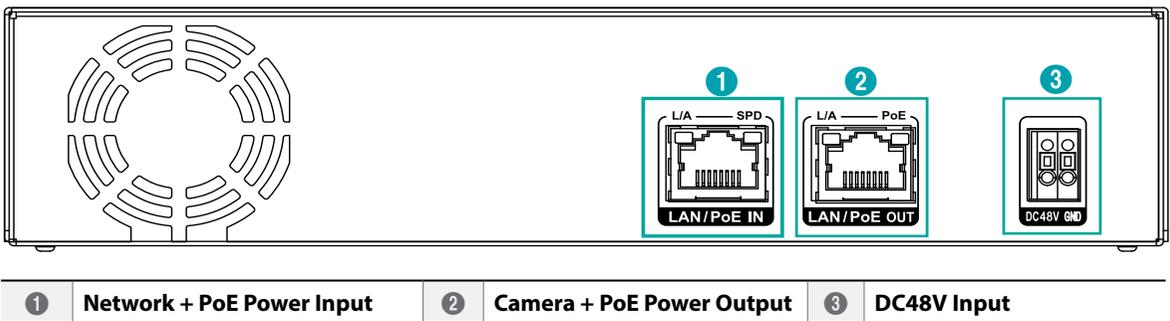
LED	Status	Description
Power LED	Off	No power connection
	Blinking	System booting or upgrading
	On	System operating
Network LED	On / Blinking	Normal network connection

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 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.

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.

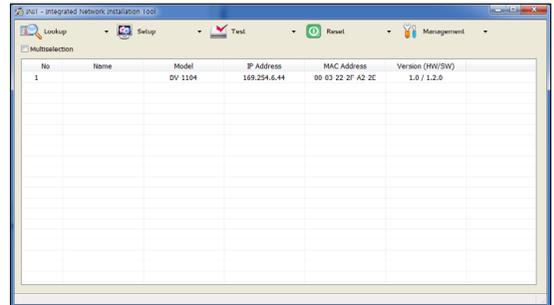
Stream Setting Guide for AI Box Camera

System Requirements

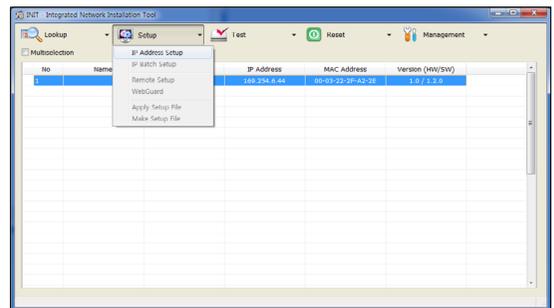
- **Resolution:** 640x360 to 1920x1080
 - **IPS:** 10 or higher
 - **Amount of Data:** 640x360 @ 10ips to 1920x1080 @ 10ips
- One of the three streams must match the above conditions.
- How to calculate the amount of data : Resolution (horizontal x vertical) x ips
- **Minimum Requirement**
 - **Resolution:** 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)

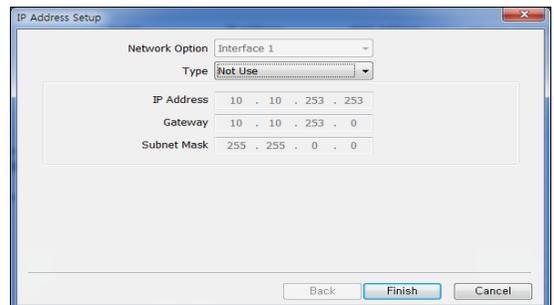
- 1 Launch the IDIS Discovery program and then select the AI in the BOX(DV-1304) from the main screen whose settings you wish to change.



- 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.



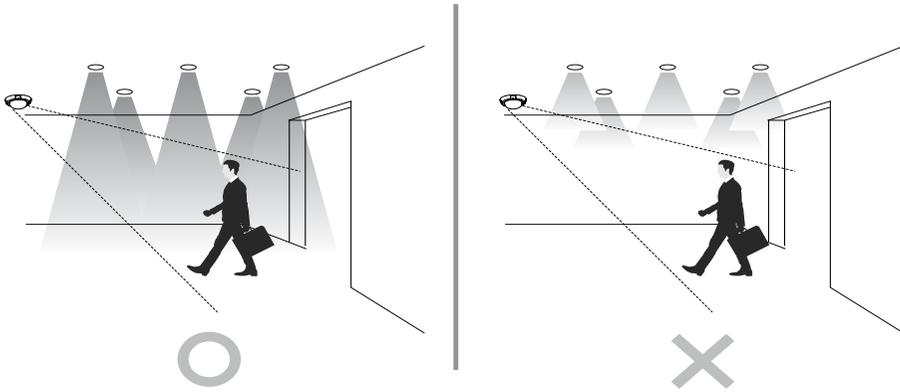
- Configure this setting before registering on NVR.
- It supports DHCP and Manual IP settings

Part 2 - Camera Installation

General Guideline for AI Box Camera

In order to properly operate and manage AI Box such as cameras, especially People Counting, Heat Map, Queue Monitoring, Social Distance Violations, and Mask Rule Violations, the following must be applied.

Make sure that the lighting is sufficient.



[Make sure there is enough light]



The function of the AI in the Box may cause errors in actual measurements. In the following conditions, the analytical performance may suffer due to faulty detections.

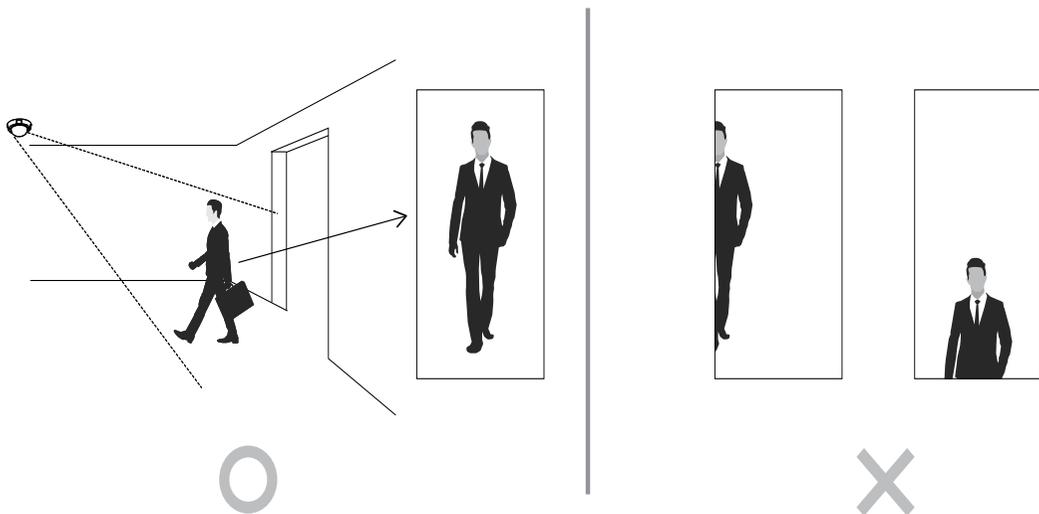
- If there is not enough light.
- If it is difficult to obtain a sufficient view.
- If only part of the object is visible at the edge of the field of view.
- When several extremely fast moving objects appear randomly in the image.
- When a person is lying down or sitting without standing upright.
- When a moving object is too close to the camera.
- When people move as a group and their motions block one another.
- When an object moves quickly.
- If an object is reflected on the floor, wall, glass, metal or water or makes a shadow from a light source.
- If the position of the camera differs from the direction of a light source and it makes a shadow.
- Fisheye analysis is not supported.
- Corridor Format analysis is not recommended.
- When it can be recognized as a person such as a mannequin or video screen.

People Counting

Camera Installation

The whole body appears at the place to be counted, and it is installed diagonally so that the front and rear people passing by do not block each other.

- It is installed so that the movement of a person passing through the boundary line can be easily captured.
- The image should be installed so that the person does not tilt more than 30 degrees, and the size of the person on the image should be larger than 1/16th of the image size.



- 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.

Queue Monitoring

- In the case of AI in the Box Queue Monitoring, the recognition rate may decrease in the following cases.
- Place with a large floating population
 - People who near the camera cover the body of the person behind.

Social Distancing Violation



In the case of AI in the Box Social Distancing Violation, the recognition rate may decrease in the following cases.

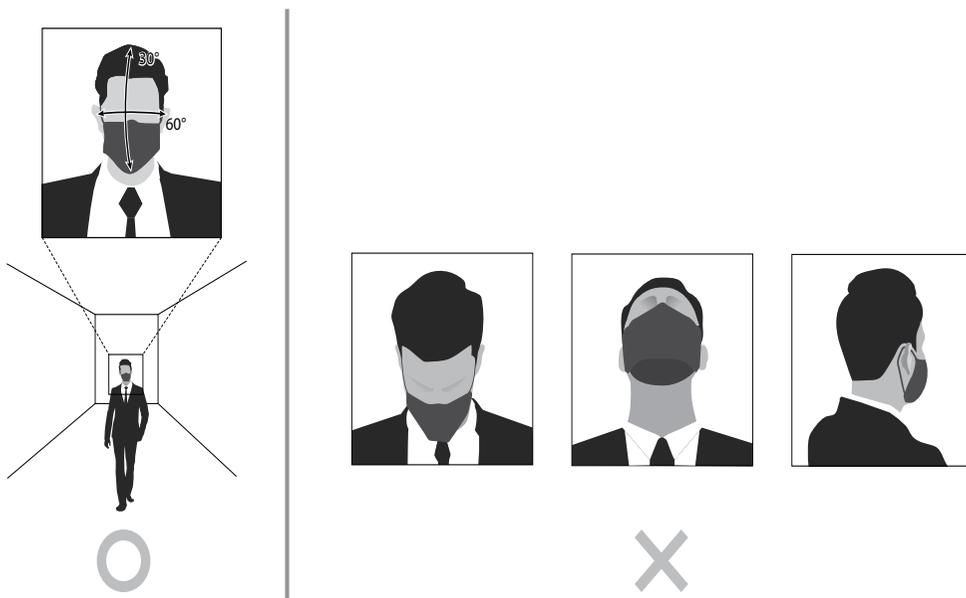
- Only part of the human body is visible
- The perspective of distant and close people is lost due to a horizontal or low-angle camera.
- People close to the camera occupy too much area of the image to obscure nearby people
- People who near the camera cover the person in around.

Mask Rule Violation

Camera Installation

The conditions must be satisfied to determine whether the subject violates the mask rules. It is recommended that the camera be installed at the average height of a person.

- When the resolution is 1920x1080, it can be detected when the size of the face is over 50x50 pixels.
- Based on the front of a person's face, it is detected only within 30° up and down and 60° left and right.



Part 3 - Appendix

Troubleshooting

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

Specifications

Model		DV-1304
Video	Input	4ch IP
	Compression	H.264 / H.265
Input/ Output	Ethernet	PoE In Port : 10M / 100Mbps / 1Gbps PoE Out Port : 10M / 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 6.0" (200mm x 44mm x 152.3mm)
	Unit Weight	1.95 lbs. (889g)
	Power Supply	48V $\overline{\text{DC}}$, PoE
	Power Input	ADAPTOR (INPUT : 100-240V~, 50/60Hz, 1.2A, OUTPUT : 48V $\overline{\text{DC}}$, 1.0A)
	Power Consumption	48V $\overline{\text{DC}}$, 0.8A, 38.4W PoE, IEEE 802.3at(Class 4), 25W DC OUTPUT : 48V $\overline{\text{DC}}$, 0.35A MAX
	Approval	KC, FCC, CE



These product specifications may change without prior notice.