



Operation Manual

DV-1104



Powered by **Direct IP™**

Before reading this manual

This operation manual contains basic instructions on installing and using DirectIP™ VA 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.

Safety Precautions

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.

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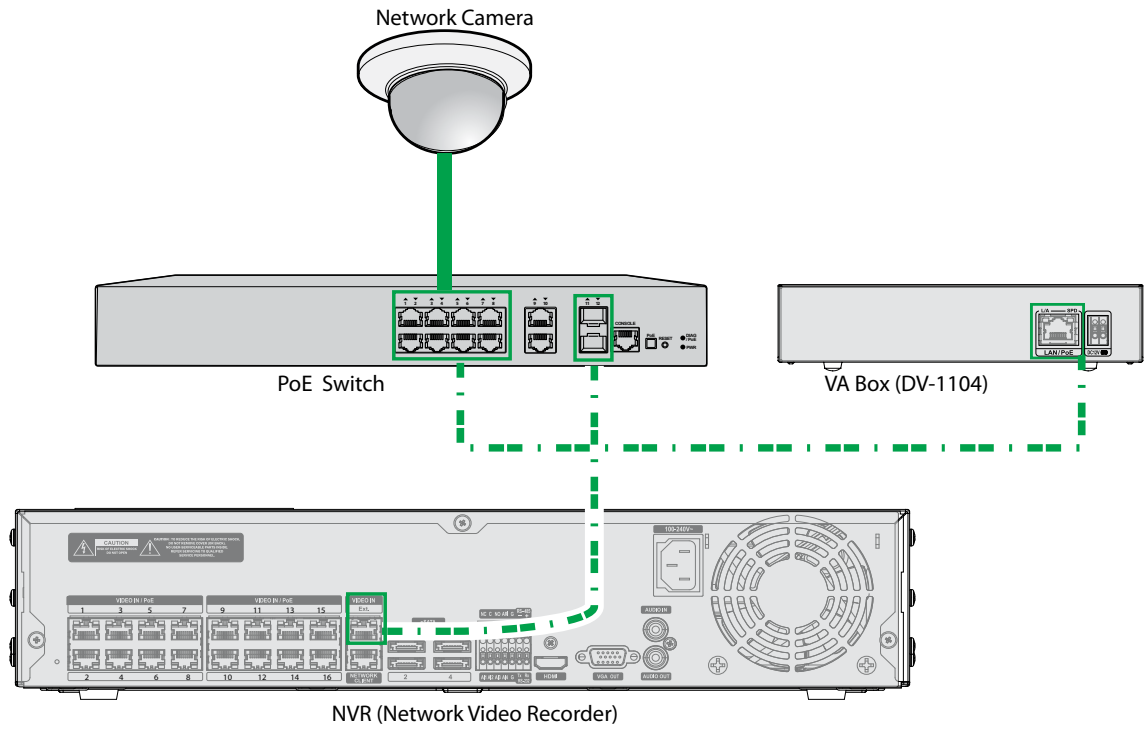
Part 1 – Introduction

Product Features

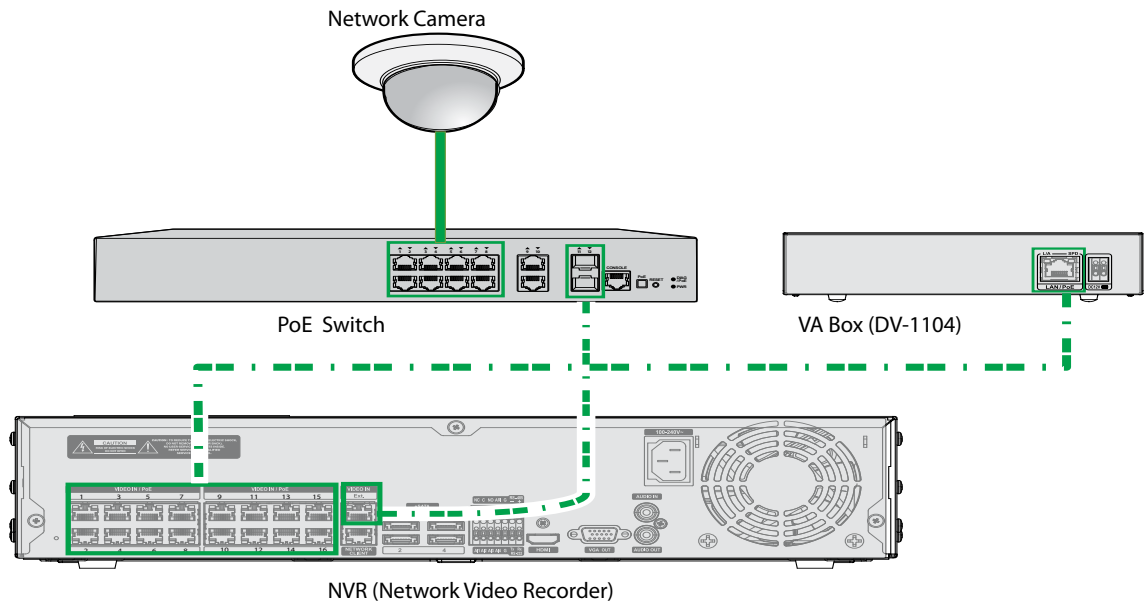
This VA in the Box (VA Box) analyzes the live video from DirectIP™ cameras and transmits the video over Ethernet connections. This product offers the following features:

- Video Inputs : 4-channel H.264 IP camera
- DirectIP™ protocol supported
- Convenient firmware upgrades via network
- Firmware duplication and autorecovery functions to enhance system stability
- Various image analysis function such as People Counting, Heat Map and Queue Management
 - 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
 - Queue Management : Counts and manages time and the number of people who have stayed in the setting zone
- Configuration of device settings and integrated management of multiple VA Boxes on the NVR (Network Video Recorder)

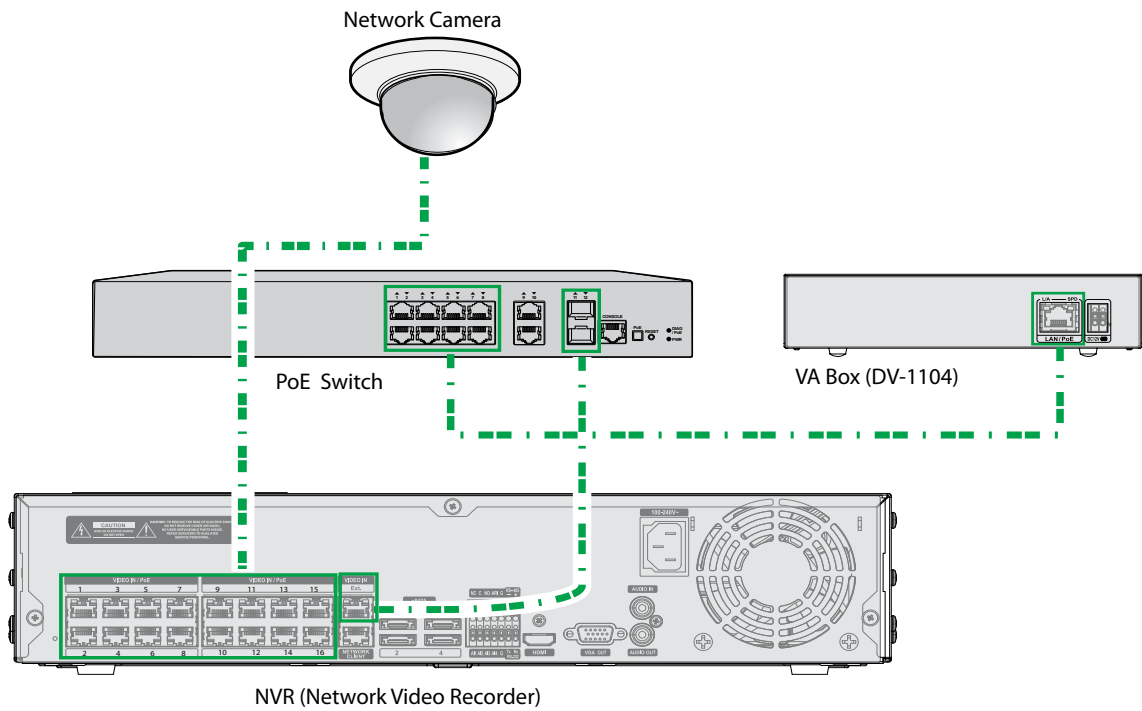
Example 1 : VA Box Connection Diagram Using PoE Switch



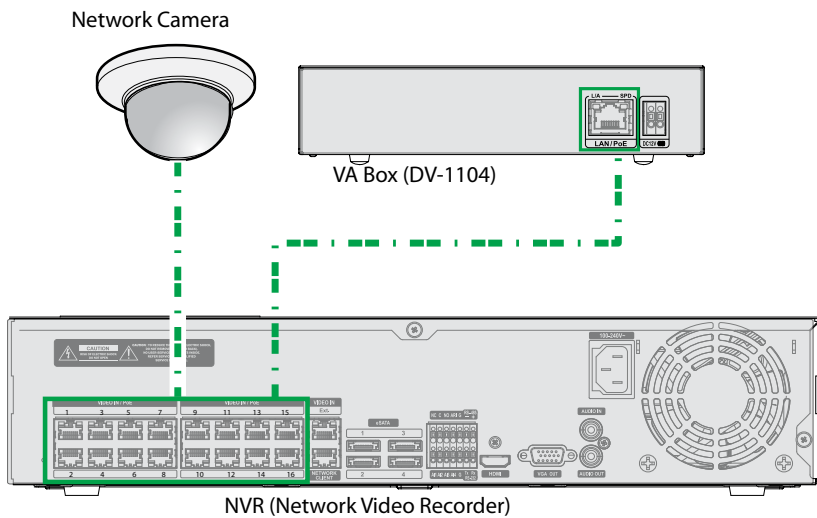
Example 2 : VA Box Connection Diagram Using PoE Switch



Example 3 : VA Box Connection Diagram Using PoE Switch



Example 4 : VA Box Connection Diagram without PoE Switch



Types of Cables



LAN Cable (Data + PoE Power)

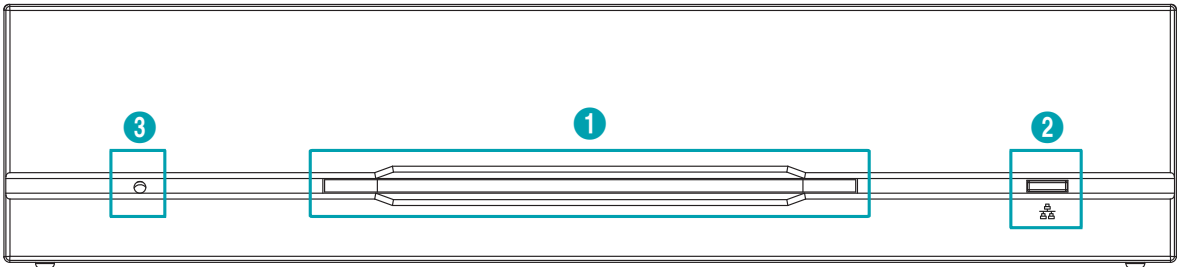
Accessories

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

- VA 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

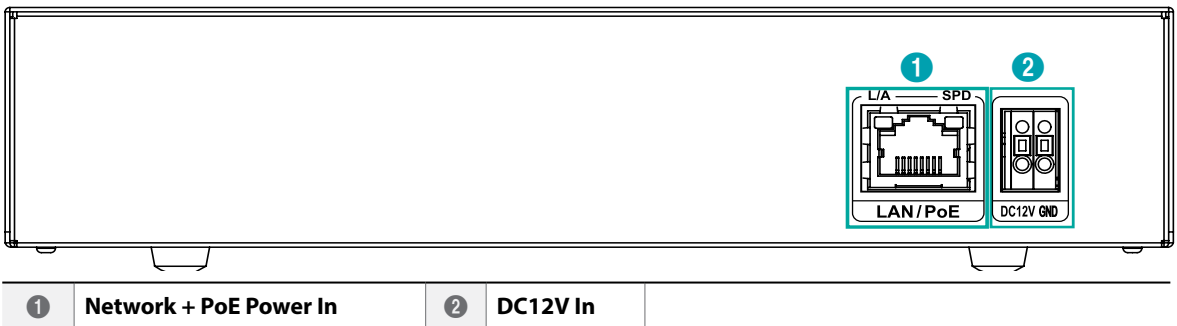
LED	Status	Description
Power LED	Off	No power connection
	Blinking	System booting or upgrading
	On	System operating
Network LED	Blinking	Normal network connection

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 VA 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 DC12V In

Connect the two wires of the power adapter to these ports. Be careful not to cross the DC12V and ground (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.
- ⚠ • Ground the power port's ground terminal before 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.

Part 2 - Remote Setup

Configure basic VA Box settings and all other system settings.



Screen images may vary depending on the model.

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 DirectIP™ NVR **operation manual**.

Firmware Upgrade

Refer to the DirectIP™ NVR **operation manual** to perform a firmware upgrade.

Part 3 - Appendix

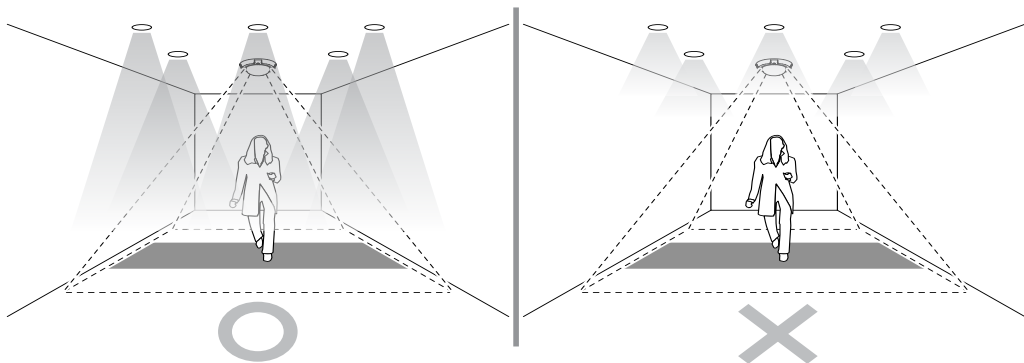
Camera Installation Guidelines for VA Box

General Guidelines

In order for the camera and, in effect, the functions of the VA Box such as Heat Map, People Counting and Queue Management to operate properly, make sure that the following information is applicable.

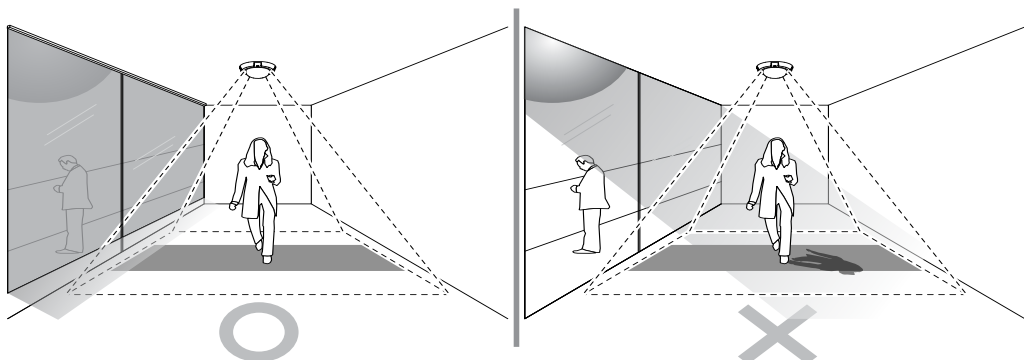
- It applies to People Counting, Heat Map and Queue Management function of the VA Box.

① Make sure that the lighting is sufficient.



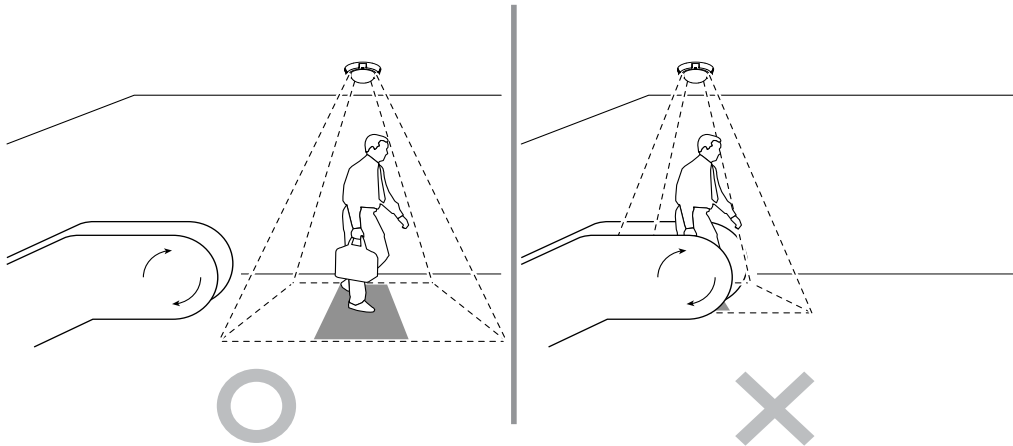
[Make sure there is enough light]

② Try to avoid getting very strong light and sharp shadows in the camera view.



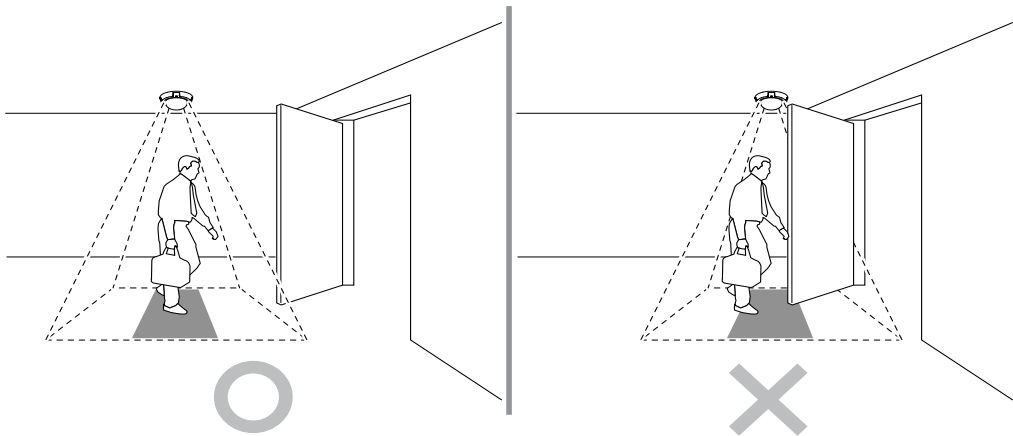
[Avoid having direct sunlight into the setting area.]

③ Do not mount the camera, for instance, above an escalator or the floor is moving.



[Avoid having moving objects such as an escalator steps in the setting area.]

④ Make sure that no doors or other items are moving in the event area.



[Avoid having the camera blocked when you open the door]

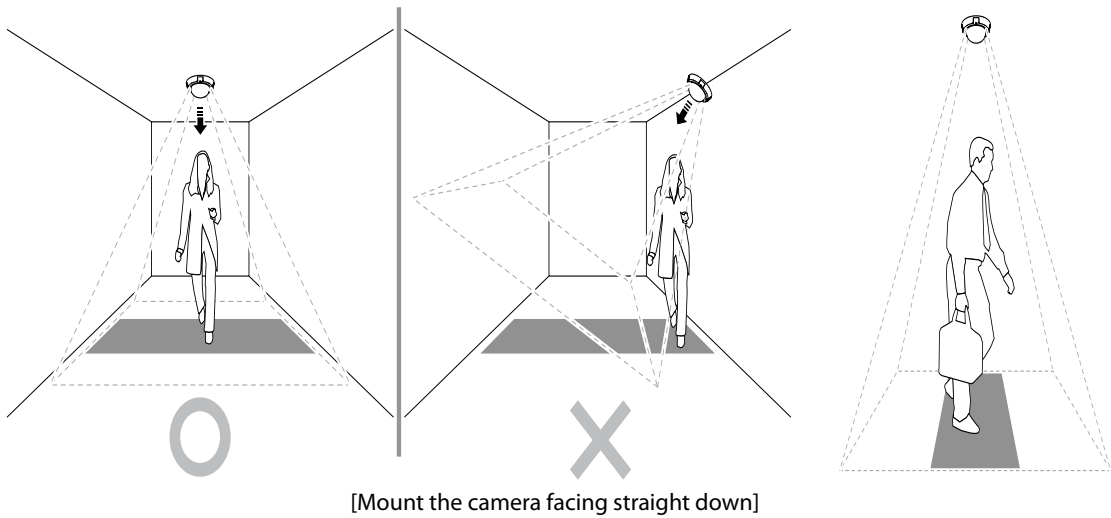
In the following conditions, a detection performance may be reduced.

- If the object color is similar to the background color.
- If only part of the object is visible at the edge of the field of view.
- When extremely fast moving several objects appear randomly in the image.
- When an object stays in the same place for a long time without moving.
- When a person is lying down or sitting without standing upright.
- When the object is too close to the camera.
- When several people move in groups and their motions block one another.
- When the object moves quickly.
- If an object is reflected on the floor, wall, glass, metal or water or the light makes shadows.
- When the weather situation is bad (ex: rain, snow, winds, etc) or it is time for sunset or sunrise.

People Counting

Camera Installation

The camera should be mounted straight above the place where people should be counted and should be looking straight down.



It will not count objects under about 110 to 130 cm of height depending on the camera model.

Camera Position

Adjust the position of the camera so that people can pass through the camera's view vertically. The camera should be mounted so that the counted person can pass through the virtual black part.

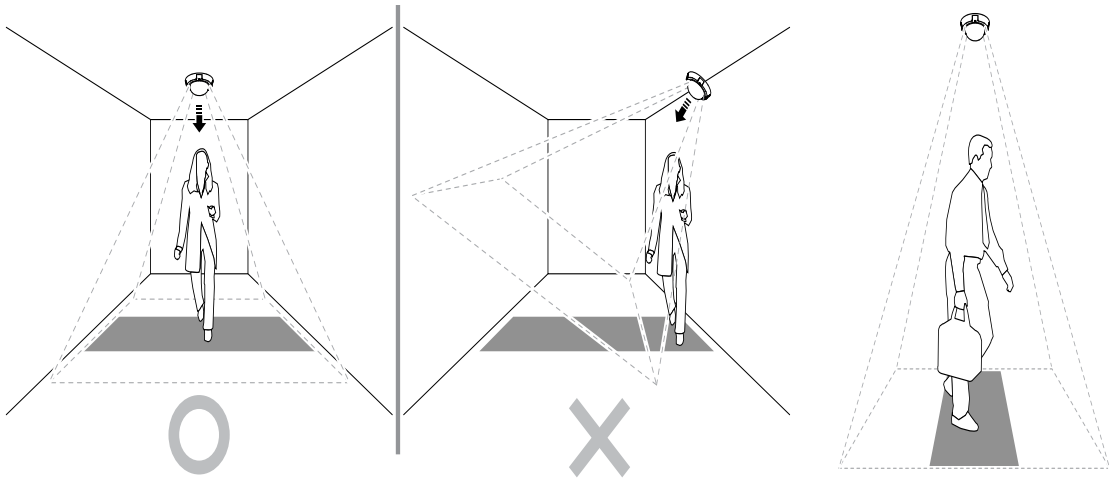
Height and Width

The mounting height range of the camera should be from 270 cm and it depends on the model. The recommended minimum height is 300 cm. Depending on the camera model and zoom setting, the height and width can be adjusted. The maximum width that most of the camera can cover is about 5 meters.

Queue Management

Camera Installation

The camera should be mounted straight above the place where people should be counted and should be looking straight down.



[Mount the camera facing straight down]

Height and Width

The mounting height range of the camera should be from 270 cm and it depends on the model. The recommended minimum height is 300 cm. Depending on the camera model and zoom setting, the height and width can be adjusted. The maximum width that most of the camera can cover is about 5 meters.

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-1104
Video	Input	1 RJ-45
	Compression	H.264
Inputs/ Outputs	Ethernet	10M/100Mbps/1Gbps
	DC12V 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	1.6 lbs. (740g)
	Power Supply	DC12V or PoE (IEEE802.3af class3)
	Power Consumption	6.6W
	Approval	KC, FCC, CE

These product specifications may change without prior notice.



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www.idisglobal.com