HD Analog Camera
User’s Manual

Model No. CV-CPW203AL

CV-CFW203AL

CV-CPW201AL

CV-CFW201AL

Version 1.0.0

Table of Contents

Welcome

Thank you for purchasing our HD analog camera!
This user's manual is designed to be a reference tool for your system.
Before installation and operation please read the following safeguards and warnings carefully!
Keep this user's manual well for future reference.

Foreword

General

This user's manual (hereinafter referred to be "the Manual") introduces the functions and operations of the HDCVI camera (hereinafter referred to be "the Device").

Safety Instructions

The following categorized signal words with defined meaning might appear in the Manual.

Signal Words	Meaning
WARNING	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
CAUTION	Indicates a potential risk which, if not avoided, could result in property damage, data loss, lower performance, or unpredictable result.
NOTE	Provides additional information as the emphasis and supplement to the text.

About the Manual

- The Manual is for reference only. If there is inconsistency between the Manual and the actual product, the actual product shall prevail.
- We are not liable for any loss caused by the operations that do not comply with the Manual.
- The Manual would be updated according to the latest laws and regulations of related regions. For detailed information, refer to the paper manual or our official website. If there is inconsistency between paper manual and the electronic version, the electronic version shall prevail.
- All the designs and software are subject to change without prior written notice. The product updates might cause some differences between the actual product and the Manual. Please contact the customer service for the latest program and supplementary documentation.
- There still might be deviation in technical data, functions and operations description, or errors in print. If there is any doubt or dispute, we reserve the right of final explanation.
- Upgrade the reader software or try other mainstream reader software if the Manual (in PDF format) cannot be opened.
- All trademarks, registered trademarks and the company names in the Manual are the properties of their respective owners.
- Please visit our website, contact the supplier or customer service if there is any problem occurred when using the device.
- If there is any uncertainty or controversy, we reserve the right of final explanation.

Important Safeguards and Warnings

Electrical safety

- All installation and operation should conform to your local electrical safety codes.
- The power source shall conform to the requirement of the Safety Extra Low Voltage (SELV) standard, and supply power with rated voltage which conforms to Limited Power Source requirement according to IEC62368-1. Please note that the power supply requirement is subjected to the device label.
- A readily accessible disconnect device shall be incorporated in the building installation wiring.
- Make sure that the power adapter meets the device operating voltage requirement before powering up the device (The material and length of the power cable might influence the device voltage).
- Prevent the power cable from being trampled or pressed, especially the plug, power socket and the junction extruded from the device.
- We assume no liability or responsibility for all the fires or electrical shock caused by improper handling or installation.

Operating Requirements

- Do not aim the device at strong light to focus, such as lamp light and sun light.
- Transport, use and store the device within the range of allowed humidity and temperature.
- Keep the device away from water or other liquid to avoid damages to the internal components.
- Keep sound ventilation to avoid heat accumulation.
- Heavy stress, violent vibration or water splash are not allowed during transportation, storage and installation.
- Pack the device with standard factory packaging or the equivalent material when transporting the device.
- You are recommended to use the device together with lightning arrester to improve lightning protection effect.
- You are recommended to ground the device to enhance reliability.
- You are recommended to use qualified video transmission cable to improve video quality, and use RG59 coaxial cable or higher standard.

WARNING

- Use standard components or accessories provided by the manufacturer and make sure that the device is installed and maintained by professional engineers.
- The surface of the image sensor should not be exposed to laser beam radiation in an environment where a laser beam device is used.
- Do not provide two or more power supply sources for the device; otherwise it might damage the device.

1. Overview

1.1 Introduction

The Device complies with the HDCVI standard and supports the transmission of video and control signal over coaxial cable. The Device produces video signal with megapixel resolution and requires connected DVR to achieve high-speed, long distance and zero-lag transmission of the signal. They are applicable at various scenes, such as roads, warehouses, underground parking lots, bars, pipelines and gas stations.

1.2 Features

- High-performance CMOS image sensor.
- Supports 1080p@25fps (PAL)/30fps (NTSC).
- Supports transmission up to 800m (1080P)/1200m (720P).
- High speed & long distance real-time transmission.
- Supports ICR for day time and night time operation.
- Supports auto exposure, auto white balance, auto electronic shutter and auto gain function.
- Support DC12V power supply.
- IP66 compliance.

1.3 Specifications

1.3.1 CV-CPW203AL

Parameter	CV-CPW203AL
Camera	
Image Sensor	1/2.7 inch CMOS
Effective Pixels	1920(H) x 1080(V), 2MP
Min. Illumination	0.02Lux/F1.9, 30IRE, 0Lux IR on
Electronic Shutter	PAL : 1/25s - 1/100,000s NTSC : 1/30s - 1/100,000s
Video Frame Rate*	PAL : 25fps NTSC : 30fps
Day/Night	Auto/Color/ B/W
Max. IR Distance	40m
Smart IR	Yes
Digital Noise Reduction	2D
White Balance	Auto, manual
Gain Control	Auto, manual
BLC	BLC/HLC/DWDR
Lens	
Focal Length	3.6mm

Field of View	3.6mm: 100° x 84° x 45° (diagonal x horizontal x vertical)
Lens Type	Fixed-focal
Input/Output	
Video Output	1CH BNC HD-CVI video output
General	
Power	DC 12V±30%
Power Consumption	Max. 2.8W (DC 12V, IR on)
Working Temperature	-40℃ - +60℃ Less than 95% RH (non-condensation)
Dimensions	240.7mm × 90.7mm x 90.4mm
Weight (approx.)	410g
External Case	Metal front cover, plastic main body and metal bracket

*Refer to DVR spec sheet for recording frame rate limitation

1.3.2 CV-CFW203AL

Parameter	CV-CFW203AL
Camera	
Image Sensor	1/2.7 inch CMOS
Effective Pixels	1920(H) x 1080(V), 2MP
Min. Illumination	0.02Lux/F1.9, 30IRE, 0Lux IR on
Electronic Shutter	PAL : 1/25s - 1/100,000s NTSC : 1/30s - 1/100,000s
Video Frame Rate*	PAL : 25fps NTSC : 30fps
Day/Night	Auto/Color/ B/W
Max. IR Distance	30m
Smart IR	Yes
Digital Noise Reduction	2D
White Balance	Auto, manual
Gain Control	Auto, manual
BLC	BLC/HLC/DWDR
Lens	
Focal Length	3.6mm
Field of View	3.6mm: 100° x 84° x 45° (diagonal x horizontal x vertical)
Lens Type	Fixed-focal
Input/Output	
Video Output	1CH BNC HD-CVI video output
General	
Power	DC 12V±30%

Power Consumption	Max. 2.9W (DC 12V, IR on)
Working Temperature	-40℃ - +60℃ Less than 95% RH (non-condensation)
Dimensions	Φ109.9mm × 88.1mm
Weight (approx.)	330g
External Case	Metal dome, metal cover and plastic decorative ring

*Refer to DVR spec sheet for recording frame rate limitation

1.3.3 CV-CPW201AL

Arial	CV-CPW201AL
Camera	
Image Sensor	1/2.7 inch CMOS
Effective Pixels	1920(H) x 1080(V), 2MP
Min. Illumination	0.02Lux/F1.7, 30IRE, 0Lux IR on
Electronic Shutter	PAL : 1/25s - 1/100,000s NTSC : 1/30s - 1/100,000s
Video Frame Rate*	PAL : 25fps NTSC : 30fps
Day/Night	Auto/Color/ B/W
Max. IR Distance	60m
Smart IR	Yes
Digital Noise Reduction	2D
White Balance	Auto, manual
Gain Control	Auto, manual
BLC	BLC/HLC/DWDR
Lens	
Focal Length	2.7mm - 12mm
Field of View	D: 38° - 125° H: 33° - 102° V: 19° - 53°
Lens Type	Motorized vari-focal
Input/Output	
Video Output	1CH BNC HD-CVI video output
General	
Power	DC 12V±30%
Power Consumption	Max. 12.1W (DC 12V, IR on)
Working Temperature	-30℃ - +60℃ Less than 95% RH (non-condensation)
Dimensions	209.9mm × 90.4mm x 90.4mm
Weight (approx.)	550g
External Case	Metal throughout the whole casing

*Refer to DVR spec sheet for recording frame rate limitation

1.3.4 CV-CFW201AL

Parameter	CV-CFW201AL
Camera	
Image Sensor	1/2.7 inch CMOS
Effective Pixels	1920(H) x 1080(V), 2MP
Min. Illumination	0.02Lux/F1.7, 30IRE, 0Lux IR on
Electronic Shutter	PAL : 1/25s~1/100,000s NTSC : 1/30s~1/100,000s
Video Frame Rate*	PAL : 25fps NTSC : 30fps
Day/Night	Auto/Color/ B/W
Max. IR Distance	60m
Smart IR	Yes
Digital Noise Reduction	2D
White Balance	Auto, manual
Gain Control	Auto, manual
BLC	BLC/HLC/DWDR
Lens	
Focal Length	2.7mm - 12mm
Field of View	D: 38° - 125° H: 33° - 102° V: 19° - 53°
Lens Type	Motorized vari-focal
Input/Output	
Video Output	1CH BNC HD-CVI video output
General	
Power	DC 12V±30%
Power Consumption	Max. 8.2W (DC 12V, IR on)
Working Temperature	-30℃ - +60℃ Less than 95% RH (non-condensation)
Dimensions	Φ122mm × 104.8 mm
Weight (approx.)	570g
External Case	Metal throughout the whole casing

*Refer to DVR spec sheet for recording frame rate limitation

1.4 Transmission Distance

Cable		**1080P**
Coaxial Cable	RG6 (75-5)	800 m
	RG59 (75-3)	500 m

1.5 Device Framework

Please refer to the following figures for dimension information. The unit is mm [inch].

1.5.1 CV-CPW203AL

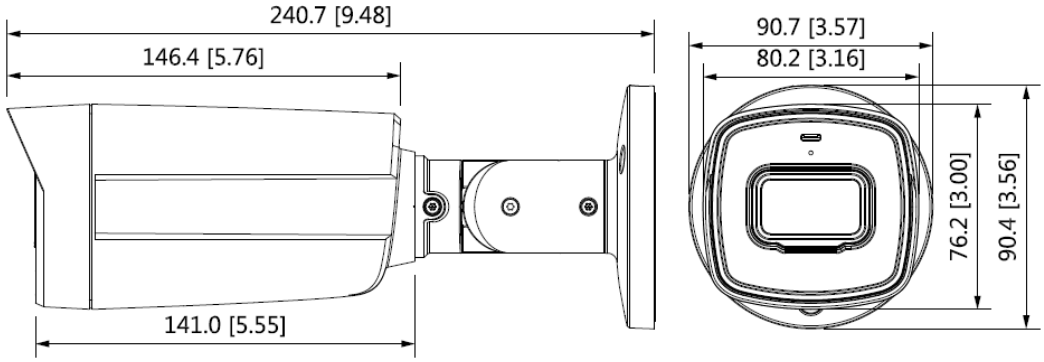


Figure 1-1

1.5.2 CV-CFW203AL

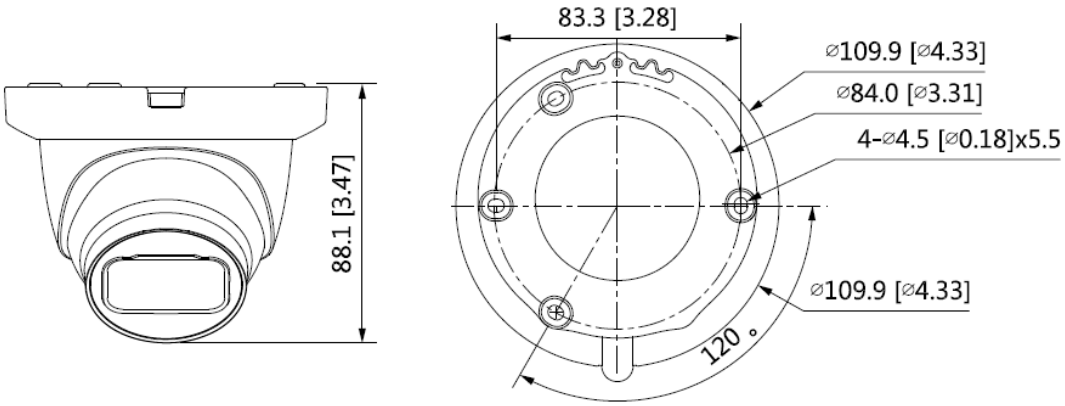


Figure 1-2

1.5.3 CV-CPW201AL

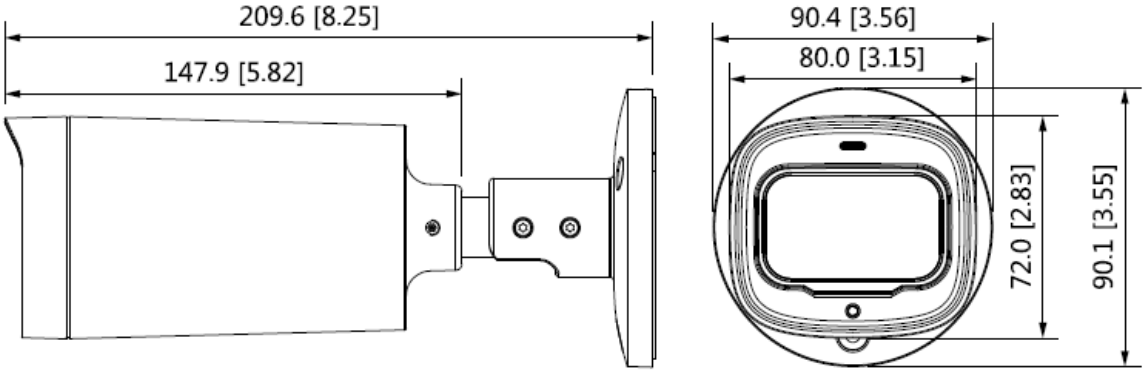


Figure 1-3

1.5.4 CV-CFW201AL

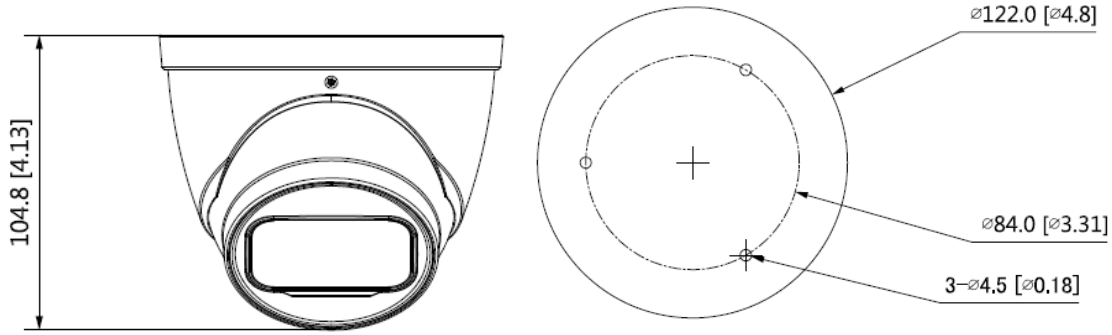


Figure 1-4

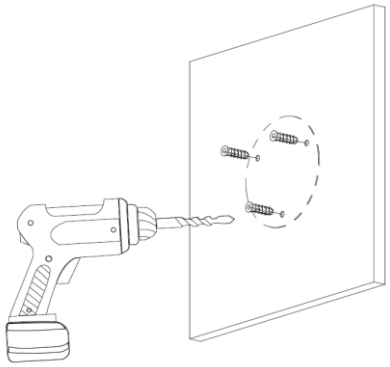
2. Installation

CAUTION

Before the installation, please make sure the installation surface can sustain at least 3X weight of the bracket and the camera.

2.1 CV-CPW203AL/CV-CPW201AL

1



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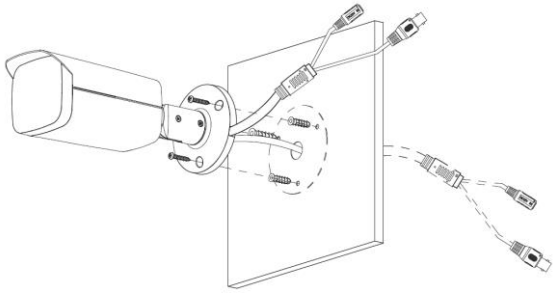

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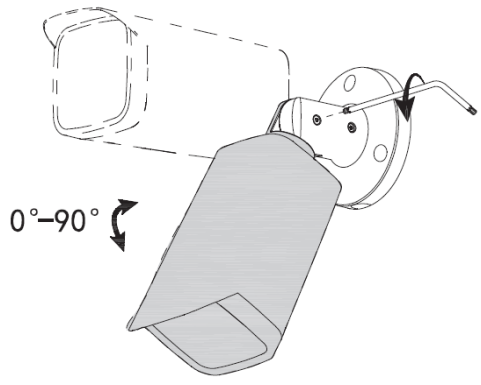

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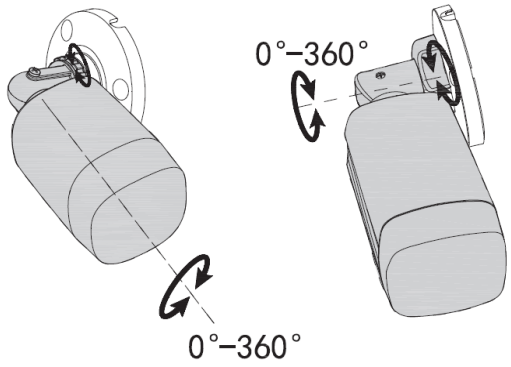

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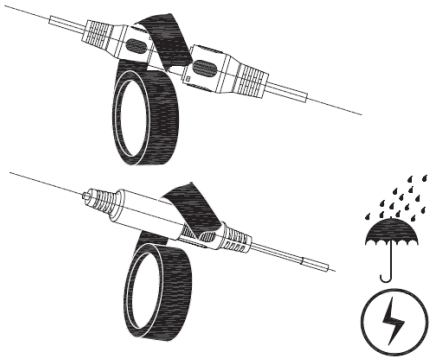
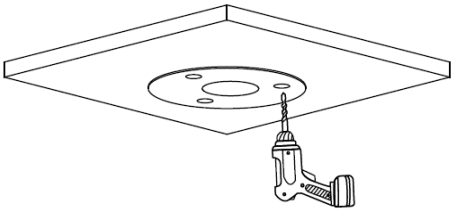


2.2 CV-CFW203AL

1



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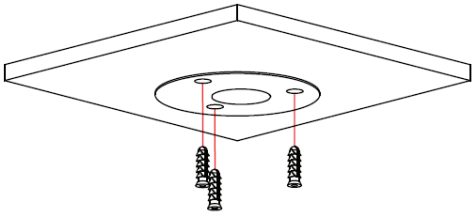

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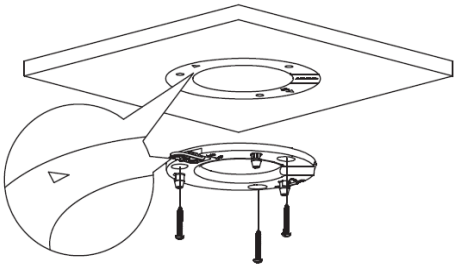

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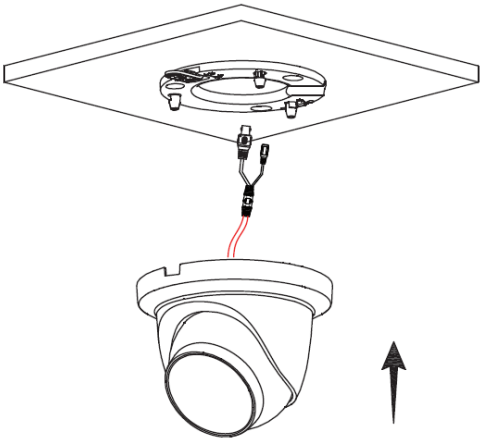

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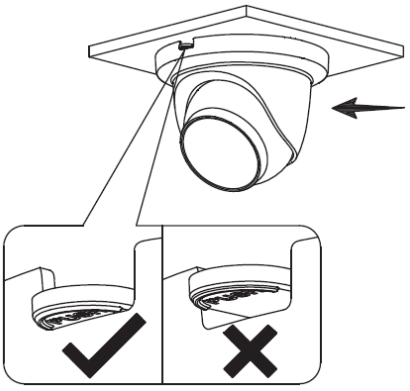

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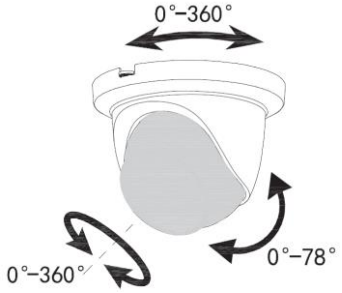

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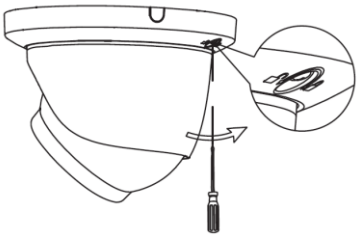

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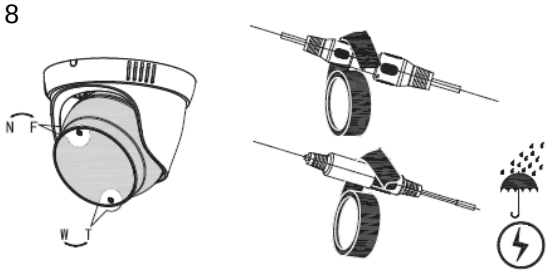

2.3 CV-CFW201AL

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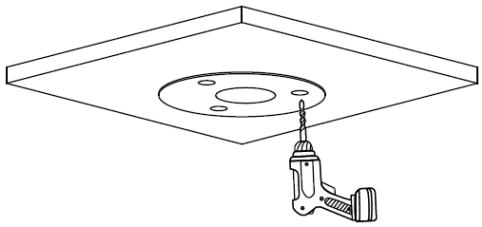

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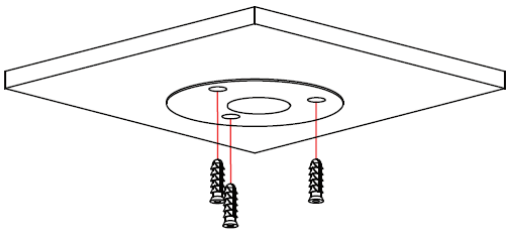

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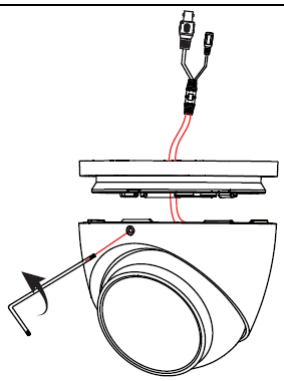

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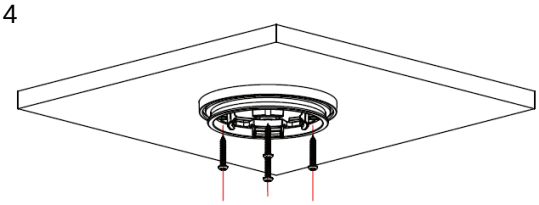

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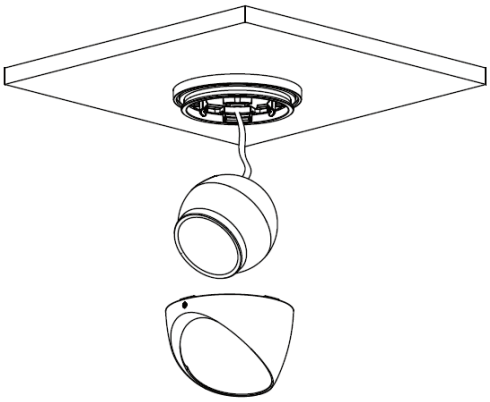

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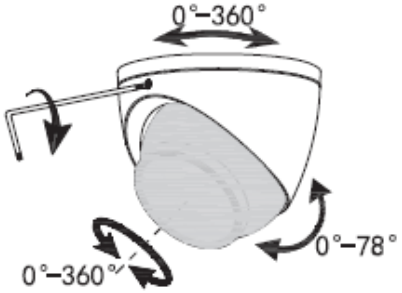

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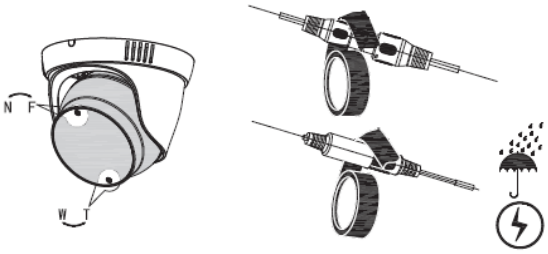

3. General Configuration and Operation

Power up the Device and connect it to the DVR with coaxial cable, and then the live interface is displayed. Then you can start configuring HDCVI cameras on the DVR.

NOTE

- The number of coaxial ports on DVR will display at the lower-right corner of each window to indicate the corresponding camera.
- Ports might vary depending on the DVR models, and the actual product shall prevail.

3.1 Entering DVR Main Menu

1. Right-click on the live interface, and the shortcut menu is displayed.
2. Click **Main Menu** and then log in to the system. The main menu of DVR is displayed.

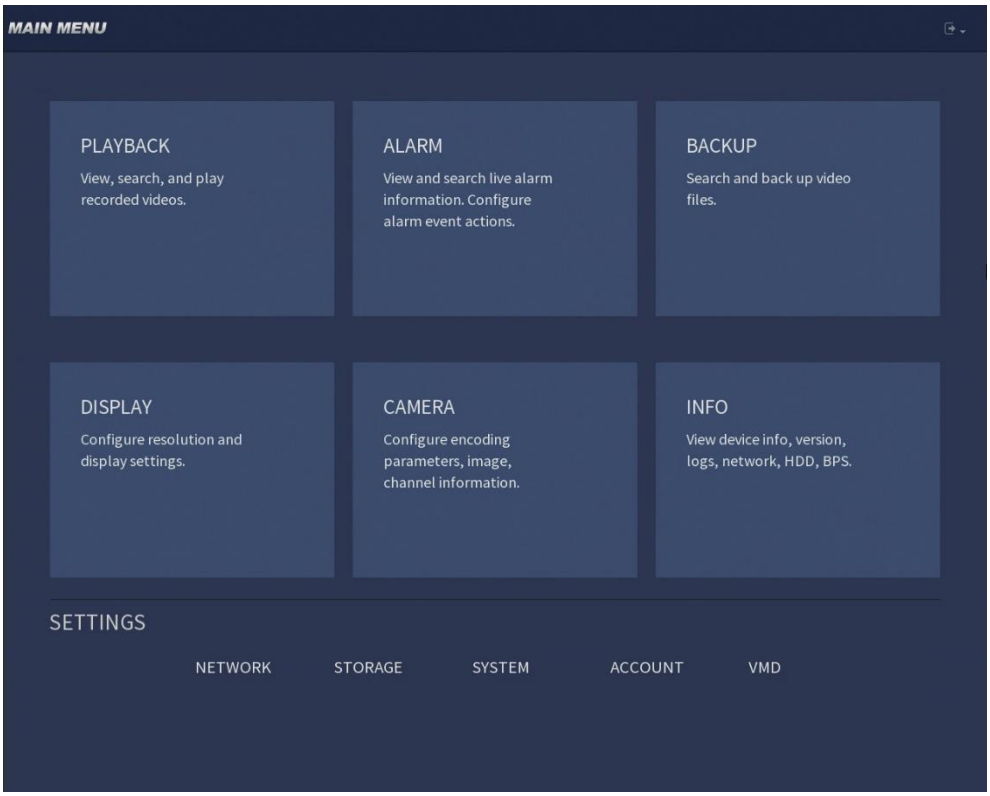

Figure 3-1

3.2 Operating PTZ Control Panel

3.2.1 Operating OSD Menu

NOTE

When you use OSD menu to restore the device to default settings, the resolution, mode, frame rate and language of the device will not be restored.

1. On the live interface, right-click the Device that you want to configure. The shortcut menu is displayed.

Figure 3-2

2. Click **PTZ** and click to extend the menu.

Figure 3-3

3. Click . The **MENU OPERATION** panel is displayed.

Figure 3-4

Button	Function	Button	Function
Enter	Enter or confirm an item	,	Select item
Cancel	Exit OSD menu	,	Change item value

The OSD menu of the corresponding device is displayed on the live interface. If the value of OSD is "↵", click **Enter** to go to the next level of this item. Click **Return** to go back to the previous level. Click **Cancel** to exit OSD menu without saving the modifications.

Figure 3-5

3.2.2 Operating Auto Focus (CV-CPW201AL and CV-CFW201AL only)

Parameter	Description
Zoom	: Zoom out. : Zoom in.
Focus	: Focus far. : Focus near.
	Click to unfold PTZ control panel.

4. Frequently Asked Questions

4.1 Long Distance Power Supply

In many scenarios, our clients adopt long distance power supply, transmitting 12V DC to cameras located over 100 m. Such long distance power supply might cause problems.

Q1: Recurrent restart of devices or even ICR failure.
Possible reasons: The long power supply cable leads to a large voltage drop on the equipment power supply cable, and turning on the IR light at night leads to a further increase of the voltage drop, resulting in restart of the device. After the device is restarted, the ICR is switched to the Day mode by default. By judging the ambient light at night, the device will operate in Night mode, and then the infrared light is turned on, which causes the device to restart again because of under voltage. Thus, ICR is switched to every 2 seconds, impacting its switching lifespan.

Q2: Unable to restart devices at night, and black screen or restart occurs when switching ICR.
Possible reasons: The long power supply cable leads to a large voltage drop on the equipment power supply cable, and turning on the IR light at night leads to a further increase of the voltage drop, resulting in restart of the device and black screen.
Solution: During construction, when the camera location is far from the power supply, you need to adopt long distance separate power supply or purchase –DP dual power supply to use 24V AC power supply.

4.2 Centralized Power Supply

The typical problem of centralized power supply is that there are obvious black stripes on the device screen, which interferes with the display.
The principle of centralized power supply is as follows:

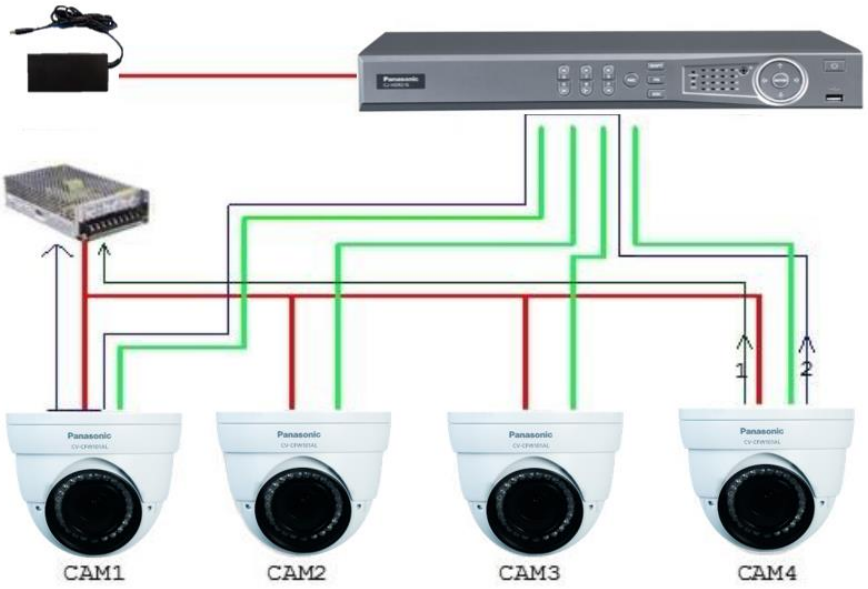

Figure 4-1

There are two paths for the power output of CAM4, return path 1 and return path 2. Reflow 2 first flows to CAM1, and then flows to the power supply from power supply ground of CAM1. In this way, the reflow of power supply ground CAM4 affects the video ground of CAM1, resulting in interference stripes on the screen. And CAM4 also interferes with CAM2 and CAM3. In the same way, CAM1, CAM2 or CAM3 affects other cameras besides itself.

The main reason for the interference of centralized power supply is that the power supply ground of camera is not isolated. To solve this problem: Use dual-power devices with isolation of power supply ground; equip low-power devices with power isolators to block the return path 2 low power devices can also use power isolators to block the return path 2; use isolated power supplies for each channel, or power the device separately, which are the two recommended methods.

4.3 Connector Waterproof Protection

HDCVI cameras need to be well waterproofed and protected. After installation, wrap the BNC connector and power connector tightly with insulated or waterproofed tape to prevent water and external electromotive forces. When metal casing device is installed on metal surfaces such as elevators and buses, the metal casing should not be in contact with the installation surface to prevent water and external electromotive forces.

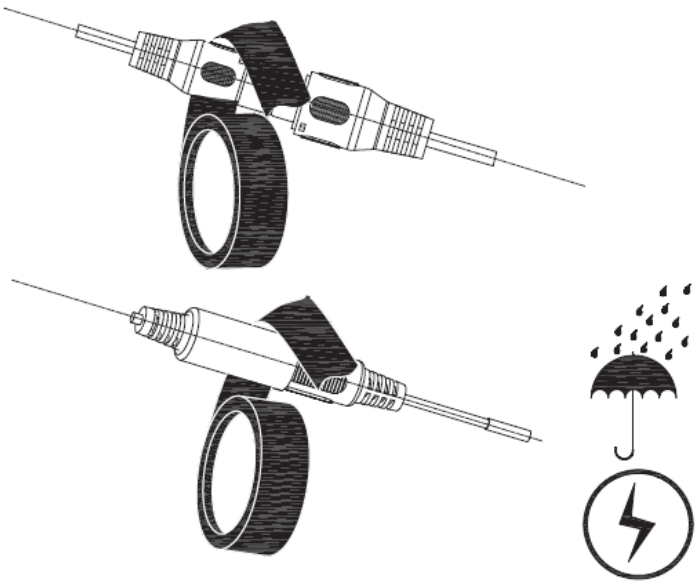

Figure 4-2

5. Maintenance

WARNING

In order to maintain the image quality and proper functioning of the device, please read the following maintenance instructions carefully and hold rigid adherence.

Disassembly

Carefully follow the instructions in the manual when performing any disassembly operation about the device; otherwise, it might cause water leakage or poor image quality due to unprofessional disassemble.

Maintaining Lens and Lens Protector

- The lens and lens protector are covered with antireflection coating, which could be contaminated or damaged and result in lens scratches or haze images when being touched with dust, grease, fingerprints and other similar substances.
- Do not touch the image sensor (CCD or CMOS) directly. Dust and dirt could be removed with air blower, or you can wipe the lens gently with soft cloth that moistened with alcohol.

Maintaining Device Body

- Device body can be cleaned with soft dry cloth, which can also be used to remove stubborn stains when moistened with mild detergent.
- To avoid possible damage on device body coating which could cause performance decrease, do not use volatile solvent such as alcohol, benzene, diluent and so on to clean the device body, nor can strong, abrasive detergent be used.