

**6AL445XANR**  
**4MP Starlight Network PTZ**  
45x PTZ Laser Network Camera with Analytics+  
**Installation Manual**

**V1.0.1**

# Cybersecurity Recommendations

## **Mandatory actions to be taken towards cybersecurity**

### **1. Change Passwords and Use Strong Passwords**

The number one reason systems get “hacked” is due to having weak or default passwords. It is recommended to change default passwords immediately and choose a strong password whenever possible. A strong password should be made up of at least 8 characters and a combination of special characters, numbers, and upper and lower case letters.

### **2. Update Firmware**

As is standard procedure in the tech-industry, we recommend keeping NVR, DVR, and IP camera firmware up-to-date to ensure the system is current with the latest security patches and fixes.

## **“Nice to have” recommendations to improve your network security**

### **1. Change Passwords Regularly**

Regularly change the credentials to your devices to help ensure that only authorized users are able to access the system.

### **2. Change Default HTTP and TCP Ports:**

- Change default HTTP and TCP ports for systems. These are the two ports used to communicate and to view video feeds remotely.
- These ports can be changed to any set of numbers between 1025-65535. Avoiding the default ports reduces the risk of outsiders being able to guess which ports you are using.

### **3. Enable HTTPS/SSL:**

Set up an SSL Certificate to enable HTTPS. This will encrypt all communication between your devices and recorder.

### **4. Enable IP Filter:**

Enabling your IP filter will prevent everyone, except those with specified IP addresses, from accessing the system.

### **5. Change ONVIF Password:**

On older IP Camera firmware, the ONVIF password does not change when you change the system’s credentials. You will need to either update the camera’s firmware to the latest revision or manually change the ONVIF password.

### **6. Forward Only Ports You Need:**

- Only forward the HTTP and TCP ports that you need to use. Do not forward a huge range of numbers to the device. Do not DMZ the device's IP address.
- You do not need to forward any ports for individual cameras if they are all connected to a recorder on site; just the NVR is needed.

### **7. Disable Auto-Login on SmartPSS:**

Those using SmartPSS to view their system and on a computer that is used by multiple people should disable auto-login. This adds a layer of security to prevent users without the appropriate credentials from accessing the system.

### **8. Use a Different Username and Password for SmartPSS:**

In the event that your social media, bank, email, etc. account is compromised, you would not want someone collecting those passwords and trying them out on your video surveillance system. Using a

different username and password for your security system will make it more difficult for someone to guess their way into your system.

#### **9. Limit Features of Guest Accounts:**

If your system is set up for multiple users, ensure that each user only has rights to features and functions they need to use to perform their job.

#### **10. UPnP:**

- UPnP will automatically try to forward ports in your router or modem. Normally this would be a good thing. However, if your system automatically forwards the ports and you leave the credentials defaulted, you may end up with unwanted visitors.
- If you manually forwarded the HTTP and TCP ports in your router/modem, this feature should be turned off regardless. Disabling UPnP is recommended when the function is not used in real applications.

#### **11. SNMP:**

Disable SNMP if you are not using it. If you are using SNMP, you should do so only temporarily, for tracing and testing purposes only.

#### **12. Multicast:**

Multicast is used to share video streams between two recorders. Currently there are no known issues involving Multicast, but if you are not using this feature, deactivation can enhance your network security.

#### **13. Check the Log:**

If you suspect that someone has gained unauthorized access to your system, you can check the system log. The system log will show you which IP addresses were used to login to your system and what was accessed.

#### **14. Physically Lock Down the Device:**

Ideally, you want to prevent any unauthorized physical access to your system. The best way to achieve this is to install the recorder in a lockbox, locking server rack, or in a room that is behind a lock and key.

#### **15. Connect IP Cameras to the PoE Ports on the Back of an NVR:**

Cameras connected to the PoE ports on the back of an NVR are isolated from the outside world and cannot be accessed directly.

#### **16. Isolate NVR and IP Camera Network**

The network your NVR and IP camera resides on should not be the same network as your public computer network. This will prevent any visitors or unwanted guests from getting access to the same network the security system needs in order to function properly.

## General

This Installation Manual (hereinafter referred to be "the Manual") introduces installation preparation, speed dome installation, bracket dimension, and bracket installation including wall-mounted bracket installation, hang-mounted bracket installation, corner-mounted bracket installation, and pole-mounted bracket installation.

## Safety Instructions

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

Signal Words	Meaning
 <b>DANGER</b>	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
 <b>WARNING</b>	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
 <b>CAUTION</b>	Indicates a potential risk which, if not avoided, could result in property damage, data loss, lower performance, or unpredictable result.
 <b>TIPS</b>	Provides methods to help you solve a problem or save you time.
 <b>NOTE</b>	Provides additional information as the emphasis and supplement to the text.

## Revision History

No.	Version	Revision Content	Release Time
1	V1.0.0	First Release.	August 2, 2018

## Privacy Protection Notice

As the device user or data controller, you might collect personal data of other such as face, fingerprints, car plate number, Email address, phone number, GPS and so on. You need to be in compliance with the local privacy protection laws and regulations to protect the legitimate rights and interests of other people by implementing measures include but not limited to: providing clear and visible identification to inform data subject the existence of surveillance area and providing related contact.

## About this 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, see the paper manual, CD-ROM, QR code 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, please refer to our 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, please refer to our final explanation.

# Important Safeguards and Warnings

The Manual helps you to use our product properly. Read the Manual carefully before installing and using the product, and we highly recommend you to keep it well for future reference.

## CAUTION

- Avoid heavy stress, violent vibration, and water splash during transportation, storage, and installation.
- Complete package is necessary during the transportation. We will assume no responsibility for any damage or problem caused by the incomplete package during the transportation.
- Avoid the product falling down or heavy vibration.
- Buckle the safety hook before installing the product if it is included.
- Keep the product away from devices that might produce strong electromagnetism radiant, including wireless power, TV transmitter, transformer, and loudspeaker.
- Keep the product away from smoke, vapor, dust, and heat. Do not install the speed dome near the heating furnace, spotlight, and other heat source.
- Do not disassemble the product. A failure to follow this instruction might result in personal injury or device damage. Contact your local retailer or customer service center for internal setup or maintenance requirement.
- Make sure there is no metal or inflammable in the product. A failure to follow this instruction might result in fire, short-circuit, or other damage.
- Turn off the power and disconnect the power cable immediately if there is water or liquid falling into the product. And contact your local retailer or customer service center.
- Avoid the sea water or rain eroding the camera.
- Avoid the lens aiming at intense light source, including sunlight and incandescent light.
- Clean the enclosure with the soft cloth or soft cloth with proper cleaning liquid, and then dry it with soft cloth. Do not use gasoline, dope thinner, or other chemicals to clean the enclosure. A failure to follow this instruction might result in enclosure transfiguration or paint flake.
- Read all the Manuals included before you use chemical cloth.
- Avoid long time touch between the plastic or rubber material and the enclosure. A failure to follow this instruction might result in paint flake.
- It is highly recommended to use the product with a lightning-proof device for better lightning-proof effect.

## Qualified Engineer Needed

The installation engineer or maintenance engineer shall have corresponding CCTV system installation certificate or maintenance qualification certificate, including qualification certificate for work at height.

- The installation engineer or maintenance engineer shall have the basic knowledge and installation technique for CCTV system.
- The installation engineer or maintenance engineer shall have the basic knowledge and operation technique for low-voltage cable wiring and low-voltage electronic cable connection.
- The installation engineer or maintenance engineer shall be able to read and understand the Manual.

## Lifting Appliance Requirements

- Select the lifting appliances applicable for the speed dome installation environment and installation method.
- The lifting appliances shall have the enough capacity to reach the installation height.
- The lifting appliances shall have high security performance.



### **WARNING**

- All installation and operation here should conform to your local electrical safety regulations. We will assume no responsibility for all the fires or electrical shock caused by improper handling or installation.
- The power supply shall meet the SELV requirement. Use the power supply that conforms to Limited Power Source, according to IEC60950-1.
- Use the power adapter recommended by manufacturer.
- For the product that supports laser, do not aim the laser directly to eyes. And keep a proper distance from the flammable to avoid fire.
- Do not connect several speed domes to one power adapter. A failure to follow this instruction might result in overheat or fire if it exceeds the rated load.
- Make sure the power is off when you connect the cables, install or uninstall the speed dome.
- Turn off the power and disconnect the power cable immediately if there is any smoke, disgusting smell, or noise from the speed dome. And contact your local retailer or customer service center.
- Contact your local retailer or customer service center if the product is abnormal. Do not disassemble or repair the product by yourself. We will assume no responsibility for any problems caused by unauthorized modifications or repair.
- We will assume no responsibility for any problems caused by incorrect installation or use.
- We will assume no responsibility for any problems caused by overuse of the certain component.

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# 1

## Installation Preparation

### 1.1 Basic Requirements

- All installation and operation here should conform to your local electrical safety regulations, fire protection regulations, and relevant regulations.
- Make sure the application scenarios conform to the installation requirements. Contact your local retailer or customer service center if there is any problem.
- Use the product according to the operating environment.
- Keep the original packing material well, you might need it to pack the speed dome and send it back for repair.

### 1.2 Installation Check

- Make sure the installation environment has enough space to install the speed dome and its mounting accessories.
- Make sure the ceiling and wall can sustain at least eight times the weight of the speed dome and its mounting accessories.
- Make sure the wall is thick enough to install expansion bolts (The expansion bolts should be purchased separately).
- For intelligent tracking speed dome, traffic speed dome, or laser speed dome, make sure the mounting height is over 6 m.

### 1.3 Cable Preparation

Select the video cable and video coaxial cable according to the transmission distance.

# 2 IR Speed Dome Installation

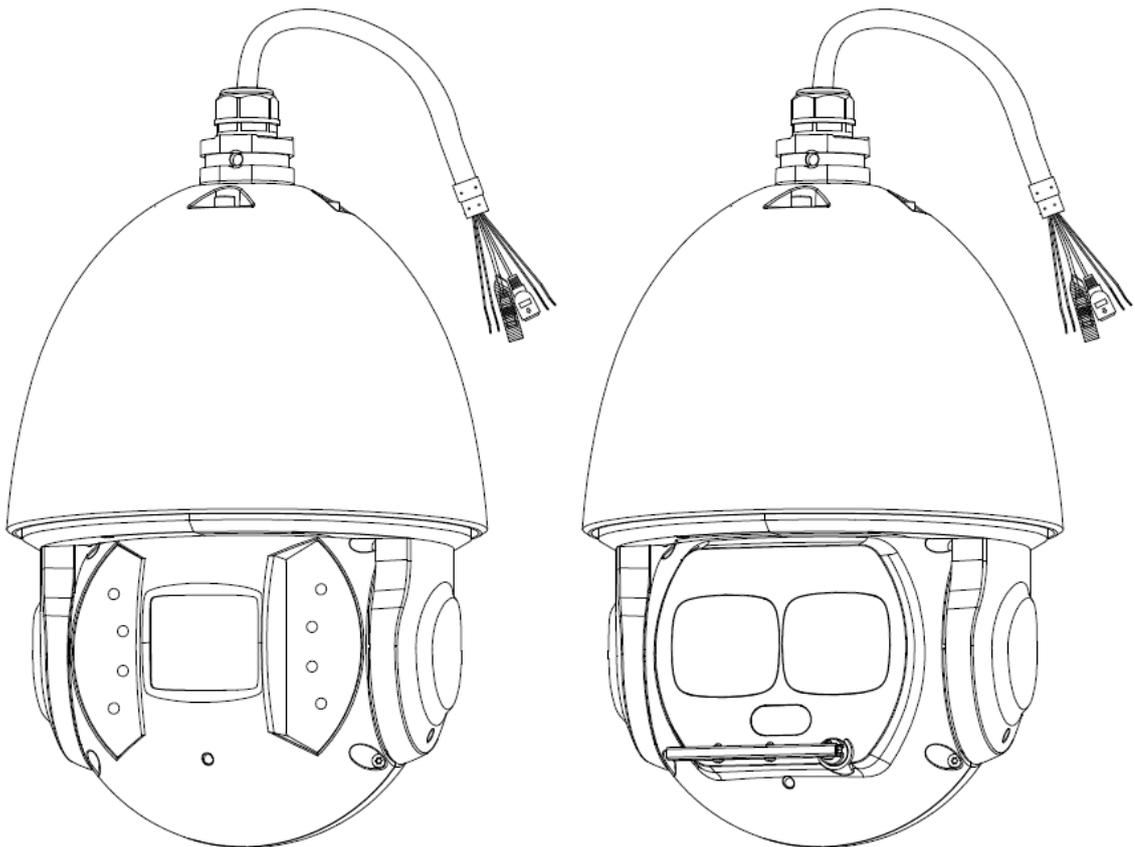
## 2.1 Checking Accessories

Before installation, check the accessories according to the packing list, and make sure all the components listed are included.

## 2.2 Opening the Package

Open the package, and take out the speed dome. See Figure 2-1.

Figure 2-1 IR Speed Dome



- The speed dome appearances might be different depending on the model you purchased, and the actual product shall prevail.
- For laser speed dome, there is the laser light and IR light on the speed dome. The laser light is for light supplement, and the IR light is for indicating whether the laser light is on or off.

## 2.3 Reset Button and Micro SD Card

Open the cover on the speed dome and you can see the Reset button on the PTZ mainboard. See Figure 2-10. Open the front dome component and you can see the Micro SD card slot on the ISP board of speed dome module. See Figure 2-11.

Reset button is for resetting network system, and Micro SD card is for data storage.

Figure 2-2 Reset button

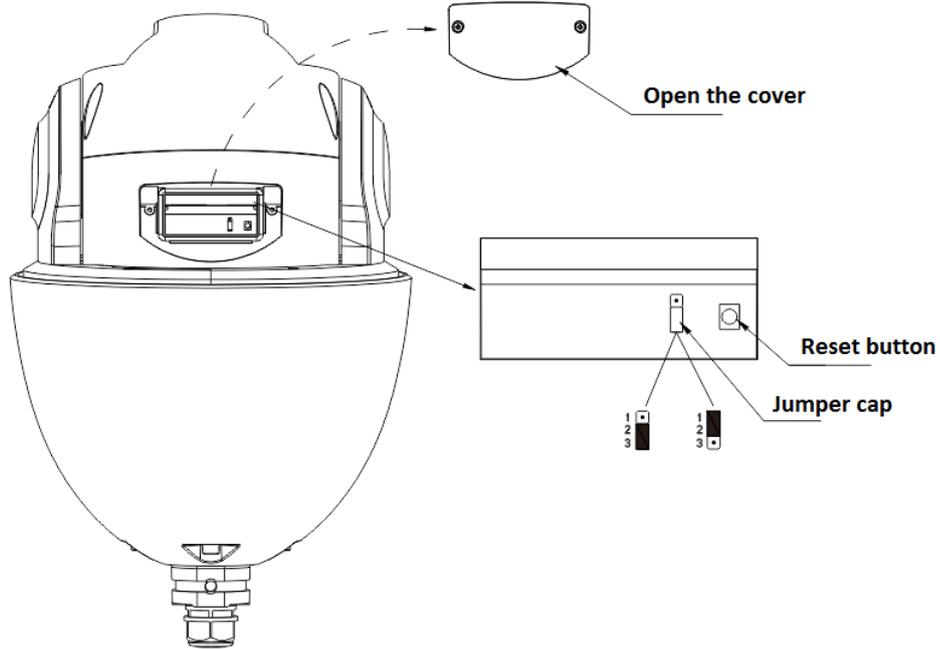
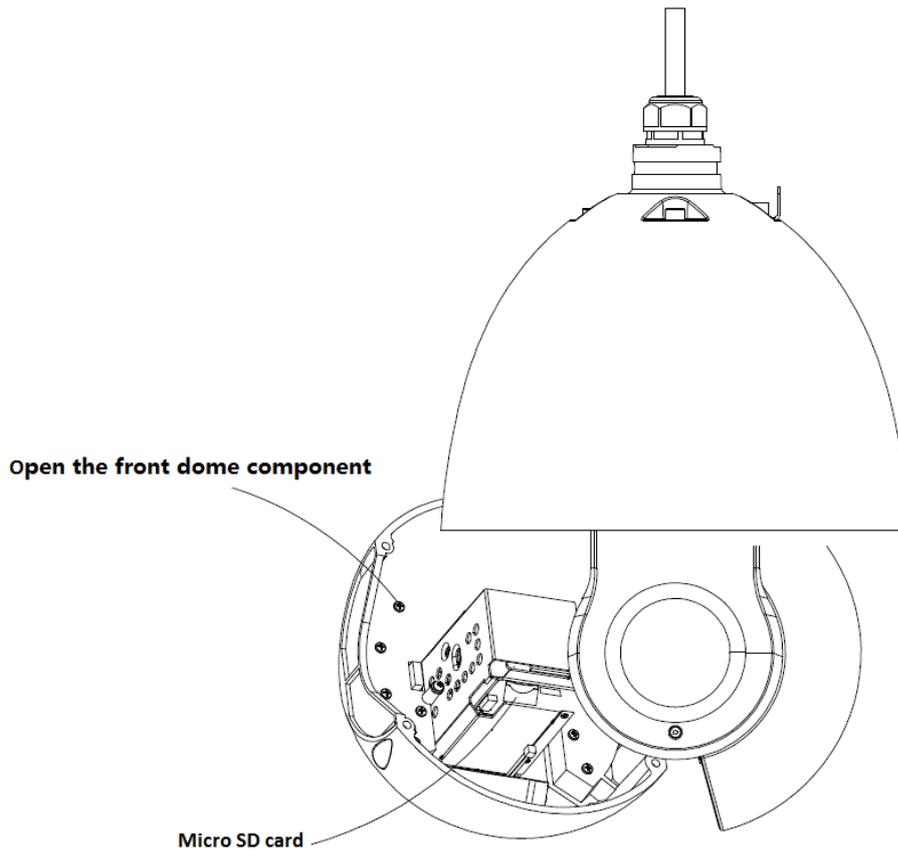


Figure 2-3 Micro SD card



## 2.4 Speed Dome Installation



The installation steps are applicable for both analog speed domes and network speed domes.

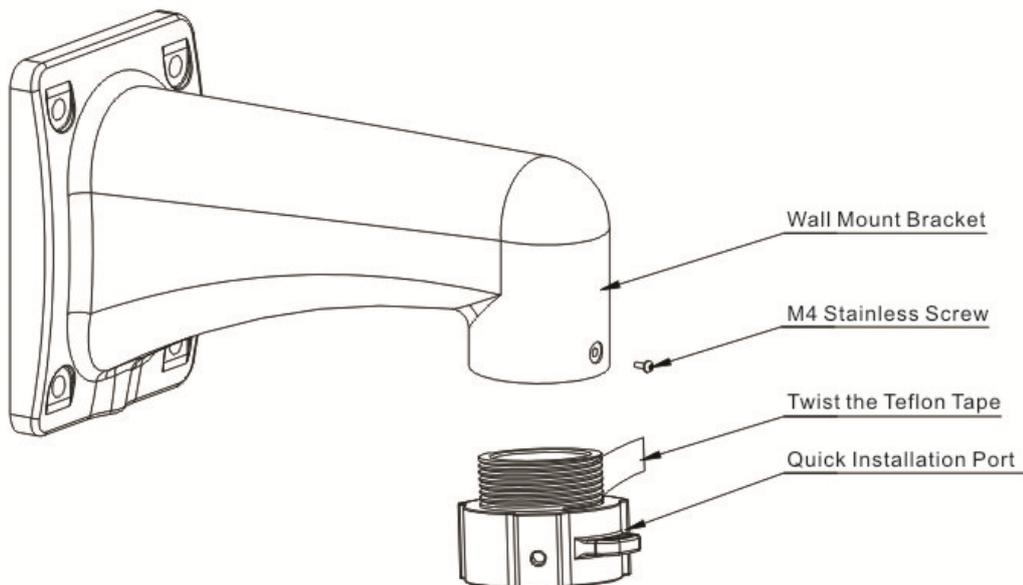
Various types of brackets are supported for the speed domes in different installation conditions. For details about speed dome installation, see "3 Wall-mounted Bracket Installation" to "6 Pole-Mounted Bracket Installation".

The Manual takes analog speed dome installation with wall-mounted bracket as the example.

### 2.4.1 Installing Quick Mounting Connector

Twine Teflon tape around the screw thread of the quick mounting connector, and rotate it into the screw thread of the wall-mounted bracket. Secure it firmly with an M4 stainless screw. See Figure 2-12. The thread standard is G1 1/2 pipe thread.

Figure 2-4 Installing quick mounting connector

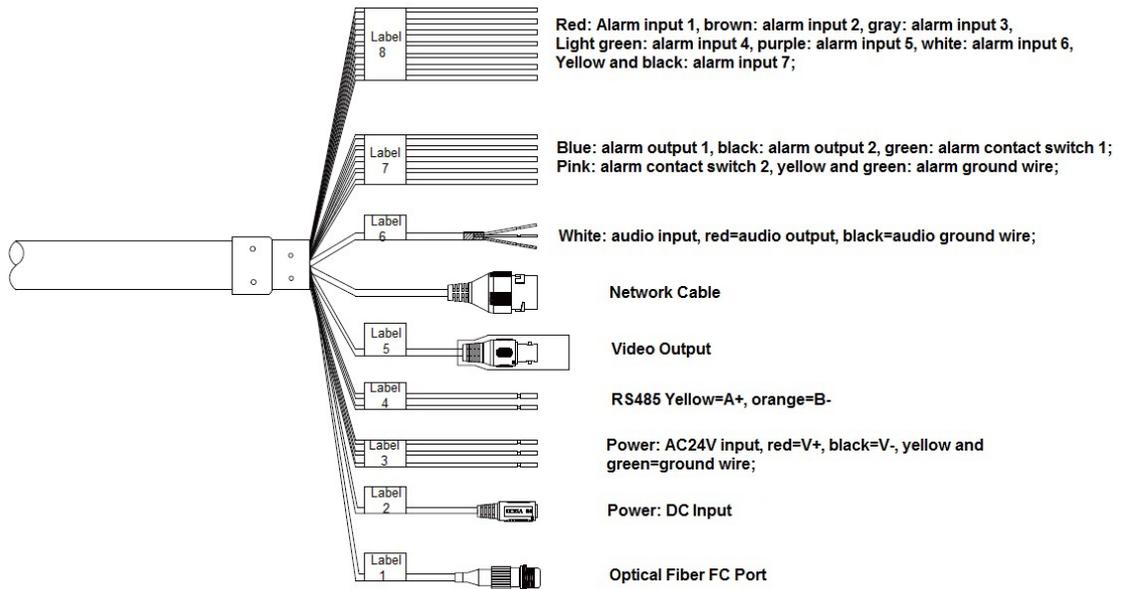


### 2.4.2 Speed Dome Cable

#### 2.4.2.1 Cable Description

The speed dome is equipped with a composite cable by default, including power cable, video cable, audio cable, RS-485 control cable, alarm cable, network cable, high-frequency cable, and optical fiber cable. See Figure 2-13.

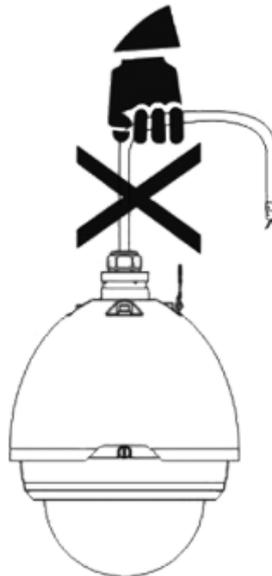
Figure 2-5 Cables



Speed dome cables might vary depending on the model you purchased, and the actual product shall prevail. The Manual introduces the complete cables for you.

Do not drag or pull the cables to lift the speed dome when moving it. See Figure 2-14 for wrong way.

Figure 2-6 Wrong way for moving the speed dome



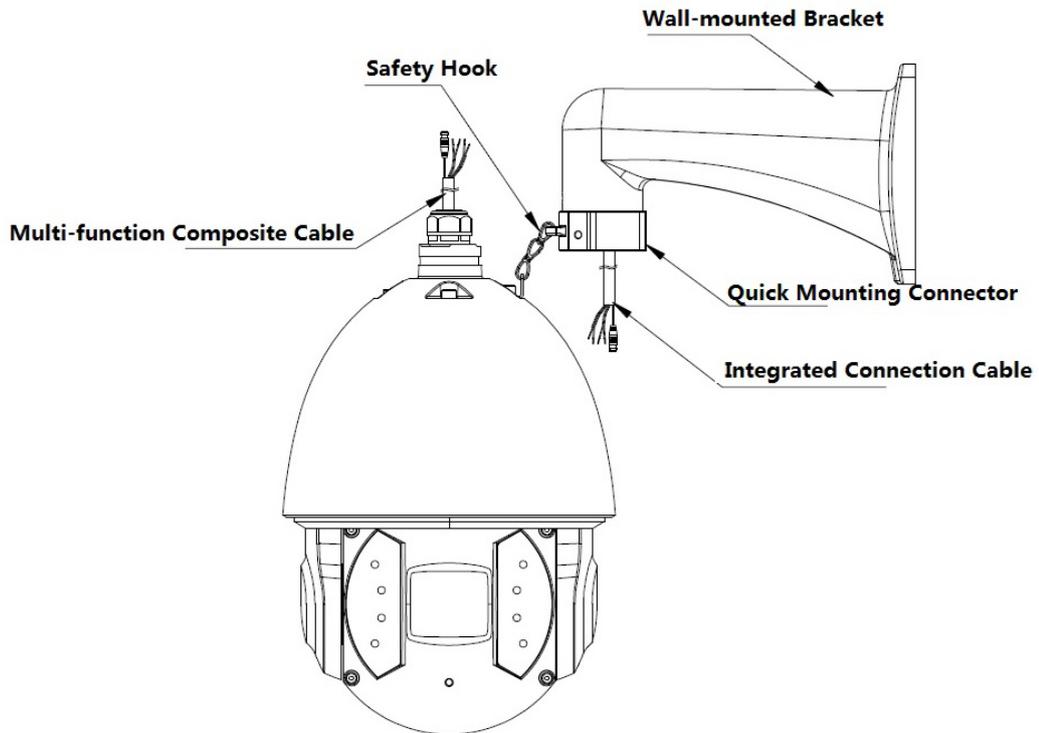
## 2.4.2.2 Cable Connection

Buckle the safety hook of the speed dome on the quick mounting connector, and connect the cables reserved on the wall-mounted bracket with the corresponding cables of the speed dome as you need. Then twine the cable connection with insulated rubber tape to ensure waterproof. See Figure 2-15.



Make sure the wire diameter of the cable connected to RS-485 control cable is not too big. Otherwise, the control effect might be bad. See Appendix 2 for details about RS-485 cable.

Figure 2-7 Cable connection



## 2.4.2.3 Alarm Cable Connection

To connect alarm cables and configure alarm settings, do the following:

**Step 1** Connect alarm input device to the ALARM\_IN and ALARM\_GND of the cables.

**Step 2** Connect alarm output device to the ALARM\_OUT and ALARM\_COM of the cables.  
Alarm output is the relay switch output.

**Step 3** Enter the web interface of the speed dome, and set the corresponding alarm input and output by selecting **Setting > Event > Alarm Setup**. The alarm input on web interface is corresponding to the alarm input of the cables. Set the corresponding NO and NC output according to the high/low level signal generated by alarm input device when alarm triggers.

**Step 4** Set the alarm output of cables on web interface.

## 2.4.2.4 Speed Dome GND Cable Connection

Connect the YELLOW/GREEN power cable to the lightning protection device, and make sure the lightning protection device is well grounded.

## 2.4.3 Installing the Speed Dome

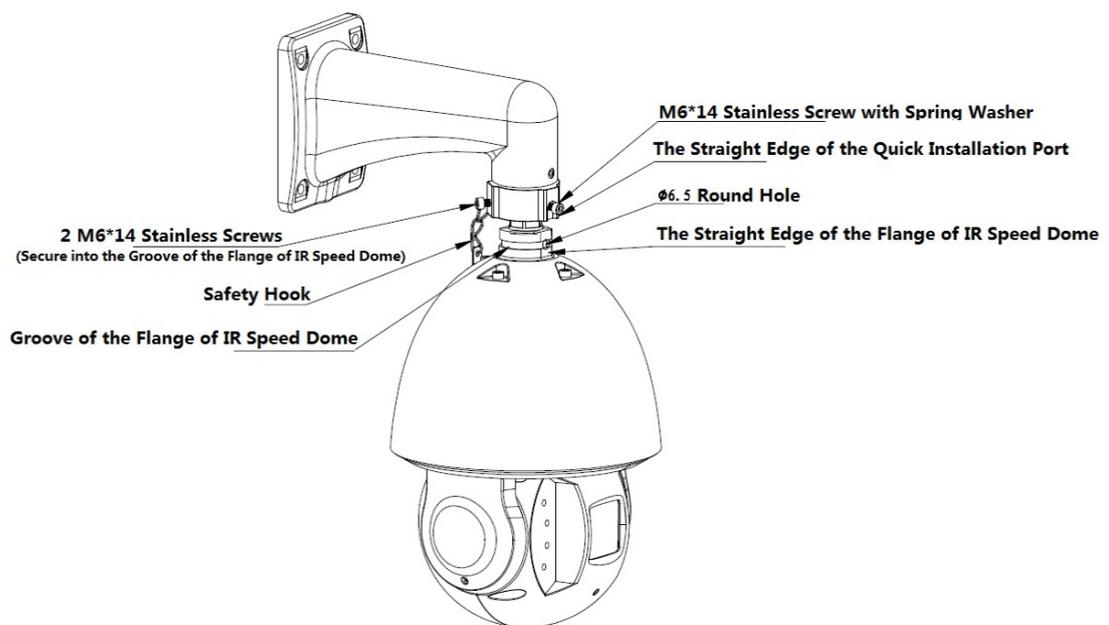
To install the speed dome, do the following:

**Step 1** Buckle the safety hook, and route the cables into the wall-mounted bracket.

**Step 2** Align the speed dome flange with that on the quick mounting connector, and push the speed dome to the quick mounting connector.

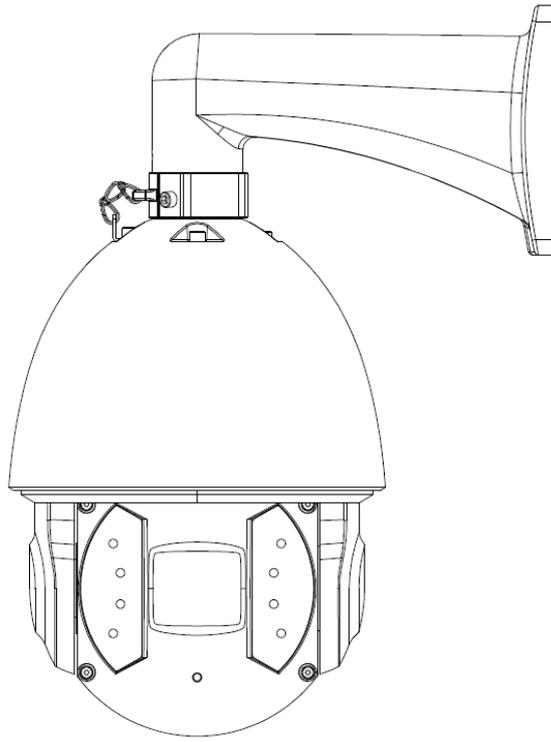
**Step 3** Screw the M6\*14 stainless screw with spring washer on the quick mounting connector into the  $\Phi$  6.5 hole on the speed dome flange, and screw another two M6\*14 stainless screws on the speed dome flange. Secure the three screws with the Allen wrench. See Figure 2-16.

Figure 2-8 Installing the speed dome



**Step 4** Make sure three M6\*14 stainless screws are firmly screwed, and the speed dome is firmly secured. See Figure 2-17.

Figure 2-9 Installation finished



# 3

## Wall-mounted Bracket Installation

### 3.1 Dimension

See Figure 3-1 for wall-mounted bracket, and see Figure 3-2 and Figure 3-3 for dimension of the bracket and the quick mounting connector.

Figure 3-1 Wall-mounted bracket

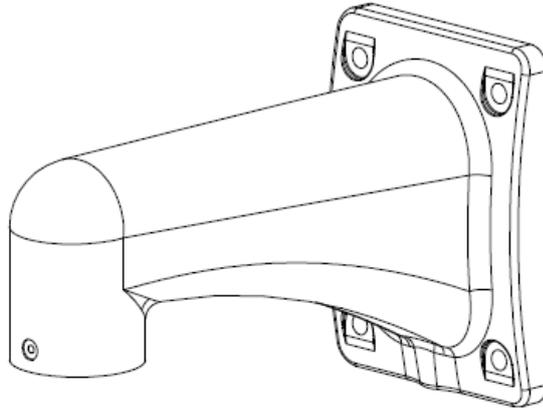


Figure 3-2 Dimension of wall-mounted bracket (mm)

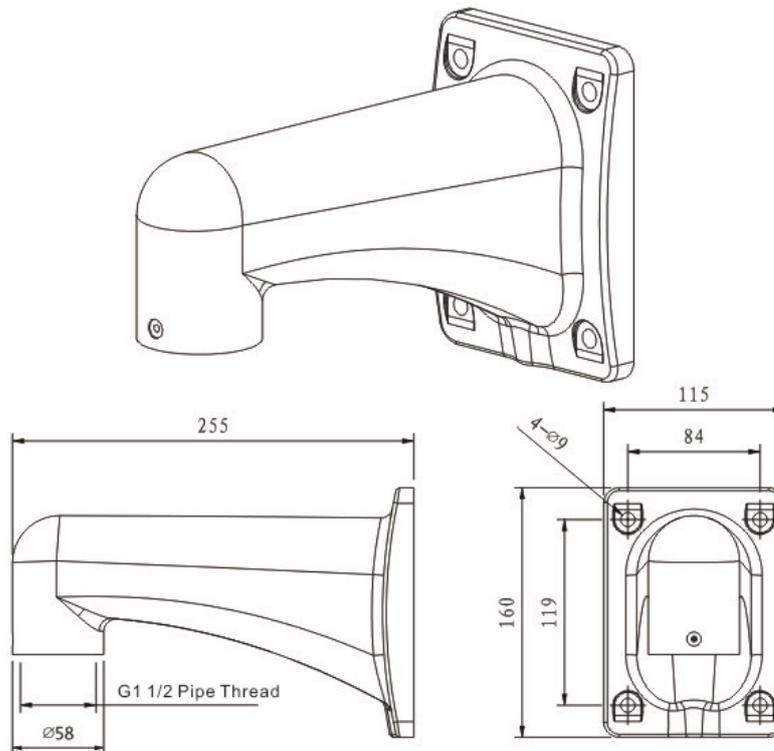
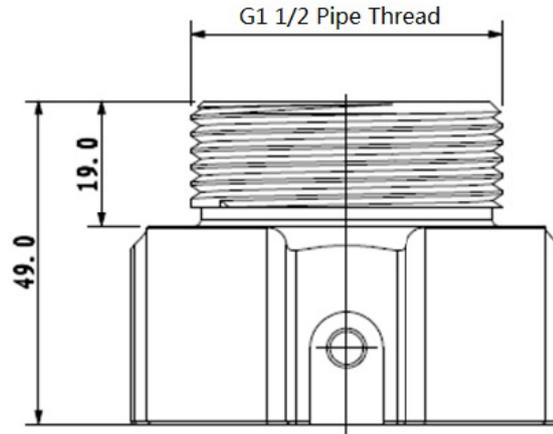


Figure 3-3 Dimension of quick mounting connector (mm)



## 3.2 Installing Wall-mounted Bracket

### 3.2.1 Installation Conditions

The wall-mounted bracket is applicable to hard wall in both indoor and outdoor environments.

Make sure:

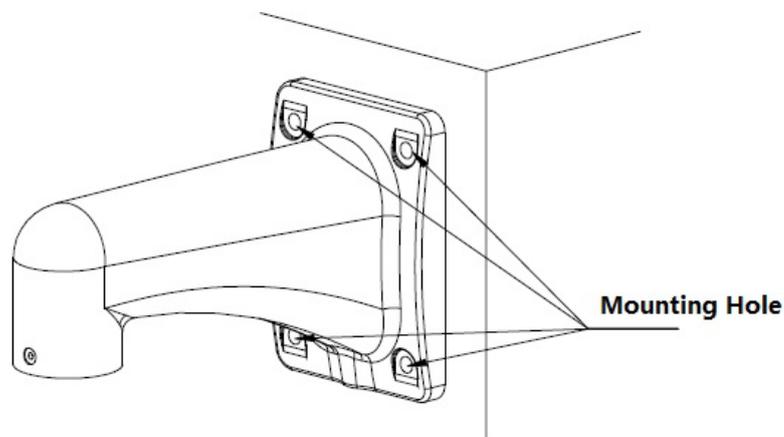
- The wall shall be thick enough to install expansion bolts.
- The wall shall sustain at least eight times the weight of the speed dome and its mounting accessories.

### 3.2.2 Installation Procedure

Step 1 Draw and drill four screw holes on the wall according to the bracket pedestal. Insert four expansion bolts (not supplied) into the screw holes. See Figure 3-4.

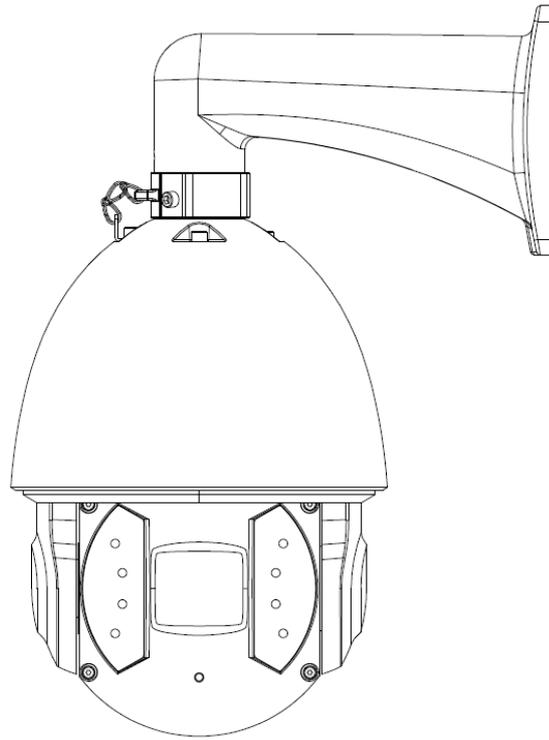
Step 2 Fix the wall-mounted bracket with four hex nuts and four flat gaskets on the wall.

Figure 3-4 Install wall-mounted bracket



Step 3 Install the speed dome on the wall-mounted bracket. See Figure 3-5. For details about speed dome installation, see "2.6 Speed Dome Installation".

Figure 3-5 Installing the speed dome with wall-mounted bracket



# 4

## Hang-mounted Bracket Installation

### 4.1 Dimension

See Figure 4-1 for hang-mounted bracket, and see Figure 4-2 for dimension of the bracket.

Figure 4-1 Hang-mounted bracket

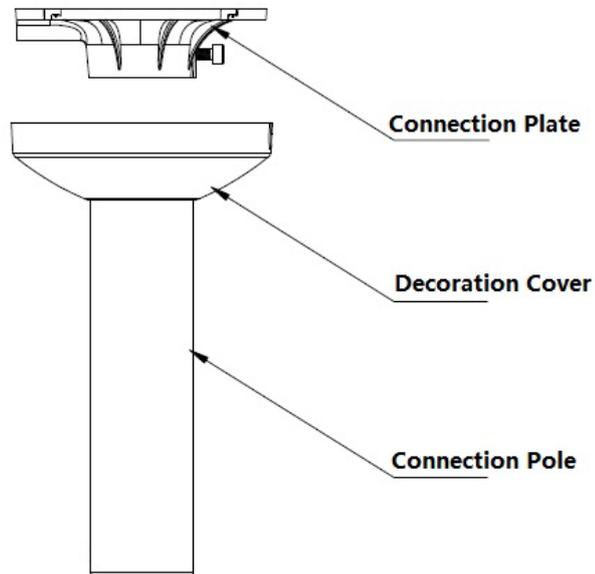
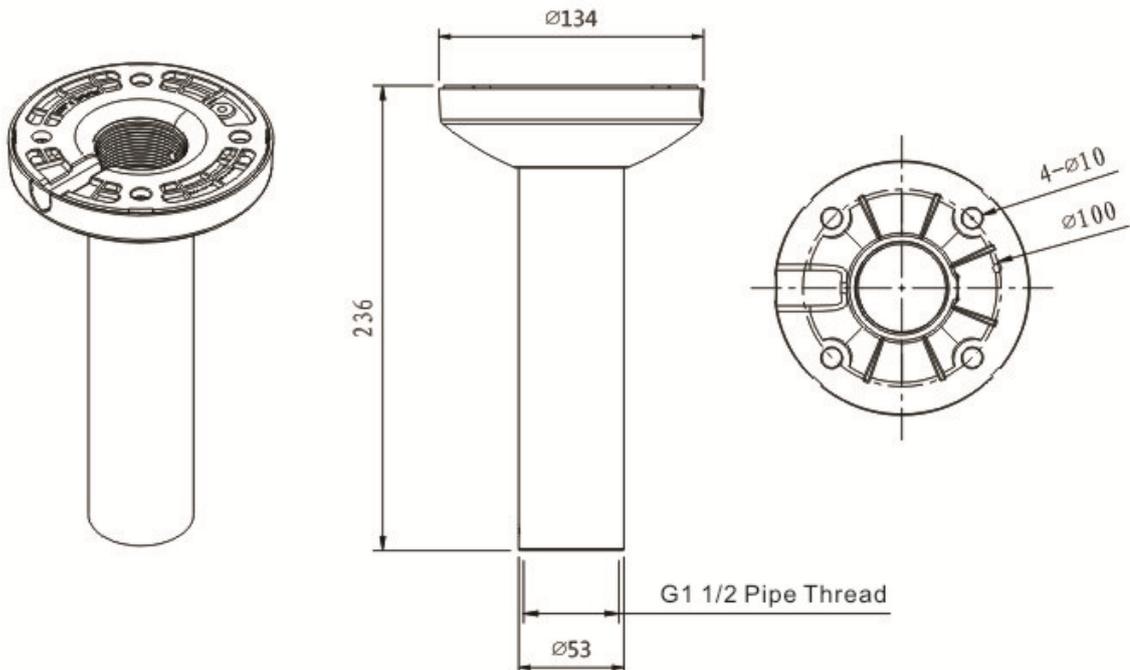


Figure 4-2 Dimension of hang-mounted bracket (mm)



The length of the hang-mounted bracket is 200 mm by default, and 400 mm optional. Select different sizes of the connection poles as you need.

## 4.2 Installing Hang-mounted Bracket

### 4.2.1 Installation Conditions

The hang-mounted bracket is applicable to hard wall in both indoor and outdoor environments.

Make sure:

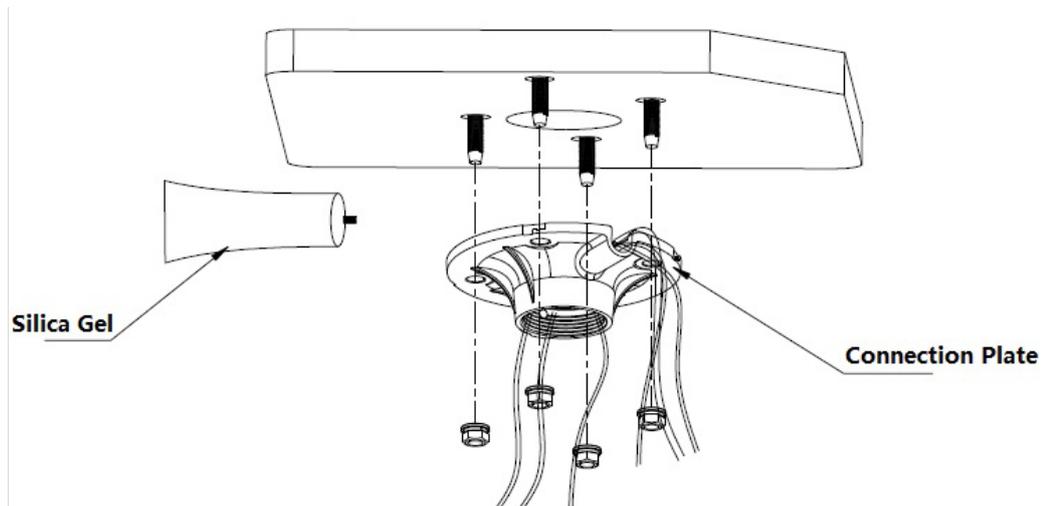
- The wall shall be thick enough to install expansion bolts.
- The wall shall sustain at least eight times the weight of the speed dome and its mounting accessories.

### 4.2.2 Installation Procedure

Step 1 Loosen the M4 screw, and separate the connection plate and the connection pole of the bracket.

Step 2 Route the cables through the groove to the flange of the connection plate. Fix the connection plate on the ceiling with four screws. See Figure 4-3.

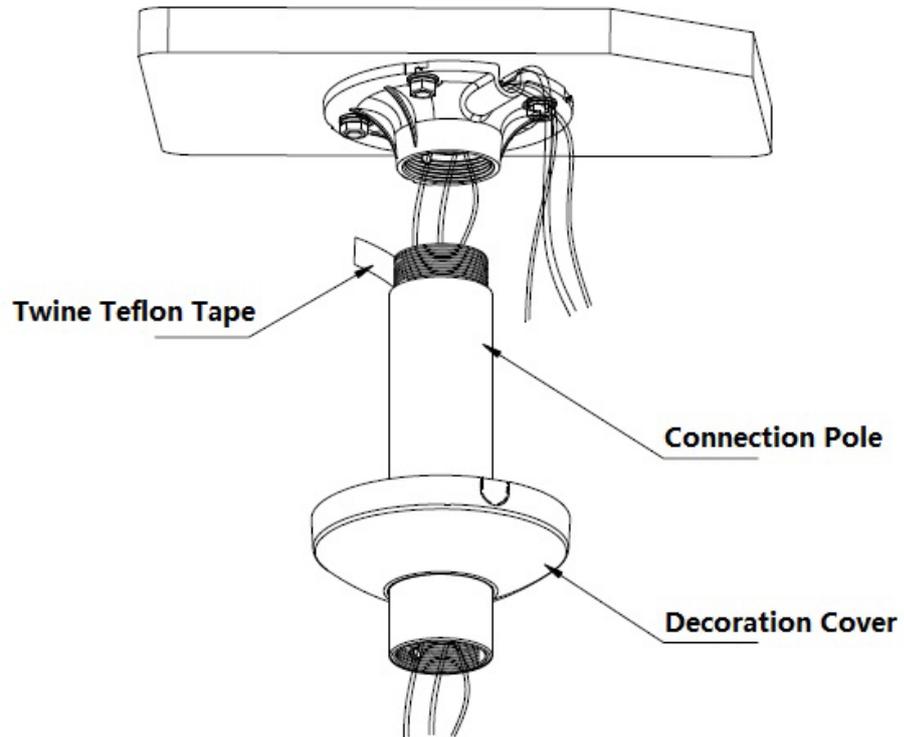
Figure 4-3 Installing hang-mounted bracket (1)



For outdoor environment, apply silica gel to cover the contact surface between connection plate and ceiling, and cable outlet area for waterproof.

Step 3 Route the cables through the connection pole, and fix the connection pole on the connection plate with the M4 screw. Push the decorative cover to the bottom of the connection pole. See Figure 4-4.

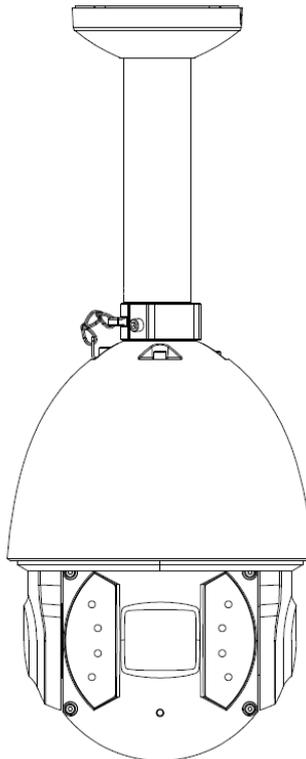
Figure 4-4 Installing hang-mounted bracket (2)



For outdoor environment, twine Teflon tape on the thread of the connection pole first, and then fix the connection pole on the connection plate.

**Step 4** Install the speed dome on the hang-mounted bracket, see Figure 4-5. For details about speed dome installation, see "2.6 Speed Dome Installation".

Figure 4-5 Installing the speed dome with hang-mounted bracket



# 5

## Corner-mounted Bracket Installation

### 5.1 Dimension

See Figure 5-1 for corner-mounted bracket, and see Figure 5-2 for dimension of the bracket.

Figure 5-1 Corner-mounted bracket

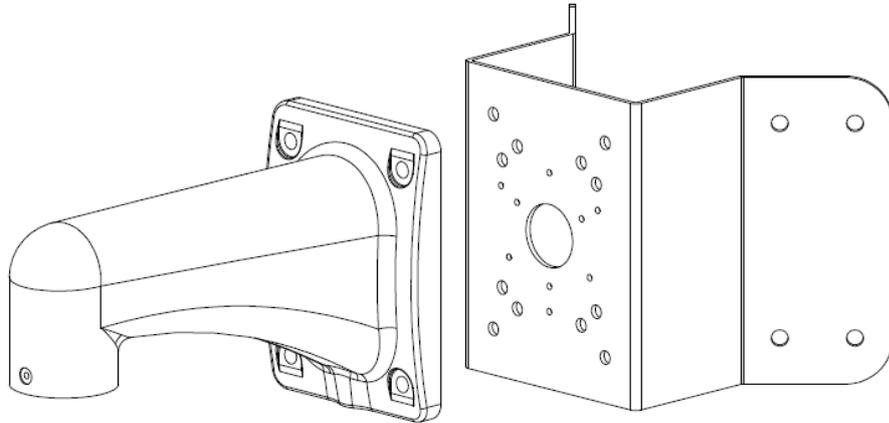
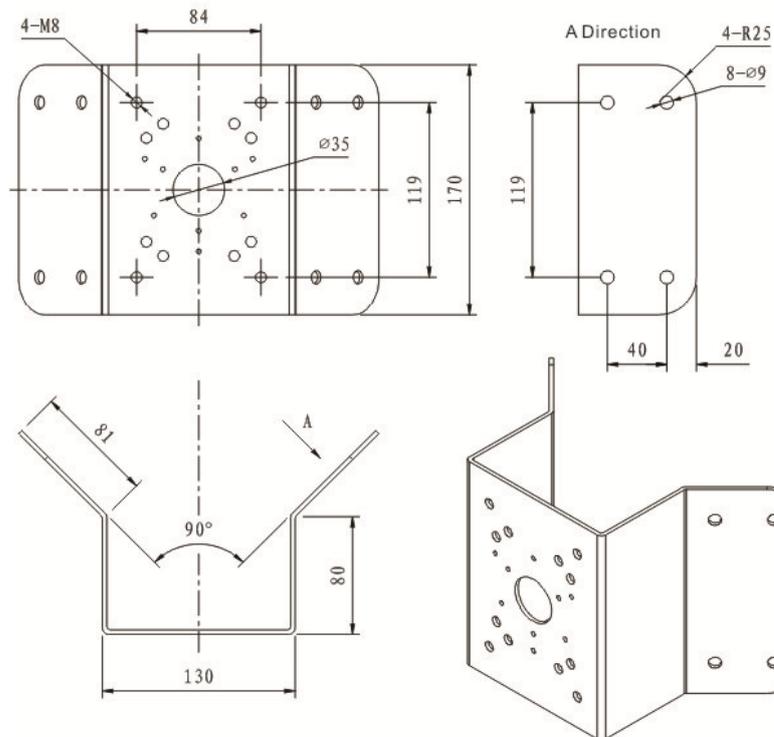


Figure 5-2 Dimension of corner-mounted bracket (mm)



## 5.2 Installing Corner-mounted Bracket

### 5.2.1 Installation Conditions

The corner-mounted bracket is applicable to hard wall which forms an included angle of 90° in both indoor and outdoor environments.

Make sure:

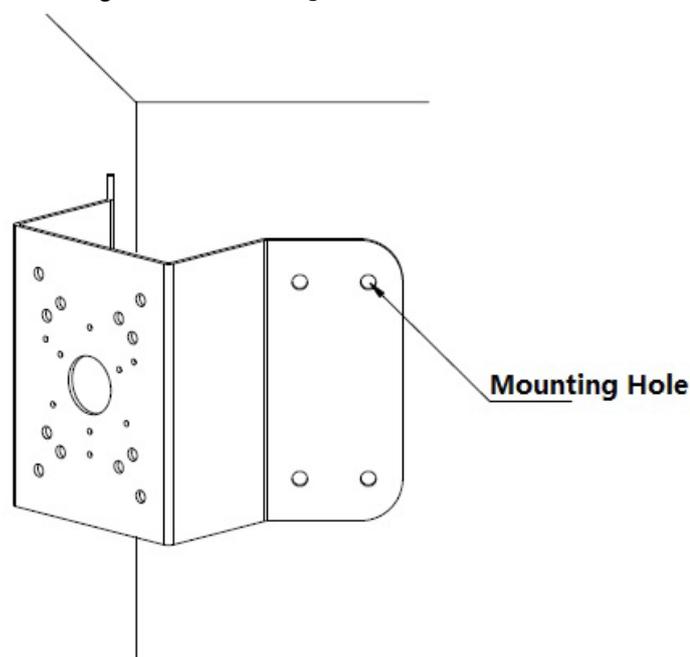
- The wall shall be thick enough to install expansion bolts.
- The wall shall sustain at least eight times the weight of the speed dome and its mounting accessories.

### 5.2.2 Installation Procedure

Step 1 Draw and drill the screw holes on the wall where there is the 90° included angle according to the mounting hole on the corner-mounted bracket pedestal, and insert M8 expansion screws. See Figure 5-3.

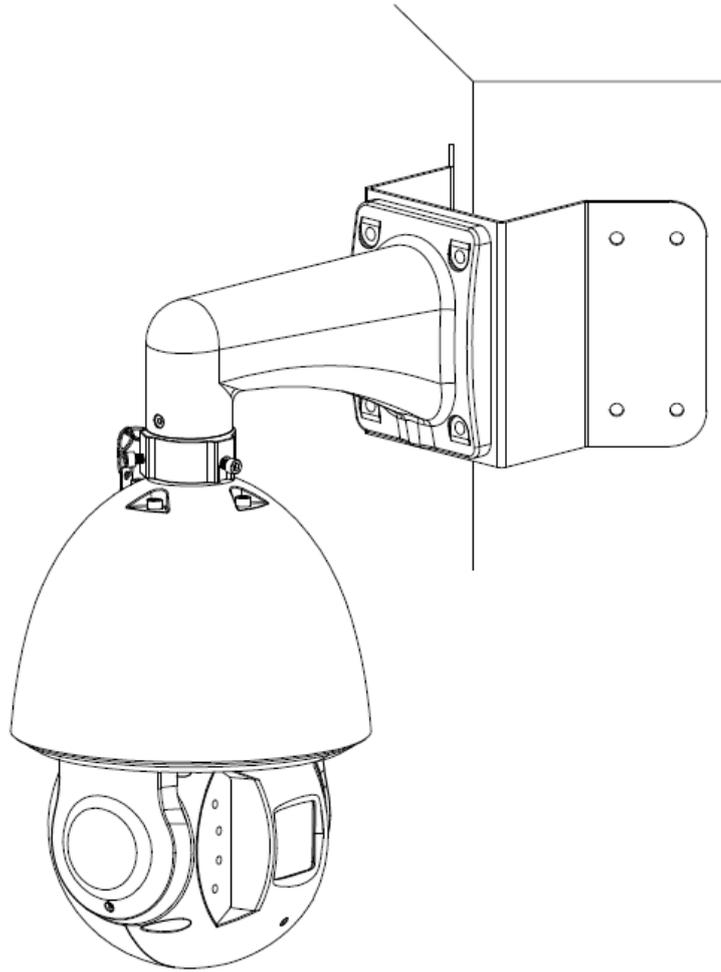
Step 2 Route the cables through the corner-mounting bracket pedestal (reserve enough length of the cables), and fix the pedestal on the wall with the M8 screws. Apply silicon sealant to cover the cable outlet for waterproof.

Figure 5-3 Installing corner-mounted bracket



Step 3 Install the speed dome on the corner-mounted bracket, see [错误!未找到引用源。](#). For details about speed dome installation, see "2.6 Speed Dome Installation" and "3.2 Installing Wall-mounted Bracket".

Figure 5-4 Installing the speed dome with corner-mounted bracket



# 6

## Pole-Mounted Bracket Installation

### 6.1 Dimension

See Figure 6-1 for pole-mounted bracket, and see Figure 6-2 for dimension of the bracket.

Figure 6-1 Pole-mounted bracket

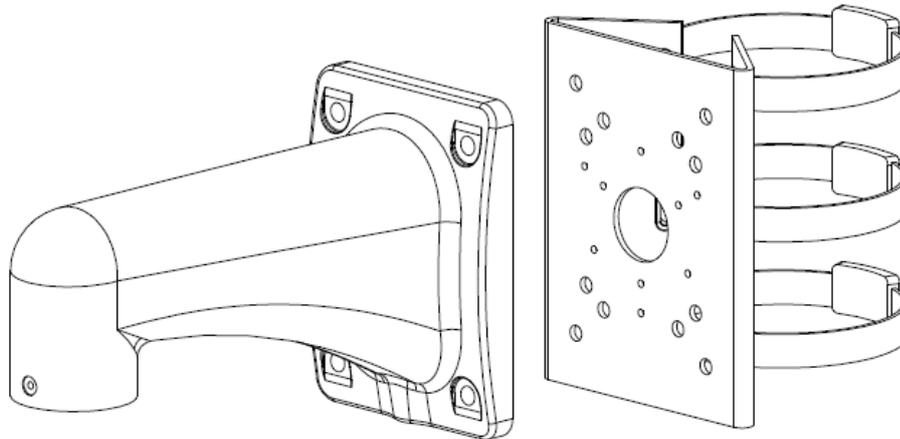
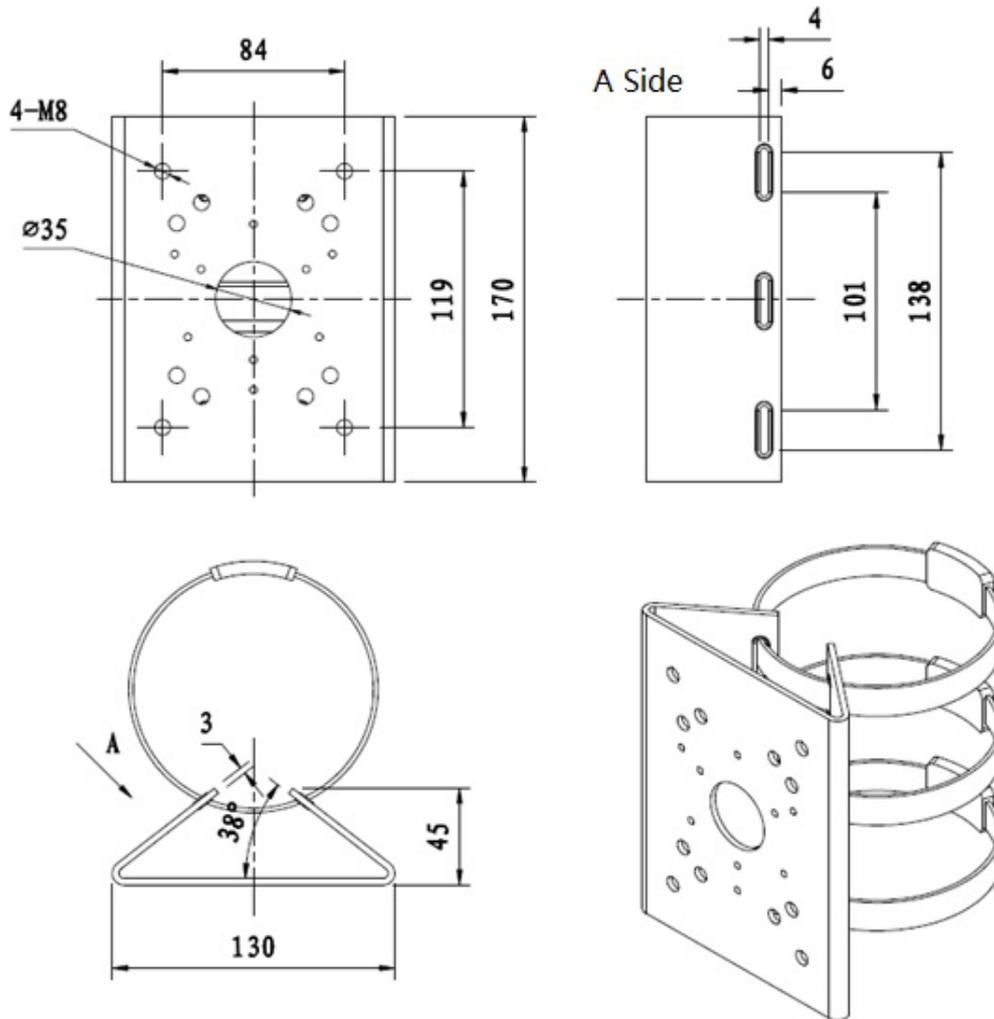


Figure 6-2 Dimension of pole-mounted bracket (mm)



## 6.2 Installing Pole-mounted Bracket

### 6.2.1 Installation Conditions

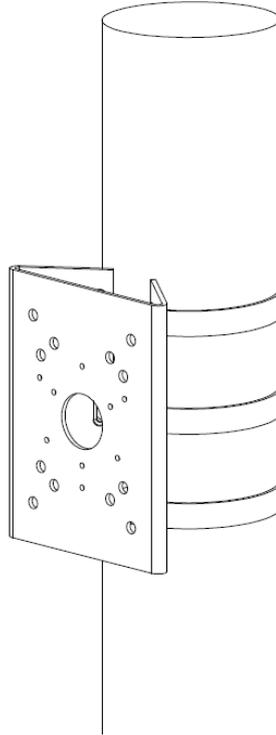
The pole-mounted bracket is applicable to hard wall in both indoor and outdoor environments. Make sure:

- The diameter of the pole where you want to install the speed dome shall match with the dimension of the clamp. The default clamp is the 5 inch clamp matches with the pole of  $\Phi$  80–130 mm. The clamp shall work with the pole-mounted bracket, and the diameter of the clamp is adjustable according to the hoop specification. We provide clamps of different dimension:  $\Phi$  59–82mm,  $\Phi$  84–108 mm,  $\Phi$  80–130 mm,  $\Phi$  130–152 mm,  $\Phi$  155–178 mm,  $\Phi$  180–203 mm, and  $\Phi$  194–216 mm. We also provide customized clamps of special dimensions.
- The wall shall sustain at least eight times the weight of the speed dome and its mounting accessories.

## 6.2.2 Installation Procedure

Step 1 Route the cables through the pole-mounted bracket pedestal. Install the clamp on the pole where you want to install the speed dome, and adjust the diameter of the clamp to fix it on the pole. See Figure 6-3.

Figure 6-3 Pole-mounted bracket



### CAUTION

Make sure the clamp is firmly fixed on the pole.

Step 2 Install the speed dome on the pole-mounted bracket, see [错误!未找到引用源。](#). For details about speed dome installation, see "2.6 Speed Dome Installation" and "3.2 Installing Wall-mounted Bracket".

Figure 6-4 Installing the speed dome with pole-mounted bracket

