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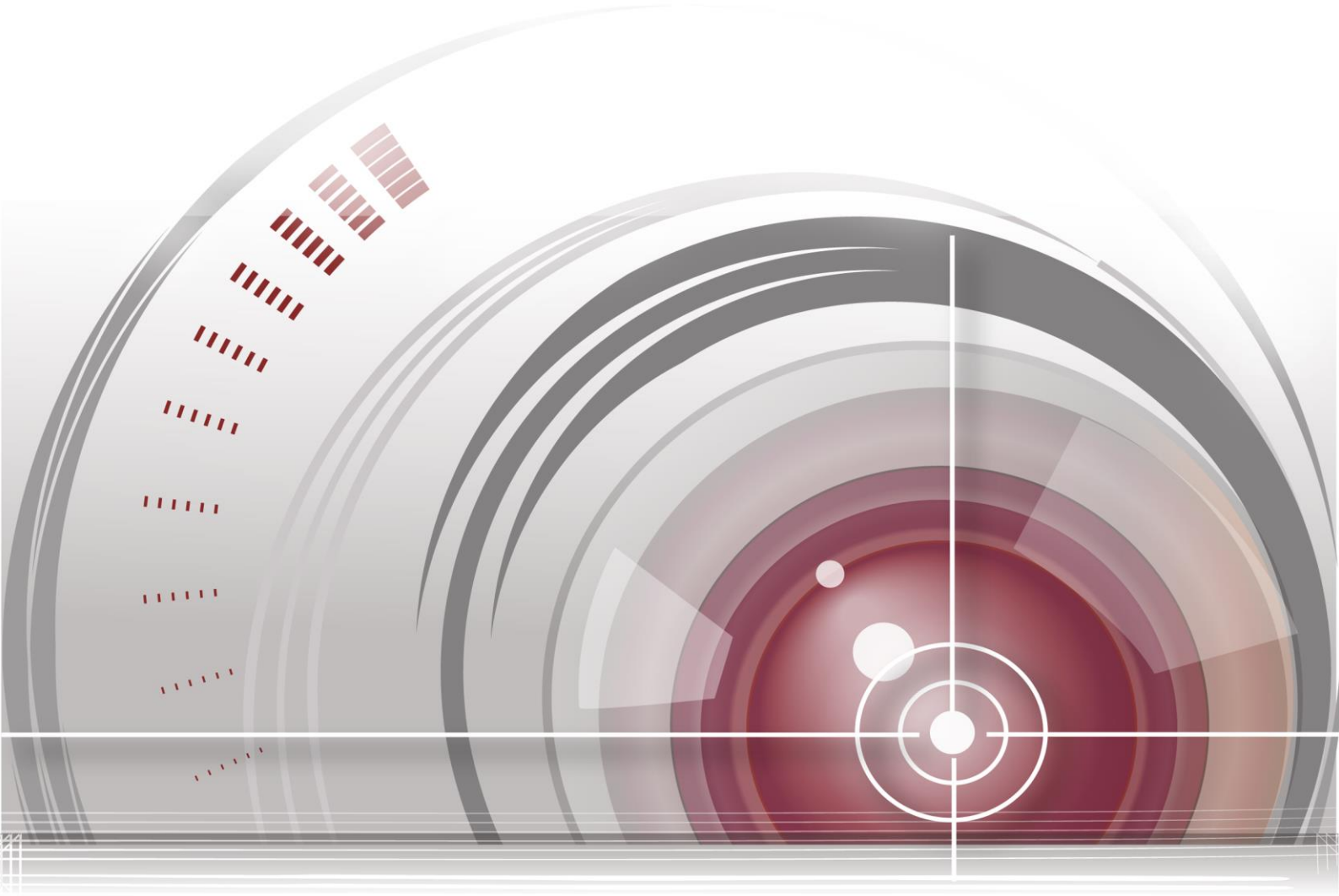

Network Mini PTZ Camera

Installation Manual

UD.6L0201A2087A02

Available from A1 Security Cameras
www.a1securitycameras.com email: sales@a1securitycameras.com

Installation Manual

About this Manual

This Manual is applicable to Network Mini PTZ Camera.

The Manual includes instructions for using and managing the product. Pictures, charts, images and all other information hereinafter are for description and explanation only. The information contained in the Manual is subject to change, without notice, due to firmware updates or other reasons. Please find the latest version in the company website.

Please use this user manual under the guidance of professionals.

Legal Disclaimer

REGARDING TO THE PRODUCT WITH INTERNET ACCESS, THE USE OF PRODUCT SHALL BE WHOLLY AT YOUR OWN RISKS. OUR COMPANY SHALL NOT TAKE ANY RESPONSIBILITES FOR ABNORMAL OPERATION, PRIVACY LEAKAGE OR OTHER DAMAGES RESULTING FROM CYBER ATTACK, HACKER ATTACK, VIRUS INSPECTION, OR OTHER INTERNET SECURITY RISKS; HOWEVER, OUR COMPANY WILL PROVIDE TIMELY TECHNICAL SUPPORT IF REQUIRED.

SURVEILLANCE LAWS VARY BY JURISDICTION. PLEASE CHECK ALL RELEVANT LAWS IN YOUR JURISDICTION BEFORE USING THIS PRODUCT IN ORDER TO ENSURE THAT YOUR USE CONFORMS THE APPLICABLE LAW. OUR COMPANY SHALL NOT BE LIABLE IN THE EVENT THAT THIS PRODUCT IS USED WITH ILLEGITIMATE PURPOSES.

IN THE EVENT OF ANY CONFLICTS BETWEEN THIS MANUAL AND THE APPLICABLE LAW, THE LATER PREVAILS.

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Regulatory Information

FCC Information

FCC compliance: This equipment has been tested and found to comply with the limits for 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 the user will be required to correct the interference at his own expense.

FCC Conditions

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

EU Conformity Statement

CE This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the EMC Directive 2004/108/EC, the RoHS Directive 2011/65/EU.

2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info.

2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: www.recyclethis.info.

Industry Canada ICES-003 Compliance

This device meets the CAN ICES-3 (A)/NMB-3(A) standards requirements.

Safety Instruction

These instructions are intended to ensure that the user can use the product correctly to avoid danger or property loss.

The precaution measure is divided into 'Warnings' and 'Cautions':

Warnings: Serious injury or death may be caused if any of these warnings are neglected.

Cautions: Injury or equipment damage may be caused if any of these cautions are neglected.

Warnings Follow these safeguards to prevent serious injury or death.	**Cautions** Follow these precautions to prevent potential injury or material damage.

Warnings

- All the electronic operation should be strictly compliance with the electrical safety regulations, fire prevention regulations and other related regulations in your local region.
- Please use the power adapter, which is provided by normal company. The power consumption cannot be less than the required value.
- Do not connect several devices to one power adapter as adapter overload may cause over-heat or fire hazard.
- Please make sure that the power has been disconnected before you wire, install or dismantle the PTZ camera.
- When the product is installed on wall or ceiling, the device shall be firmly fixed.
- If smoke, odors or noise rise from the device, turn off the power at once and unplug the power cable, and then please contact the service center.
- If the product does not work properly, please contact your dealer or the nearest service center. Never attempt to disassemble the PTZ camera yourself. (We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.)

Cautions

- Do not drop the PTZ camera or subject it to physical shock, and do not expose it to high electromagnetism radiation. Avoid the equipment installation on vibrations surface or places subject to shock (ignorance can cause equipment damage).
- Do not place the PTZ camera in extremely hot, cold, dusty or damp locations, otherwise fire or electrical shock will occur. Please refer to the product specification for device operating temperature.
- The PTZ camera cover for indoor use shall be kept from rain and moisture.
- Exposing the equipment to direct sun light, low ventilation or heat source such as heater or radiator is forbidden (ignorance can cause fire danger).
- Do not aim the PTZ camera at the sun or extra bright places. A blooming or smear may occur

otherwise (which is not a malfunction however), and affecting the endurance of sensor at the same time.

- Please use the provided glove when open up the PTZ camera cover, avoid direct contact with the PTZ camera cover, because the acidic sweat of the fingers may erode the surface coating of the PTZ camera cover.
- Please use a soft and dry cloth when clean inside and outside surfaces of the PTZ camera cover, do not use alkaline detergents.
- Do not stare at infrared LED closely to avoid hurting your eyes when the infrared lights are on.
- Please keep all wrappers after unpack them for future use. In case of any failure occurred, you need to return the PTZ camera to the factory with the original wrapper. Transportation without the original wrapper may result in damage on the PTZ camera and lead to additional costs.
- Improper use or replacement of the battery may result in hazard of explosion. Replace with the same or equivalent type only. Dispose of used batteries according to the instructions provided by the battery manufacturer.

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Chapter 1 Preparation

Basic Requirement

- All the electronic operation should be strictly compliance with the electrical safety regulations, fire prevention regulations and other related regulations in your local region.
- Check the package contents and make sure that the device in the package is in good condition and all the assembly parts are included.

Checking Installing Environment

- Be sure that there is enough space to install the PTZ camera and accessories.
- Make sure that the wall is strong enough to withstand at least 8 times the weight of the camera and the bracket.

Preparing Cables

According to the actual network bandwidth, the Cat5 (in 100M) or Cat6(100M above) is needed.

- You shall acknowledge that the use of the product with Internet access might be under network security risks. For avoidance of any network attacks and information leakage, please strengthen your own protection. If the product does not work properly, please contact with your dealer or the nearest service center.
- To ensure the network security of the speed dome, we recommend you to have the speed dome assessed and maintained termly. You can contact us if you need such service.

Preparing Tools

Before installation, please prepare the tools needed, such as the expansion screws, electric hammer, electric drill, wrench, screwdriver, electroprobe and network cable.

Original Packaging

When you unpack the PTZ camera, please keep the original package properly, in case of returning or repairing the device, you can pack the PTZ camera with the package.

The user should be responsible for any damage caused when transporting with unoriginal package.

Chapter 2 Installation

Before you start:

Check the package contents and make sure that the device in the package is in good condition and all the assembly parts are included.

NOTE Do not drag the waterproof cables, otherwise the waterproof performance is affected.

2.1 Installation Flow Chart

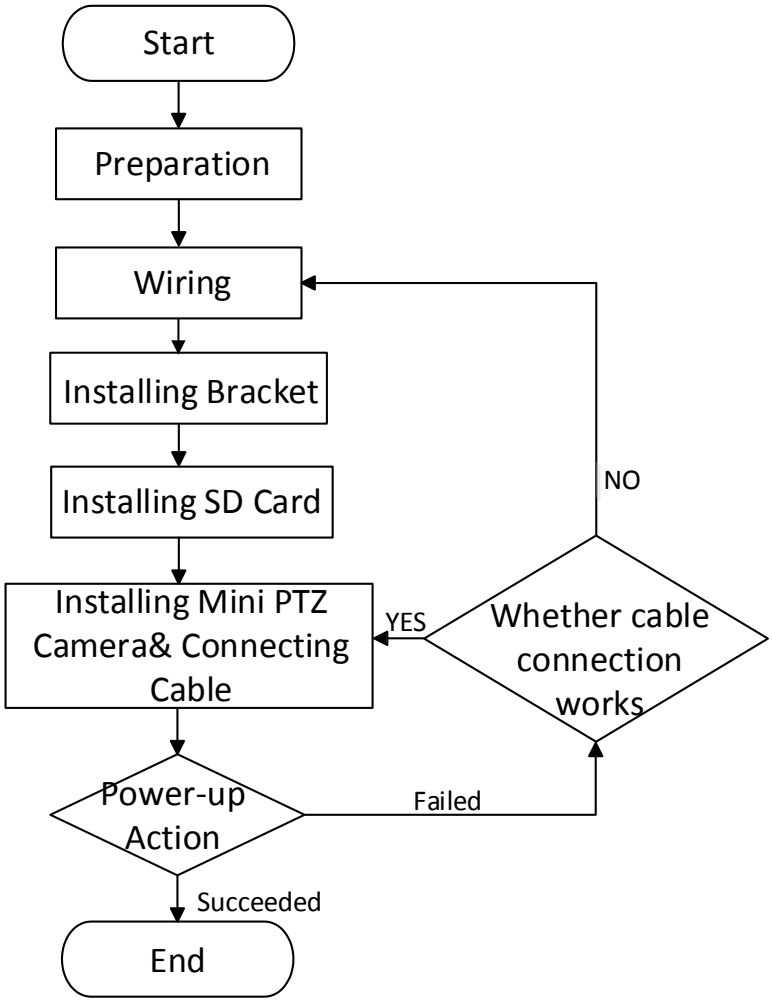


Figure 2-1 Installation Flow Chart

2.2 Wiring

The survey of the actual installation environment and planning the wiring is highly recommended before the accurate deployment of the wire is implemented in order to provide a safe and steady power supply and a reasonable wiring route.

- Get familiar with the installation environment before deploying the wire, including the wiring distance, surrounding, and electromagnetic interference and so on.
- Please choose the cable with nominal voltage higher than the actual voltage, to ensure a normal running in case of unsteady voltage.
- To protect the power cable and the signal transmitting cable from human tampering, you should pay attention to the protection and reinforcement of the cables.
- When deploying the wire, please do not tighten the wire or make the wire loose.

The wiring of the mini PTZ camera should be performed by professionals.

The cable interfaces of network mini PTZ camera are shown in Figure 2-2. The cables are distinguished by different colors. Please refer to the labels attached on the cables for identification.

The cables of the mini PTZ Camera:

NOTE

The cables may vary according to the models.

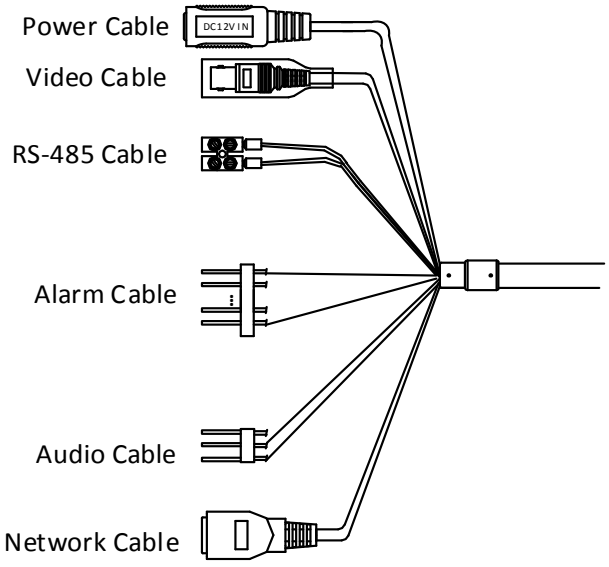


Figure 2-2 Cables of Network Speed Dome

- Power Cable: Supports 12V DC power supply. Make sure you connect the positive and negative terminals correctly.
- Video Cable: BNC Cable
- RS-485 Cable: Connect RS-485 terminals.
- Alarm Cable: Connect terminal ALARM-IN with GND interface, and connect terminal ALARM-OUT with ALARM-COM interface.
- Audio Cable: Connect terminal AUDIO-IN with GND interface.
- Network Cable: Connect the network interface with network cable.

2.3 Installing the SD Card

2.5-inch Network Mini PTZ Camera

Steps:

1. Open the WPS/micro SD cover.

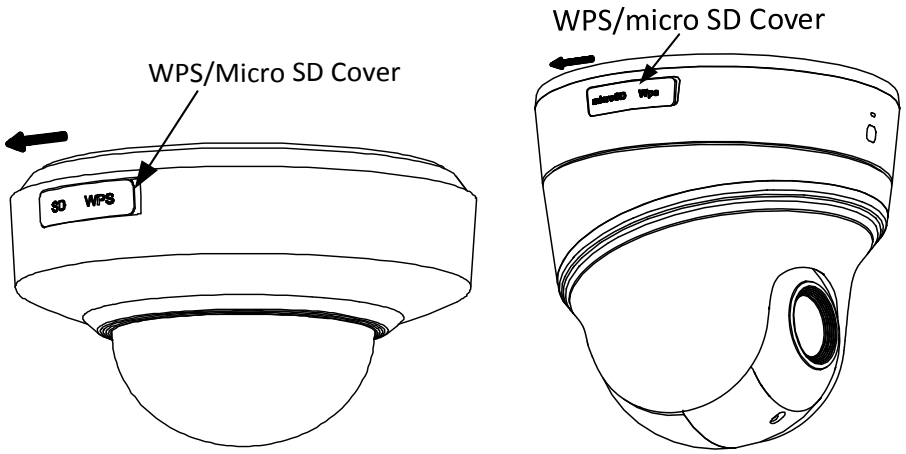


Figure 2-3 WPS/micro SD Cover- 2.5-inch/2.5-inch IR PTZ Camera

2. Rotate the cover to a proper position, align the micro SD card with the micro SD card slot and insert it.

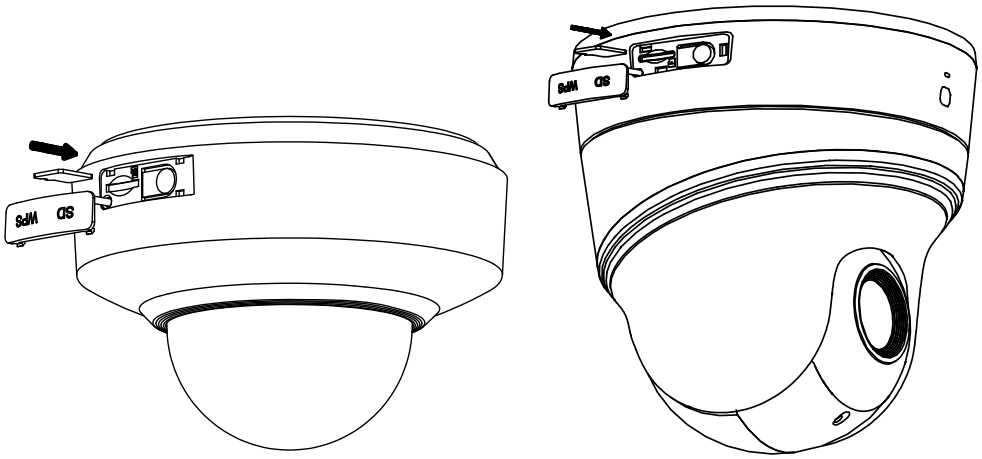


Figure 2-4 Insert the Micro SD Card

3. Rotate the cover and push it back.

3-inch Network Mini PTZ Camera

Steps:

1. Loosen 3 screws on the bottom of camera to reveal the micro SD card slot, as shown in Figure 2-5.

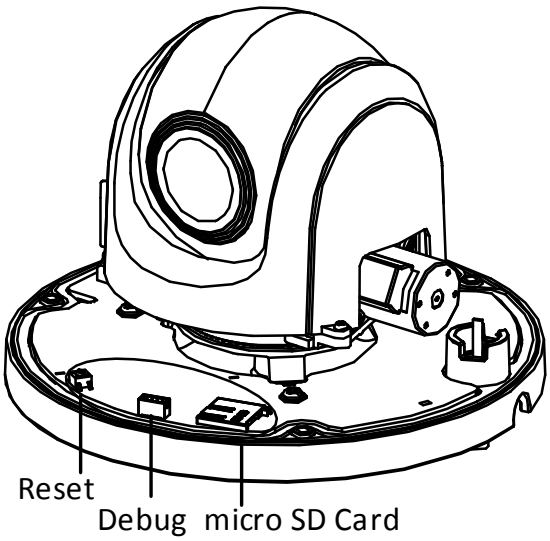


Figure 2-5 Micro SD Card of 3-inch Mini PTZ Camera

2. Align the micro SD card with the micro SD card slot and insert it.
3. Fix the screws and assemble the mini PTZ camera.

2.4 Installing 2.5-inch Mini PTZ Camera

2.5-inch mini PTZ camera supports wall mounting, ceiling mounting, and installing with gang-box, please refer to 2.4.1, 2.4.2, and 2.4.3 for the specific installation of the 2.5-inch mini PTZ camera.

2.4.1 Wall Mounting

Before you start:

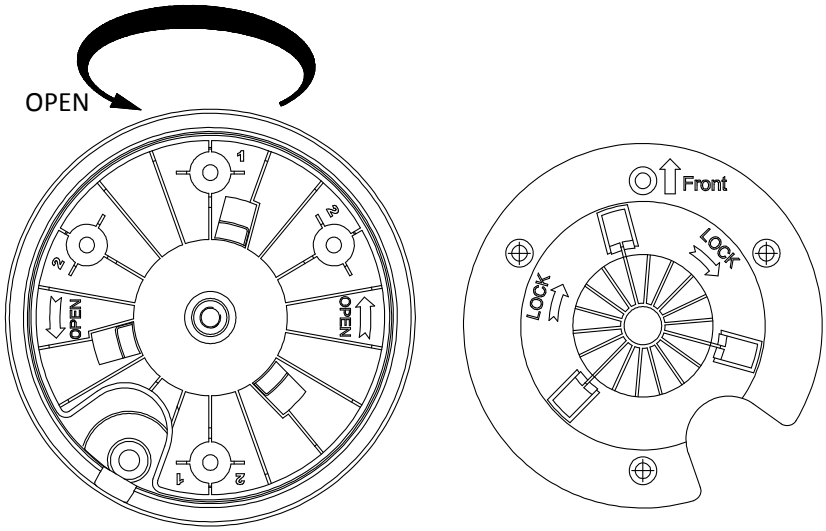
Please turn off the power of the PTZ camera before connecting the cables.

NOTE

- For cement wall, you need to use the expansion screw to fix the mount. The mounting hole of the expansion pipe on the wall should align with the mounting hole on the mount.
- For wooden wall, you can just use the self-tapping screw to fix the mount.
- Please make sure that the wall is strong enough to withstand more than 8 times the weight of the PTZ camera and the mount.

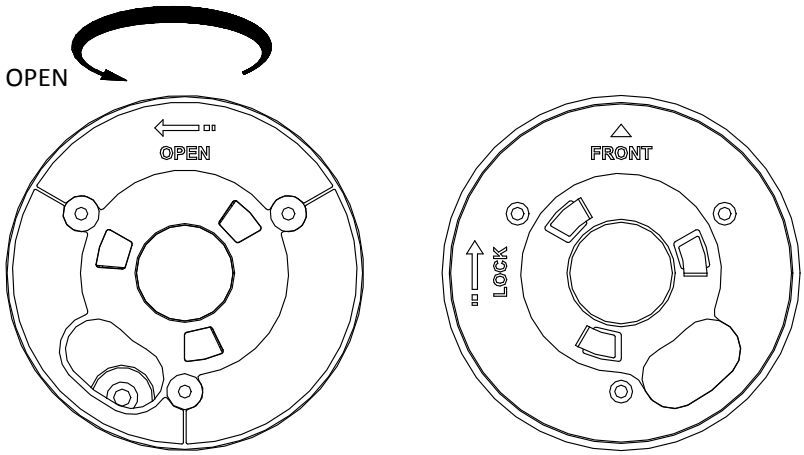
Steps:

1. Rotate the base plate counterclockwise to separate it from the PTZ camera.



Base Plate on the Bottom of the Dome Front View of Base Plate

Figure 2-6 Separate the Base Plate– 2.5-inch Mini PTZ Camera



Base Plate on the Bottom of the Dome Front View of Base Plate

Figure 2-7 Separate the Base Plate – 2.5-inch Mini IR PTZ Camera

2. Align the cable hole on the base plate with the hole on the mount for wiring. And install the base plate to the mount by fixing three PM4*10 screws (supplied) to the holes marked with digit “2” on the mount.

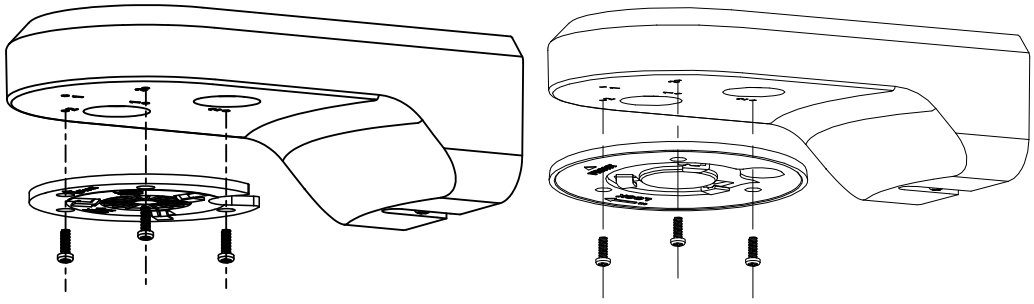


Figure 2-8 Install the Base Plate – 2.5-inch/2.5-inch IR PTZ Camera

3. Route the cables through the cable hole.
4. Align the PTZ camera with the base plate. Rotate the PTZ camera clockwise to the base plate, and the PTZ camera is secured with the base plate by three locks on the plate.

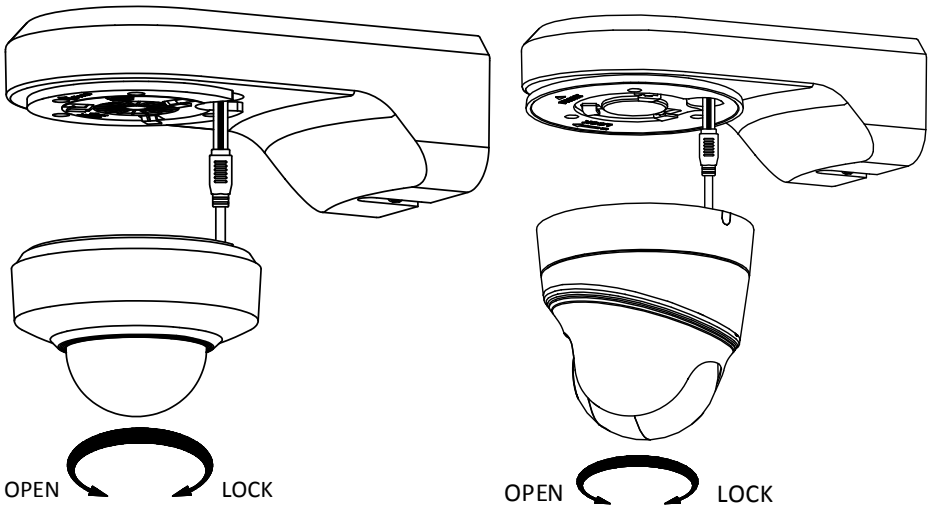


Figure 2-9 Secure the 2.5-inch/2.5-inch IR PTZ Camera

5. Secure the mount base to the wall with four PA4*25 screws (supplied).

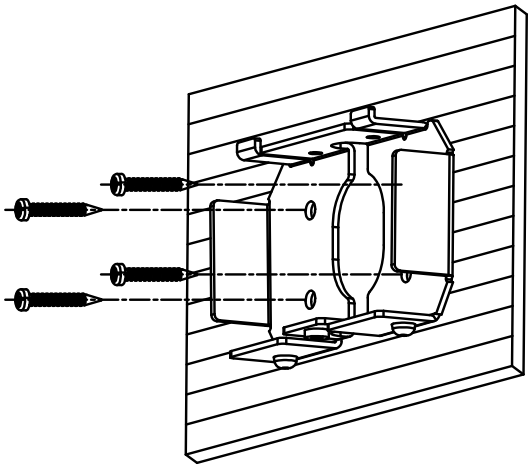


Figure 2-10 Install the Mounting Base

6. Install the speed PTZ camera to the mount.
   1). Route the cables of the PTZ camera through the wall mount.
   2). Connect the corresponding cables.
   3). Hang the mount together with the PTZ camera on the mount base.
   4). Fix the mount base with a PM4*10 screw.

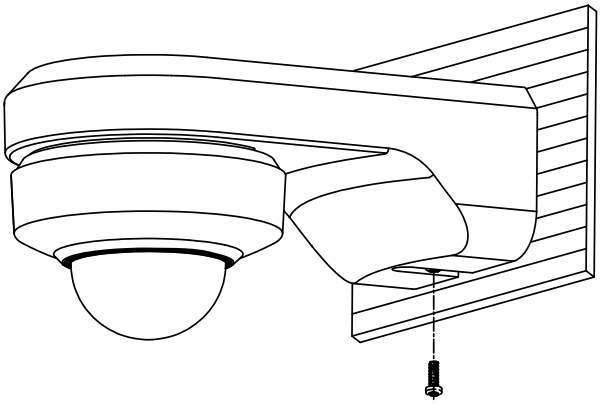


Figure 2-11 Secure the Mount Base

2.4.2 Ceiling Mounting

Purpose:

There are two ceiling mounting types provided for the camera, we take the mounting without the gang box as the example. If you want to install the camera with gang box, please refer to the installation manual for detailed instructions.

Before you start:

The ceiling mounting is applicable to the indoor/outdoor solid ceiling construction. The followings are the mandatory precondition for ceiling mounting:

- The thickness of the ceiling must ranges from 5 to 40mm.
- The ceiling must be strong enough to withstand more than 4 times the weight of the PTZ camera and its accessories.

◆ Wiring

The cables of PTZ camera can be routed either from the top or the side of the back box, as shown in Figure 2-12. For the cables routed from the top of the back box, it is required to drill a cable hole in the ceiling.

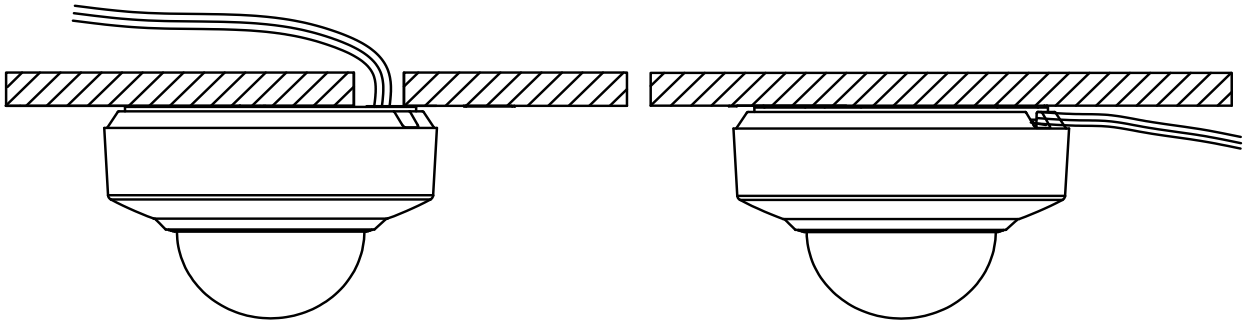


Figure 2-12 Cabling for Ceiling Mounting – 2.5-inch PTZ Camera

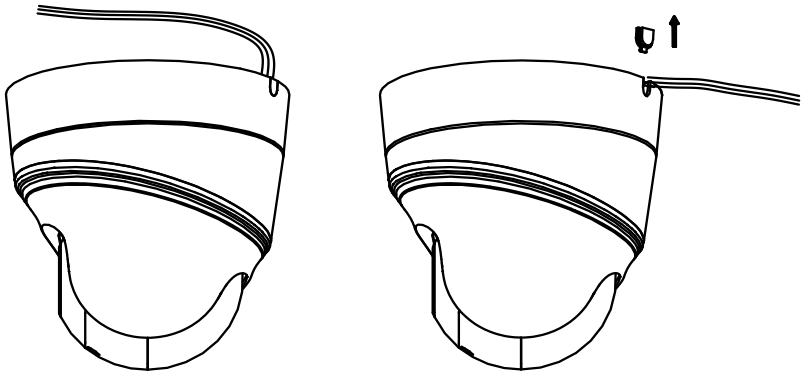


Figure 2-13 Cabling for Ceiling Mounting – 2.5-inch IR PTZ Camera

◆ Ceiling Mounting without Gang Box

Steps:

1. Rotate the base plate counterclockwise to separate it from the PTZ camera, as shown in the Figure 2-6 and Figure 2-7.
2. Attach the drill template (supplied) to the place where you want to fix the PTZ camera, and make sure the front arrow appoints to the monitoring area.

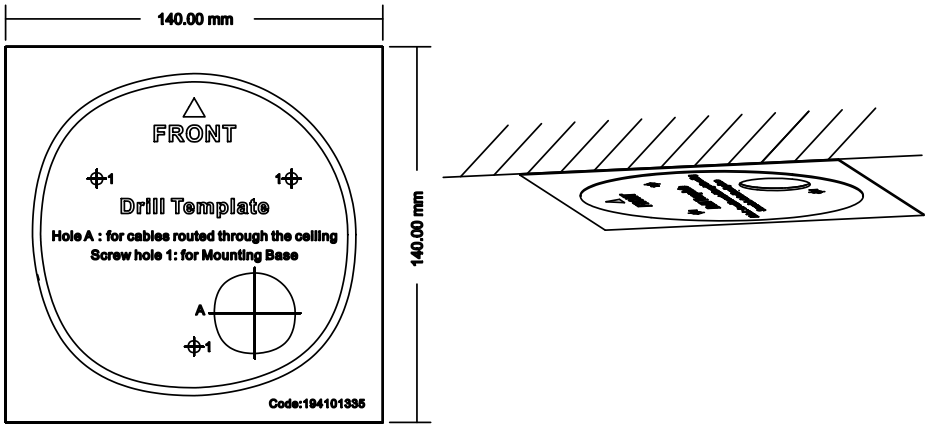


Figure 2-14 Attach the Drill Template

3. Drill a cable hole in the ceiling according to the circle A on the template if you want to route the cables through the ceiling. Pull out the cable slot cover if you want to route the cables on the surface of the ceiling, as shown in the Figure 2-14.

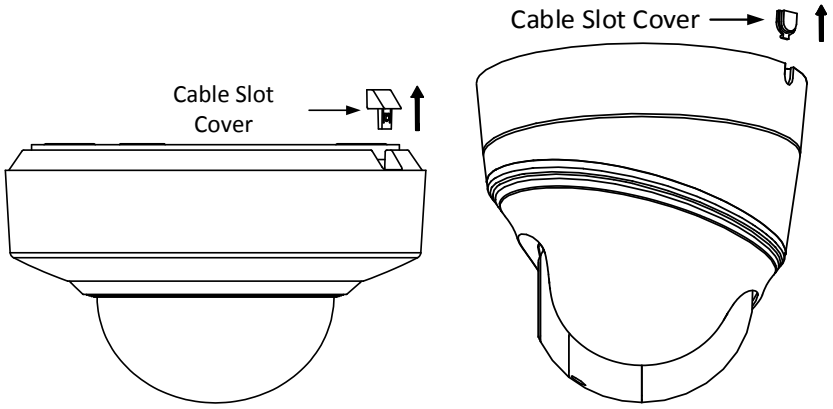


Figure 2-15 Cable Slot Cover

4. Attach the base plate to the ceiling and secure it with the supplied 3 self-tapping screws by aligning with 3 screw holes in the ceiling, and the front arrows on the drill template and base plate should be aligned together as well, as shown in Figure 2-16.

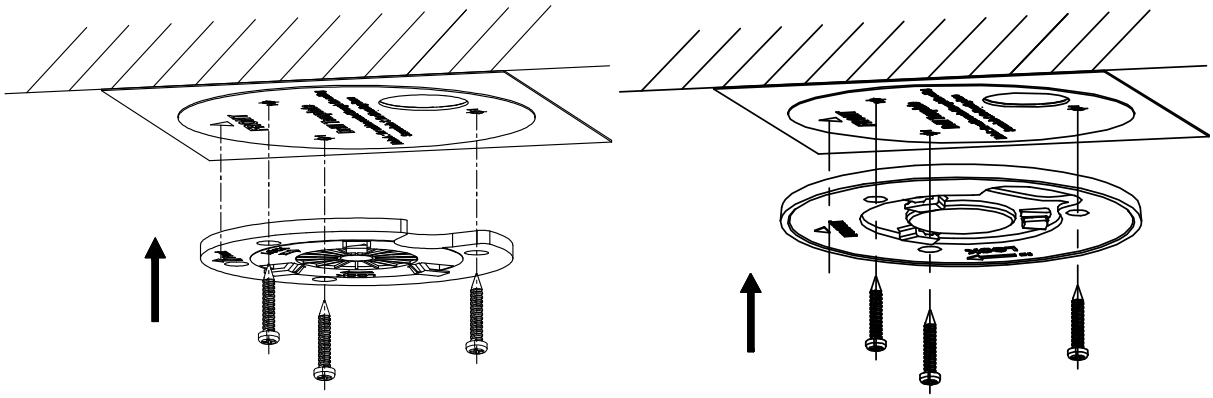


Figure 2-16 Mount the Base Plate – 2.5-inch PTZ Camera /2.5-inch IR PTZ Camera

5. Route the cables through the cable hole.
6. Align the PTZ camera with the base plate. Rotate the PTZ camera clockwise into the base plate, and the PTZ camera is secured with the base plate by three locks on the plate.

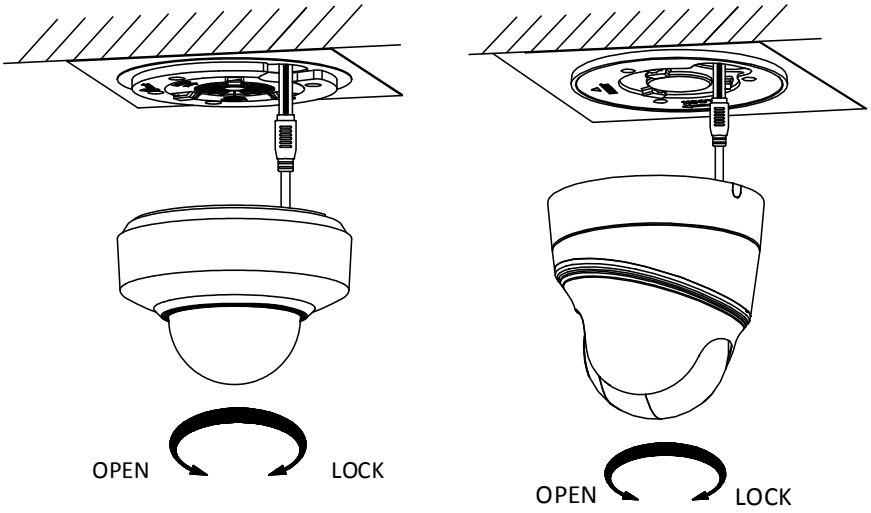


Figure 2-17 Secure the PTZ Camera – 2.5-inch PTZ Camera/2.5-inch IR PTZ Camera

2.4.3 Installing with Gang-Box

NOTE

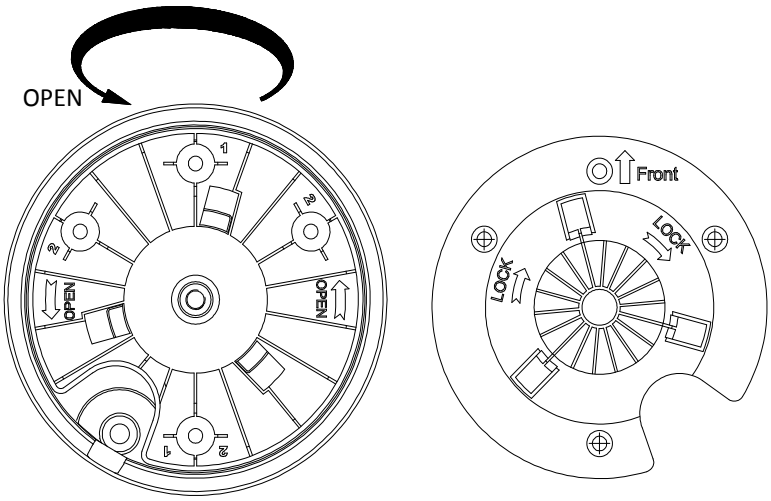
- The thickness of the ceiling shall be 5 to 40 mm.
- Please make sure that the ceiling is strong enough to withstand at least 4 times the weight of the PTZ camera and the bracket.

Steps:

1. Rotate the base plate counterclockwise to separate it from the PTZ camera.

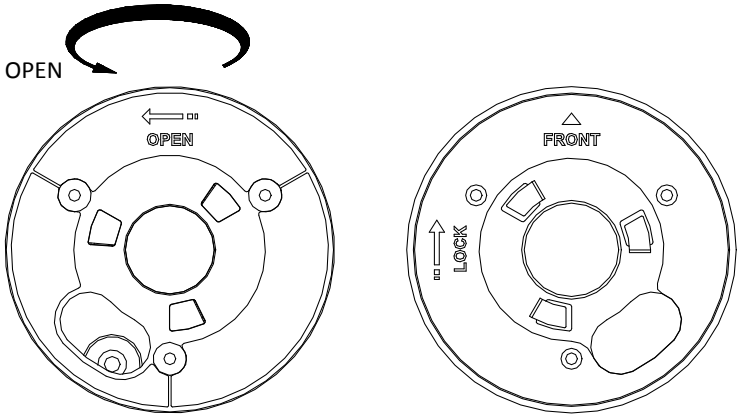
NOTE

- The base plate is not required when you install the mini PTZ camera with gang box. Please keep it properly.
- The gang box is optional accessory. Please get it prepared before the installation.



Base Plate on the Bottom of the Dome Front View of Base Plate

Figure 2-18 Separate the Base Plate– 2.5-inch Mini PTZ Camera



Base Plate on the Bottom of the Dome Front View of Base Plate

Figure 2-19 Separate the Base Plate – 2.5-inch Mini IR PTZ Camera

2. Attach the drill template (supplied) to the place where you want to fix the PTZ camera, and make sure the front arrow appoints to the monitoring area.
3. Insert 2 PM4*10 screws into the ceiling, as shown in Figure 2-20.

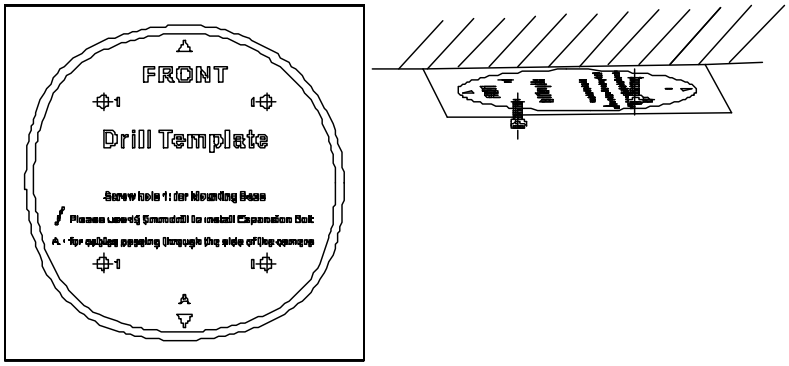


Figure 2-20 Attach the Drill Template

4. Attach the gang box to the ceiling and secure it by aligning the holes with 2 screws and rotating the gang box according to the direction of Figure 2-21. Make sure the front arrows on the drill template and gang box should be aligned together as well.

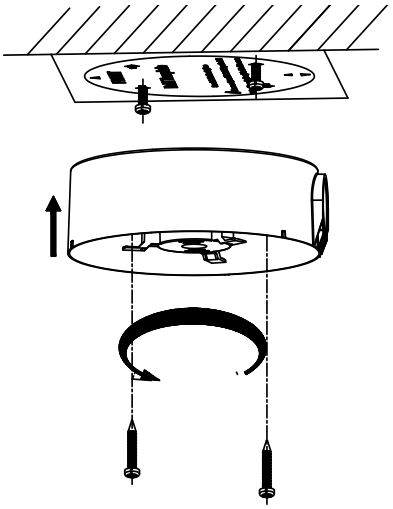


Figure 2-21 Fix the Gang Box

5. Connect the cables and route the cables clockwise through the hooks and fix the camera and the gang box with 3 hooks. Tighten it clockwise and loosen it anticlockwise.

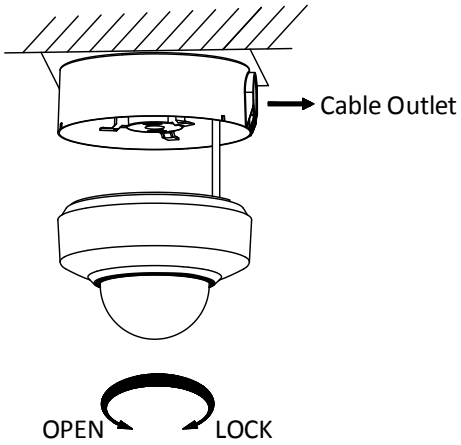


Figure 2-22 Fix the Camera

6. Secure the 2.5-inch PTZ camera and remove the protective film.

2.5 Installing 3-inch Mini PTZ Camera

3-inch mini PTZ camera supports ceiling mounting and in-ceiling mounting, please refer to 2.5.1 and 2.5.2 for the specific installation of the 3-inch mini PTZ camera.

NOTE

Wall mounting, installation with gang box, and installation with tripod are supported for network 3-inch mini PTZ camera. The corresponding accessories shall be purchased separately. For detailed information, refer to the user manual of the accessories.

2.5.1 Ceiling Mounting

NOTE

- The thickness of the ceiling must ranges from 5 to 40mm.
- The ceiling must be strong enough to withstand more than 4 times the weight of the PTZ camera and its accessories.

Steps:

1. Attach the drill template (supplied) to the place where you want to fix the PTZ camera, and make sure the front arrow appoints to the monitoring area.
2. Drill a cable hole in the ceiling according to the circle A on the template if you want to route the cables through the ceiling, as shown in Figure 2-23.

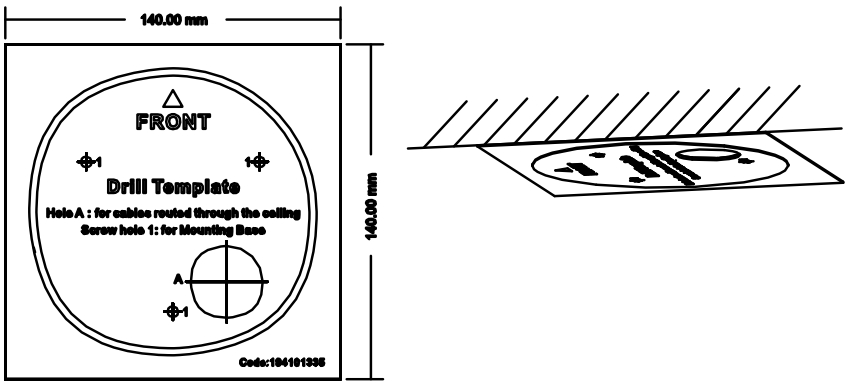


Figure 2-23 Attach the Drill Template

3. Insert the expansion screws into the ceiling. (Optional)
4. Insert 4 PM4*10 screws into the ceiling and fix the base plate, as shown in Figure 2-24. Make sure the FRONT arrow of the base plate is of the same direction as the arrow of the drill template.

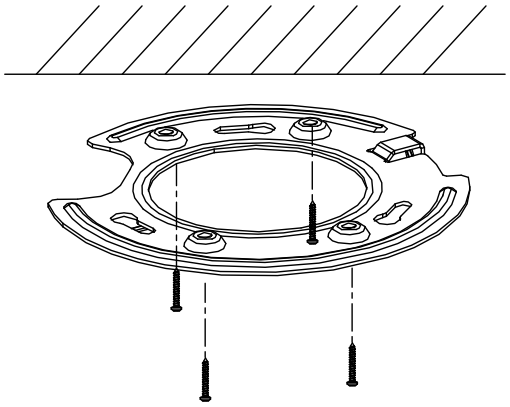


Figure 2-24 Fix the Base Plate

5. Connect the cables and route the cable through the cable outlet. Align the PTZ camera with the base plate. Rotate the PTZ camera clockwise into the base plate, and the PTZ camera is secured with the base plate by three locks on the plate.
6. Fix the screws on the side with Allen wrench, as shown in Figure 2-25.

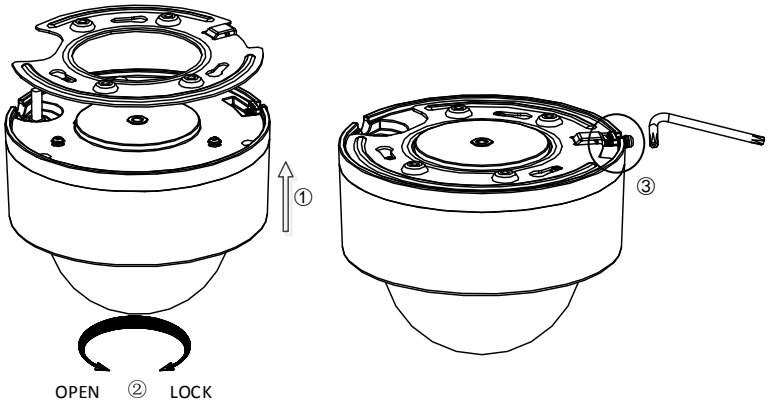


Figure 2-25 Fix the Camera

7. Secure the 3-inch PTZ camera and remove the protective film.

2.5.2 In-ceiling Mounting

NOTE

- At least 250mm of height shall be reserved for in-ceiling mounting of 3-inch mini PTZ camera.
- The thickness of the ceiling must ranges from 5 to 40mm.
- The ceiling must be strong enough to withstand more than 4 times the weight of the PTZ camera and its accessories.

Steps:

1. Attach the drill template (supplied) to the place where you want to fix the PTZ camera, and drill an Ø180mm hole in the ceiling according to the template.

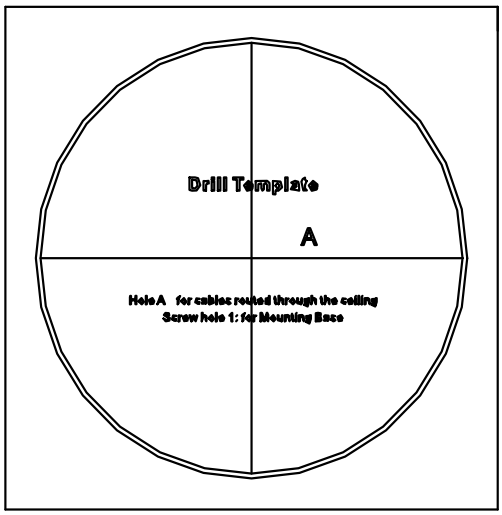


Figure 2-26 Drill Template

2. Fix the base plate onto the in-ceiling bracket with the 4 screws in the package (supplied). Make sure that the cable holes of the base plate are aligned to the cable holes of the bracket, as shown in Figure 2-27.

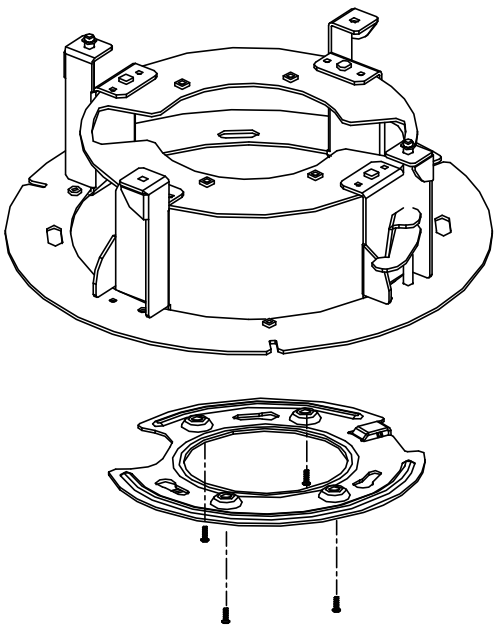


Figure 2-27 Fix the Base Plate to In-ceiling Bracket

3. Connect the cables and route the cable through the cable hole. Align the PTZ camera with the base plate. Rotate the PTZ camera clockwise into the base plate, and the PTZ camera is secured with the base plate by three locks on the plate.
4. Fix the screws on the side with Allen wrench, as shown in Figure 2-28.

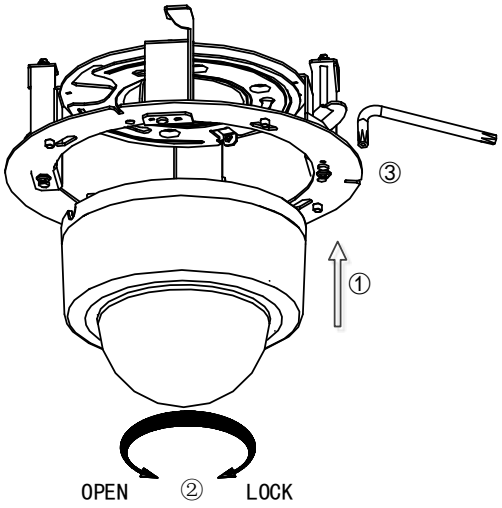


Figure 2-28 Fix the Camera

5. Fix the trim ring with the bubble and the trim ring will be attached to the in-ceiling bracket automatically, as shown in Figure 2-29.

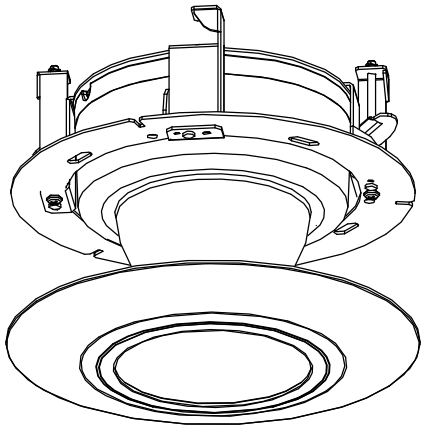


Figure 2-29 Assemble the Trim Ring

6. Secure the 3-inch PTZ camera and remove the protective film.

2.6 Alarm Input and Output Connection

- The mini PTZ camera can be connected with alarm inputs (0~5 VDC)

The alarm provides the relay output, and the external power supply is required when it connects to the alarm device.

- For DC power supply (left diagram), the input voltage must be no more than 30VDC, 1A.
- For AC power supply, the external relay must be used (right diagram) to prevent damages to the PTZ camera and avoid risk of electric shock.

2.7 Power Supply

When the PTZ camera uses standard DC power supply, the power cable should meet the demand. The formula of the cross-section S (mm^2) and the maximum transmission distance L (m) of the bare wire is as follows:

L=40*S (network PTZ camera)

Example:

For the analog PTZ camera, the cross-section of the cable is 1mm^2 and the transmission distance is less than 50m.

Appendix

Appendix 1 Bubble Maintenance

The bubble is a transparent plastic. The dust, oil and finger print, etc. will cause scratch or image blur. Please refer to the following method to clean the bubble.

- Handling dust

Use oil free soft brush or blowing dust ball to clean the dust.

- Handling oil

Steps:

1. Wipe off the water-drop or oil by soft cloth and dry the bubble.
2. Use oil free cotton cloth to wipe the bubble with alcohol or detergent.
3. Change the cloth to wipe the bubble until the bubble is clean.

Appendix 2 12VDC Wire Gauge & Transmission Distance

The following table describes the recommended max. distance adopted for the certain wire gauge when the loss rate of 12VDC voltage is less than 15%. For the DC driven device, the maximum voltage loss rate is 15% allowable.

Wire Gauge (mm) / Distance (feet) / Power	0.800(20)	1.000(18)	1.250 (16)	2.000(12)
10	97(28)	153(44)	234(67)	617(176)
20	49(14)	77(22)	117(33)	308(88)
24	41(12)	64(18)	98(28)	257(73)
30	32(9)	51(15)	78(22)	206(59)
40	24(7)	38(11)	59(17)	154(44)
48	20(6)	32(9)	49(14)	128(37)
50	19(6)	31(9)	47(13)	123(35)
60	16(5)	26(7)	39(11)	103(29)
70	14(4)	22(6)	33(10)	88(25)
80	12(3)	19(5)	29(8)	77(22)
90	10.8(3.1)	17(5)	26(7)	69(20)
100	9.7(2.8)	15(4)	23(7)	62(18)
110	8.9(2.5)	14(4)	21(6)	56(16)
120	8.1(2.3)	13(4)	20(6)	51(15)
130	7.5(2.1)	11.8(3.4)	18(5)	47(14)
140	7(2)	11(3.1)	17(5)	44(13)
150	6.5(1.9)	10.2(2.9)	16(4)	41(12)
160	6.1(1.7)	9.6(2.7)	15(4)	39(11)
170	5.7(1.6)	9(2.6)	14(4)	36(10)
180	5.4(1.5)	8.5(2.4)	13(4)	34(10)

Appendix 3 Wire Gauge Standards

Bare Wire Gauge(mm)	American Wire Gauge AWG	British Wire Gauge SWG	Cross-sectional Area of Bare Wire(mm^2)
0.750	21		0.4417
0.800	20	21	0.5027
0.900	19	20	0.6362
1.000	18	19	0.7854
1.250	16	18	1.2266
1.500	15	17	1.7663
2.000	12	14	3.1420
2.500			4.9080
3.000			7.0683