

Thermal Smart Linkage Tracking System

User Manual

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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 of this Manual at the Hikvision website (http://www.hikvision.com/).

Please use this Manual with the guidance and assistance of professionals trained in supporting the Product.

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FCC Information

Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC compliance: 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 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



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 Low Voltage Directive 2006/95/EC, the EMC Directive 2014/30/EU, 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.

이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

Symbol Convention

The symbols that may be found in this document are defined as follows.

Symbol	Description
NOTE	Provides additional information to emphasize or supplement important points of the main text.
WARNING	Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
DANGER	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.

Safety Instruction

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

Laws and Regulations

- The lightning protection and grounding design of outdoor installation and wiring should be in compliance with the lightning protection requirements of the buildings and local laws and regulations.
- Use of the product must be in strict compliance with the local electrical safety regulations.

Storage

- Store the device in dry, well-ventilated, corrosive-gas-free, no direct sunlight, and no heating source environment. Neglect may cause fire hazard.
- To avoid heat accumulation, good ventilation is required for a proper operating environment.
- DO NOT touch the heat dissipation component to avoid burns.

Transportation

- Keep the device in original or similar packaging while transporting it.
- Keep all wrappers after unpacking them for future use. In case of any failure occurred, you need to return the device to the factory with the original wrapper. Transportation without the original wrapper may result in damage on the device and the company shall not take any responsibilities.
- DO NOT drop the product or subject it to physical shock. Keep the device away from magnetic interference.

Installation

- When the device is mounted on wall or ceiling, the device shall be firmly fixed.
- Avoid equipment installation on vibratory surface or places subject to shock (neglect may cause equipment damage).

Power Supply

- Make sure that the power has been disconnected before you wire, install, or disassemble the device.
- The input voltage should conform to IEC60950-1 standard: SELV (Safety Extra Low Voltage) and the Limited Power Source. Refer to the appropriate documentation for detailed information. The standard power supply is 12 VDC, or 24 VAC, please make sure your power supply matches with your camera.

- Use the power adapter provided by qualified manufacturer. Refer to the product specification for detailed power requirements. It is recommended to provide independent power adapter for each device as adapter overload may cause over-heating or a fire hazard.

Battery

- DO NOT place the battery near heating or fire source. Avoid direct sunlight.
- Improper use or replacement of the battery may result in explosion hazard. Replace with the same or equivalent type only. Dispose of used batteries according to the instructions provided by the battery manufacturer.
- For long-term storage of the battery, make sure it is fully charged every half year to ensure the battery quality. Otherwise, damage may occur.

System Security

- You acknowledge that the nature of Internet provides for inherent security risks, and our company shall not take any responsibilities for abnormal operation, privacy leakage or other damages resulting from cyber attack, hacker attack, however, our company will provide timely technical support if required.
- Please enforce the protection for the personal information and the data security as the device may be confronted with the network security problems when it is connected to the Internet. Please contact us when the device might exist network security risks.
- Please understand that you have the responsibility to configure all the passwords and other security settings about the device, and keep your user name and password.

Maintenance

- Clean the lens with soft and dry cloth or wiping paper to avoid scratching it.
- If the product does not work properly, please contact your dealer or the nearest service center. We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.
- A few device components (e.g., electrolytic capacitor) require regular replacement. The average lifespan varies, so periodic checking is recommended. Contact your dealer for details.

Using Environment

- DO NOT expose the device to extremely hot, cold, dusty, corrosive, saline-alkali, or damp environments. Make sure the running environment meets the requirement of the device.
- DO NOT aim the lens at the sun or any other bright light.
- Keep the camera away from liquid while in use.

Emergency

- If smoke, odor, or noise arises from the device, immediately turn off the power, unplug the power cable, and contact the service center.

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Chapter 1 Overview

1.1 Overview

The Thermal Smart Linkage Tracking Systems is formed by one fixed camera and one PTZ camera. The PTZ camera smartly tracks multiple moving targets, and the fixed camera offers the panoramic view. The linkage of both can be realized by the client software.

It provides you with smart detection of moving targets, and multiple targets can be tracked simultaneously.

The system mainly applies to major industrial infrastructures requiring perimeter prevention, such as: airport, prison, railway, museum, enterprise, high-end villas and others.

1.2 System Requirement

System requirement of web browser accessing is as follows:

Operating System: Microsoft Windows XP SP1 and above version / Vista / Win7 / Server 2003 / Server 2008 32bits

CPU: Intel Pentium IV 3.0 GHz or higher

RAM: 1G or higher

Display: 1024×768 resolution or higher

Web Browser: Internet Explorer 8.0 and above version, Apple Safari 5.02 and above version, Mozilla Firefox 5 and above version and Google Chrome 18 and above versions.

1.3 Function

NOTE

The functions vary depending on the models of speed dome.

- **Thermal View**

The system provides thermal view with the uncooled focal plane arrays.

- **PTZ Limits**

The speed dome can be programmed to move within the PTZ limits (left/right, up/down).

- **Scan Modes**

The speed dome provides 5 scan modes: auto scan, tilt scan, frame scan, random scan and panorama scan.

- **Presets**

A preset is a predefined image position. When the preset is called, the speed dome will automatically move to the defined position. The presets can be added, modified, deleted and called.

- **Label Display**

The on-screen label of the preset title, azimuth/elevation, zoom, time and speed dome name can be displayed on the monitor. The displays of time and speed dome name can be programmed.

- **Auto Flips**

In manual tracking mode, when a target object goes directly beneath the speed dome, the video will automatically flips 180 degrees in horizontal direction to maintain continuity of tracking. This function can also be realized by auto mirror image depending on different camera models.

- **Privacy Mask**

This function allows you to block or mask certain area of a scene, for preventing the personal privacy from recording or live viewing. A masked area will move with pan and tilt functions and automatically adjust in size as the lens zooms telephoto and wide.

- **3D Positioning**

In the client software, use the left key of mouse to click on the desired position in the video image and drag a rectangle area in the lower right direction, then the speed dome will move the position to the center and allow the rectangle area to zoom in. Use the left key of mouse to drag a rectangle area in the upper left direction to move the position to the center and allow the rectangle area to zoom out.

- **Proportional Pan/Tilt**

Proportional pan/tilt automatically reduces or increases the pan and tilt speeds according to the amount of zoom. At telephoto zoom settings, the pan and tilt speeds will be slower than at wide zoom settings. This keeps the image from moving too fast on the live view image when there is a large amount of zoom.

- **Auto Focus**

The auto focus enables the camera to focus automatically to maintain clear video images.

- **Day/Night Auto Switch**

The speed domes deliver color images during the day. And as light diminishes at night, the speed domes switch to night mode and deliver black and white images with high quality.

- **Slow Shutter**

In slow shutter mode, the shutter speed will automatically slow down in low illumination conditions to maintain clear video images by extending the exposure time. The feature can be enabled or disabled.

- **Backlight Compensation (BLC)**

If you focus on an object against strong backlight, the object will be too dark to be seen clearly. The BLC (Backlight Compensation) function can compensate light to the object in the front to make it clear, but this causes the over-exposure of the background where the light is strong.

- **Wide Dynamic Range (WDR)**

The wide dynamic range (WDR) function helps the camera provide clear images even under back light circumstances. When there are both very bright and very dark areas simultaneously in the field of view, WDR balances the brightness level of the whole image and provide clear images with details.

- **White Balance (WB)**

White balance can remove the unrealistic color casts. White balance is the white rendition function of the camera to adjust the color temperature according to the environment automatically.

- **Patrol**

A patrol is a memorized series of pre-defined preset function. The scanning speed between two presets and the dwell time at the preset are programmable.

- **Pattern**

A pattern is a memorized series of pan, tilt, zoom, and preset functions. By default the focus and iris are in auto status during the pattern is being memorized.

- **Power Off Memory**

The speed dome supports the power off memory capability with the predefined resume time. It allows the speed dome to resume its previous position after power is restored.

- **Scheduled Task**

A scheduled task is a preconfigured action that can be performed automatically at a specific date and time. The programmable actions include: auto scan, random scan, patrol 1-8 ,pattern 1-4, preset 1-8,frame scan, panorama scan, tilt scan, day, night, reboot, PT adjust, Aux Output, etc.

- **Park Action**

This feature allows the speed dome to start a predefined action automatically after a period of inactivity.

- **3D Digital Noise Reduction**

Comparing with the general 2D digital noise reduction, the 3D digital noise reduction function processes the noise between two frames besides processing the noise in one frame. The noise will be much less and the video will be clearer.

Chapter 2 Appearance Description

There are two kinds of Thermal and Optical Smart Linkage Tracking Systems: Type I speed dome, and Type II speed dome. The appearance descriptions are shown below.

2.1 Type I Smart Linkage System Appearance

Refer to the following figures for Type I Smart Linkage Tracking Systems overview.

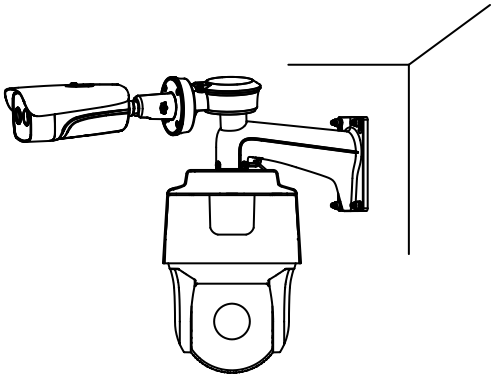


Figure 2-1 Type I Thermal Smart Linkage Tracking System Overview

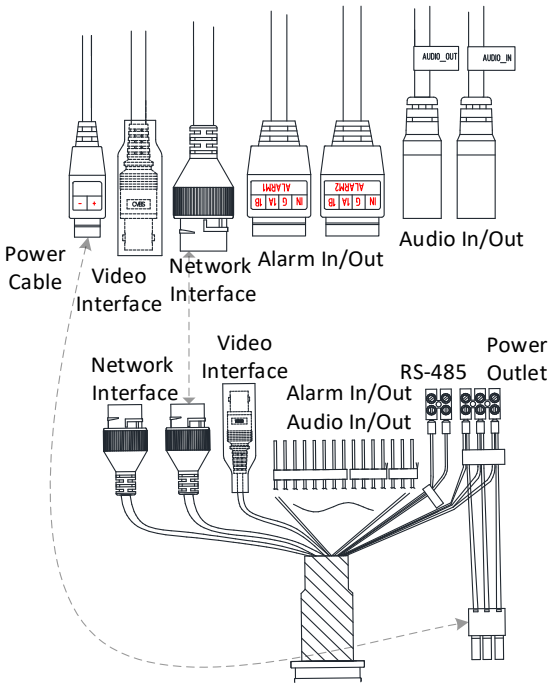


Figure 2-2 Type I Thermal Smart Linkage Tracking System Cables

NOTE

Refer to *2.3 Cable* for cable wirings.

2.2 Type II Smart Linkage System Appearance

Refer to the following figures for Type II Smart Linkage Tracking Systems overview.

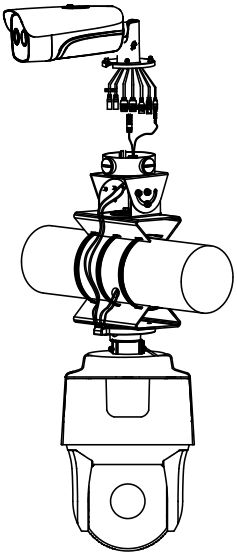


Figure 2-3 Type II Thermal Smart Linkage Tracking System Overview

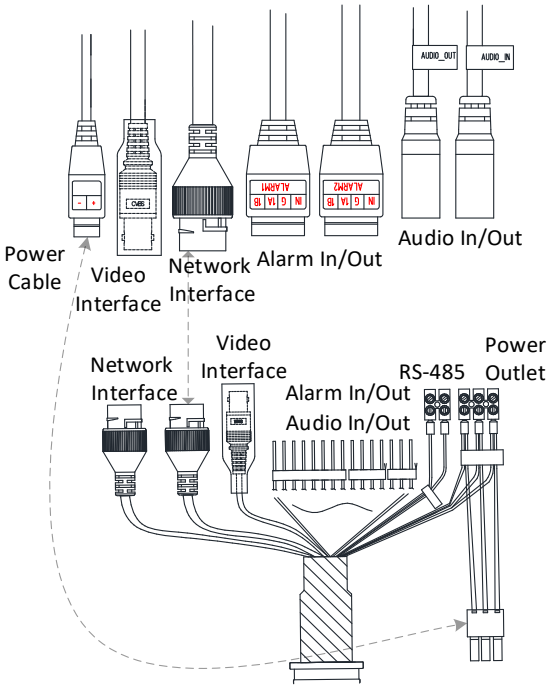


Figure 2-4 Type II Thermal Smart Linkage Tracking System Cables

NOTE

Refer to *2.3 Cable* for cable wirings.

2.3 Cable Wiring

2.3.1 Speed Dome Cables

1. The speed dome has two network interfaces:
   Connect one network cable to the external internet, and connect the other network cable to the bullet camera network interface.
2. The speed dome has two power interfaces:
   Connect one power cable to the external power source, and connect the other power cable to the bullet camera power interface.

2.3.2 Bullet Camera Cables

1. The bullet camera has two power types:
   For bullet camera, both 24 V AC and 12 V DC are supported. To use 12V DC power supply, you MUST connect the positive/negative terminals correctly.
   For the Smart Linkage tracking system, connect the bullet camera power cable to the speed dome power output.
2. The speed dome has two power interfaces:
   Connect one power cable to the external power source, and connect the other power cable to the bullet camera power interface.

Chapter 3 Installation

3.1 Pre-Installation

- Make sure the device in the package is in good condition and all the assembly parts are included.
- The standard power supply is 24V AC, please make sure your power supply matches your camera.
- Make sure all the related equipment is power-off during the installation.
- Check the specification for the installation environment.
- Make sure that the wall is strong enough to withstand eight times the weight of the camera and the bracket.

For the camera that supports IR, mind the following precautions to prevent IR reflection:

- Do NOT remove the protective film until you finish the installation. For any dust or grease on the cover, clean them with clean soft cloth and isopropyl alcohol.
- Make sure that there is no reflective surface too close to the camera lens. The IR light from the camera may reflect back into the lens causing reflection.
- Do NOT drag the camera with its waterproof cables, or the waterproof performance is affected.

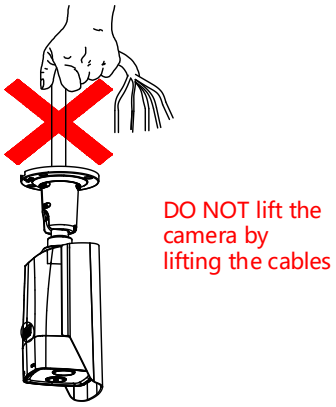


Figure 3-1 Do NOT Lift by Cables

3.1.1 Wide Range Coverage

For fixed lens camera, the auto-focus function, and remote manual focus function are not supported.

Select the proper installation site, and proper lens focal length according to the Wide Range Coverage list below:

Lens (focal length)	7mm	10mm	15mm	25mm	35mm	50mm	75mm
Detection range (Vehicles)	631m	902m	1353m	2255m	3157m	4510m	6765m
Detection range (Humans)	206m	294m	441m	735m	1029m	1471m	2206m
Recognition range (Vehicles)	158m	225m	338m	564m	789m	1127m	1691m
Recognition range (Humans)	51m	74m	110m	184m	257m	368m	551m
Identification range (Vehicles)	79m	113m	169m	282m	395m	564m	846m
Identification range (Humans)	26m	37m	55m	92m	129m	184m	276m

NOTE

This table is for reference only, and the actual detection range may vary according to different camera settings, mounting condition, monitor and so on.

3.1.2 Memory Card Installation

Before you start:

Install microSD card to the bullet camera, and install microSD card to the speed dome. To ensure the air impermeability, seal the memory card slot following the same procedure you opened it.

Purpose:

Install the memory card into the camera, and you can save the recordings and snapshots in the card. If you do not need saving videos in the memory card, skip this step.

Bullet Camera Memory Card Installation

Steps:

1. Use the screw driver to open the memory card slot beneath the device.

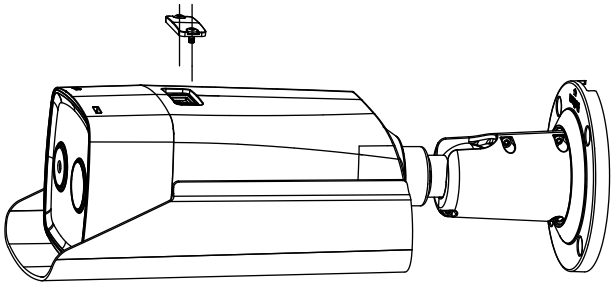


Figure 3-2 Open the Memory Card Slot

2. Insert the microSD card into the memory card slot and make sure the chip faces toward the lens. When it clicks, the card is properly installed.

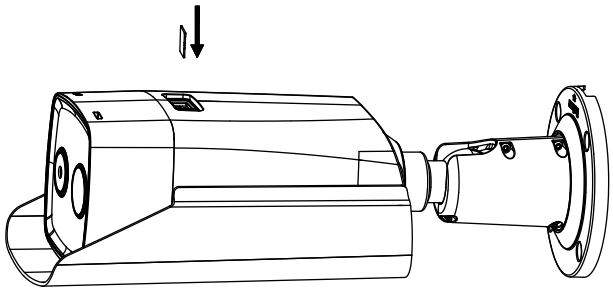


Figure 3-3 Insert the MicroSD Card

3. Use the screwdriver to cover the microSD card slot.

Speed Dome Memory Card Installation

Steps:

1. Remove the protective sticker.

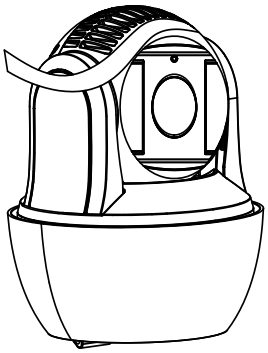


Figure 3-4 Open the Memory Card Slot

2. Use the screw driver to remove the memory card slot cover on the back of the speed dome.

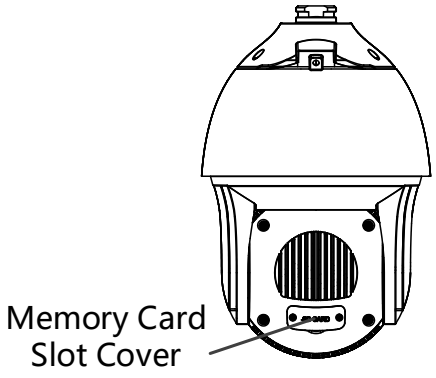


Figure 3-5 Memory Card Slot

3. Insert the MicroSD card into the memory card slot and make sure the chip faces toward the lens. When it clicks, the card is properly installed.

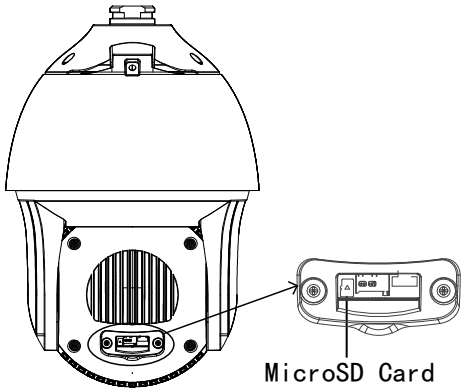


Figure 3-6 Insert the MicroSD Card

4. Use the screwdriver to cover the memory card slot.

3.2 Bracket Installation

- The speed dome can be installed to a thread interface or non-thread interface bracket. The non-thread bracket is highly recommended.
- When you select a thread bracket, please install the pendent adapter (supplied) between the bracket and speed dome. Any mismatch problems shall be taken responsibility by the user.
- The dimension of pendant adapter is $G1\frac{1}{2}$.
- For cement wall, you need to use the expansion screw to fix the bracket.
- For wooden wall, you can just use the self-tapping screw to fix the bracket.
- Please make sure that the wall is strong enough to withstand at least 8 times the weight of the dome and the bracket.
- The wall must be thick enough to mount the expansion screws.

3.2.1 Wall Mounting

Steps:

1. Get the bracket and screws from the packing box.
2. Drill 4 ϕ12 screw holes in the wall according to the screw hole sites of the bracket, and then insert M8 expansion screws into the screw holes.

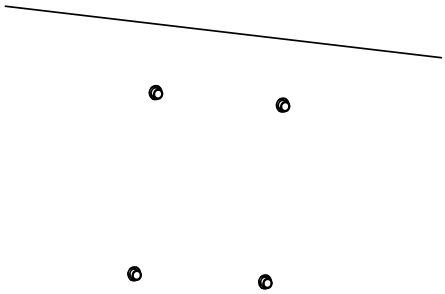


Figure 3-7 Drill Screw Hole and Insert Expansion Screw

3. Route the cables through the internal part of the bracket and then secure the bracket with 4 hex nuts and washers.

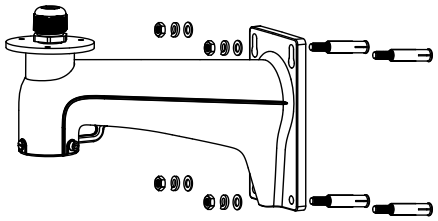


Figure 3-8 Drill Screw Holes

3.2.2 Horizontal pole mounting

Steps:

1. Get the bracket and accessories from the packing box.
2. Install the loop onto the pole.
   1) Fix the loop with the pole loosely.
   2) Route the loop rings into the holes of the fixing plates to fix the fixing plates onto the loop.

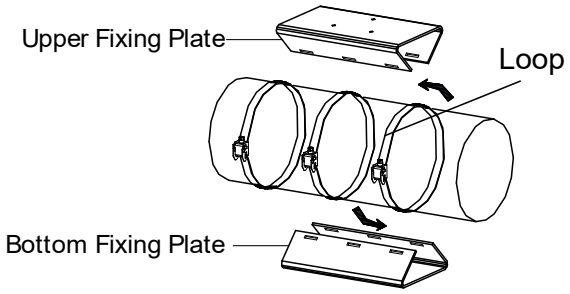


Figure 3-9 Install the Loop to the Pole

NOTE

- The upper fixing plate has three screw holes on the surface, and is used for fixing the bullet camera or box camera.
- The bottom fixing plate has four screw holes on the surface, and is used for fixing the speed dome.
- Make sure that the upper fixing plate is on the right top of the pole and the bottom fixing plate is on the right bottom of the pole.

3) Adjust the fixing plate to the right position and then tighten the loop rings to secure the fixing plates.

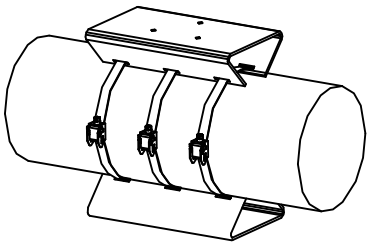


Figure 3-10 Adjust Fixing Plate Position

3.3 Smart Linkage Tracking System Installation

3.3.1 Install Device with Wall Mount Bracket

Steps:

1. Remove the protective sticker.

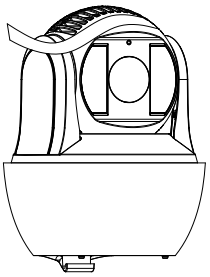


Figure 3-11 Remove Protective Sticker

2. Install the speed dome head cover.
   1) Loosen the two lock screws with the Allen wrench. Make sure the screws do not appear in bracket inner side.

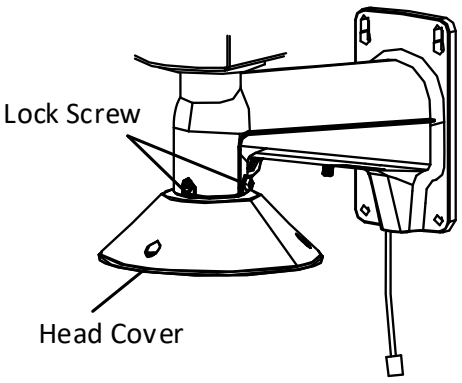


Figure 3-12 Loosen the lock screws

   2) Install the head cover to the bottom of the bracket.
   3) Fix the head cover with the bracket according to the figure below.

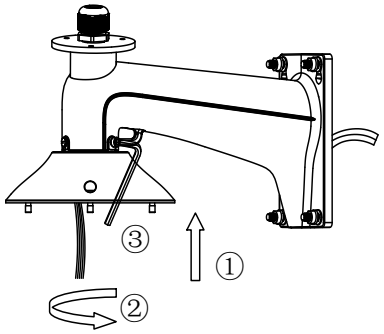


Figure 3-13 Installing the Head Cover

4) Fix two lock screws with the Allen wrench to secure the camera.

3. Hook the one end of safety rope to the back box of speed dome, and the other end of safety rope to the bracket.

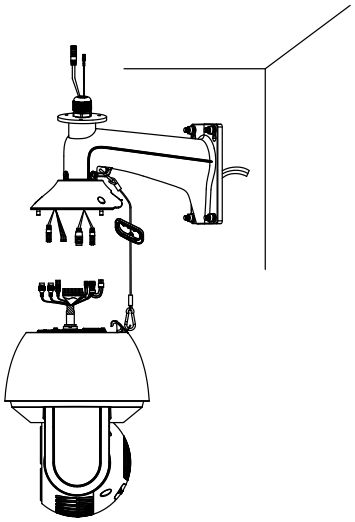


Figure 3-14 Hook the Safety Rope

4. Fix the speed dome with head cover.

1) Route the cables through the head cover and water-proof connector.

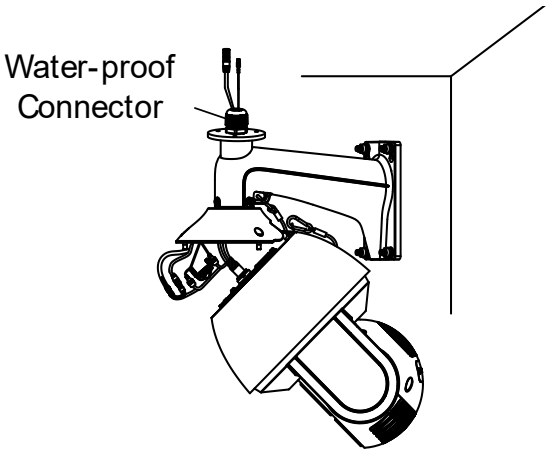


Figure 3-15 Route the cables

2) Tighten the screws between the speed dome and the head cover with the Allen wrench to secure the speed dome onto the bracket.

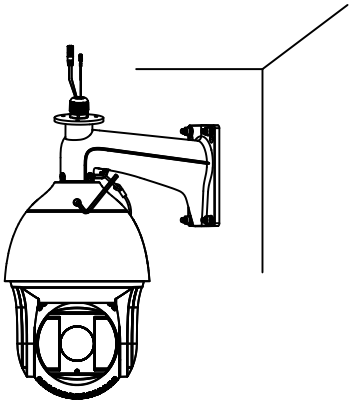


Figure 3-16 Fix the Speed Dome with Head Cover

5. Install the junction box.
   1) Unscrew the screw of top cover with the cross screwdriver, then open the cover.

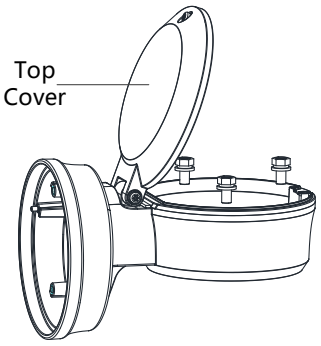


Figure 3-17 Open the Top Cover of Junction Box

   2) Route the cables through the bottom hole of junction box.
   3) Fix the junction box onto the bracket with three M6×14 screws.

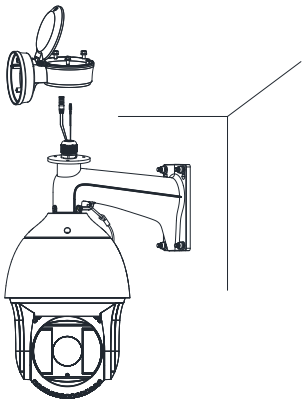


Figure 3-18 Junction Box Installation

6. Route the cables of bullet camera through the left hole of junction box.
7. Fix the bullet camera with four M5 screws.

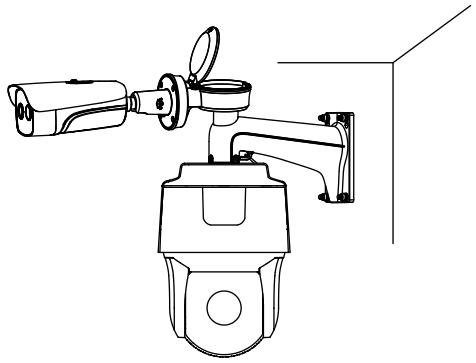


Figure 3-19 Bullet Camera Installation

8. Connect the cables, and then place the cables into the junction box. Refer to the ***Chapter 2 Appearance Description***.

9. Close the top cover, then tight the screw of cover with cross screwdriver.

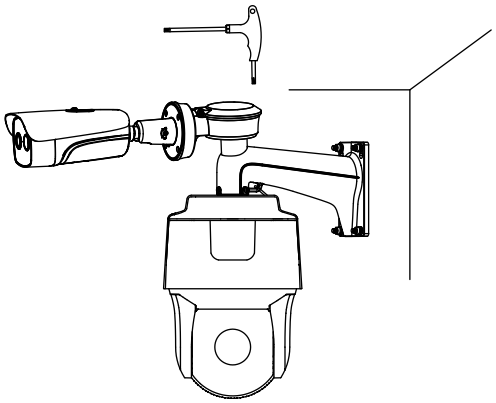


Figure 3-20 Finish Installation

10. Remove the protective film of the IR lens after you finish installing

3.3.2 Install Device with Pole Mount Bracket

1. Remove the protective sticker.

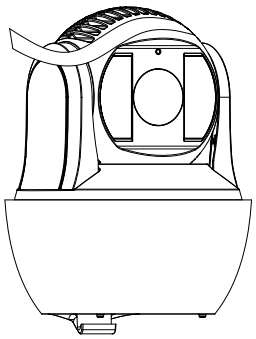


Figure 3-21 Remove Protective Sticker

2. Install the head bracket to the loop bracket.

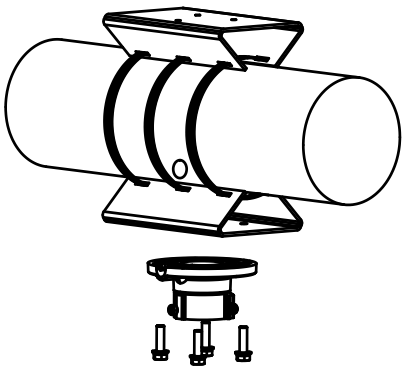


Figure 3-22 Head Bracket Installation

3. Install the speed dome head cover.

   1) Loosen the two lock screws with the Allen wrench. Make sure the screws do not appear in bracket inner side.
   2) Install the head cover to the bottom of the bracket.
   3) Fix the head cover with the bracket according to the figure below.

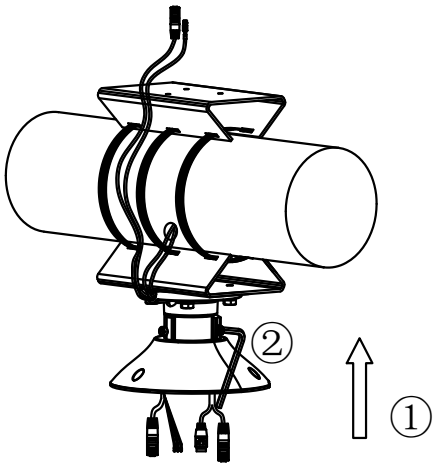


Figure 3-23 Installing Speed Dome Head Cover

   4) Fix two lock screws with the Allen wrench to secure the camera.
4. Hook the one end of safety rope to the back box of speed dome, and the other end of safety rope to the bracket.

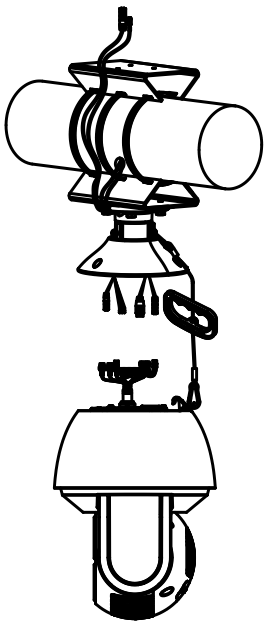


Figure 3-24 Hook the Safety Rope

5. Fix the speed dome with head cover.
   1) Refer to ***Chapter 2*** to connect the power cable and network cable.
   2) Hook the speed dome onto the head cover.

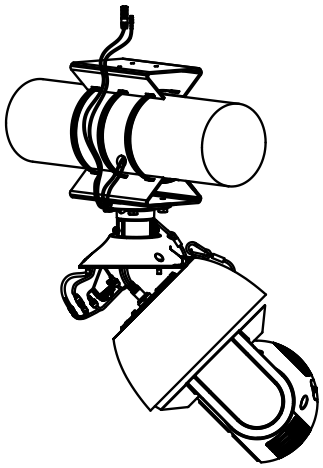


Figure 3-25 Fix the Speed Dome with Head Cover

   3) Use the Allen wrench to tighten the screws and secure the speed dome onto the head cover.

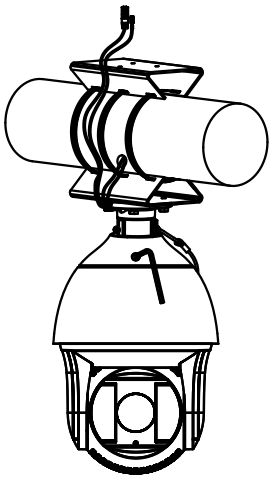


Figure 3-26 Tighten the Screws

6. Install the PT joint
   1) Disassemble the PT joint.

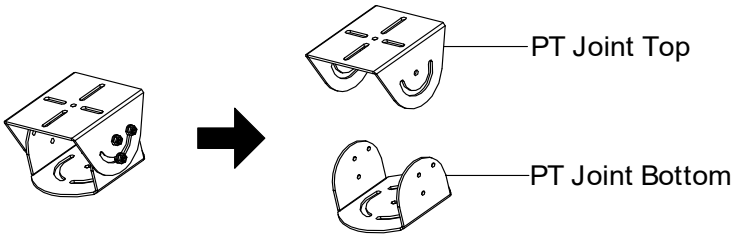


Figure 3-27 Disassemble the PT Joint

   2) Route the cables from the bracket through the PT joint bottom.
   3) Adjust the pan direction of the PT bottom (range: - 45° to + 45°).
   4) Fix the PT joint bottom to the bracket with the M6 × 12 screws.

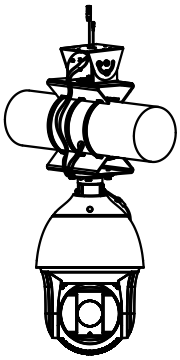


Figure 3-28 Bracket Installation

7. Install the junction box.
   1) Route the cables through the bottom hole of junction box.
   2) Align the PT joint screw holes with the junction box screw holes. Make sure the **TOP** on the junction box points to the installation wall.

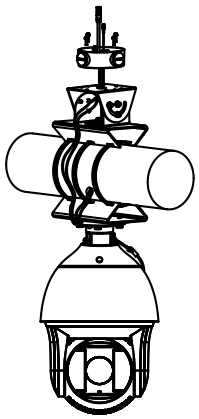


Figure 3-29 Junction Box Installation

3) Fix the junction box onto the PT joint with four M4×16 stainless steel screws.

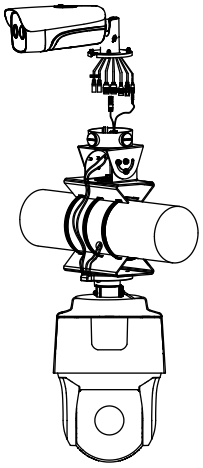


Figure 3-30 Bullet Camera Installation

8. Remove the protective film of the IR lens after you finish installing.

3.4 Angle Adjustment

Steps:

1. Loosen the screw to adjust the tilting position [0° to 90°]. Tighten the screw.
2. Loosen the screw to adjust the rotation position [0° to 360°]. Tighten the screw.

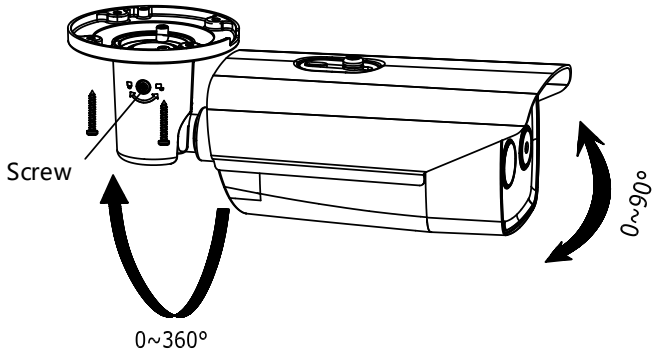


Figure 3-31 2-axis Adjustment

3.5 Waterproof Measures (Optional)

Purpose:

If the camera is installed outdoor, you should use the waterproof accessory or tapes to waterproof the cables. Otherwise the cables might get wet or a short circuit might occur.

3.5.1 Install Network Cable Waterproof Jacket

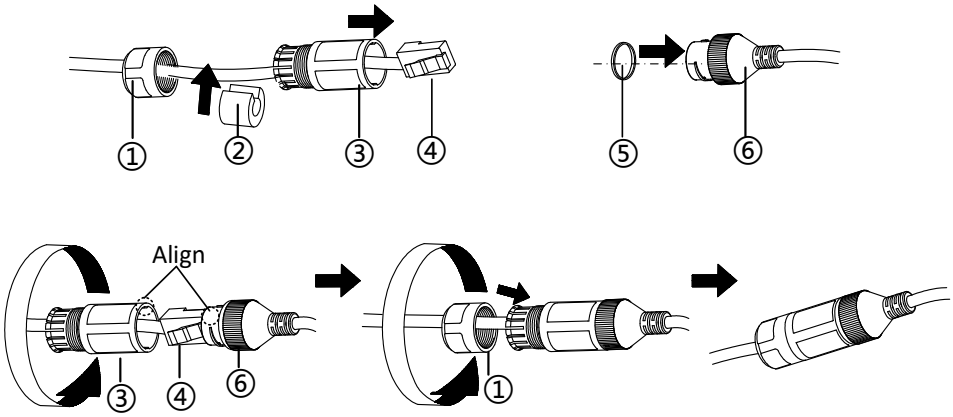


Figure 3-32 Install Waterproof Jacket

Steps:

1. Feed the network cable through ① and ③ in order.
2. Fix ② on the network cable between ① and ③.
3. Place ⑤ onto the end of ⑥, and plug the RJ45 male connector into RJ45 female connector.
4. Screw ③ to ⑥ clockwise.
5. Push ② into ③.
6. Secure ① with the ③ in clockwise direction.

3.5.2 Waterproof Other Cables

After routing and connecting the cables, use the waterproof tapes to wrap up the cables. Connected cables and spare cables both should be wrapped up as the figures below.

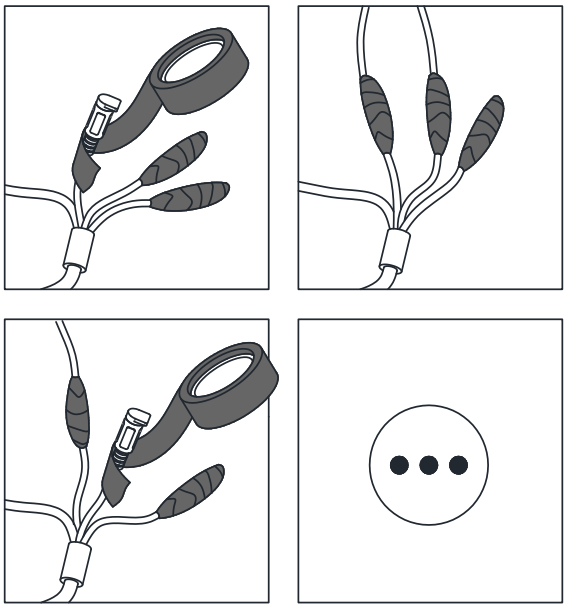


Figure 3-33 Waterproof Cables

Chapter 4 Network Connection

Before you start:

- If you want to set the network speed dome via a LAN (Local Area Network), please refer to ***Section 4.1.***
- If you want to set the network speed dome via a WAN (Wide Area Network), please refer to ***Section 4.2.***

4.1 Set the Camera over the LAN

Purpose:

To view and configure the camera via a LAN, you need to connect the network camera in the same subnet with your computer, and install the SADP or client software to search and change the IP of the network camera.

NOTE

For the detailed introduction of SADP, please refer to Appendix.

4.1.1 Wire over the LAN

The following figures show the two ways of cable connection of a network camera and a computer:

Purpose:

- After completing the installation of Smart Linkage tracking system, you need to set the function configurations and related parameters. Make sure that the system is properly connected with your PC. Two methods are available for the system connection, as shown in Figure 4-1.
- The following figure shows the cable connection of network speed dome.

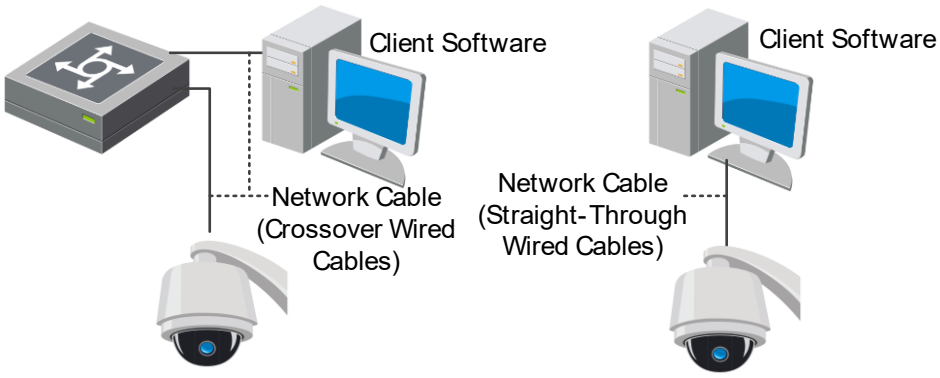


Figure 4-1 Connecting Directly

4.1.2 Activate the System

Purpose:

You are required to activate the devices first before you can use the system.

Activation via iVMS-4200

Steps:

1. Install the client software. You can view the live video and operate the device with the client software.
2. Follow the installation prompts to install the client software and WinPcap. The configuration interface and live view interface of client software are shown below.

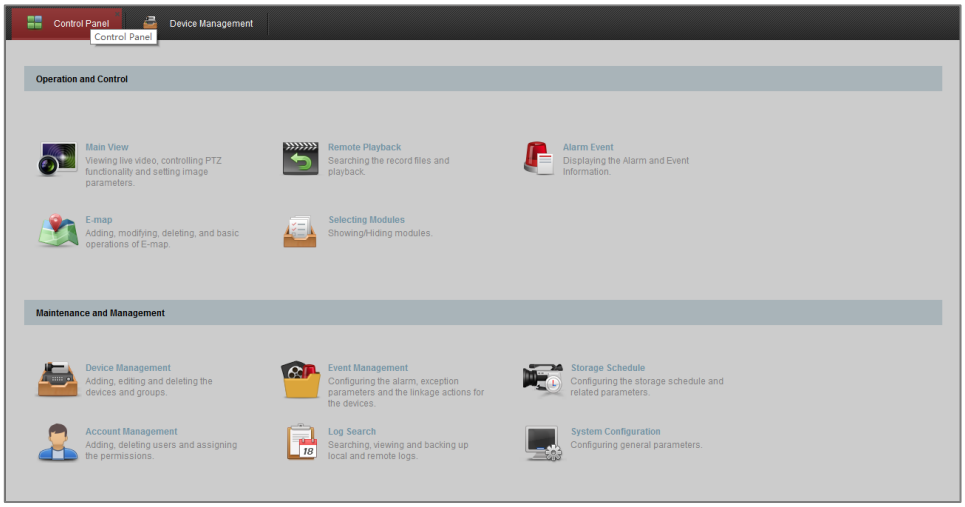


Figure 4-2 iVMS-4200 Control Panel

3. Enter **Control Panel -> Maintenance and Management ->Device Management**.
4. Click server tab to enter the server management interface. The online devices list is shown in Figure 4-3.

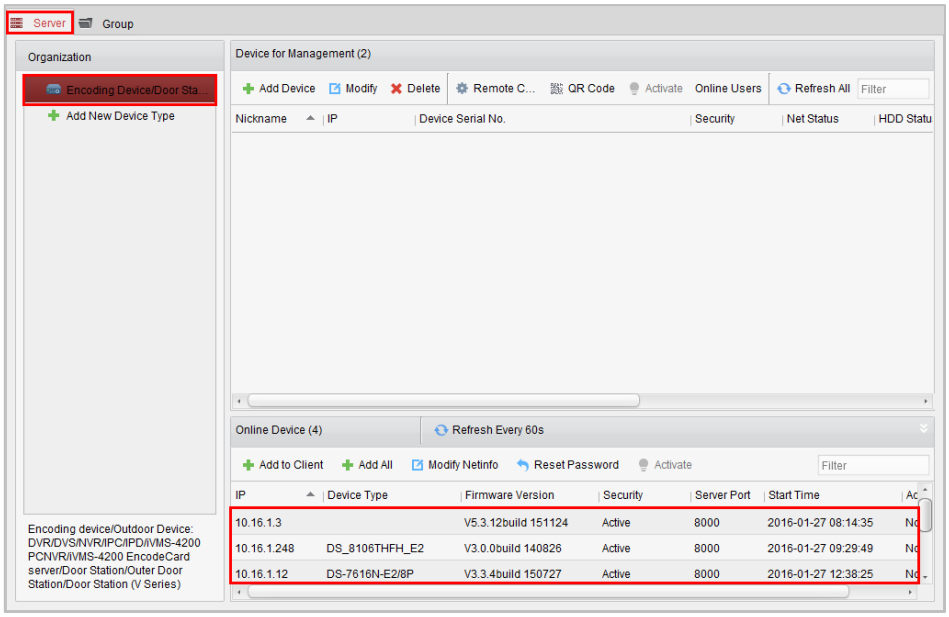


Figure 4-3 Device List

5. Select the device and click **Activate** to enter the activation interface, as shown in Figure 4-4.

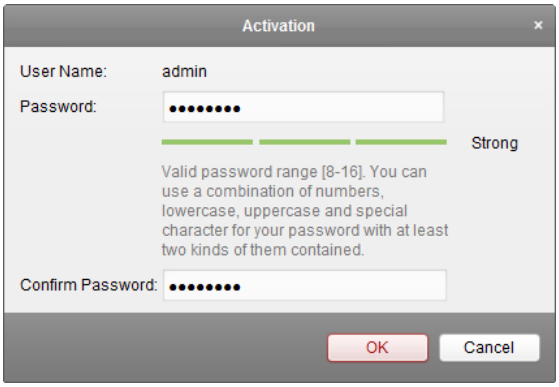


Figure 4-4 Activation Interface

6. Create a password and input the password in the password field, and confirm the password.

STRONG PASSWORD RECOMMENDED– *We highly recommend you create a strong password of your own choosing (Using a minimum of 8 characters, including at least three of the following categories: upper case letters, lower case letters, numbers, and special characters.) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.*

7. Click **OK** to save the password.
8. You can check whether the activation is completed on the popup window. If activation failed, please make sure that the password meets the requirement and then try again.

NOTE

- If you use third party VMS software, please contact technical support of our branch for camera firmware.

- For detailed information about client software of our company, please refer to the user manual of the software. This manual mainly introduces accessing to the network speed dome by web browser.

Activation via Web Browser

Steps:

1. Power on the speed dome, and connect the speed dome to the network.
2. Input the IP address into the address bar of the web browser, and click Enter to enter the activation interface.

NOTE

The default IP address of the speed dome is 192.168.1.64.

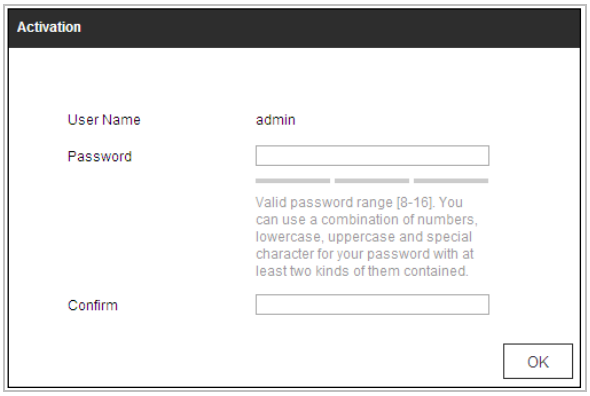


Figure 4-5 Activation Interface(Web)

3. Create a password and input the password into the password field.

STRONG PASSWORD RECOMMENDED– *We highly recommend you create a strong password of your own choosing (Using a minimum of 8 characters, including at least three of the following categories: upper case letters, lower case letters, numbers, and special characters.) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.*

4. Confirm the password.
5. Click **OK** to activate the speed dome and enter the live view interface.

Activation via SADP Software

SADP software is used for detecting the online device, activating the device, and resetting the password.

Get the SADP software from the supplied disk or the official website, and install the SADP according to the prompts. Follow the steps to activate the speed dome**.**

Steps:

1. Run the SADP software to search the online devices.
2. Check the device status from the device list, and select an inactive device.

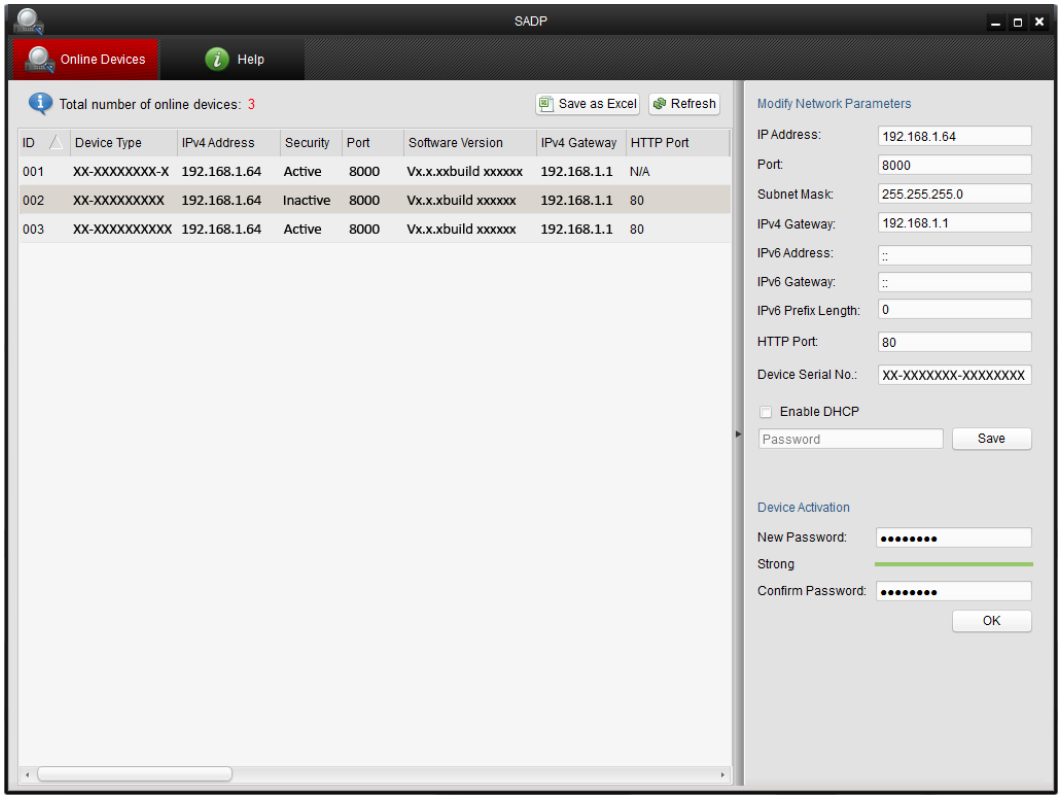


Figure 4-6 SADP Interface

3. Create a password and input the password in the password field, and confirm the password.

STRONG PASSWORD RECOMMENDED–*We highly recommend you create a strong password of your own choosing (Using a minimum of 8 characters, including at least three of the following categories: upper case letters, lower case letters, numbers, and special characters.) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.*

4. Click **OK** to save the password.

NOTE

You can check whether the activation is completed on the popup window. If activation failed, please make sure that the password meets the requirement and then try again.

5. Change the device IP address to the same subnet with your computer by either modifying the IP address manually or checking the checkbox of **Enable DHCP**.

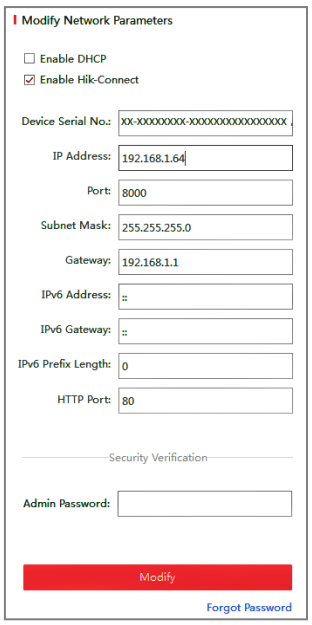


Figure 4-7 Modify the IP Address

6. Input the password and click **Save** to activate your IP address modification.

4.2 Set the Network Camera over the WAN

Purpose:

This section explains how to connect the camera dome to the WAN with a static IP or a dynamic IP.

4.2.1 Static IP Connection

Before you start:

Please apply a static IP from an ISP (Internet Service Provider). With the static IP address, you can connect the network camera via a router or connect it to the WAN directly.

Connect the Network Camera via a Router

Steps:

1. Connect the network camera to the router.
2. Assign a LAN IP address, the subnet mask and the gateway.
3. Save the static IP in the router.
4. Set port mapping, E.g., 80, 8000 and 554 ports. The steps for port mapping vary depending on different routers. Please call the router manufacturer for assistance with port mapping.
5. Visit the network camera through a web browser or the client software over the internet.

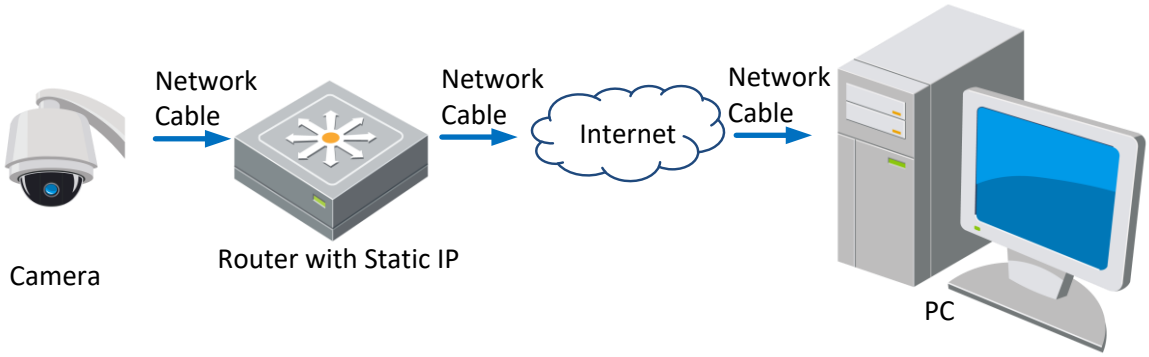


Figure 4-8 Accessing the Camera through Router with Static IP

Connect the network speed dome with static IP directly

You can also save the static IP in the camera and directly connect it to the internet without using a router. Refer to ***Section 4.1.2*** for detailed IP address configuration of the speed dome.

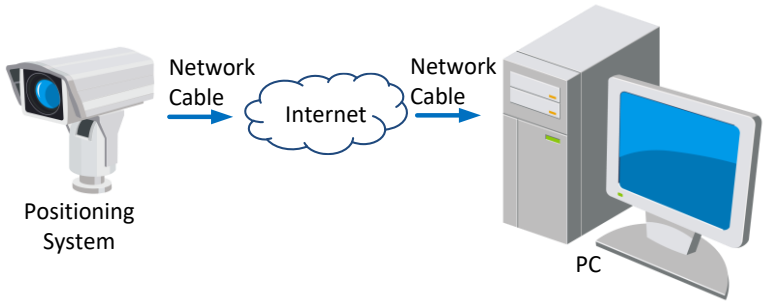


Figure 4-9 Accessing the Speed dome with Static IP Directly

4.2.2 Dynamic IP Connection

Before you start:

Please apply a dynamic IP from an ISP. With the dynamic IP address, you can connect the network camera to a modem or a router.

Connect the network speed dome via a router

Steps:

1. Connect the network camera to the router.
2. In the camera, assign a LAN IP address, the subnet mask and the gateway. Refer to ***Section 4.1.2*** for detailed LAN configuration.
3. In the router, set the PPPoE user name, password and confirm the password.

- *For your privacy and to better protect your system against security risks, we strongly recommend the use of strong passwords for all functions and network devices. The password should be something of your own choosing (using a minimum of 8 characters, including upper case letters, lower case letters, numbers and special characters) in order to increase the security of your product.*

- *Proper configuration of all passwords and other security settings is the responsibility of the installer and/or end-user.*

4. Set port mapping. E.g. 80, 8000 and 554 ports. The steps for port mapping vary depending on different routers. Please call the router manufacturer for assistance with port mapping.
5. Apply a domain name from a domain name provider.
6. Configure the DDNS settings in the setting interface of the router.
7. Visit the camera via the applied domain name.

Connect the network camera via a modem

Purpose:

This camera supports the PPPoE auto dial-up function. The camera gets a public IP address by ADSL dial-up after the speed dome is connected to a modem. You need to configure the PPPoE parameters of the network speed dome. Refer to ***User Manual*** for detailed configuration.

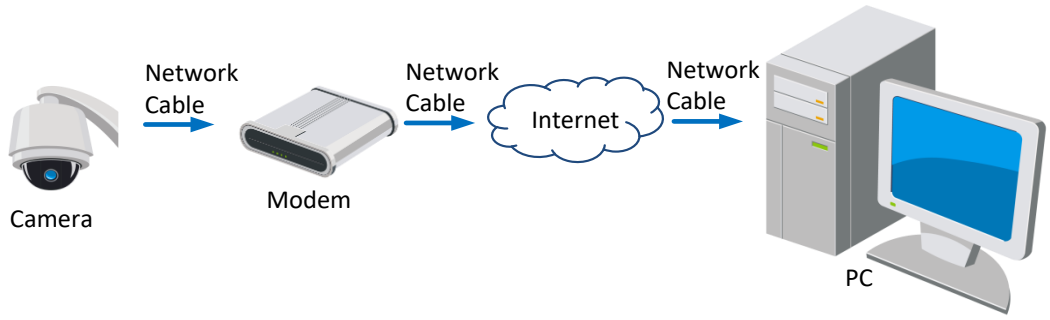


Figure 4-10 Accessing the Speed dome with Dynamic IP

NOTE

The obtained IP address is dynamically assigned via PPPoE, so the IP address always changes after rebooting the speed dome. To solve the inconvenience of the dynamic IP, you need to get a domain name from the DDNS provider (E.g. DynDns.com). Please follow below steps for normal domain name resolution and private domain name resolution to solve the problem.

♦ **Normal Domain Name Resolution**

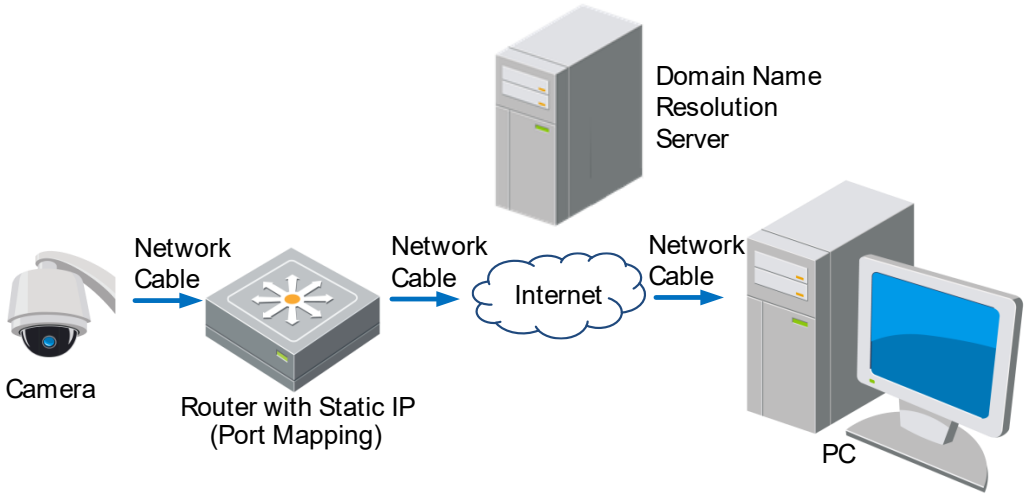


Figure 4-11 Normal Domain Name Resolution

Steps:

1. Apply a domain name from a domain name provider.
2. Configure the DDNS settings in the **DDNS Settings** interface of the network speed dome. Refer to ***User Manual*** for detailed configuration.
3. Visit the speed dome via the applied domain name.

♦ **Private Domain Name Resolution**

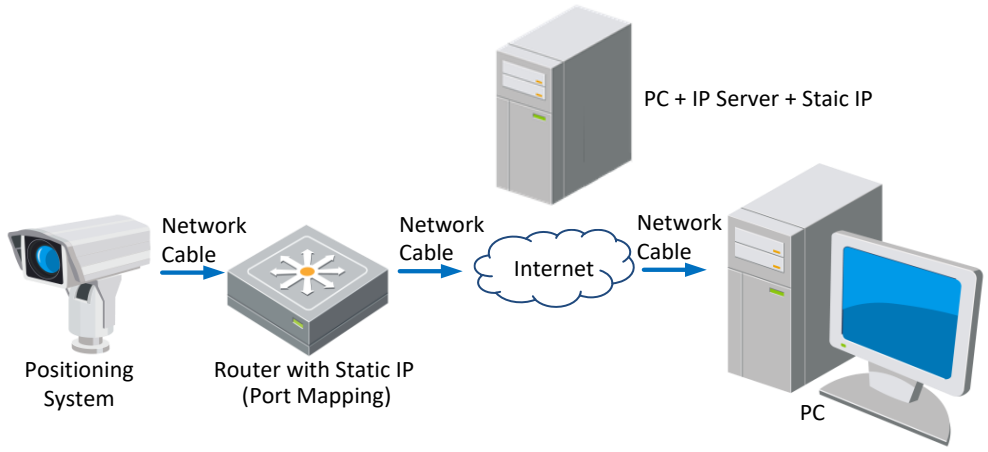


Figure 4-12 Private Domain Name Resolution

Steps:

1. Install and run the IP Server software in a computer with a static IP.
2. Access the network speed dome through the LAN with a web browser or the client software.
3. Enable DDNS and select IP Server as the protocol type. Refer to ***User Manual*** for detailed configuration.

Chapter 5 System Settings

5.1 Access to the System

5.1.1 Add Devices

Go to **Control Panel->Device Management->Server**.

Add the box/bullet camera and speed dome to the client.

Steps:

1. Select the camera or speed dome to be added from the list.
2. Click **Add** to open the device adding dialog box.
3. Enter the required information.

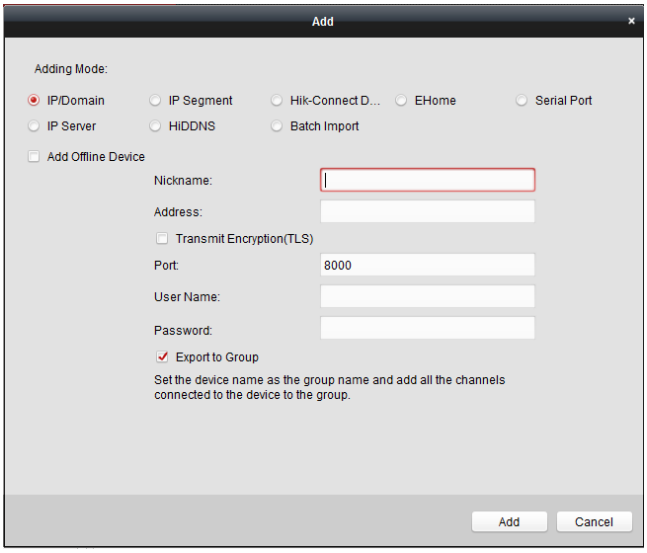


Figure 5-1 Dialog Box of Adding Device

4. Click **Add** to add the device.

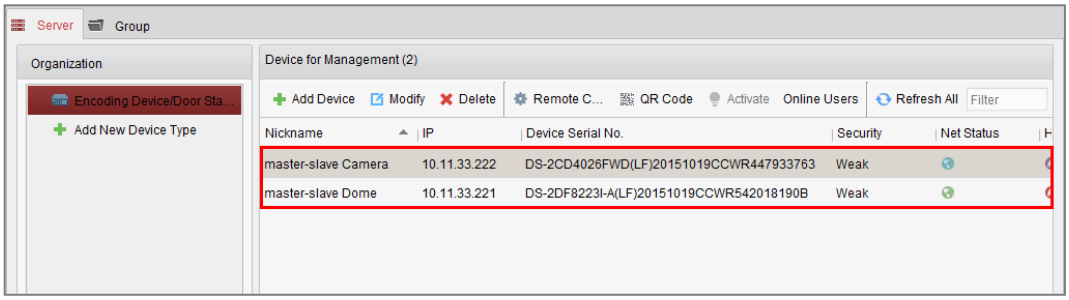


Figure 5-2 Devices Added

NOTE

For detailed information, refer to user manual of the client software.

5.1.2 Live View

Steps:

1. Click the  icon on the control panel, or click **View->Main View** to open the Main View page.
2. In the left bottom area, select the cameras you added.
3. Click **Add to Client** to open the device adding dialog box.
4. Input the required information.

You can drag the camera/group to the display window, or double-click the camera/group name in custom view mode to start the live view.

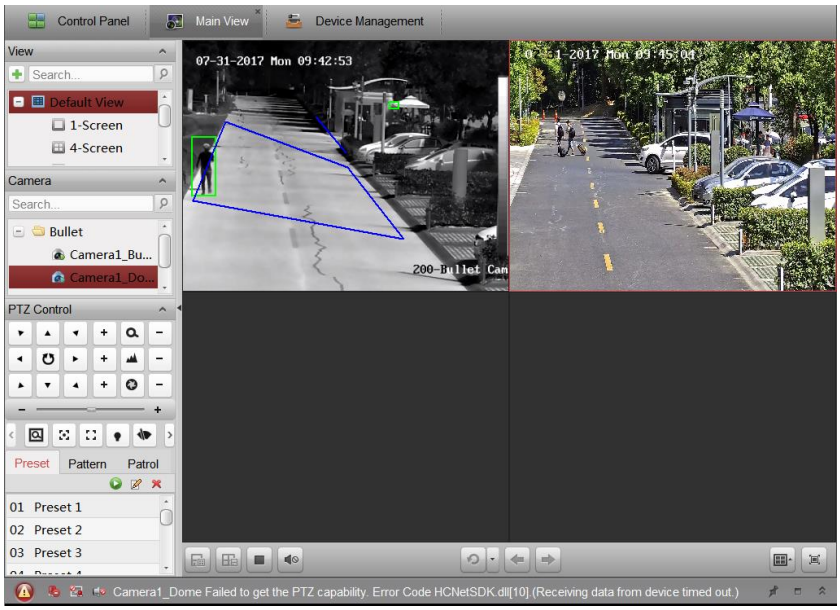


Figure 5-3 Live View Interface of Smart Linkage System

NOTE

- If you use third party VMS software, please contact technical support of our branch for camera firmware.
- For detailed information about client software of our company, please refer to the user manual of the software. This manual mainly introduces accessing to the network speed dome by web browser.

Chapter 6 Remote Configuration

6.1 Login the Speed Dome

Steps:

1. Click to select the camera on the camera list.
2. Right-click to show the menu and select **Remote Configuration**.

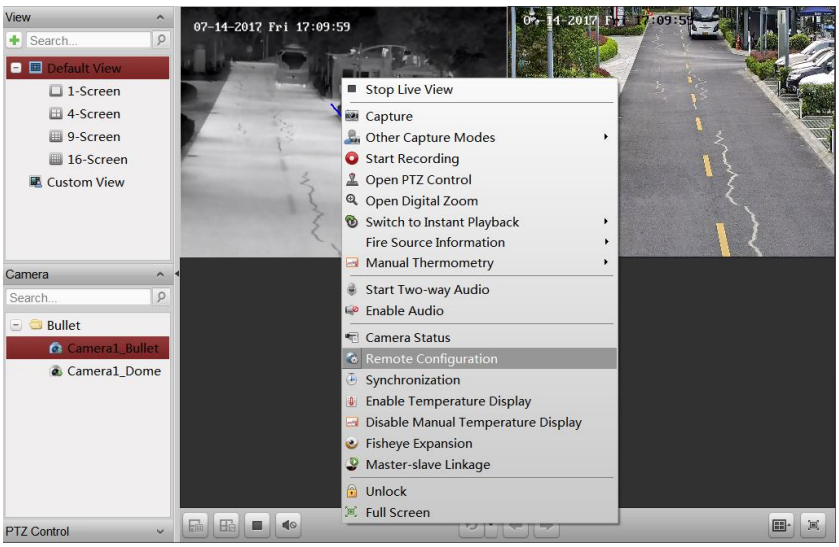


Figure 6-1 Remote Configuration Menu

NOTE

You are highly recommended to close the live view of camera and speed dome and perform the remote configuration operations to avoid slowing your PC.

3. Login the speed dome to the Smart Linkage system.
   1) In the **Remote Configuration** interface, go to **Advanced Configuration > Smart Linkage Tracking**.

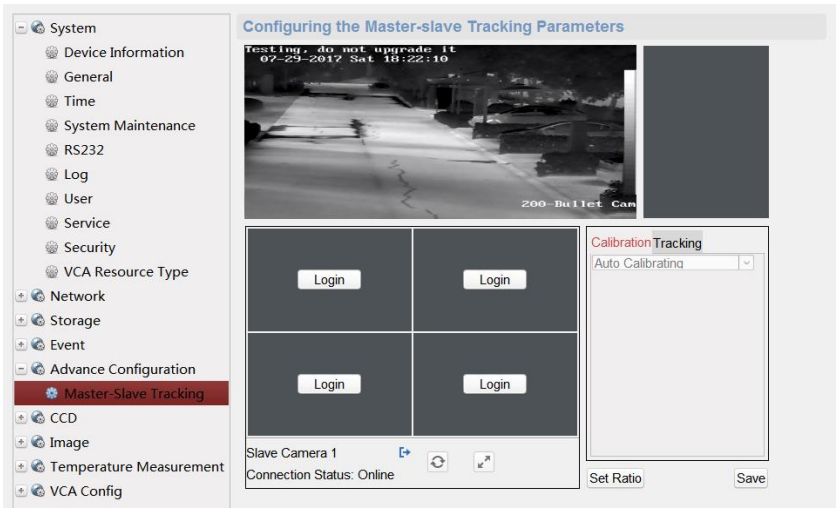


Figure 6-2 Smart Linkage Tracking Configuration Interface

2) Click **Login** button to pop up the speed dome login dialog box.
3) Enter the required information.

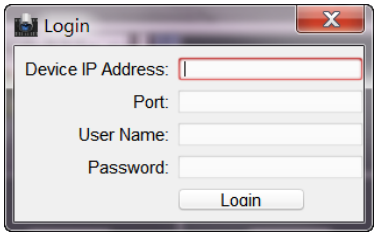


Figure 6-3 Login Speed Dome

The description of Smart Linkage tracking parameters configuration interface is shown below:

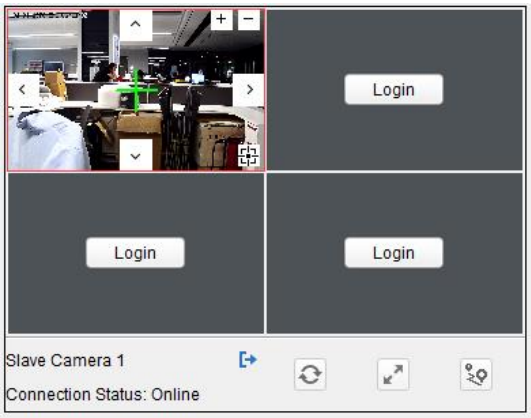


Figure 6-4 Smart Linkage Tracking Parameters Configuration

Table 6-1 Icon Description

Icon	Description
	Direction Buttons of speed dome
	Click +, and the lens zooms in.
	Click –, and the lens zooms out.
	Logout the speed dome from the system.
	Refresh the live view of speed dome.
	Display in 2:2/full screen window size.
	3D Positioning
	Save position

4. Click PTZ, and use the direction arrows to adjust the speed dome to a horizontal position.

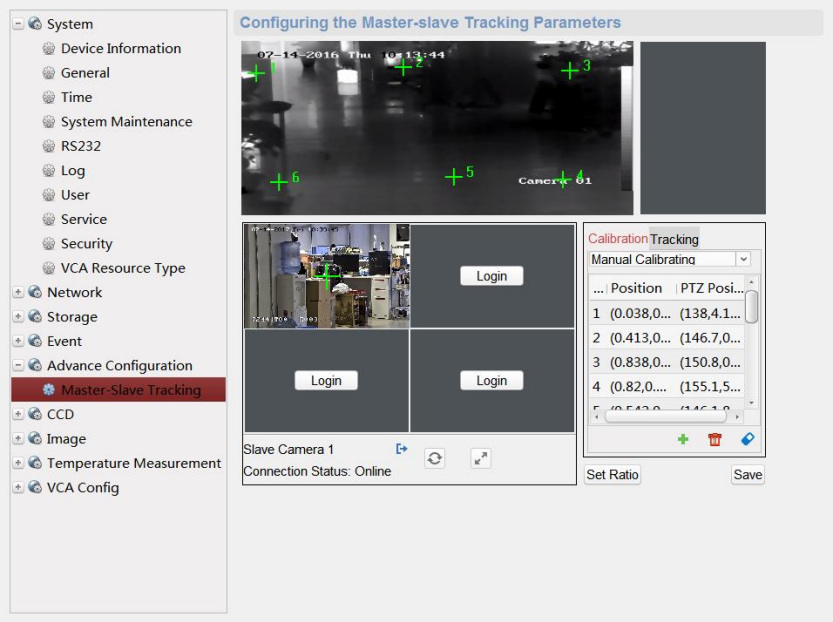


Figure 6-5 Smart Linkage Tracking Parameters

6.2 Calibration

6.2.1 Set Manual Calibration

Steps:

1. In the Calibration tab, select **Manual Calibrating**.
2. Select No. 1 from the list and click ✚, a green cross appears in the center of the live view page, and the digital zoom view of the selected site appears on the right.

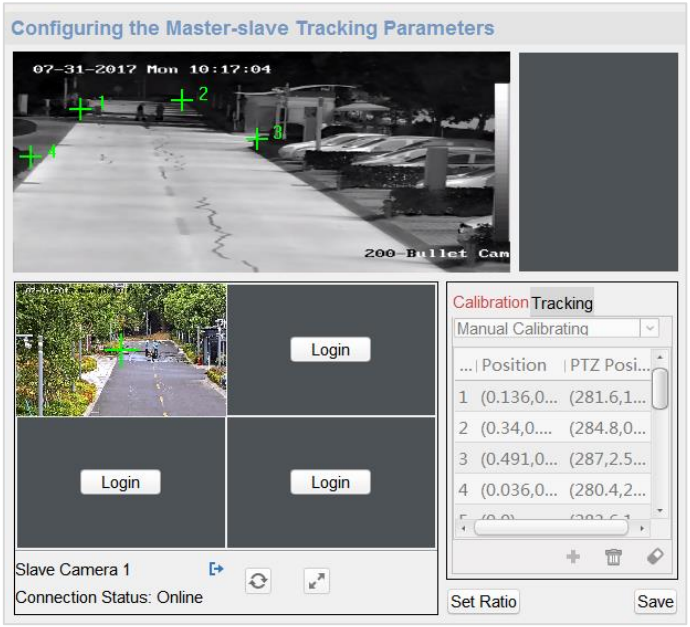


Figure 6-6 Draw Calibration Point

3. Select No. 2 to No. 4, and repeat the step above to add the manual calibration sites.

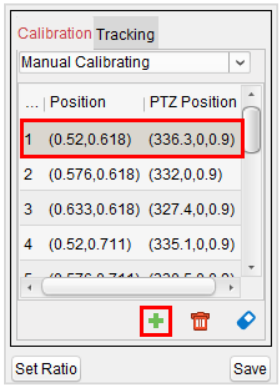


Figure 6-7 Adding Calibration Sites

NOTE

- For each speed dome of the system, you shall add at least 4 calibration sites.
- 4 to 12 calibration sites can be configured. The Smart Linkage tracking gets more accurate when you set more calibration sites.
- The calibration sites should be separated evenly in the live view page.
- Make sure all calibration sites are in the same actual plane. Do not set the calibration sites in different planes to ensure the calibration effect.
- Do not set multiple points on the same line, if so, one point of them will not be useful for the calibration.
- All the calibration sites should be set on the ground. If not, the PTZ camera will track inaccurately

4. Perform the calibration operation.
   1) Select calibration site No. 1 and the digital zoom view of site No. 1 appears on the right.
   2) Move and zoom in/out the speed dome to make sure the live views of dome and the digital zoom view of selected site is mostly the same.
   3) Click to save the current site position information.

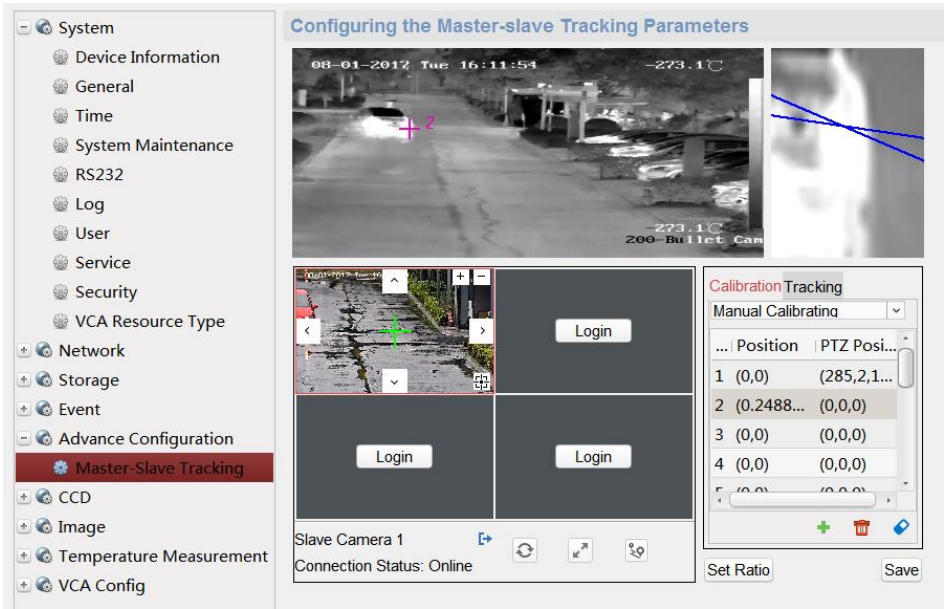


Figure 6-8 Manual Calibration

4) Select No. 2 to No. 4, and repeat the steps above to save the site position information.

5. Set the zoom ratio.
   1) Enter **Remote Configuration**->**Smart Linkage Tracking** interface.
   2) Adjust the zoom ratio of speed dome until the live view of speed dome is mostly the same with the view of target frame of camera.

6. Click **Save**. The calibration is completed when **Calibration Succeeded** shows**.**

6.2.2 Set Auto Calibration

Before you start:

- Make sure that the initial scenes of bullet camera and PTZ camera are same.
- Select the resolution of PTZ camera as 1920 × 1080, and select the VCA resource type of bullet camera as **Behavior Analysis**.

Steps:

1. In the Calibration tab, select **Auto Calibrating**.
2. Click **Save** when **Calibration Succeeded** shows**.**

6.3 Calibration Veryfication

Purpose:

Test the Smart Linkage tracking effect to verify the calibration accuracy.

Steps:

1. Exit the remote configuration interface of the camera to enter the live view interface.

2. Right-click on the live view window of camera to show the menu and click **Smart Linkage**.



Figure 6-9 Menu

3. Drag a rectangular frame in the camera live view window, and the speed dome tracks.

What to Do Next:

If the center of speed dome view is the same as the mouse of camera view, and the view of the frame is at the center of the speed dome view, the calibration is succeeded. If not, repeat steps of ***Section 6.2*** to perform the calibration once again.

6.4 Set Tracking Parameters

Purpose:

Set the tracking parameters, such as enable the Auto-tracking continuously or Auto-tracking by Schedule, set tracking time, and Self-adaptive Ratio Coefficient.

Steps:

1. Enable tracking.
2. Select **Tracking** tab page, and then check the checkbox of **Enable Tracking**.

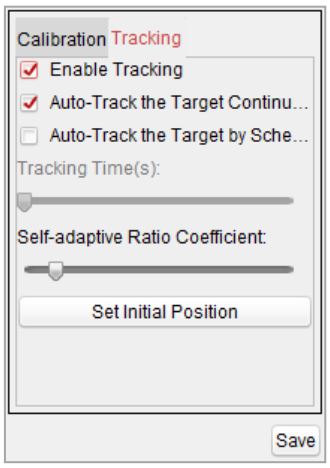


Figure 6-10 Tracking Tab Page

3. Set the tracking mode to **Auto-Track the Target Continuously** or **Auto-Track the Target by Schedule**:

   - **Auto-Track the Target Continuously:** the speed dome tracks the target continuously.
   - **Auto-Track the Target by Schedule:** the speed dome tracks the target by schedule. Drag the time bar to set the tracking duration [Range: 0 to 60s].

     NOTE

     If the duration is set to be 0, it works the same way as **Auto-Track the Target Continuously.**

4. Set the self-adaptive ratio coefficient [Range: 0 to 60]. The recommended coefficient value is 7.

   NOTE

   - Set the self-adaptive ratio coefficient according to the target size.
   - When the self-adaptive ratio coefficient value is not 0, the zoom ratio does not make effect. The ratio of the speed dome changes with the target size.
   - Set the self-adaptive ratio coefficient value larger if you want to view less details of the target. Set the self-adaptive ratio coefficient value smaller if you want to view more details.

5. Move and zoom the speed dome to a scene, and then click the **Set Initial Position** to set the initial position of speed dome. The speed dome moves to the initial position after completing the tracking task.
6. Click **Save** to save the settings.

6.5 VCA Rule Configuration

Purpose:

Set the VCA rules of the Smart Linkage tracking, and then the speed dome perform the tracking of target according to the rule.

Steps:

1. Select **Camera No.1**.
2. Enter **Remote Configuration -> Basic -> VCA -> Rule**.
3. Click + of **Rule List** to add rule. You can set the rule according to VCA Operation Guide.

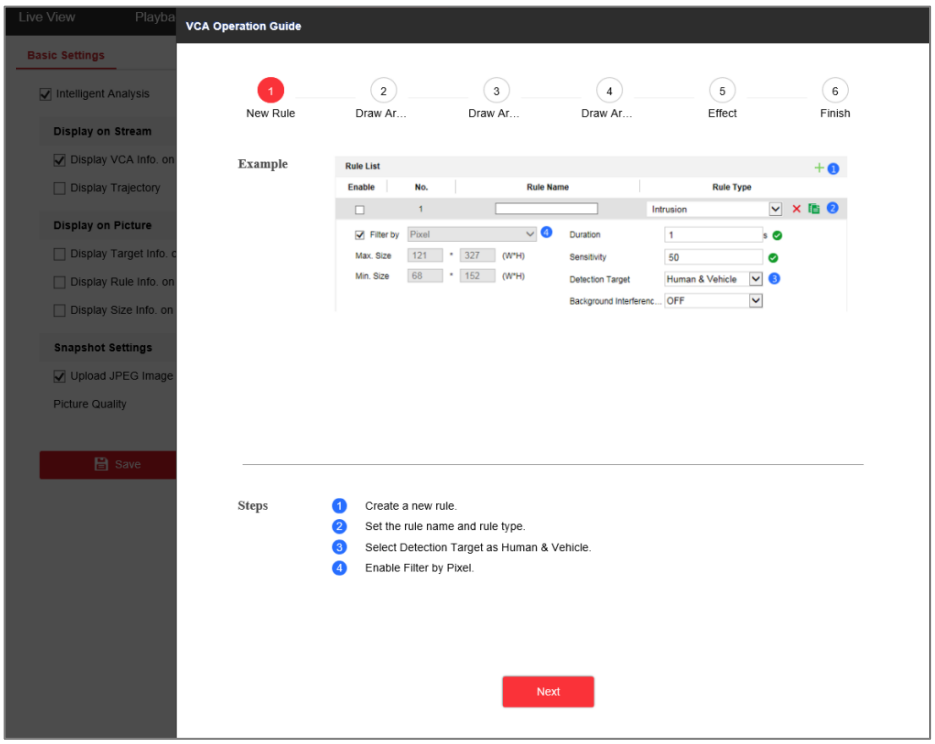


Figure 6-11 VCA Operation Guide

4. Select **Intrusion** as Event Type, and then click ○ to draw the zone of intrusion rule and click **Save** to save the settings.

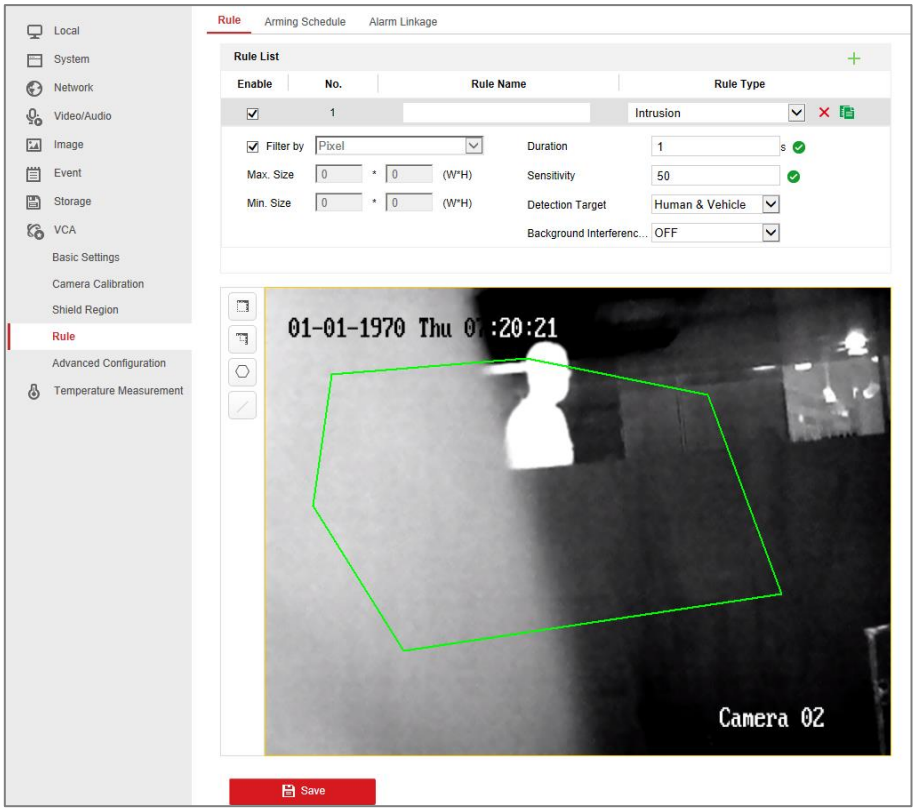


Figure 6-12 Setting VCA Rule

5. Set the arming schedule of task. (Optional)
   1) Enter **Remote Configuration -> Basic -> VCA -> Rule -> Arming Schedule**.
   2) Select a rule from the rule list.
   3) Drag the time bar to set the arming schedule of task.
   4) Click **Save** to save the settings.

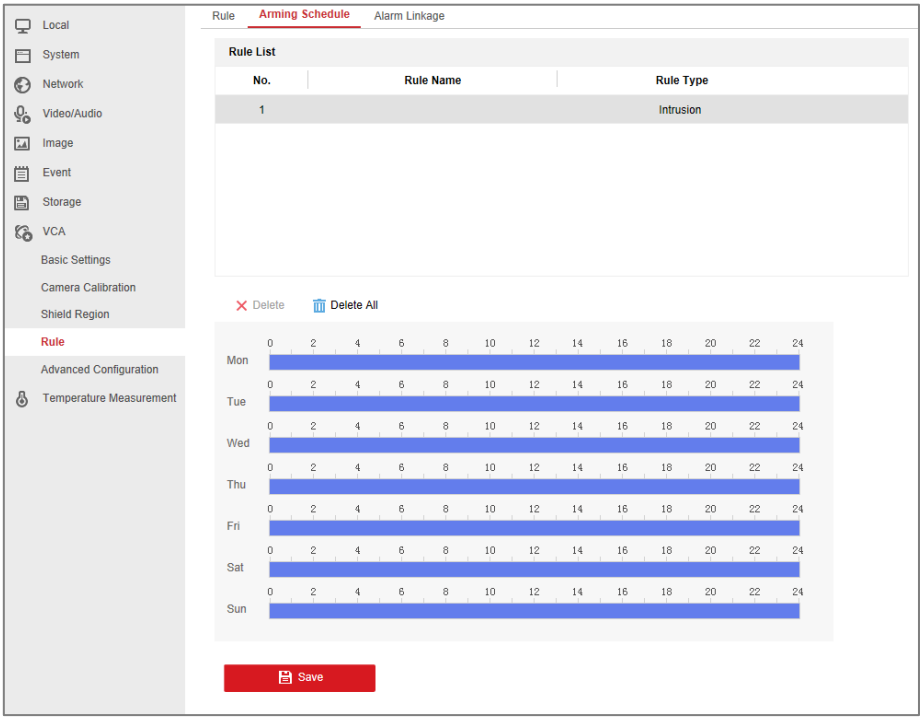


Figure 6-13 Setting Arming Schedule

6. Set the alarm linkage actions. (Optional)

1) Enter **Remote Configuration -> Basic -> VCA -> Rule -> Alarm Linkage**.
2) Check the checkbox to select the linkage method. Notify surveillance center, send email, upload to FTP, trigger channel and trigger alarm output are selectable.
3) Click **Save** to save the settings.

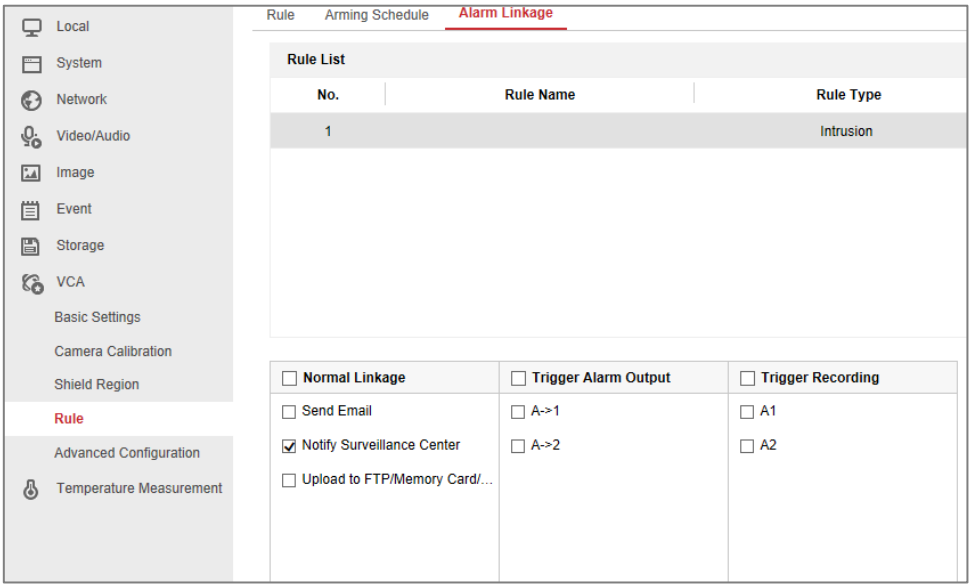


Figure 6-14 Setting Linkage Action

7. Set the shield region to shield this area. (Optional)

1) Enter **Remote Configuration -> Basic -> VCA -> Shield Region**.
2) Click  to draw the shield region.
3) Click **Save** to save the settings.

Chapter 7 Auto Smart Linkage Tracking

Steps:

1. Enter the live view interface of selected camera.

2. Right-click on the live view window of camera to show the menu and click **Smart Linkage**.

3. When configured VCA rule is triggered by target, the speed dome performs the automatic Smart Linkage tracking and the target frame turns from green into red.

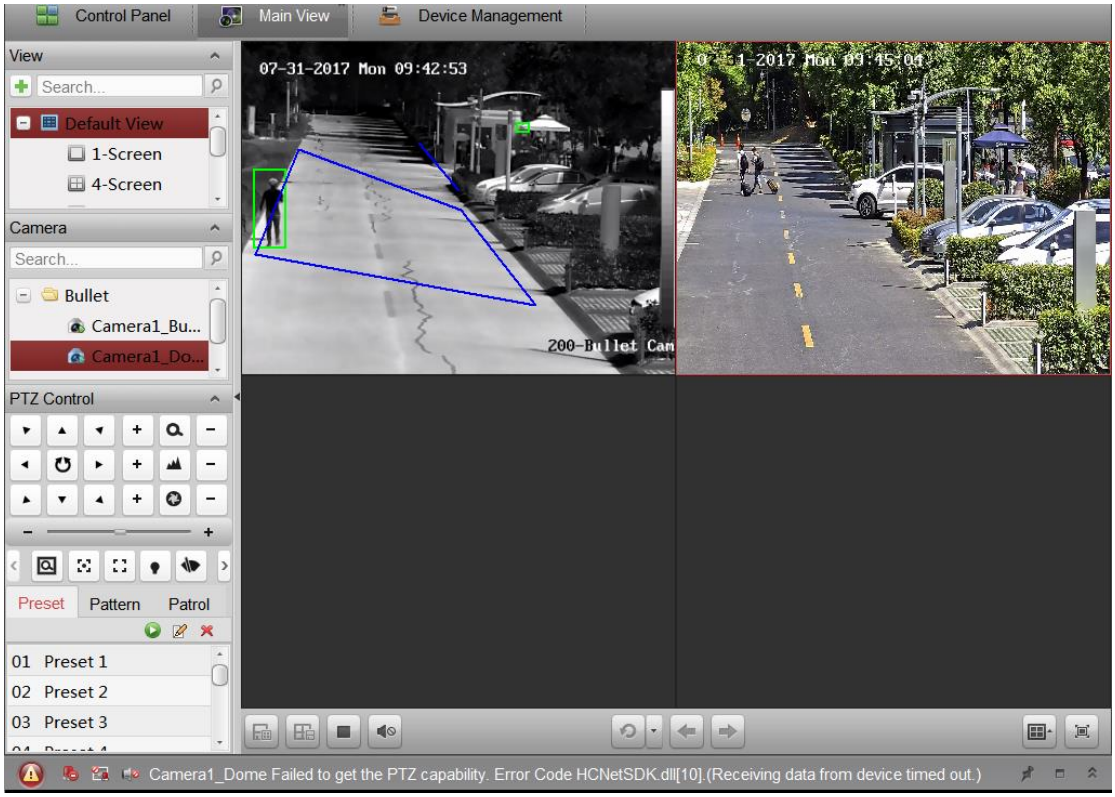


Figure 7-1 Smart Linkage Tracking

NOTE

For detailed information of functions of iVMS-4200, please refer to the user manual of iVMS-4200 client software.

Appendix

Frequently Asked Questions (FAQ)

Device Running Error

Question:

- The device fails to start up or reboots repeatedly.
- The device constantly powers off unexpectedly when you pan/tilt the device or call preset.
- The device fails to zoom in/out or pan/tilt.

Answer:

- Examine the power supply of the positioning system and see whether it meets the requirements.
- Select the power supply as close as possible.
- Examine the power cord and see whether it meets the requirements.

Device Upgrading

Question:

Device fails to upgrade.

Answer:

- Examine if the device upgrading fails because of the poor network.
- Examine if the upgrading program matches with the device type.

Others

Question:

The device live view is vague.

Answer:

- Examine if you removed the protective film.
- Examine if the lens is dirty or not.
- Examine if any obstruction is nearby, e.g. spider web.

Question:

Live view fails with good network connection.

Answer:

- Examine if the IE plug-in is well installed. Change the Website Blocker settings if necessary.
- For cross-domain routing, enable the UPnP of device, or set manual mapping to port No. 80, 8000, or 554.
- Examine if the live view channel amount exceeds the upper limit.
- Examine the network bandwidth.

Question:

Focus fails when you test outdoor device in indoor situation.

Answer:

- Restore the device to default settings.
- Adjust the **Min. Focusing Distance** in **Configuration > Image> Display Settings > Focus**

Common Material Emissivity Reference

Material	Emissivity
Human Skin	0.98
PCB	0.91
Cement Concrete	0.95
Ceramics	0.92
Rubber	0.95
Paint	0.93
Wood	0.85
Asphalt	0.96
Brick	0.95
Sand	0.90
Soil	0.92
Cotton	0.98
Cardboard	0.90
White Paper	0.90
Water	0.96


See Far, Go Further