Thermal Bi-spectrum Network Speed Dome

Quick Start Guide

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About this Manual

This Manual is applicable to **Thermal Bi-spectrum Network Speed Dome**.

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   www.teleco.com

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Regulatory Information
FCC Information
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 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.

Safety Instruction

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

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

Warnings: Neglecting any of the warnings may cause serious injury or death.

Cautions: Neglecting any of the cautions may cause injury or equipment damage.

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

⚡ Warnings

● The device should be used in compliance with local laws and electrical safety regulations. Refer to the appropriate documentation for detailed information.

● The input voltage should conform to IEC60950-1 standard: SELV (Safety Extra Low Voltage) and the Limited Power Source (24 VAC/12 VDC). Refer to the appropriate documentation for detailed information.

● DO NOT connect multiple devices to one power adapter, to avoid over-heating or fire hazards caused by overload.

● Make sure the plug is properly connected to the power socket.

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

- The installer and user are responsible for password and security configuration and its settings.
- Both internal and external grounds should be connected properly. (The cross section area of the grounding wire must be no less than 4 mm2, and no less than that of the phase connector).

⚠ Cautions

- Do not drop the device or subject it to physical shock.
- Wipe the device gently with a clean cloth and a small quantity of ethanol, if necessary.
- Do not aim the lens at the sun or any other bright light.
- When any laser equipment is in use, make sure that the device lens is not exposed to the laser beam, or it may burn out.
- Do not expose the device to high electromagnetic radiation or extremely hot, cold, dusty, or damp environments.
- Place the device in a dry and well-ventilated environment.
- Keep non-waterproof devices away from liquids.
- Keep the device in original or similar packaging while transporting it.
- 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.
- Improper use or replacement of the battery may result in explosion hazard. Replace with the same or equivalent type only. Dispose of used batteries in conformance with the instructions provided by the battery manufacturer.
- Never attempt to disassemble the device.

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Table of Contents

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.
- Use the system according to the working environment requirement.

Checking Installing Environment

- Be sure that there is enough space to install the speed dome and accessories.
- Make sure that the wall is strong enough to withstand at least 8 times the weight of the system and the mount.

Preparing Cables

- According to the actual network bandwidth, the Cat5 (in 100M) or Cat6 (100M above) is needed.
- When the Speed dome uses standard 24V AC power supply, the power cable should be American wire gauge 18 or above. The formula of the cross-section S (mm²) and the maximum transmission distance L (m) of the bare wire is L=50*S.
- Choose the video cable according to the transmission length. The video should meet the least demands as: 75Ω resistance; 100% copper core conducting wire; 95% weaving copper shield.
- RS485 communication cable, please refer to Appendix 2
- 24V AC power cable, please refer to Appendix 3

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 speed dome, please keep the original package properly, in case of returning or repairing the speed dome, you can pack the speed dome with the package.

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

2 Appearance Description

There are two kinds of thermal network speed domes: Type I speed dome, and Type II speed dome. The appearance description of two cameras are shown below.

2.1 Speed dome Appearance

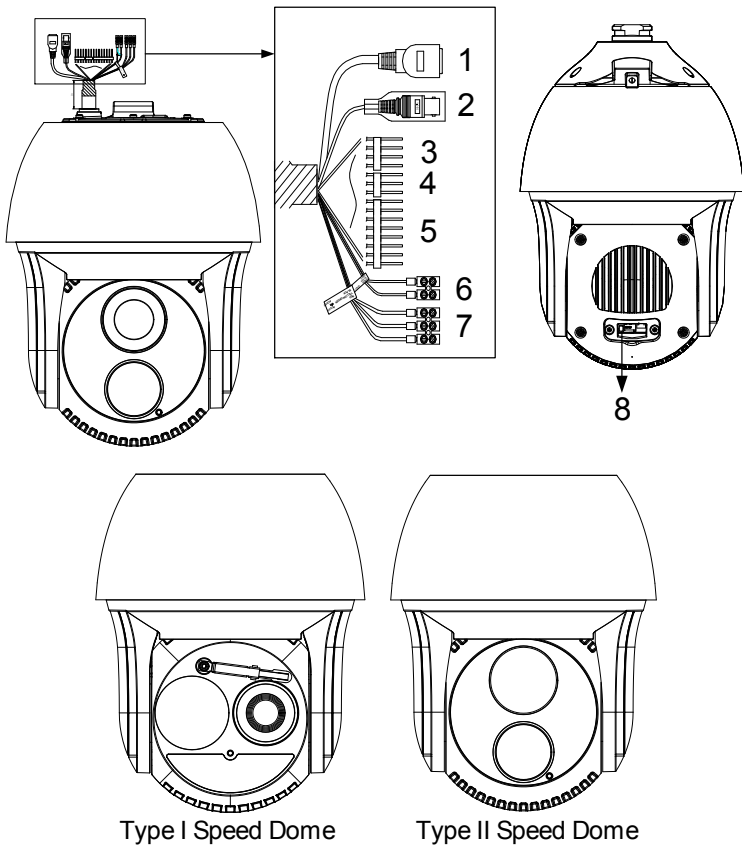Refer to the following figures for Type I thermal speed dome overview and dimensions.

Type I Speed Dome   Type II Speed Dome

Figure 2-1 Thermal Speed dome Overview

Table 2-1 Descriptions of Cable Interface

No.	Description
1	Network Cable
2	Video Cable
3	Alarm Out
4	Audio Cable
5	Alarm In
6	RS-485
7	Power Cable
8	SD Card Slot

2.2 Cable Descriptions

The cable interfaces of speed dome are shown in Figure 2-2. The cables of RS-485, power supply, alarm inputs, alarm outputs, etc. are distinguished by different colors. Please refer to the labels attached on the cables for identification.
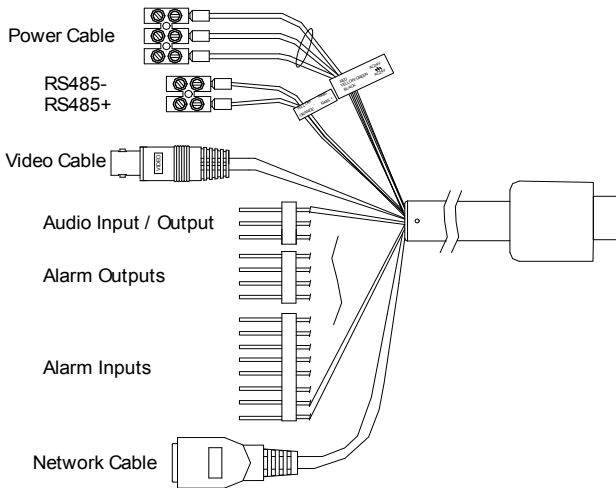

Figure 2-2 Cables of Other Speed domes

2.3 Alarm In/Out Connections

NOTE

This section is only for the speed dome with alarm in/out functions.

The speed dome can be connected with alarm inputs (0~5VDC) and alarm outputs. Refer to the following diagrams for alarm output:
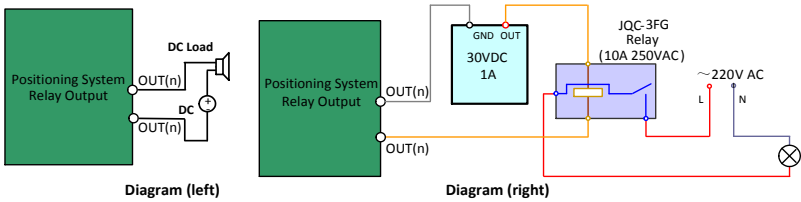

Figure 2-3 Alarm Out Connections

The alarm provides the relay output (no voltage), 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 speed dome and avoid risk of electric shock.

3 Installing the Speed dome

Before you start:

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

2. Please turn off the power of the speed dome before connecting the cables.

NOTE

- Do not drag the speed dome with its waterproof cables, or the waterproof performance is affected.
- Please remove the protective film on the dome after the installation.
- Do not touch the bubble of the lower dome directly. The image blurs otherwise.

NOTE
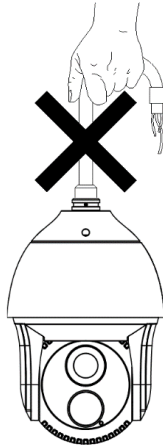
- For cement wall, you need to use the expansion screw to fix the bracket. The mounting hole of the expansion pipe on the wall should align with the mounting hole on the bracket.
- For wooden wall, you can just use the self-tapping screw to fix the bracket.
- Please make sure that the wall is strong enough to withstand more than 8 times the weight of the dome and the bracket.
- The bracket in Figure 2-4 is the recommended bracket for this series of speed dome, and a pendent adapter is required if any other bracket is selected. The dimension of pendant adapter is $G1\frac{1}{2}$.

3.1 Monitoring Distance Range

Electric lens is adopted for the thermal channel of speed dome. It supports auto-focus function and remote focus function. For different lens focal length, the monitoring range is shown in the table below:

Table 3-1 Monitoring Range (Pixel Interval: 17um)

Lens Focal Length/mm	25	50	75	100
MRAD	0.68	0.34	0.23	0.17
Detection Range (Vehicle)/m	2255	4510	6765	9020
Detection Range (Human)/m	735	1471	2206	2941
Recognition Range (Vehicle)/m	564	1127	1691	2255
Recognition Range (Human)/m	184	368	551	735
Identification Range (Vehicle)/m	282	564	846	1127
Identification Range (Human)/m	92	184	276	368

Table 3-2 Monitoring Range (Pixel Interval: 25um)

Lens Focal Length/mm	25	50	75	100
MRAD	1.00	0.50	0.33	0.25
Detection Range (Vehicle)/m	1533	3067	4600	6133
Detection Range (Human)/m	500	1000	1500	2000
Recognition Range (Vehicle)/m	383	767	1150	1533
Recognition Range (Human)/m	125	250	375	500

Lens Focal Length/mm	25	50	75	100
Identification Range (Vehicle)/m	192	383	575	767
Identification Range (Human)/m	63	125	188	250

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.
- When the weather is fine and the atmospheric visibility is normal, the probability of detecting/recognizing/identifying target is 50%.
- The human width is presumed as 0.5m (human width cannot exceed 0.75m), the human height is presumed as 1.8m, and the vehicle width cannot exceed 2.3m.

3.2 Wiring

Please fully take into consideration the installation environment and position of the speed dome when you plan for the wiring. In order to make sure the stable power supply and signal transmission, please closely follow the rules below:

- Please get familiar with the installation environment before you wiring, including the wiring distance, wiring environment, keeping magnetic-field interference away, etc.
- Please make sure the rated voltage of the cable is higher than that the device requires, thus guarantee the device can work normally when the voltage instability occurs.
- Please avoid the interrupt line connection
- It's recommended to use a single complete cable for the device connection; if not, reinforce and protective measures should be taken for the wiring point between two cables, in case the circuit aging will make the device work abnormally.
- Make sure the video cable and the signal transmission cable are well protected. And pay attention to reinforce and protective measures during wiring.
- Make sure the cables are not too redundant or being stretched too tight.

Under normal circumstances, the wiring is completed by the professional technicians. However, when the device cannot work normally, you can check the above information to look for reason.

Water-proof of Cable Terminal

Purpose:

The terminals may be rusted after a long time exposed. It is recommended to do water proof treatment to cable terminals.

Steps:

1.   Use the terminal box for wiring.

2.   The live wire and null wire of outsource should be connected to the power surge protector.

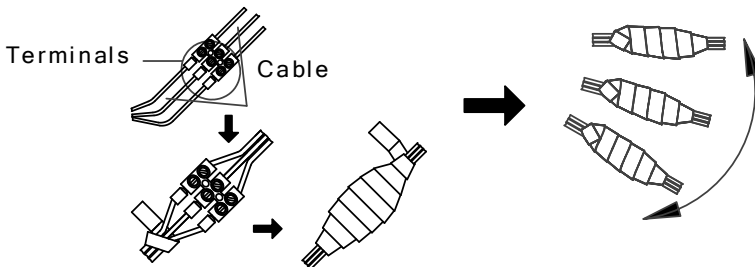3.   Do water-proof treatment to cable terminals.

Figure 3-1 Water-proof of terminals

Network Cable Water-proof Accessory Installation

Purpose:

If the camera is installed outdoor, you can adapt the water-proof accessory for the network cable after the camera is secured on the installation surface.
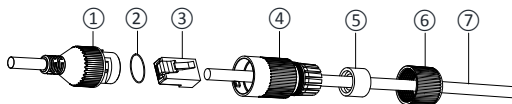
Figure 3-2 Water-proof Accessory Components

Table 3-3 Components

No.	Components
1	Camera's Network Interface Socket
2	O-Type Gasket
3	Network Plug
4	Waterproof Endcap
5	Waterproof Rubber Gasket

No.	Components
6	Lock Nut
7	Network Cable from Router/Switch

Steps:

1. Feed the plugless network cable ⑦ through the lock nut ⑥, waterproof rubber gasket ⑤ (rubber gasket inset ridge must face waterproof endcap), and the water-proof endcap ④ in order.
2. Crimp an RJ-45 network plug ③onto the end of the cable, taking care to insert the twisted pairs of wires in correct order.
3. Place the O-type gasket ② onto the end of the camera's network interface socket ①.
4. Insert the network plug ③ into the camera's network interface socket①.
5. Insert the water-proof rubber gasket ⑤ into the waterproof endcap ④, and secure lock nut ⑥ with the water-proof endcap ④.
6. Align the snap on the water-proof endcap ④ with the notch on the camera's network interface socket ①, and then secure the water-proof endcap ④ to the camera's network interface socket ① to finish installation.
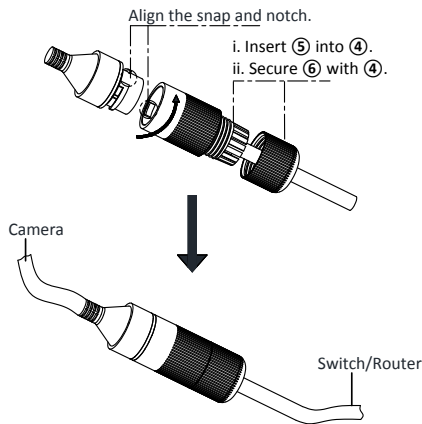

Figure 3-3 Water-proof Accessory Installation

3.3 Installing Memory Card

Steps:

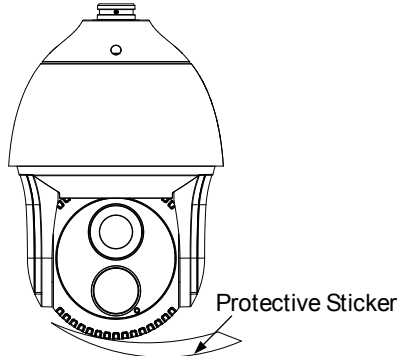1. Remove the protective sticker as shown in Figure 3-4.

Figure 3-4 Remove Protective Sticker

2. Remove the cover on the back of the speed dome. Insert the SD card to the SD card slot and install the cover back.
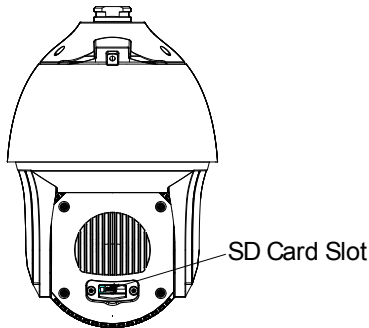

Figure 3-5 SD Card Slot

3.4 Installing Speed Dome

1. Install the bracket.
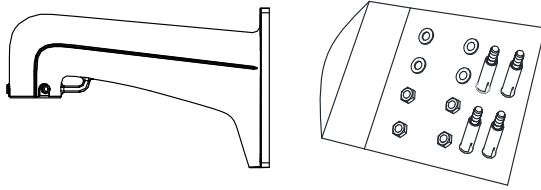
1). Take out the bracket and all accessories.

Figure 3-6 Bracket and Accessories

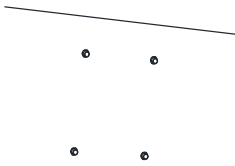2). Drill four Φ12 expansion screw holed on the wall and insert the delivered screws into the holes.

Figure 3-7 Drill Screw Holes

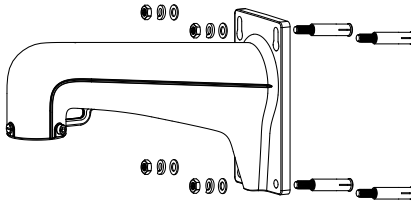3). Secure the wall mounting bracket with 4 hex nuts and washers.

Figure 3-8 Secure the Bracket

2. Stick thread tape to the thread of the head cover and rotate the head cover. Secure the head cover to the bracket with delivered set screws.
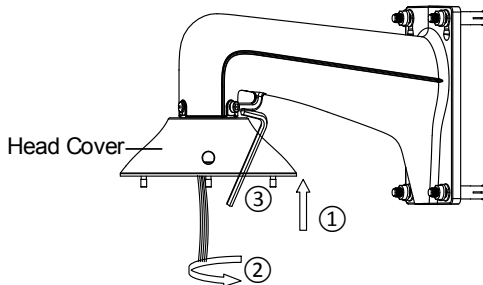

Head Cover

Figure 3-9 Secure the Head Cover

3. Install the dome body to the head cover.
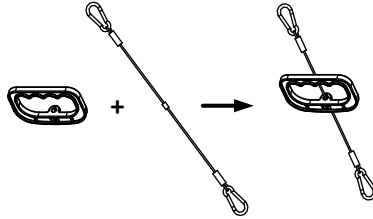   1). Buckle the handle to the safety rope.

Figure 3-10 Buckle the Handle

2). Hook the two ends of the safety rope to the back box of the speed dome and the bracket respectively.

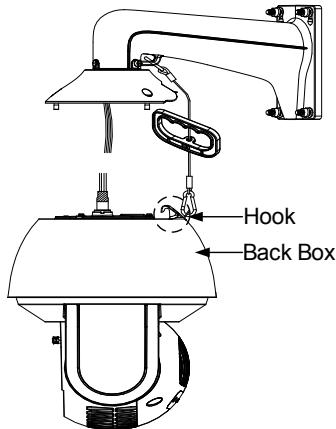3). Hitch the speed dome onto the head cover with the hook on the back box.

Figure 3-11 Hang the Speed Dome

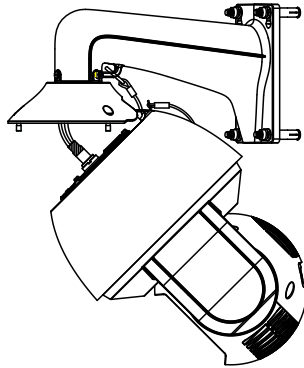4). Route the cables through the head cover and bracket.

Figure 3-12 Route the Cables

4. Connect the corresponding cables.
5. Align the back box of the speed dome with the head cover. Use an L-wrench to tighten the lock screws to secure the speed dome and the bracket.

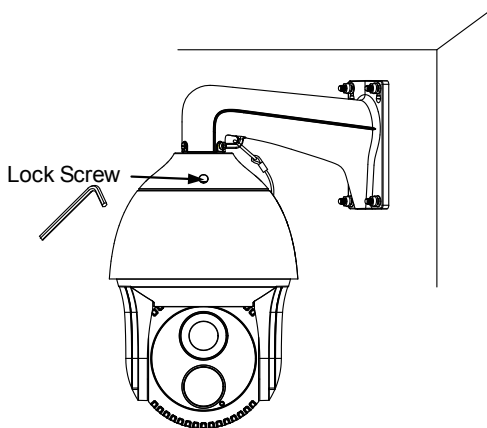Figure 3-13 Secure the Speed dome

NOTE

- The bracket in Figure 2-10 is the recommended bracket for this series of speed dome, and a pendent adapter is required if any other bracket is selected.

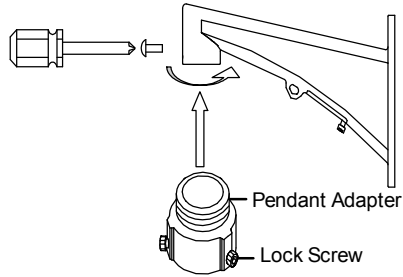- The dimension of pendant adapter is $G1\frac{1}{2}$.

Figure 3-14 Pendent Adapter

3.5 Finishing Installing

Connect the corresponding cables and turn the power on; the system will do the self-test automatically. Make sure the live view image and the PTZ control work normally and then finish the installation.

4 Setting the System over the LAN

NOTE

- 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 system assessed and maintained termly. You can contact us if you need such service.

4.1 Wiring

To view and configure the system via LAN (Local Area Network), you need to connect the network system in the same subnet with your PC. Then, install the SADP or client software to search and change the IP of network system.

The following figure shows the cable connection of network system.
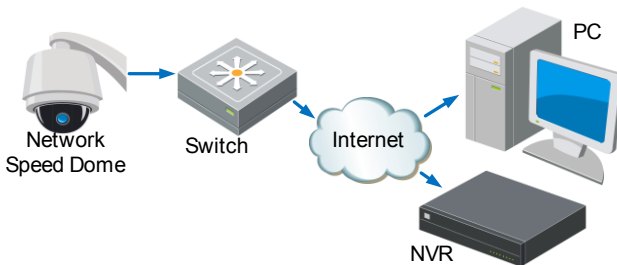
Figure 4-1 Wiring over LAN

4.2 Activating the System

Purpose:

You are required to activate the system first by setting a strong password for it before you can use the system.

Activation via Web Browser, Activation via SADP, and Activation via client software are supported. In the following sections, activation via web browser and SADP will be taken as examples. You may refer to the user manual of the system for the details of activation via client software.

4.2.1 Activation via Web Browser

Steps:

1. Power on the system, and connect the system 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 system is 192.168.1.64.

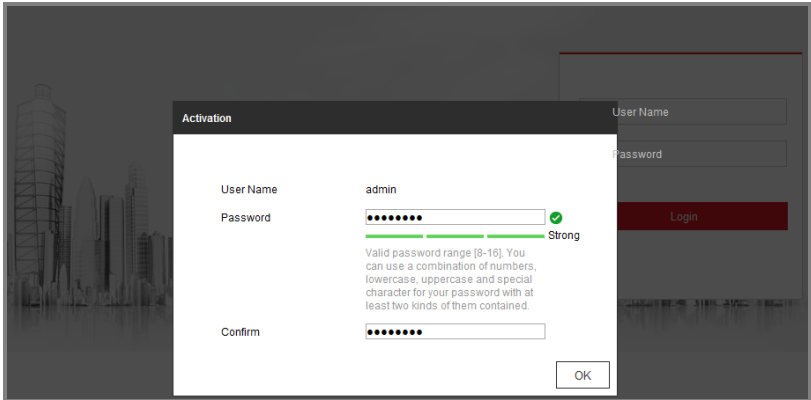
Figure 4-2 Activation Interface(Web)

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 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 system and enter the live view interface.

4.2.2 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 system.

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.
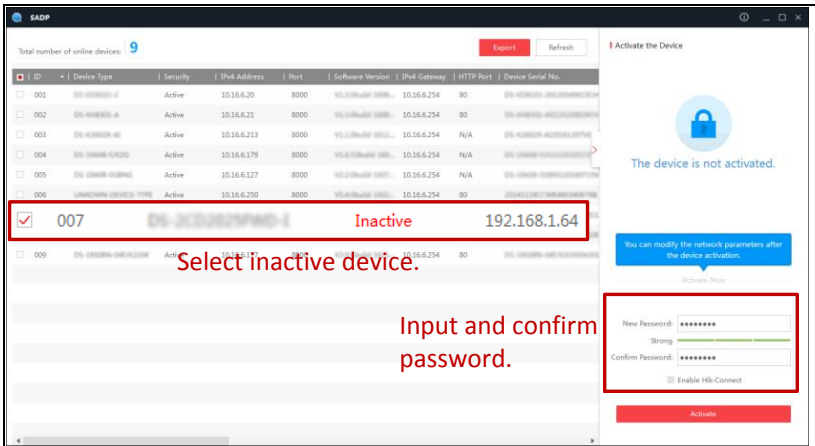
Figure 4-3 SADP Interface

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 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.

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.

4.3 Modifying the IP Address

Purpose:

To view and configure the system via LAN (Local Area Network), you need to connect the network system in the same subnet with your PC. Then, install the SADP software or client software to search and change the IP of network system. We will take modifying the IP Address via SADP software as an example to introduce the IP address modification.

Steps:

1. Run the SADP software.
2. Click to select an active device.

NOTE Please refer to section 3.2 to activate the system if it is inactive.

3. 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.

❙ Modify Network Parameters

☐ Enable DHCP
☑ Enable Hik-Connect

Device Serial No.:	XX-XXXXXXXX-XXXXXXXXXXXXXXXX
IP Address:	192.168.1.64
Port:	8000
Subnet Mask:	255.255.255.0
Gateway:	192.168.1.1
IPv6 Address:	::
IPv6 Gateway:	::
IPv6 Prefix Length:	0
HTTP Port:	80

Security Verification

Admin Password:	

Modify

Forgot Password

Figure 4-4 Modify the IP Address

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

5 Operating via Web browser

5.1 Accessing the System

System Requirement:

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 7.0 and above version, Apple Safari 5.02 and above version, Mozilla Firefox 5 and above version and Google Chrome8 and above version

Steps:

1. Open the web browser.

2. In the browser address bar, input the IP address of the network speed dome, e.g., 192.168.1.64 and press the Enter key to enter the login interface.

3. Activate the speed dome for the first time using, refer to the section *4.2*

   Activating the System.

4. Input the user name and password and click Login.

   The admin user should configure the device accounts and user/operator permissions properly. Delete the unnecessary accounts and user/operator permissions.

   The device IP address gets locked if the admin user performs 7 failed password attempts (5 attempts for the user/operator).
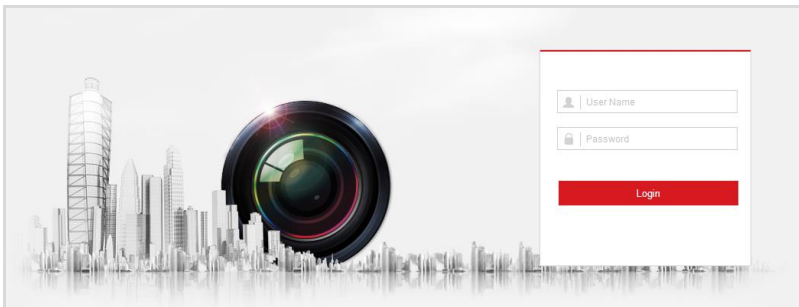
Figure 5-1 Login Interface

5. Install the plug-in before viewing the live video and managing the network speed dome. Please follow the installation prompts to install the plug-in.

![NOTE]

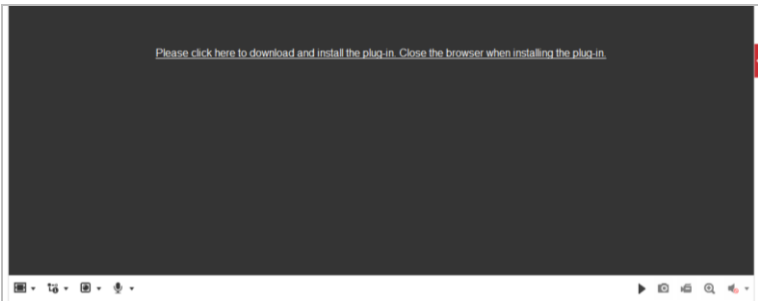You may have to close the web browser to finish the installation of the plug-in.

Please click here to download and install the plug-in. Close the browser when installing the plug-in.

Figure 5-2 Download Plug-in

6. Reopen the web browser after the installation of the plug-in and repeat the above steps 2-4 to login.

![NOTE]

For detailed instructions of further configuration, please refer to the user manual of network speed dome.

5.2 Live View Page

The live video page allows you to view live video, capture images, realize PTZ control, set/call presets and configure video parameters.
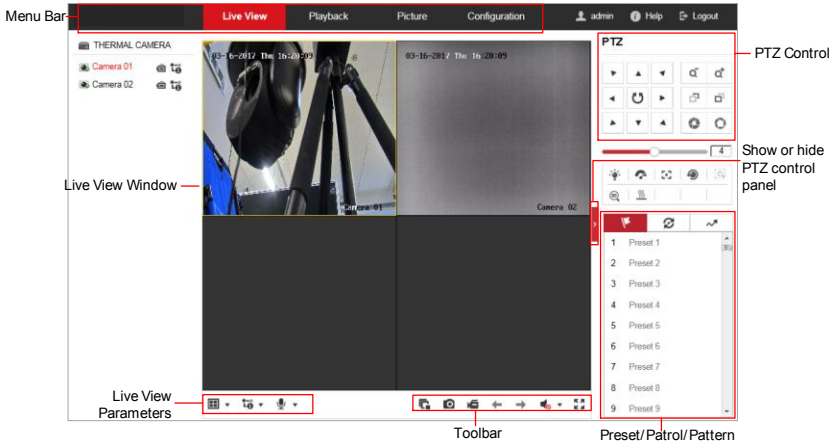
Figure 5-3 Live View Page

Menu Bar:

Click each tab to enter Live View, Playback, Picture, and Configuration page respectively.

Click ⓘ to display the help file of the speed dome.

Click ⤷ to logout the system.

Live View Window:

Display the live video.

Toolbar:

Operations on the live view page, e.g., live view, capture, record, audio on/off, regional exposure, regional focus, etc.

PTZ Control:

Panning, tilting, focusing and zooming actions of the speed dome. The lighter, wiper, one-touch focus and lens initialization control.

Preset/patrol/pattern:

Set and call the preset/patrol/pattern for the speed dome.

6 Appendix

6.1 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

6.2 Frequently Asked Questions (FAQ)

6.2.1 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 speed dome 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.

6.2.2 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.

6.2.3 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**