

HIKVISION



Thermal & Optical Bi-spectrum
Network Stable PTZ Camera

Quick Start Guide

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About this Manual

This Manual is applicable to Thermometric Bi-spectrum Network Positioning System.

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 (<http://overseas.hikvision.com/en/>).

Please use this user manual under the guidance of professionals.

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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

- All the electronic operation should be strictly compliance with the electrical safety regulations, fire prevention regulations and other related regulations in your local region.
- Please use the power adapter, which is provided by normal company. Please refer to the product specification for the standard of the power adapter. The power consumption cannot be less than the required value.
- Do not connect several devices to one power adapter as adapter overload may cause over-heat or fire hazard.
- Please make sure that the power has been disconnected before you wire, install or dismantle the Positioning system.
- When the product is installed on wall or ceiling, the device shall be firmly fixed.
- If smoke, odors or noise rise from the device, turn off the power at once and unplug the power cable, and then please contact the service center.
- If the product does not work properly, please contact your dealer or the nearest service center. Never attempt to disassemble the Positioning system yourself. (We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.)
- Please do not look directly into the laser light within 6 meters because laser is hazardous to humans.



Cautions

- Do not drop the Positioning system or subject it to physical shock, and do not expose it to high electromagnetism radiation. Avoid the equipment installation on vibrations surface or places subject to shock (ignorance can cause equipment damage).

- Do not place the Positioning system in extremely hot, cold, dusty or damp locations, otherwise fire or electrical shock will occur. Please refer to the product specification for the operating temperature.
- The Positioning system cover for indoor use shall be kept from rain and moisture.
- Exposing the equipment to direct sun light, low ventilation or heat source such as heater or radiator is forbidden (ignorance can cause fire danger).
- Do not aim the Positioning system at the sun or extra bright places. A blooming or smear may occur otherwise (which is not a malfunction however), and affecting the endurance of sensor at the same time.
- Please use the provided glove when open up the Positioning system cover, avoid direct contact with the Positioning system cover, because the acidic sweat of the fingers may erode the surface coating of the Positioning system cover.
- Please use a soft and dry cloth when clean inside and outside surfaces of the Positioning system cover, do not use alkaline detergents.
- Please keep all wrappers after unpack them for future use. In case of any failure occurred, you need to return the Positioning system to the factory with the original wrapper. Transportation without the original wrapper may result in damage on the Positioning system and lead to additional costs.

Table of Contents

1 Preparation	1
1.1 Basic Requirement.....	1
1.2 Checking Installing Environment.....	1
1.3 Preparing Cables	1
1.4 Preparing Tools	1
1.5 Original Packaging	1
2 Installation	3
2.1 Positioning System Overview	3
2.1.1 Large-sized Housing Positioning System Dimensions.....	3
2.1.2 Small-sized Housing Positioning System Dimensions.....	4
2.1.3 Positioning System Components Description.....	5
2.2 Cable Descriptions	6
2.3 Installing the Positioning System.....	8
2.3.1 Monitoring Distance Range.....	8
2.3.2 Wiring.....	9
2.3.3 Installing Positioning System.....	11
2.3.4 Sealing the Junction Box	17
2.3.5 Finishing Installing.....	18
3 Setting the System over the LAN.....	19
3.1 Wiring.....	19
3.2 Activating the System.....	19
3.2.1 Activation via Web Browser.....	20
3.2.2 Activation via SADP Software.....	20
3.3 Modifying the IP Address	21
4 Accessing via Web browser	23
5 Appendix	25
Common Material Emissivity Reference.....	25

1 Preparation

1.1 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.

1.2 Checking Installing Environment

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

1.3 Preparing Cables

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

1.4 Preparing Tools

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

1.5 Original Packaging

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

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

2 Installation

2.1 Positioning System Overview

Refer to the following figure for thermometry positioning system overview.

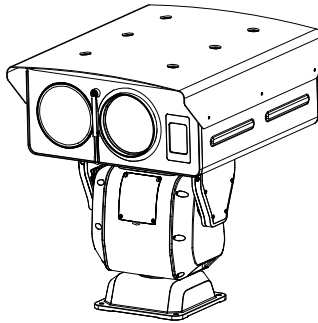


Figure 2-1 Thermometry Positioning System Overview

There are two types of positioning systems: Large-sized Housing positioning system and small-sized housing positioning system.

2.1.1 Large-sized Housing Positioning System Dimensions

Refer to the following figure for the large-sized positioning system dimensions (unit: mm).

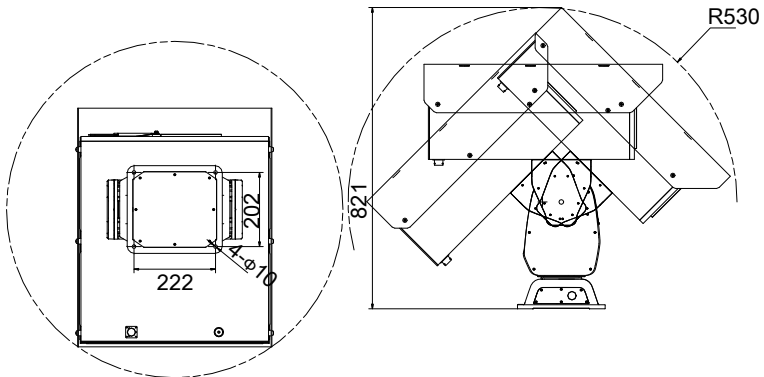


Figure 2-2 Large-sized Housing Positioning System Dimensions (1)

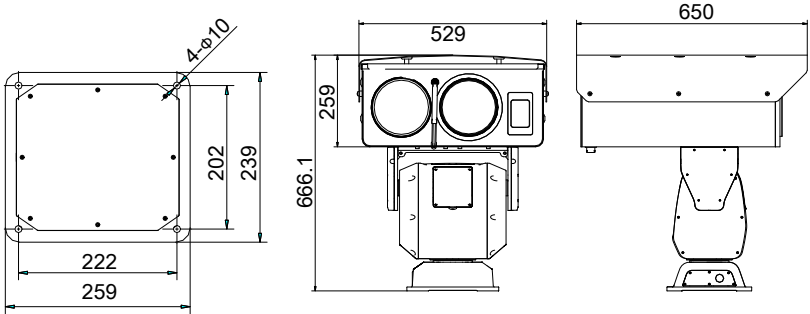


Figure 2-3 Large-sized Housing Positioning System Dimensions (2)

2.1.2 Small-sized Housing Positioning System Dimensions

Refer to the following figure for the small-sized positioning system dimensions.

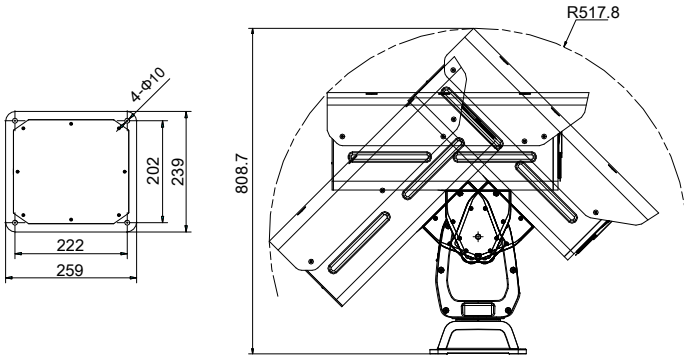


Figure 2-4 Large-sized Housing Positioning System Dimensions (1)

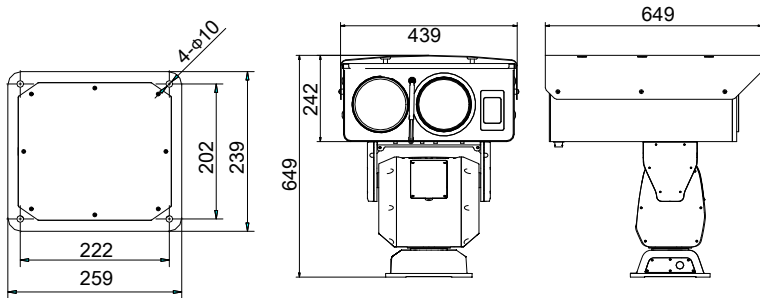


Figure 2-5 Large-sized Housing Positioning System Dimensions (2)

2.1.3 Positioning System Components Description

Refer to the following figures for the components dimensions of the positioning system.

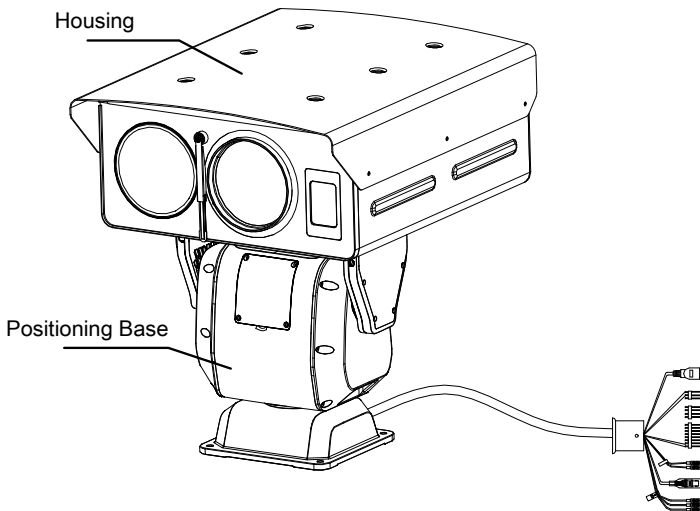


Figure 2-6 Positioning System Components Description (1)

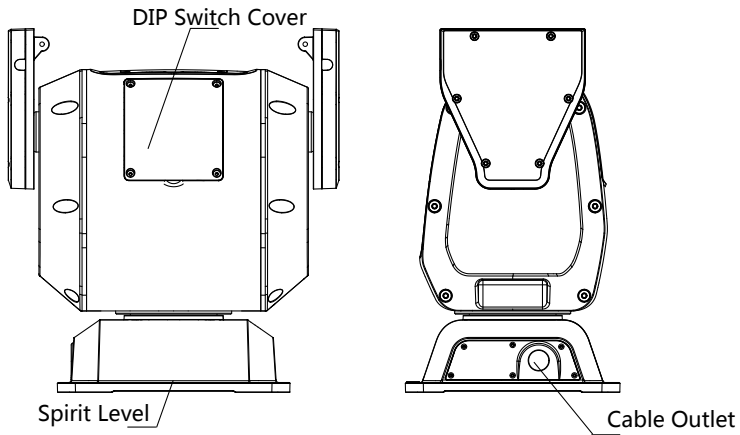


Figure 2-7 Positioning System Components Description (2)

2.2 Cable Descriptions

The cable interfaces of positioning system are shown in Figure 2-8. 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.

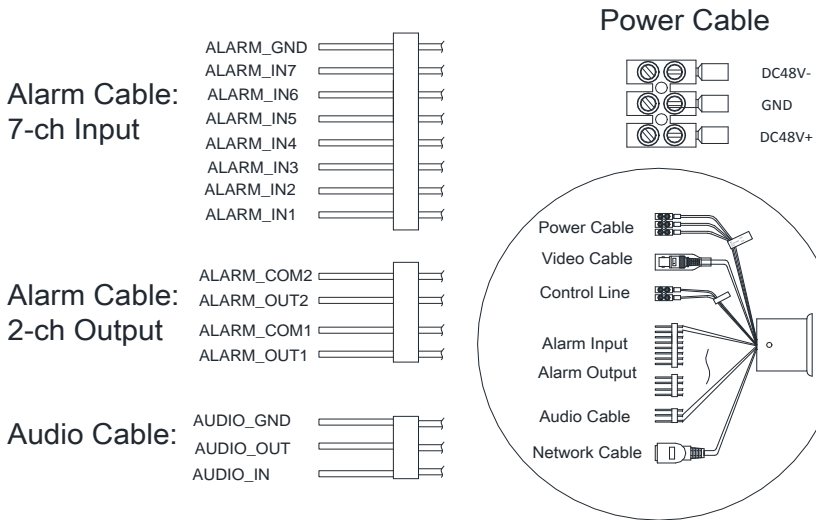


Figure 2-8 Cables of Other Positioning Systems

- The power cable has three terminals: 48 VDC+, 48 VDC-, and Grounding.
- The video cable is CVBS cable.
- The control line is the RS-485 cable.
- The alarm cables include alarm input cables and alarm output cables. Connect terminal ALARM-IN with terminal GND, and connect terminal ALARM-OUT and terminal ALARM-COM.
- The audio cable has audio input and audio output cables. Connect terminal AUDIO_IN and terminal AUDIO_GND, and connect terminal AUDIO_OUT and terminal AUDIO_GND.
- Connect the network cable to network interface to get network signal.

2.3 Installing the Positioning System

2.3.1 Monitoring Distance Range

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

Table 2-1 Monitoring Range (Pixel Interval: 17um)

Lens Focal Length/mm	75	100	150
MRAD	0.23	0.17	0.11
Detection Range (Vehicle)/m	6765	9020	13529
Detection Range (Human)/m	2206	2941	4412
Recognition Range (Vehicle)/m	1691	2255	3382
Recognition Range (Human)/m	551	735	1103
Identification Range (Vehicle)/m	846	1127	1691
Identification Range (Human)/m	276	368	551

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

Lens Focal Length/mm	75	100	150
MRAD	0.33	0.25	0.17
Detection Range (Vehicle)/m	4600	6133	9200
Detection Range (Human)/m	1500	2000	3000
Recognition Range (Vehicle)/m	1150	1533	2300
Recognition Range (Human)/m	375	500	750
Identification Range (Vehicle)/m	575	767	1150
Identification Range (Human)/m	188	250	375



- 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.

2.3.2 Wiring

Please fully take into consideration the installation environment and position of the positioning system 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.

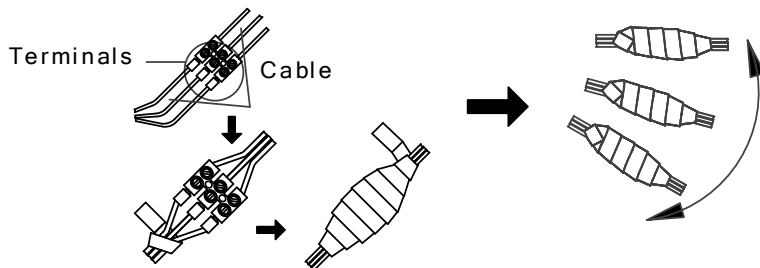


Figure 2-9 Water-proof of terminals

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.

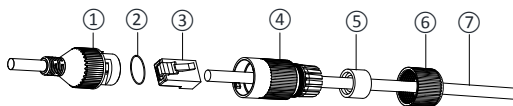


Figure 2-10 Water-proof Accessory Components

Table 2-3 Components

No.	Components
1	Camera's Network Interface Socket
2	O-Type Gasket
3	Network Plug
4	Waterproof Endcap
5	Waterproof Rubber Gasket
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 ③ onto 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 socket ①.
5. Insert the water-proof rubber gasket ⑤ into the waterproof endcap ④, and secure lock nut ⑥ with the waterproof 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.

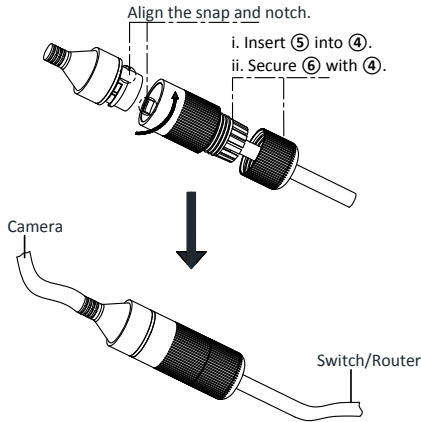


Figure 2-11 Water-proof Accessory Installation

2.3.3 Installing Positioning System

Steps:

1. Open the package and take out the housing, positioning system base and other accessories such as screws.

Note: Make sure that there is space of R530mm for running the positioning system.

2. Take out the four screws (Model: M6x24), and put the pad on the screw and place the housing on the positioning system to connect them as the figure below.

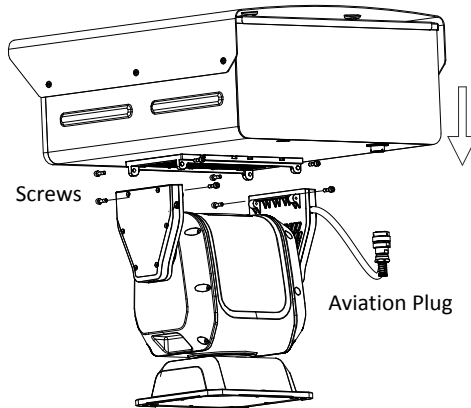


Figure 2-12 Connect the Housing and the Positioning System Base

3. Align the red lines respectively on the aviation connectors of the positioning system base to the red lines on the connectors under the housing. Push the aviation connectors into the corresponding interfaces.

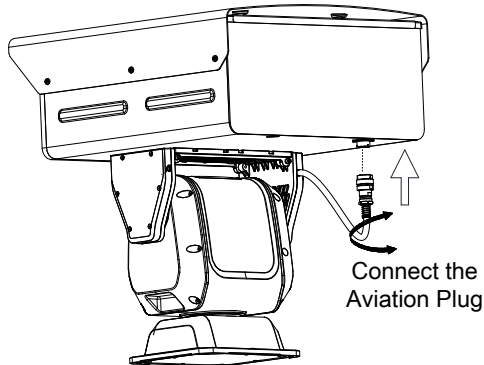


Figure 2-13 Connect the Aviation Plug

4. Rotate and tighten the aviation connectors.
5. Drill four holes on the installation position according to the Figure 2-14.
6. Fix the positioning system with the screws (Model: M8x45) on the installation position.

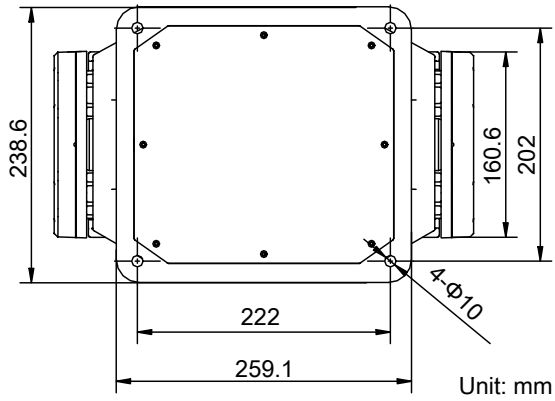


Figure 2-14 Positioning System Base Dimensions

Notes:

- Only standard screws (Model: M8x45) for the positioning system are allowed in this step. The thickness of the steel plate is more than 5mm.
 - If no thread is on the base of bracket, you need to tighten the screw nuts (Model: M8).
- 1). Lead the screw (Model: M8x45) through the spring washer and flat washer.
 - 2). Align the screw holes of the base with the installation holes and fix the positioning system with the screws.

Note: Make sure the bubble of the spirit level is right in the middle so that the positioning system is placed horizontally.

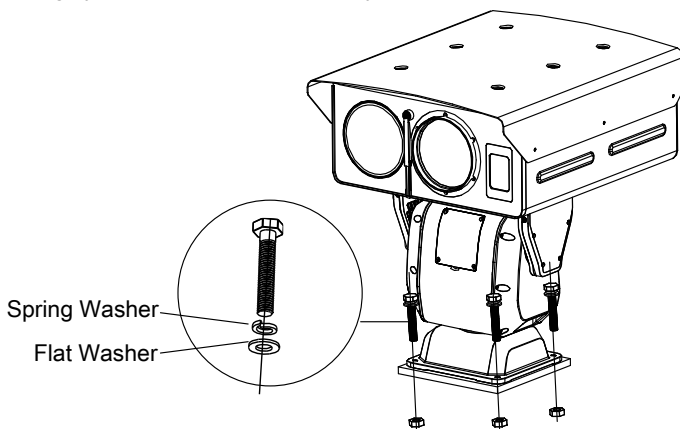


Figure 2-15 Dimension Figure of the Positioning System Base

- 3). Route the cables through the side opening of the positioning system.
7. Connect the positioning system with the junction box.
 - 1). Select the installing position to place the junction box on the wall.

Note: Select the installing position according to the cable length of the device.
 - 2). Draw and drill four screw holes on the wall according to the junction box (Screw holes: $\Phi 14$, depth: 45mm).
 - 3). Insert four expansion pipes into the screw holes and place the junction box onto the wall.

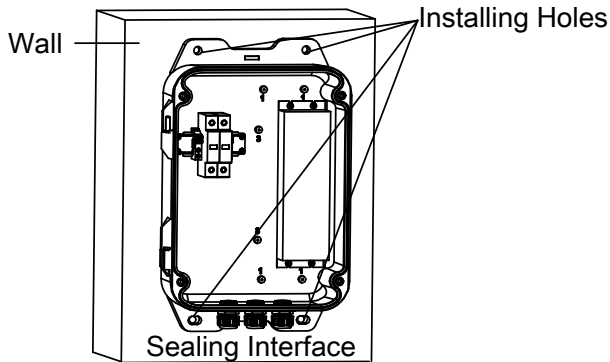


Figure 2-16 Fix the Junction Box

- 4). Fix the junction box with expansion screws.
- 5). Loosen four screws of the junction box cover with the wrench (supplied), and open the junction box cover, as shown in the figure below.

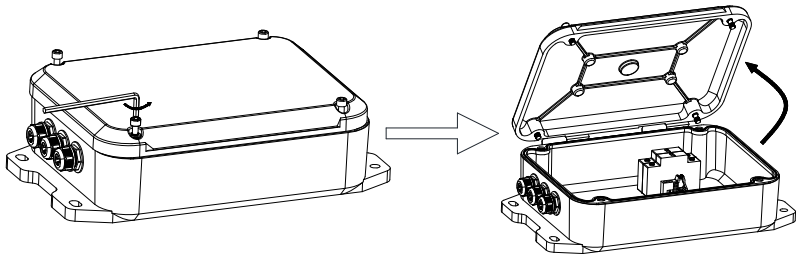


Figure 2-17 Open the Junction Box

- 6). Move the cover according to the direction of the arrow to take apart the cover.

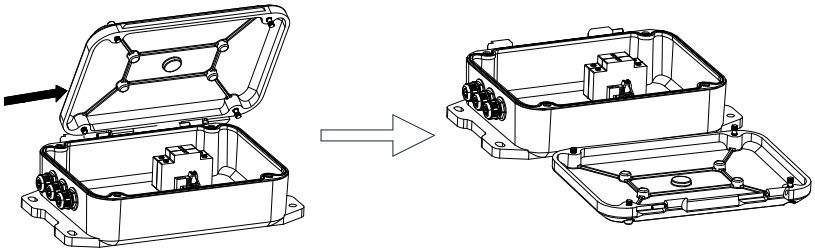


Figure 2-18 Take Apart the Junction Box Cover

- 7). Connect the cables according to the following instructions.
- Route the power cord of external power source through sealing opening No.1, and attach the cable with live wire and null wire from the power adapter respectively.
 - Connect the live wire to the L terminal of power surge protector, and connect the null wire to the N terminal of power surge protector.
 - Route the network cable from switch or client-end through sealing opening No.2, and connect it to the network cable of the cable from positioning system.
 - Route the cables from the positioning system through sealing opening No.3, and connect the power cable to the power adapter.
- Note:** Make sure the 48 V DC+ terminal is connected to the positive terminal of the power adapter and the 48 V DC- terminal is connected to the negative terminal of the power adapter. The grounding terminal is connected to the GND terminal of the adapter.
- Connect the reserved terminals to the rest cables of the positioning system.

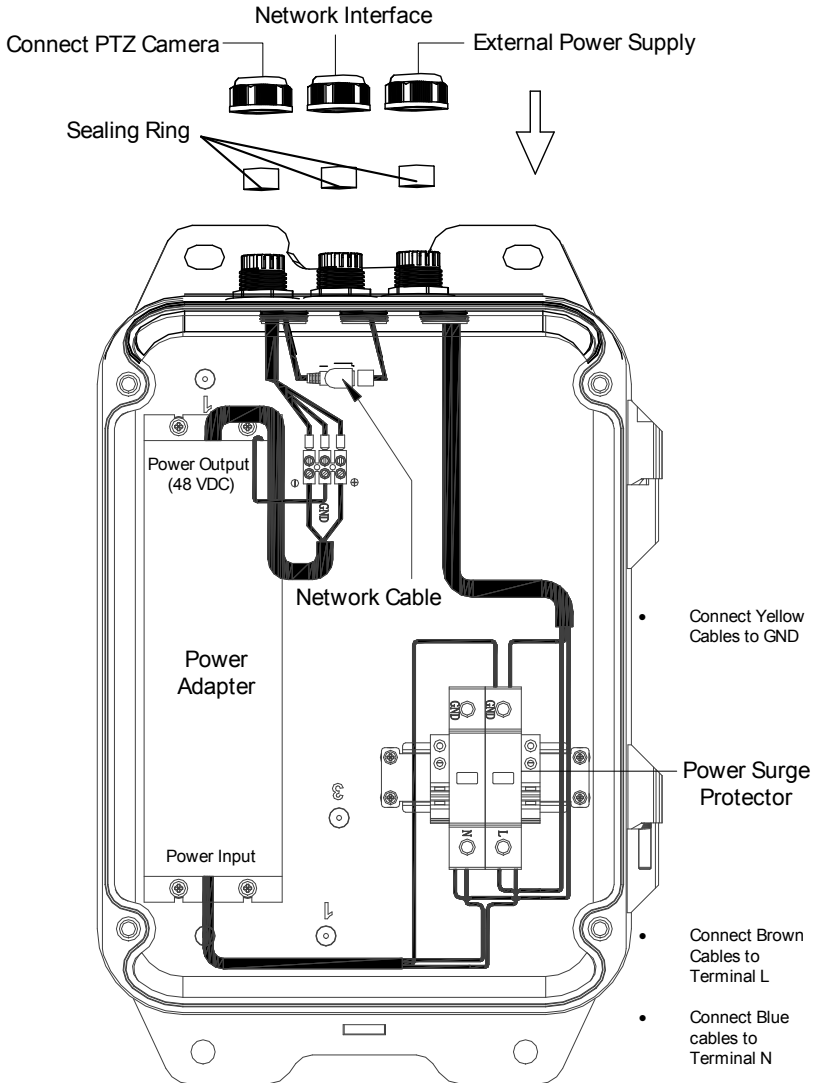


Figure 2-19 Cable Connection of Junction Box

8). Cover the junction box and tighten the screws.

Note: For detailed information of sealing the interfaces, refer to the section 2.3.4.

2.3.4 Sealing the Junction Box

Steps:

1. Take apart the cover of the junction box, and rotate the screw nut to take out the sealing ring inside.
2. Lead the cables through the sealing ring, and the screw nut, as shown in Figure 2-20.
3. Use a proper wrench (not supplied) to tighten the screw nuts.

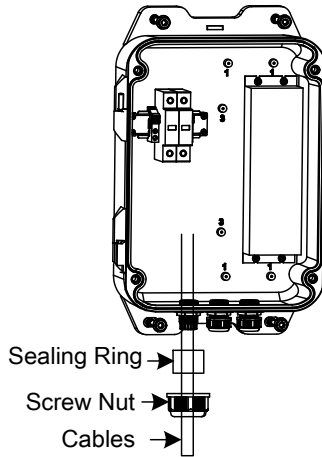


Figure 2-20 Seal the Cables

4. Tighten the screws to fix the cover.

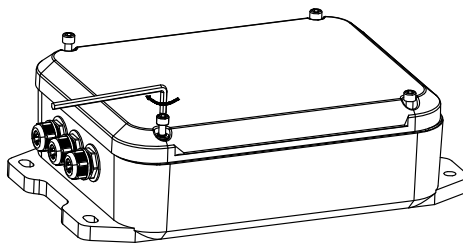


Figure 2-21 Fixing the Cover

Notes:

- Keep all sealing rings saved for potential use.
- We provide multiple sealing rings of different specifications for different cables.

- We recommend you to lead one cable through one hole, for leading multiple cables, use the water-proof glue to seal the cables.

2.3.5 Finishing Installing

Power on the positioning system and the device will perform self-test action.

- If the positioning system starts normally and plays the live view, it is successfully installed.
- If the positioning system cannot start normally, check the cable connection.

3 Setting the System over the LAN



- 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 positioning system, we recommend you to have the system assessed and maintained termly. You can contact us if you need such service.

3.1 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.

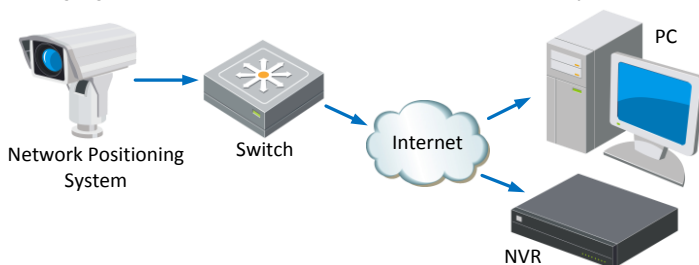


Figure 3-1 Wiring over LAN

3.2 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.

3.2.1 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.



The default IP address of the system is 192.168.1.64.

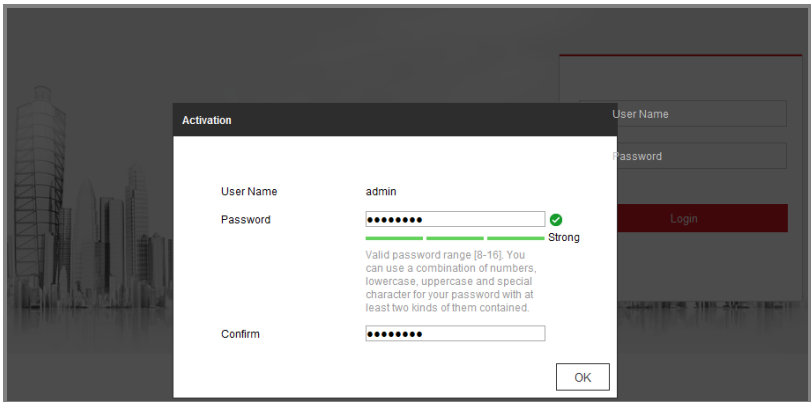


Figure 3-2 Activation Interface(Web)

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.

3.2.2 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.

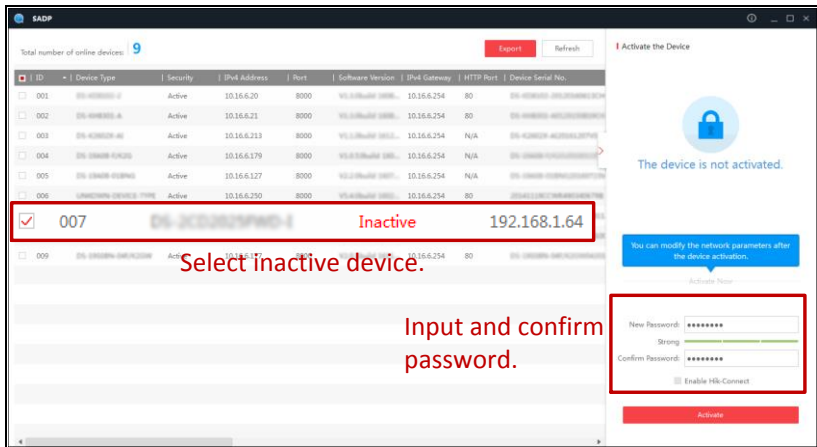


Figure 3-3 SADP Interface

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.

3.3 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.



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.:

IP Address:

Port:

Subnet Mask:

Gateway:

IPv6 Address:

IPv6 Gateway:

IPv6 Prefix Length:

HTTP Port:

----- Security Verification -----

Admin Password:

[Forgot Password](#)

Figure 3-4 Modify the IP Address

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

4 Accessing via Web browser

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 positioning system, e.g., 192.168.1.64 and press the Enter key to enter the login interface.
3. Activate the positioning system for the first time using, refer to the section **3.2**

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 4-1 Login Interface

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



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 4-2 Download Plug-in

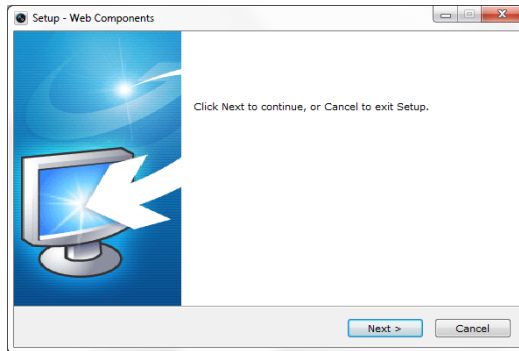


Figure 4-3 Install Plug-in

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



For detailed instructions of further configuration, please refer to the user manual of network positioning system.

5 Appendix

5.1 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



See Far, Go Further