



Thermal & Optical Bi-spectrum Network Stable PTZ Camera

Quick Start Guide

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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

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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

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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:

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Industry Canada ICES-003 Compliance

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

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

Symbol	Description
 Danger	Indicates a hazardous situation which, if not avoided, will or could result in death or serious injury.
 Caution	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
 Note	Provides additional information to emphasize or supplement important points of the main text.

Safety Instruction

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

Laws and Regulations

- In the use of the product, you must be in strict compliance with the electrical safety regulations of the nation and region.

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.

Power Supply

- Please purchase the charger by yourself. Input voltage should meet the Limited Power Source (48 VDC) according to the IEC62368 standard. Please refer to technical specifications for detailed information.
- Make sure the plug is properly connected to the power socket.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.
- DO NOT connect multiple devices to one power adapter, to avoid over-heating or fire hazards caused by overload.
- DO NOT touch the bare metal contacts of the inlets after the circuit breaker is turned off. Electricity still exists.
- + identifies the positive terminal(s) of equipment which is used with, or generates direct current. - identifies the negative terminal(s) of equipment which is used with,

or generates direct current.

- Ensure correct wiring of the terminals for connection to an AC mains supply.

Battery

- Risk of explosion if the battery is replaced by an incorrect type. Dispose of used batteries according to the instructions. Il y a risque d'explosion si la batterie est remplacée par une batterie de type incorrect. Mettre au rebut les batteries usagées conformément aux instructions.
- The built-in battery cannot be dismantled. Please contact the manufacture for repair if necessary.
- 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.
- This equipment is not suitable for use in locations where children are likely to be present.
- Improper replacement of the battery with an incorrect type may defeat a safeguard (for example, in the case of some lithium battery types).
- DO NOT dispose of the battery into fire or a hot oven, or mechanically crush or cut the battery, which may result in an explosion.
- DO NOT leave the battery in an extremely high temperature surrounding environment, which may result in an explosion or the leakage of flammable liquid or gas.
- DO NOT subject the battery to extremely low air pressure, which may result in an explosion or the leakage of flammable liquid or gas.

Installation

- Never place the equipment in an unstable location. The equipment may fall, causing serious personal injury or death.
- This equipment is for use only with corresponding brackets. Use with other (carts, stands, or carriers) may result in instability causing injury.


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

- 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.
- Wipe the device gently with a clean cloth and a small quantity of ethanol, if necessary.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the device may be impaired.
- To reduce the risk of fire, replace only with the same type and rating of fuse.
- The serial port of the equipment is used for debugging only.
- Disconnect the power source during servicing.

Using Environment

- Make sure the running environment meets the requirement of the device. The operating temperature shall be -40°C to 60°C (-40°F to 140°F), and the operating humidity shall be 95% or less, no condensing.
- DO NOT expose the device to high electromagnetic radiation or dusty environments.
- DO NOT aim the lens at the sun or any other bright light.
- The equipment shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the equipment.
- No naked flame sources, such as lighted candles, should be placed on the equipment.
- Provide a surge suppressor at the inlet opening of the equipment under special conditions such as the mountain top, iron tower, and forest.
- Burned fingers when handling the parts with symbol . Wait one-half hour after switching off before handling the parts.

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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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.

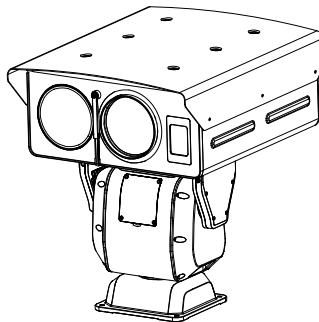


Figure 2-1 Thermometry Positioning System Overview

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).

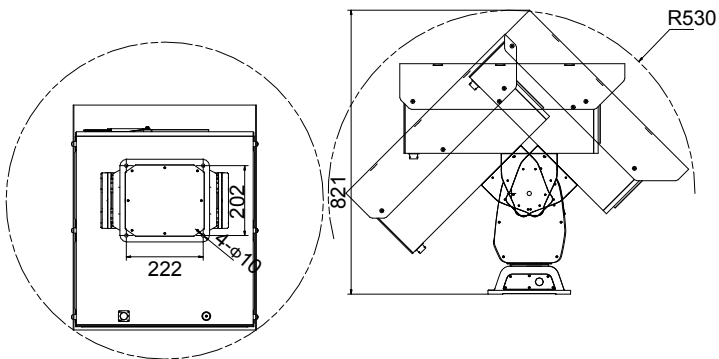


Figure 2-2 Large-sized Housing Positioning System Dimensions (1)

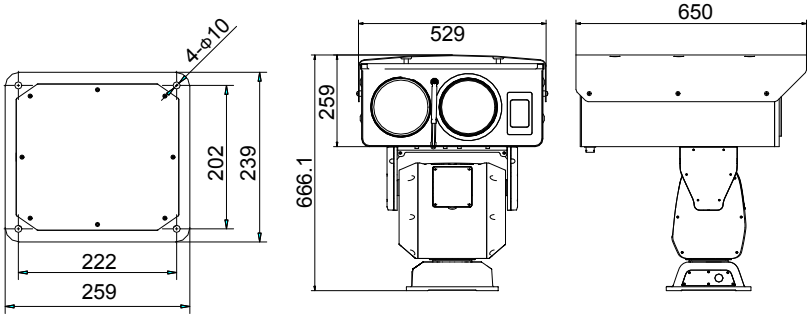


Figure 2-3 Large-sized Housing Positioning System Dimensions (2)

2.1.2 Small-sized Housing Positioning System Dimensions

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

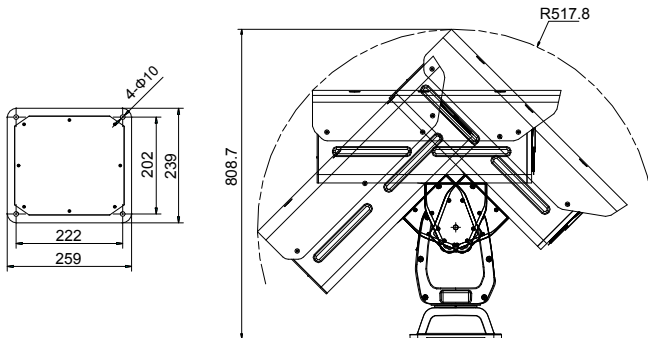


Figure 2-4 Large-sized Housing Positioning System Dimensions (1)

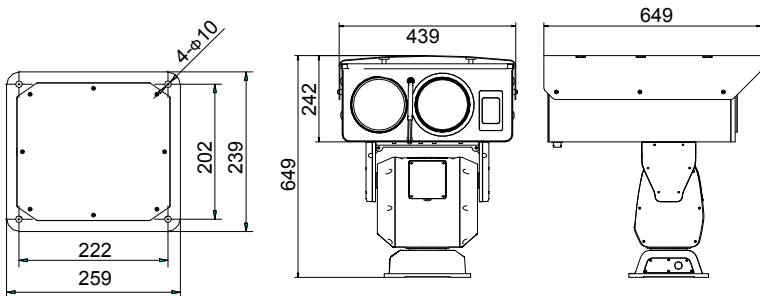


Figure 2-5 Large-sized Housing Positioning System Dimensions (2)

2.1.3 Positioning System Components Description

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

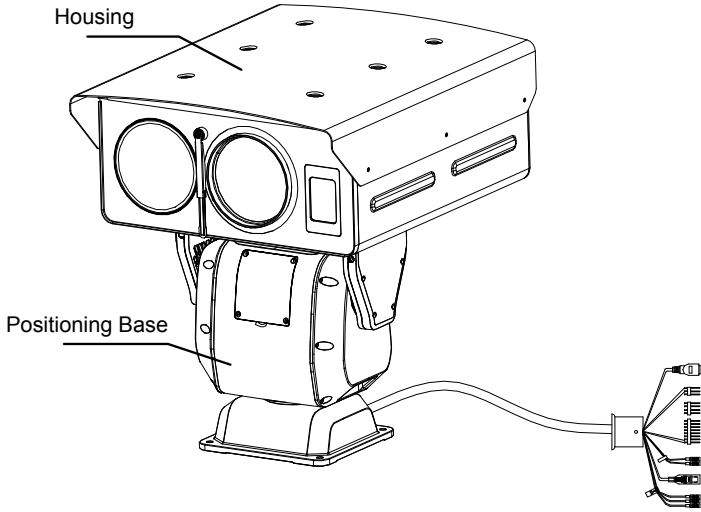


Figure 2-6 Positioning System Components Description (1)

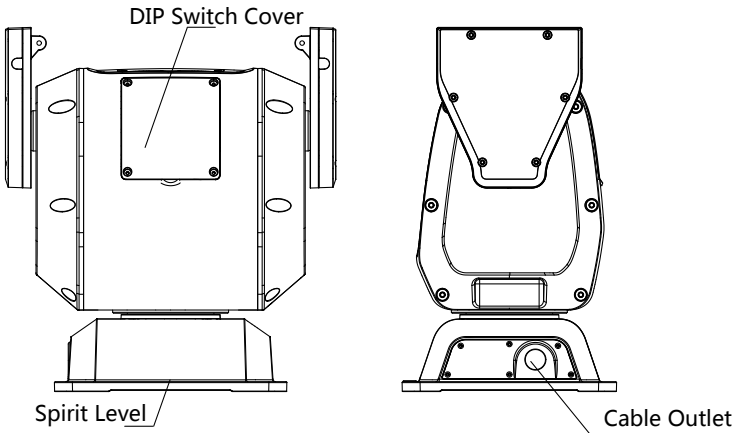


Figure 2-7 Positioning System Components Description (2)

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.

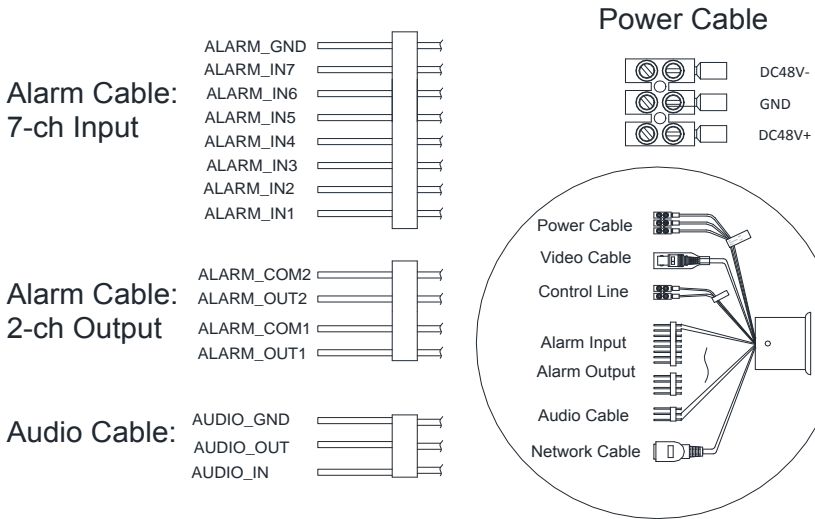


Figure 2-8 Cables of Other Positioning Systems

- 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.

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.

Install Network Cable Waterproof Jacket

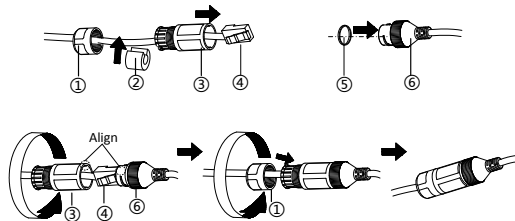


Figure 1-1 Install Waterproof Jacket

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.

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.

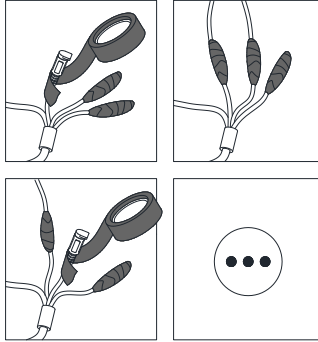


Figure 2-9 Waterproof Cable

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.

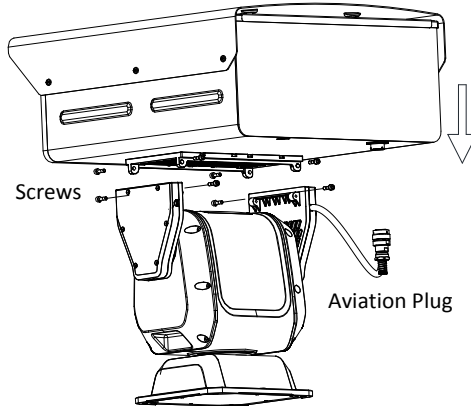


Figure 2-10 Connect the Housing and the Positioning System Base

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.

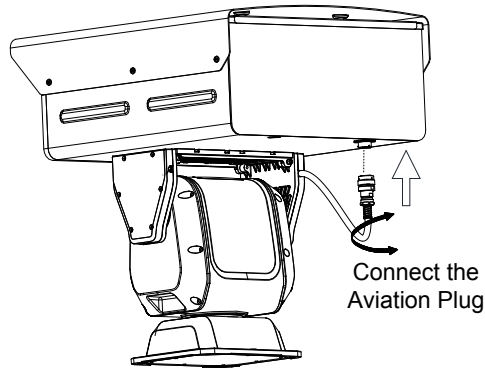


Figure 2-11 Connect the Aviation Plug

4. Rotate and tighten the aviation connectors.
5. Drill four holes on the installation position according to the Figure 2-12.
6. Fix the positioning system with the screws (Model: M8x45) on the installation position.

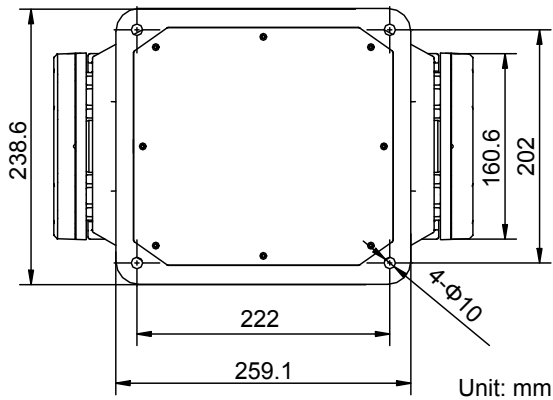


Figure 2-12 Positioning System Base Dimensions

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: M8×45) 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.

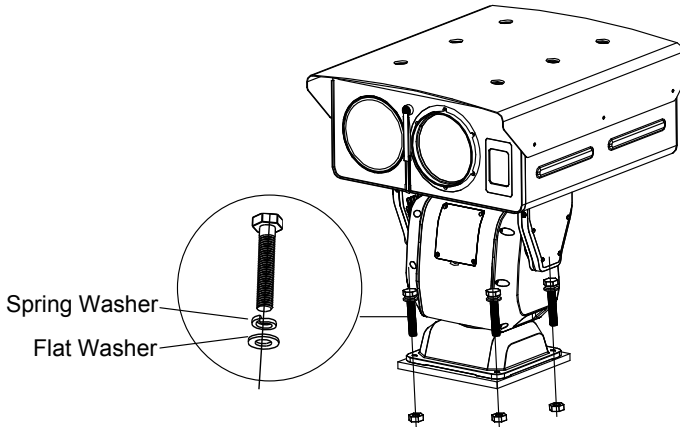


Figure 2-13 Dimension Figure of the Positioning System Base

- 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.

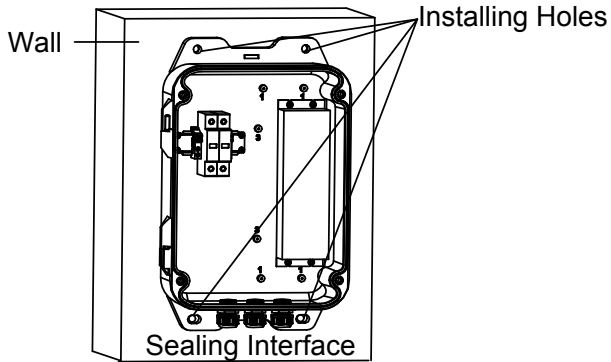
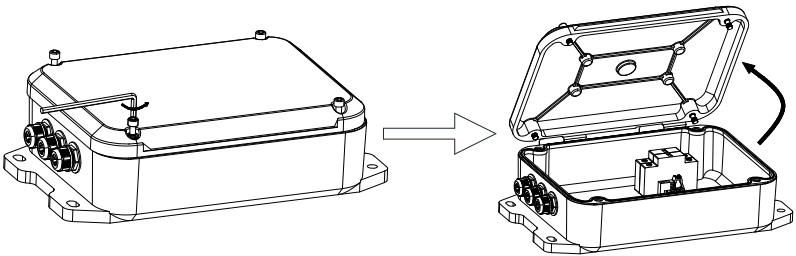
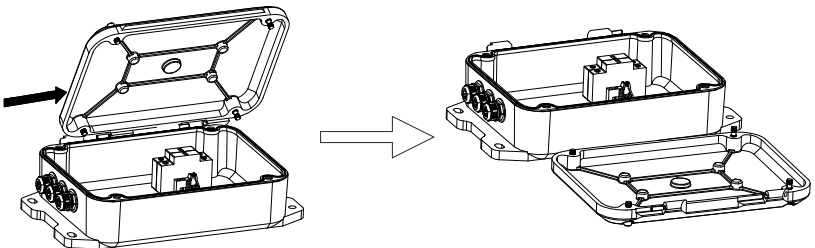


Figure 2-14 Fix the Junction Box

- 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.



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

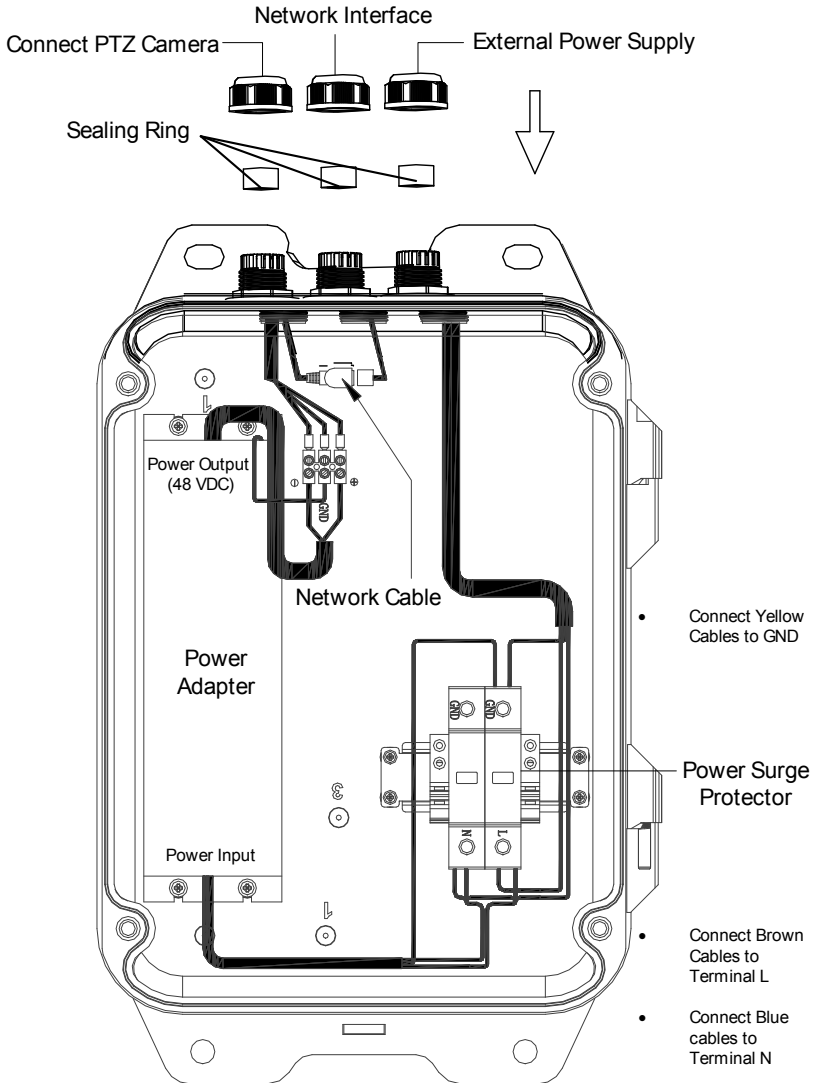


Figure 2-17 Cable Connection of Junction Box

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 2-18.
3. Use a proper wrench (not supplied) to tighten the screw nuts.

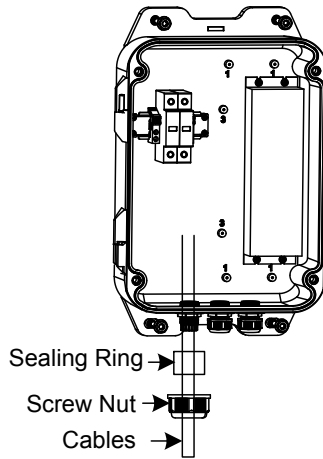


Figure 2-18 Seal the Cables

4. Tighten the screws to fix the cover.

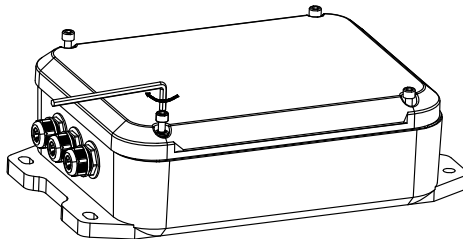


Figure 2-19 Fixing the Cover

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.

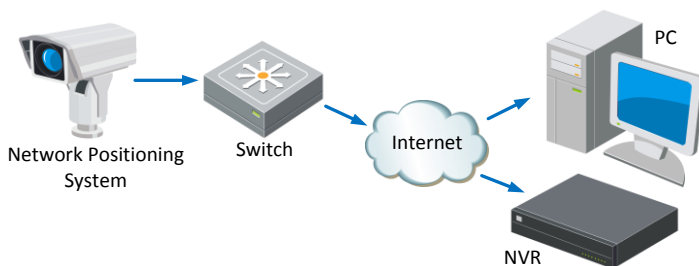


Figure 3-1 Wiring over LAN

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:

2. Power on the system, and connect the system to the network.
3. 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.

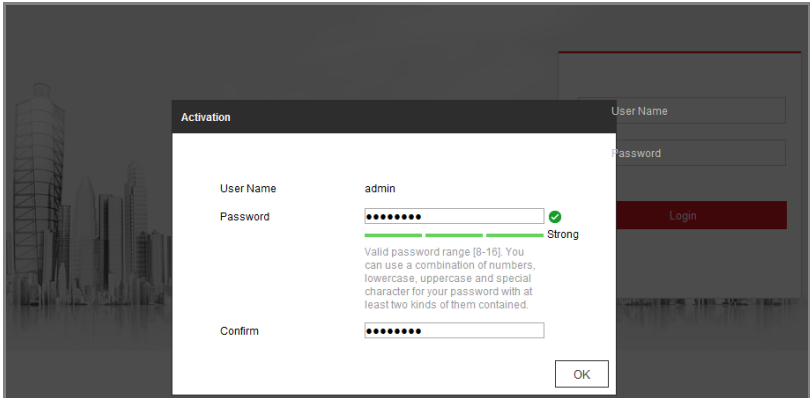


Figure 3-2 Activation Interface(Web)

4. 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.

5. Confirm the password.
6. 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.

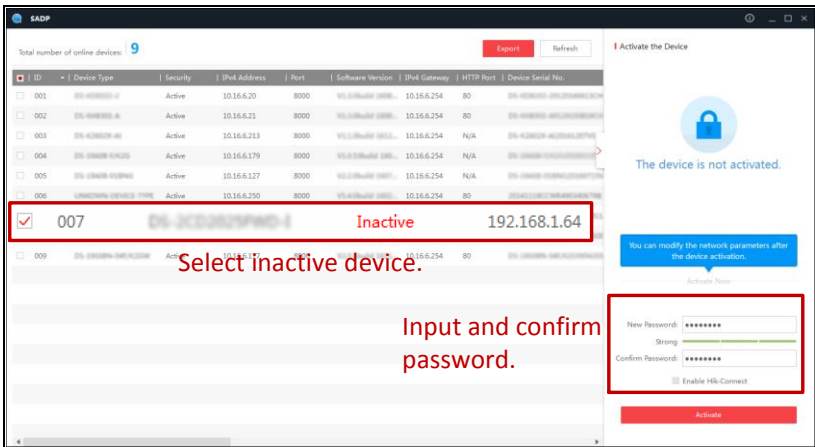


Figure 3-3 SADP Interface

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:

[Modify](#) [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

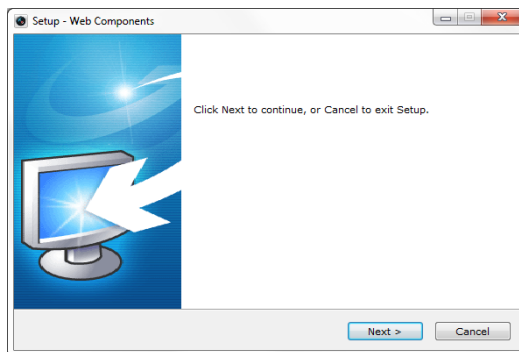


Figure 4-3 Install Plug-in

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

5.2 Frequently Asked Questions (FAQ)

5.2.1 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 device and see whether it meets the requirements. Use the nearby power supply or connect the ancillary equipment (e.g. UPS).
- Select the power supply as close as possible.
- Examine the power cord and see whether it meets the requirements.

5.2.2 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.

5.2.3 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**

