



# Getting Started

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This chapter provides information about getting started with and understanding the IP camera. It includes the following sections:

- [Overview, page 1-1](#)
- [Physical Description, page 1-2](#)
- [LED Definitions, page 1-4](#)
- [Hardware Reset, page 1-5](#)
- [SD/SDHC/SDXC Card Capacity, page 1-5](#)
- [DI/DO Diagram, page 1-5](#)
- [Power Adapters, page 1-8](#)
- [Hardware Installation, page 1-8](#)
- [I/O Combo Cable Specifications, page 1-22](#)
- [Mechanical Dimensions, page 1-26](#)
- [Network Deployment, page 1-26](#)

## Overview

The Cisco Video Surveillance 8930 IP Camera is a high-definition, full-functioned video endpoint, designed to enhance low light surveillance in large coverage areas and provides a superb image in challenging situations. The camera comes with integrated camera optics package that offer 360° continuous pan rotation and 256 PTZ presets. In addition, the camera supports an SD/SDHC slot for local storage that can be used if network connectivity is lost. The camera supports four simultaneous video streams, which can be compressed in MJPEG, H.264, and H.265 formats across several resolution configurations, and can be configured in a variety of frame rates and bit rates or additional bandwidth administration. It features a 1/2.8-inch CMOS for increased sensitivity, and low light technology that allows the cameras to compensate in scenes where minimal light is present. In addition, the camera features built-in motion detection and advanced wide dynamic range (WDR) that enables the system to compensate in scenes where dramatic contrasts in lighting are present.

Key features and benefits of the Cisco Video Surveillance cameras include:

- High definition video from a full range of motion—The camera streams crisp and clear 1080p (1920 x 1080) video at 30 frames per second through a continuous 360° pan rotation, 220° tilt angle range, and 30x optical zoom. The camera operator can remotely control the camera to track subjects or reposition the camera's field of view.

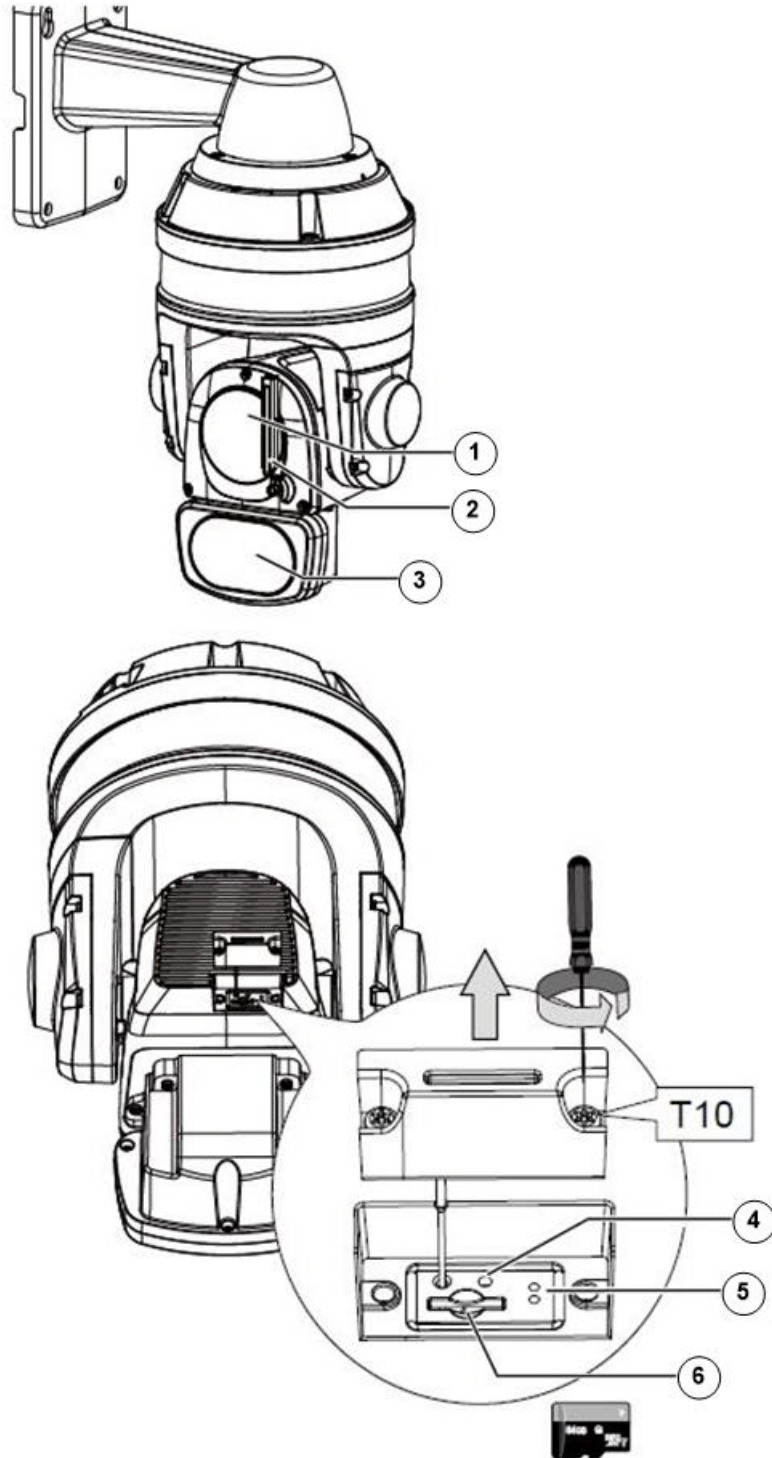
- Streaming—The cameras can stream H.264, H.265, and MJPEG video simultaneously. Each video stream can be configured with individual resolution, quality, and frame-rate settings.
- Outdoor ready—The housing for the camera is IP66, IK10 & NEMA 4X, and UL rated, allowing for outdoor mounting without an additional enclosure.
- Flexible power options—The camera supports PoH (95W) or 24 VAC power through an external power supply.
- Mounting options—The cameras can be installed to a ceiling or wall.

## Physical Description

The following figures illustrate the cameras:

- [Figure 1-1](#)—Cisco Video Surveillance 8930 IP Camera outer view
- [Figure 1-2](#)—Cisco Video Surveillance 8930 IP Camera inner view

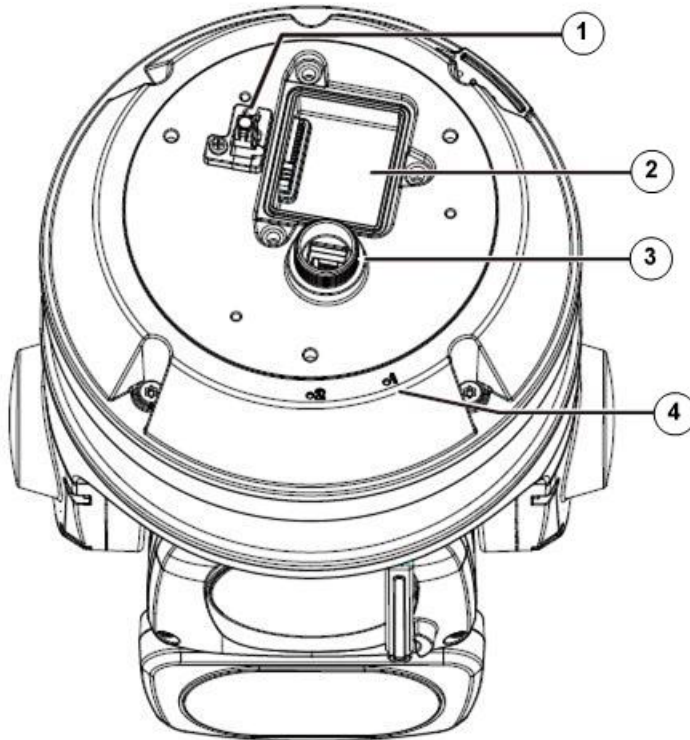
Figure 1-1 Cisco Video Surveillance 8930 IP Camera Outer View



1	Lens
2	Wiper
3	IR LEDs

4	Reset button
5	Status LEDs
6	MicroSD card slot

**Figure 1-2** Cisco Video Surveillance 8930 IP Camera Inner View



1	Safety wire hook
2	I/O combo connector
3	LAN connector
4	Alignment marks

## LED Definitions

[Table 1-1](#) describes the LEDs on the Cisco Video Surveillance IP Camera.

**Table 1-1** IP Camera LEDs

Item	LED Status	Description
1	Steady red	Powered and system booting
	Red LED off	Power off

Table 1-1 IP Camera LEDs (continued)

Item	LED Status	Description
2	Steady red and green blinking every 1 second	Network normal (heartbeat)
	Steady red and green LED OFF	Network failed
3	Red blinking every 0.15 second and Green blinking every 1 second	Upgrading firmware
4	Red blinking every 0.15 second and green blinking every 0.15 second	Restoring defaults

## Hardware Reset

The recessed button (see [Figure 1-1 on page 1-3](#)) is used to reset the system or restore the factory default settings. Sometimes resetting the system can return the camera to normal operation. If the system problems remain after reset, restore the factory settings and install again.

- **Reset**—Press and release the reset button with a paper clip or thin object. Wait for the camera to reboot.
- **Restore**—Press and hold the reset button for at least 30 seconds to restore system defaults. All settings will be restored to factory defaults.

## SD/SDHC/SDXC Card Capacity

The camera is compliant with SD/SDHC/SDXC 32GB, 64GB, and other preceding standard SD cards.



**Tip**

If you forget the root (administrator) password for the camera, you can restore the camera defaults by pressing the reset button for longer than 5 seconds.

If DHCP is enabled in your network, and the camera cannot be accessed, run the Cisco setup software utility to search the network. If the camera has been configured with a fixed IP that does not comply with your local network, you may see its default IP 169.254.x.x. If you still cannot find the camera, you can restore the camera to its factory defaults. The factory default is DHCP client.

If you change your network parameters, for example by adding a camera via a connection to a LAN card, restart the Cisco setup software utility.

## DI/DO Diagram

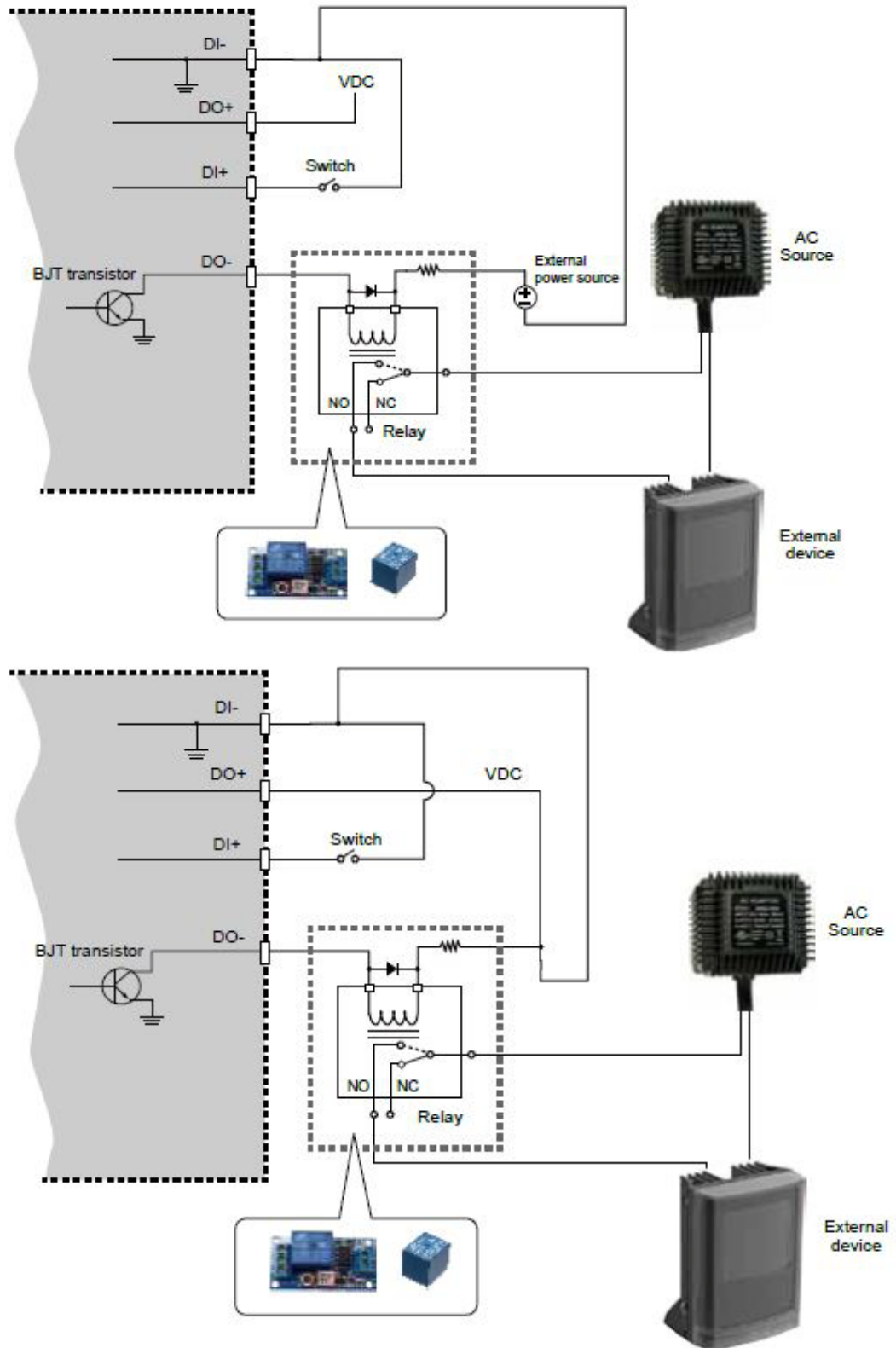
- The DO+ pin (5V) provides 5V±10% output voltages, and the max. load is 50mA.
- The max. voltage for DO– pins is 30VDC (external power).

In order to control AC devices, [Figure 1-3](#) can be taken into consideration. This figure uses a relay to control the ON/OFF condition of the AC device.

- An external relay can be triggered by using the DO+ or by an external power source, depending on the type of relay you use.

- In case of using an individual relay (instead of using a relay module), for protection against voltage or current spikes, a transient voltage suppression diode must be connected in parallel with the inductive load.

Figure 1-3 DI/DO Diagram



# Power Adapters

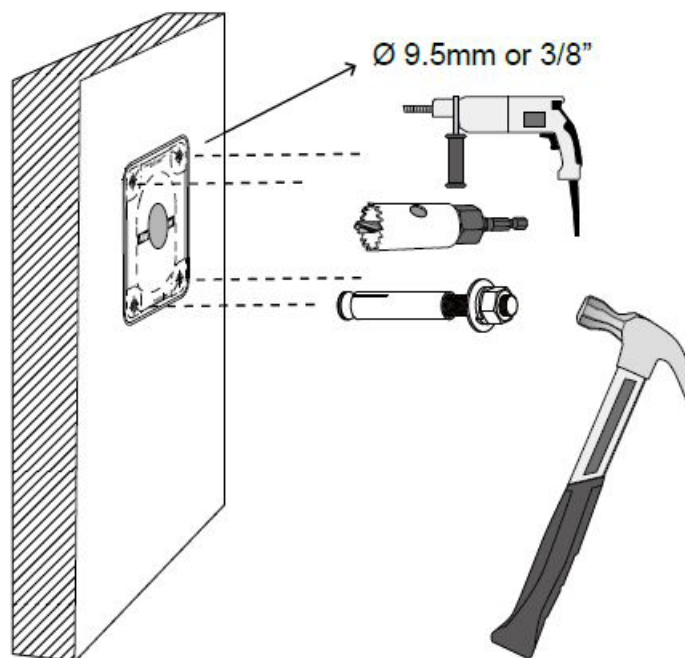
Figure 1-4 Power Adapters

CIVS-IPC-8930	The product is intended to be supplied by a Listed Power Unit marked "L.P.S." (or "Limited Power Source") and rated output 24Vac, 50/60Hz, 1.28A minimum or 48Vdc (PoE), 0.35A minimum
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## Hardware Installation

To install the Cisco Video Surveillance 8930 IP Camera, on a ceiling or wall, follow these steps:

- 
- Step 1** Make a note of the MAC address of the camera.  
The MAC address is printed on the label that is attached to the camera.
- Step 2** The camera weighs 6kg. Select a rigid mounting location to prevent vibration to the camera. Attach the alignment sticker to the wall.
- Step 3** Drill 4 pilot holes (9.5mm in diameter and 4cm deep) into the wall, and then hammer in threaded anchors. You should hammer the anchors with hex nuts on them so that the threaded poles will not be deformed. If preferred, drill another hole for routing cables



- Step 4** Remove the hex nuts, washers, and leave one washer on each of the threaded poles.

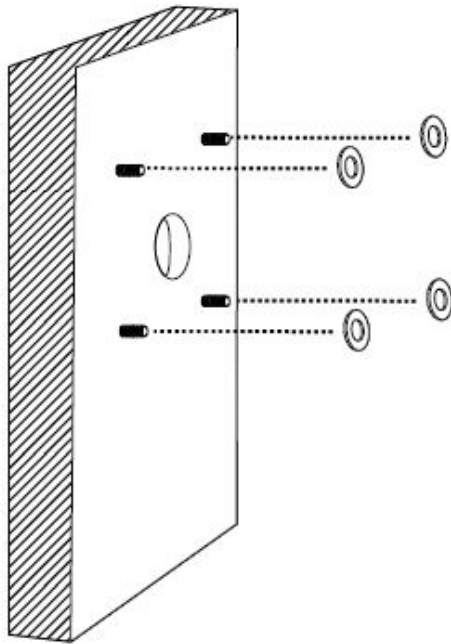




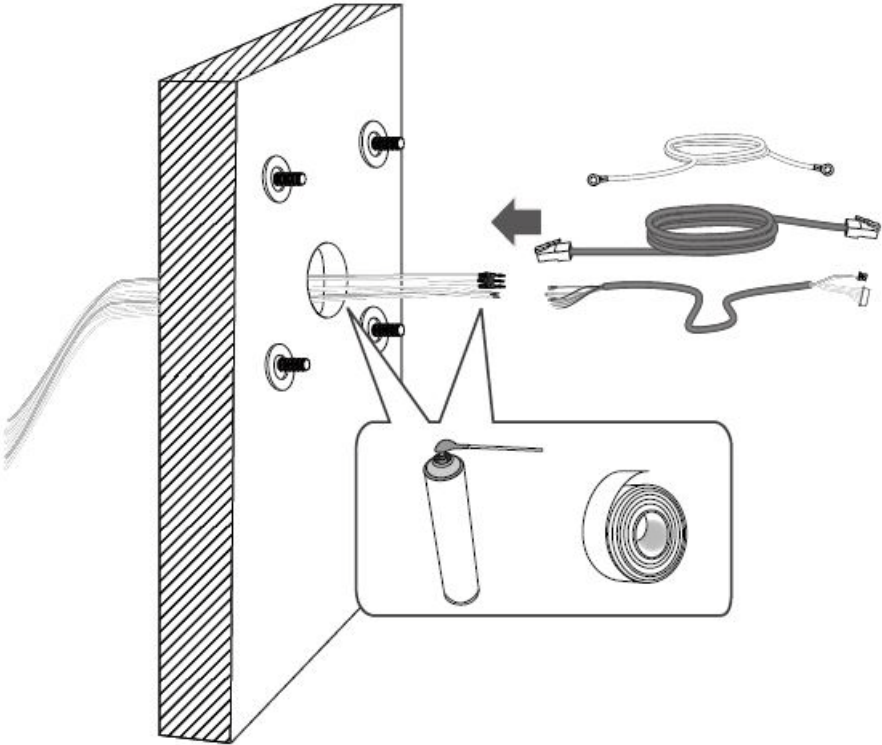
**Note** IO wires are user-supplied.

Avoid touching the circuit boards to prevent damage by electro static discharge.

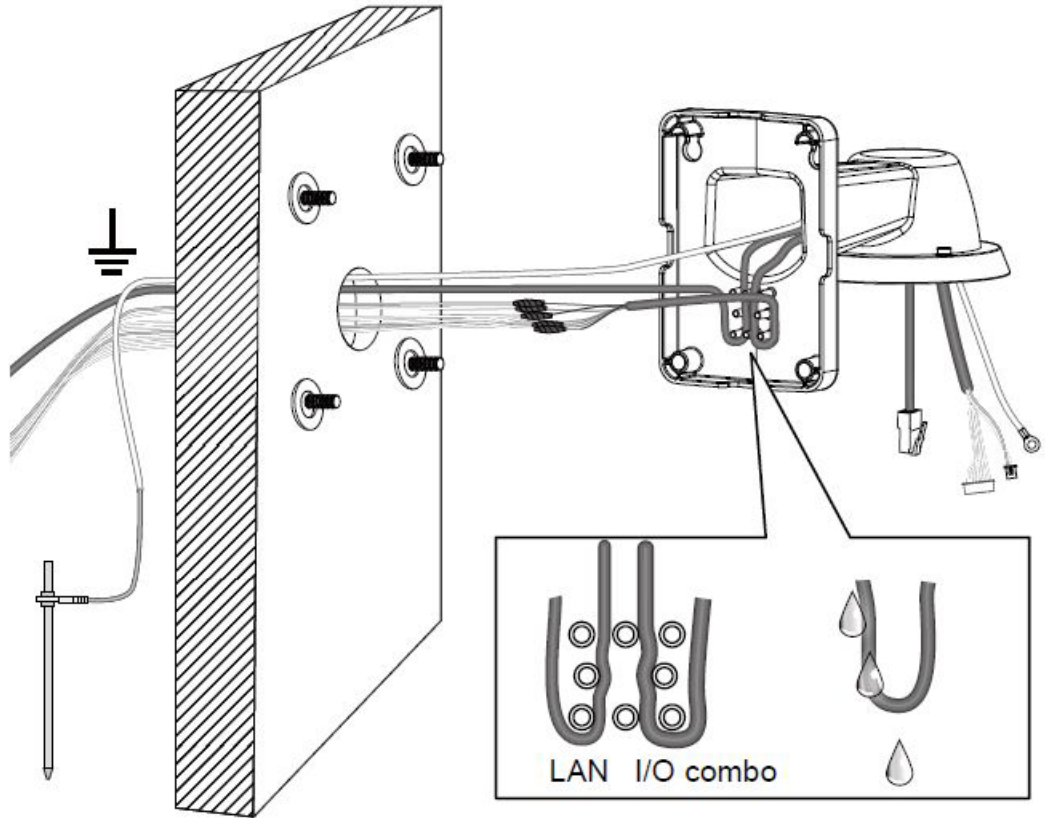
Use CAT5e, CAT6 cables only.



**Step 5** Connect power or I/O wires, and use foam tapes or seal foam to ensure the back-end connection is waterproof.

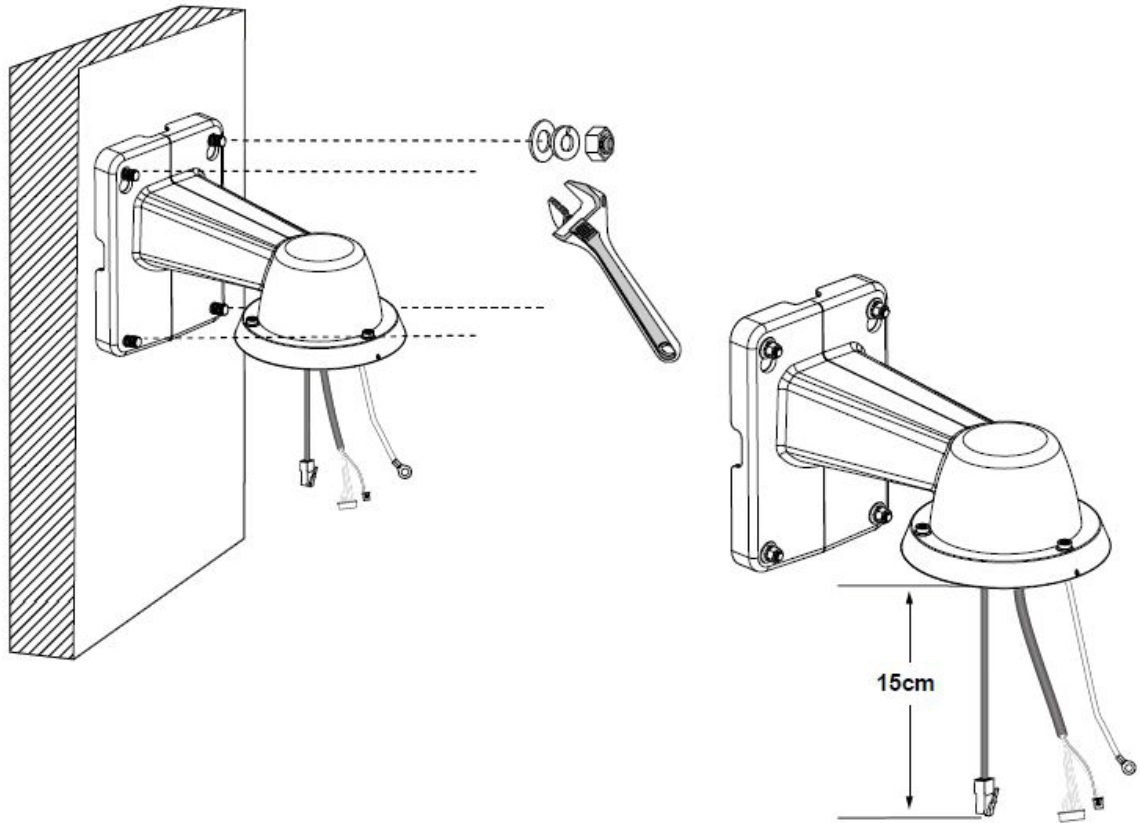


**Step 6** Route your I/O combo and Ethernet cables along the routing guide poles to form drip loops.

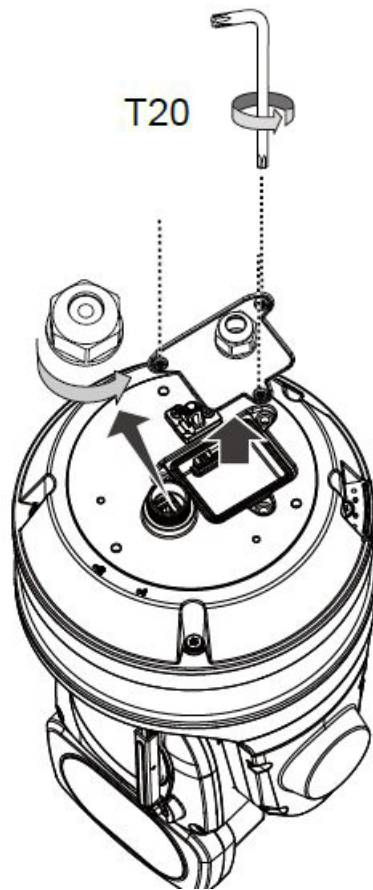


**Step 7** Secure the bracket to wall.

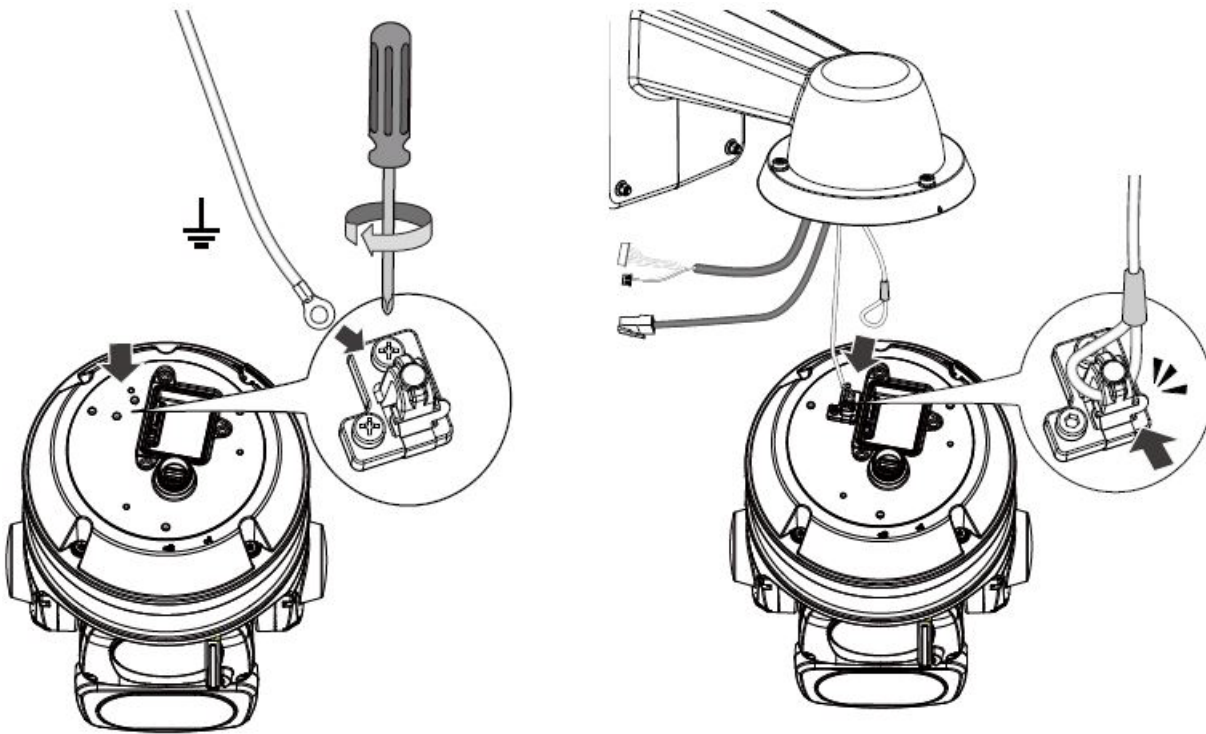
The cable length hanging on the outside of the bracket should be 15cm.



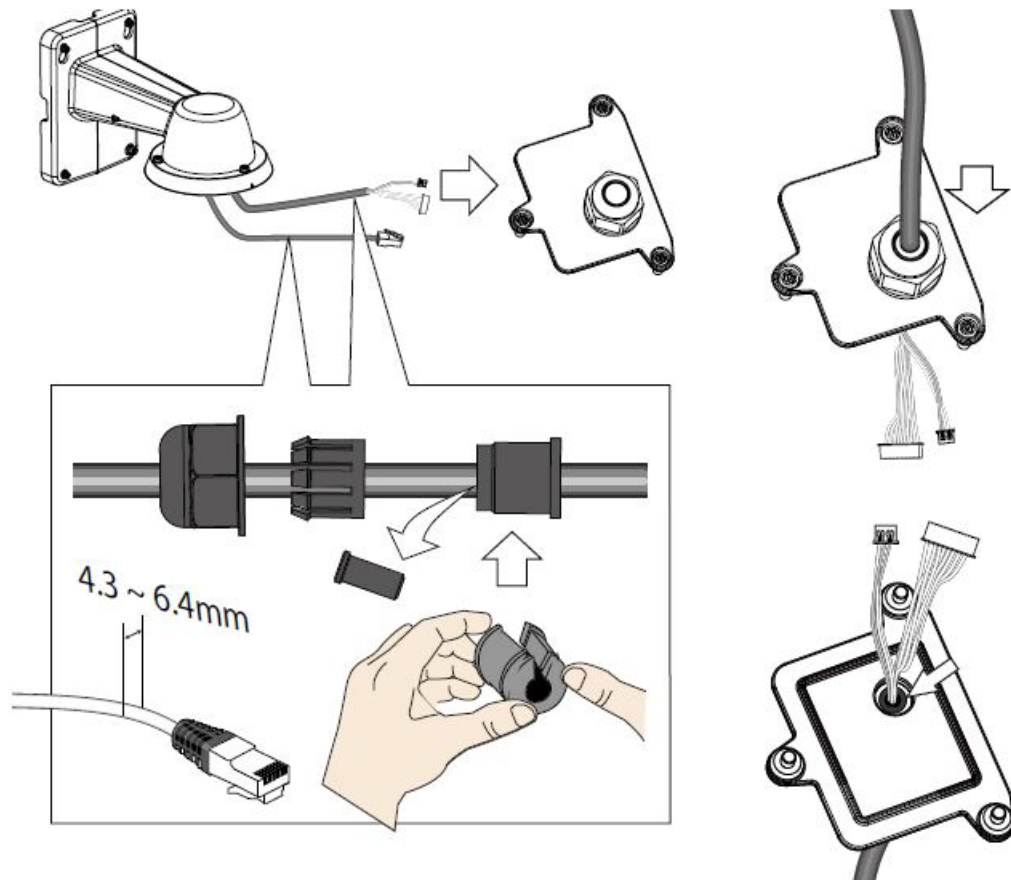
- Step 8** Remove the cable gland from the LAN port. If I/O wires or 24V power are preferred, use the T20 L-wrench to remove the top cover on the I/O connectors.



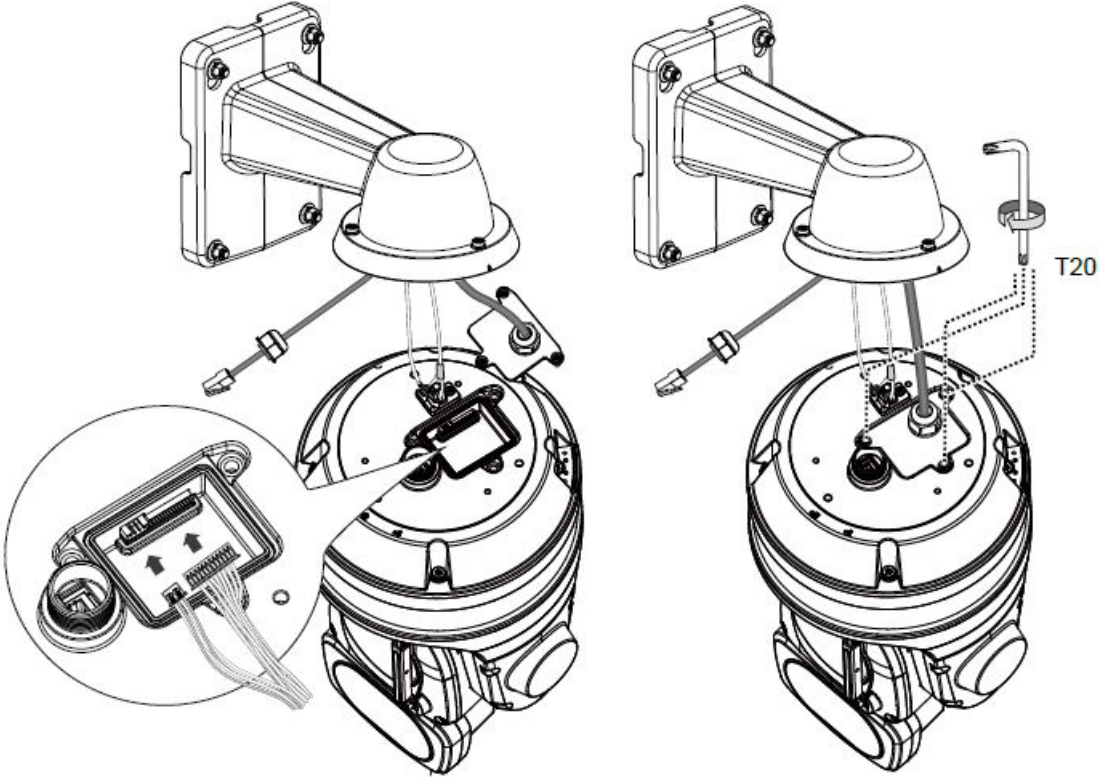
- Step 9** Install the safety wire bracket, and hook up the safety wire between the bracket and the camera. Also connect the ground wire to the safety wire bracket.



- Step 10** Install the components of the waterproof cable gland to the Ethernet and I/O combo cables. Make sure the outer jacket of the combo cable is flush with the cabling hole.



**Step 11** Connect the I/O wire headers to the camera and then secure the top cover.

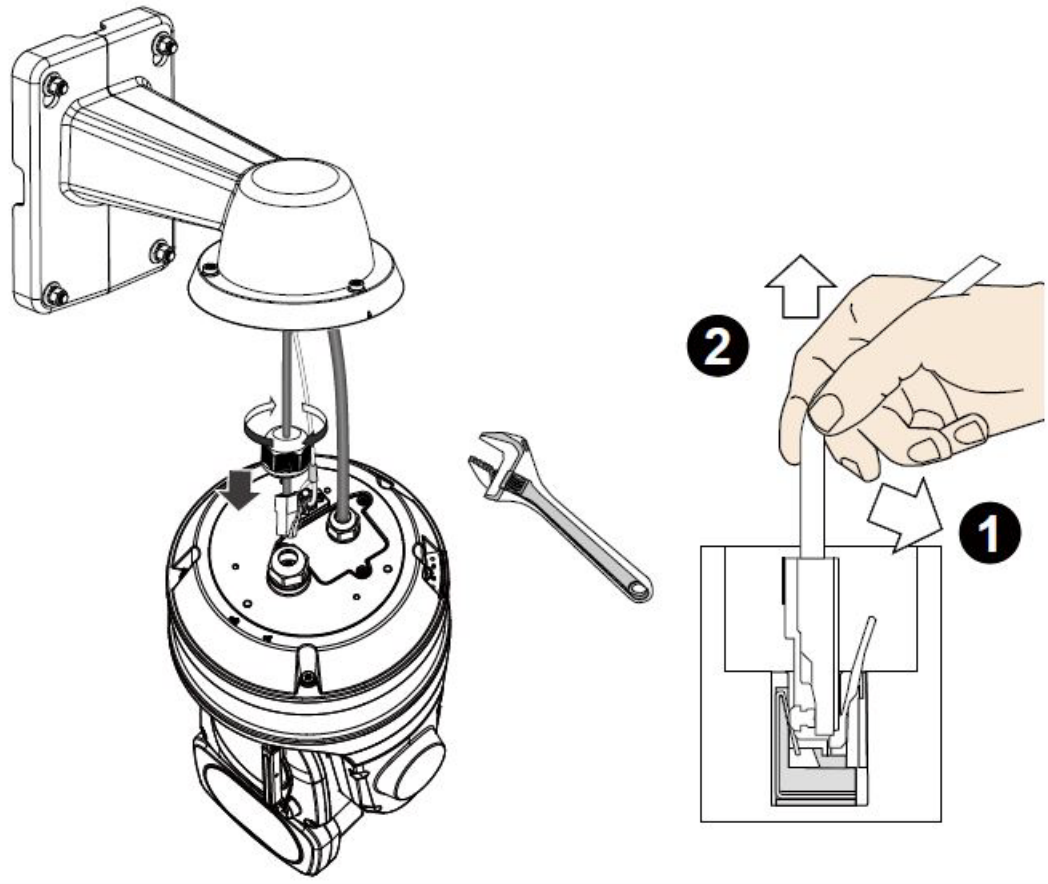




**Step 12** Connect the Ethernet cable (along with its cable gland) to the camera.

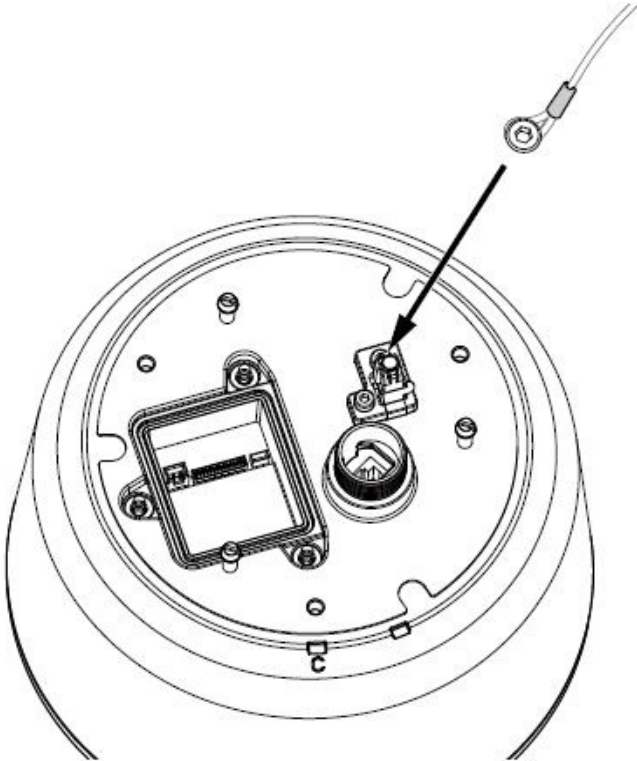


**Note** To disconnect a LAN cable, loosen the cable gland and pull the cable against the socket wall towards the side of the locking tab

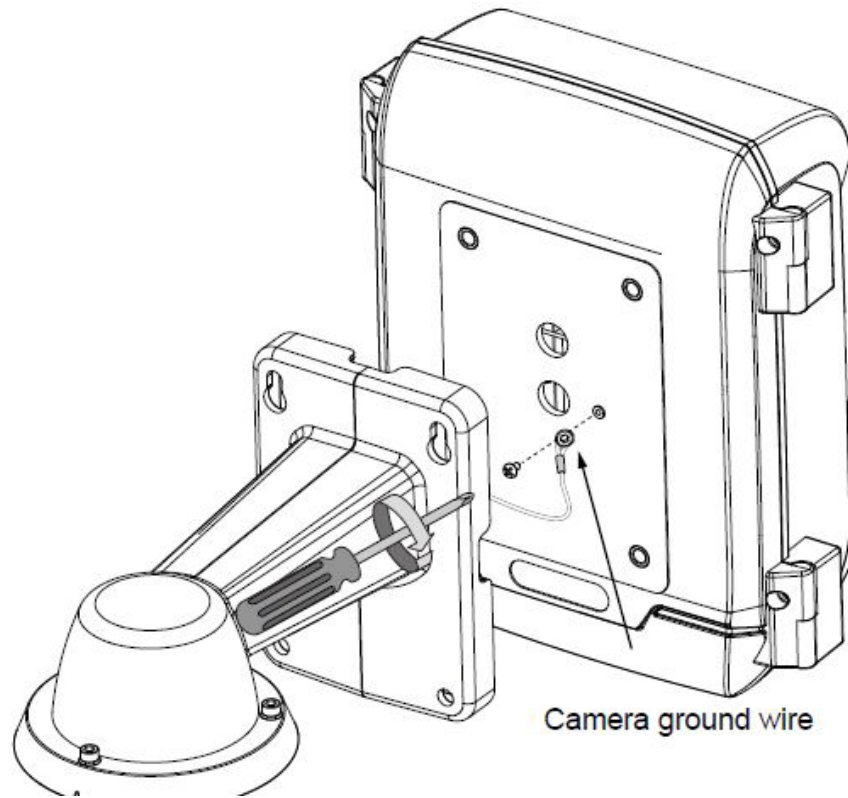


**Important:** Make sure all waterproof cable glands have been properly installed. Water leakage will cause irreparable damage to the camera

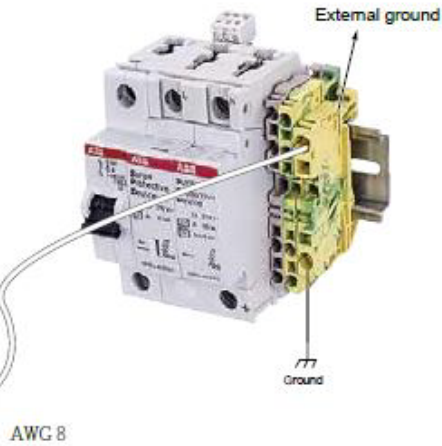
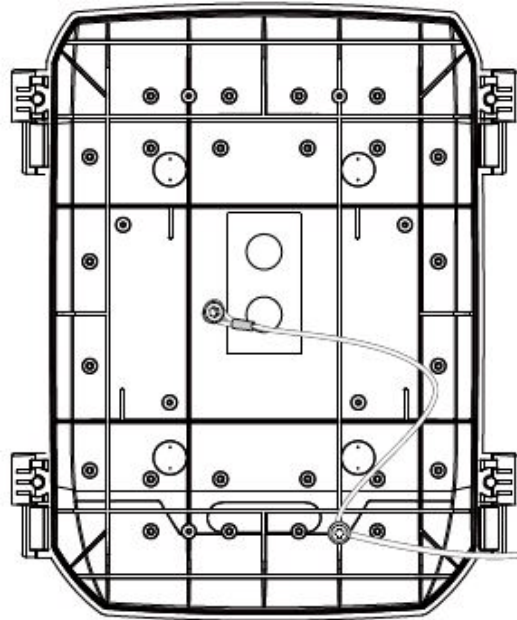
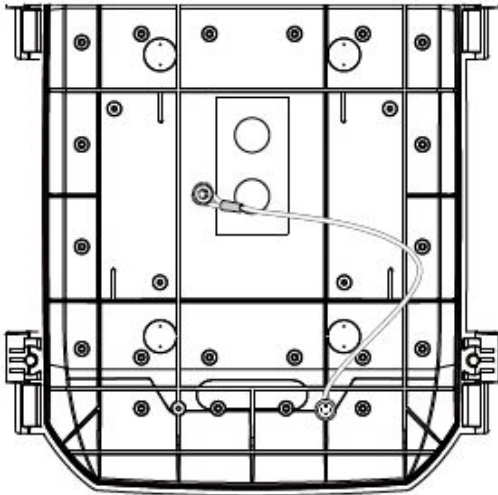
**Step 13** Connect the included ground wire.



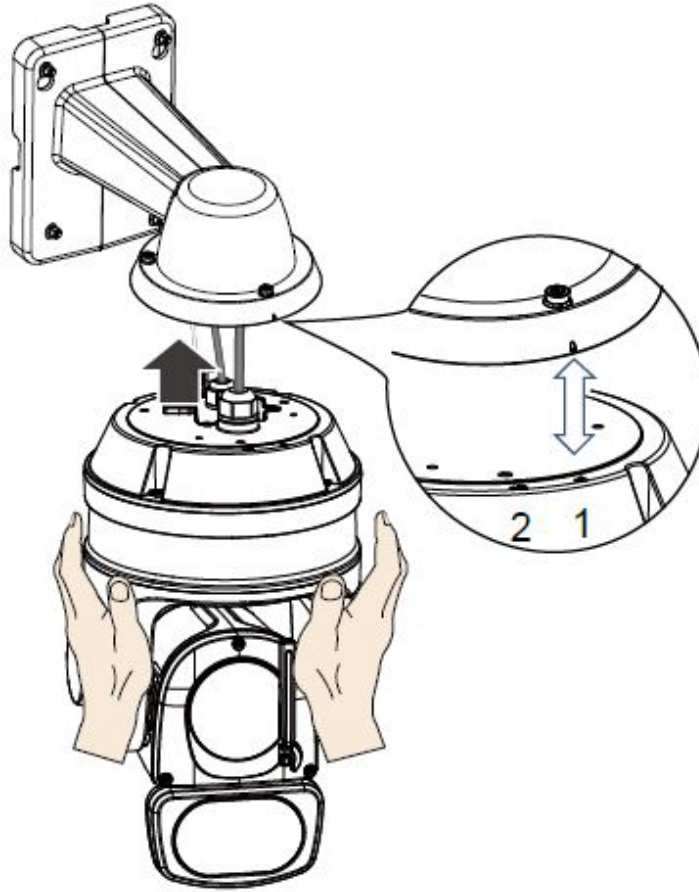
Connect the ground wire to the copper screw hole on the cabinet door.



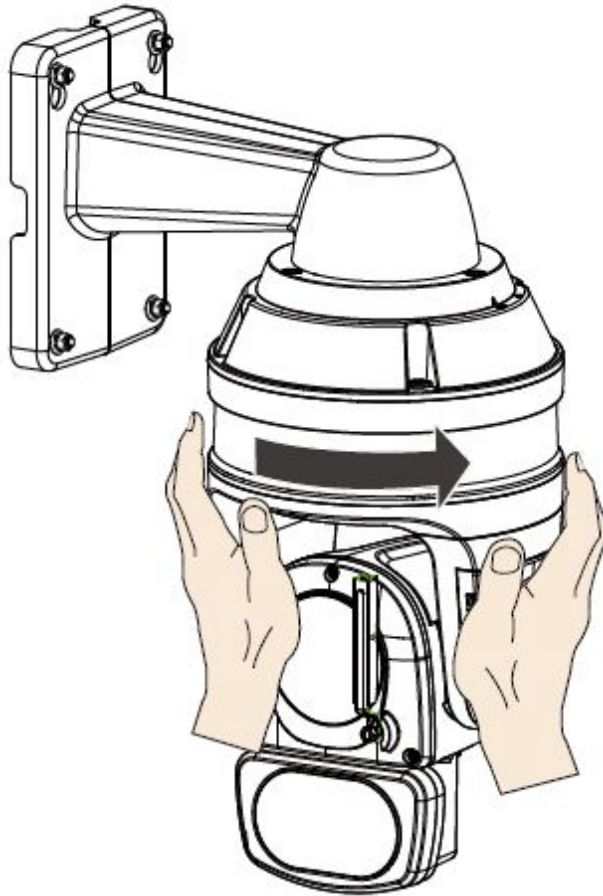
Connect all ground wires (including those from the surge protectors) to one position on the cabinet door, to the terminal block, and then to the external ground.



**Step 14** Install the camera to bracket by aligning the mark on bracket with the #1 marking on the camera.



**Step 15** Turn the camera clockwise. The camera should be locked in place.



**Step 16** Secure the connection using the T25 L-wrench from the top

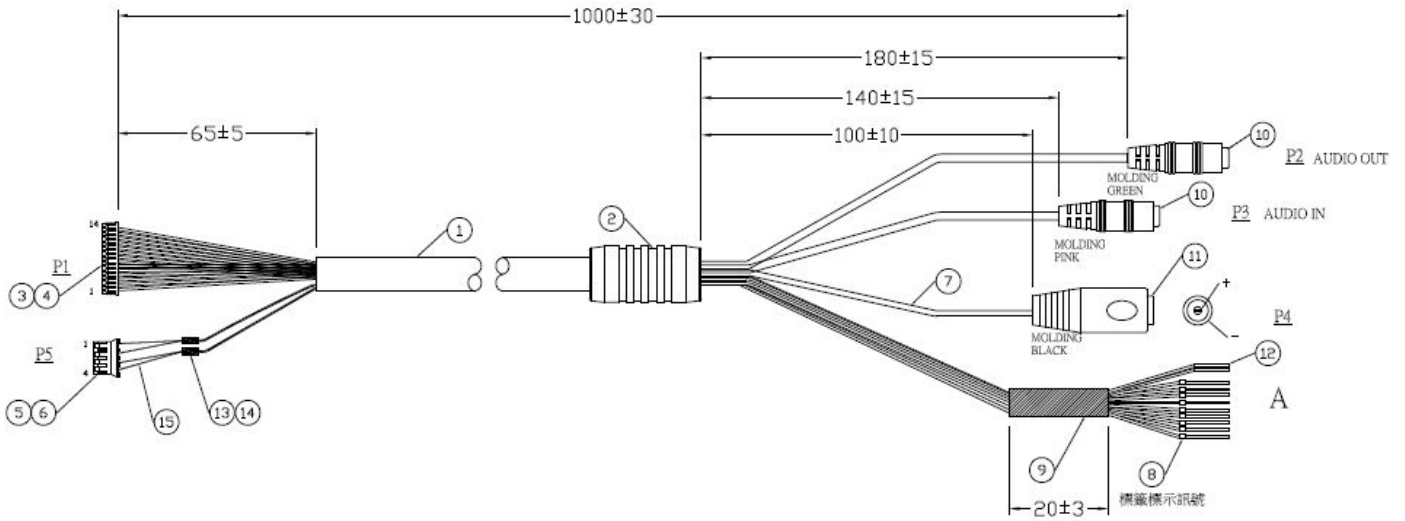
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## I/O Combo Cable Specifications

Figure 1-5 shows specifications for the I/O combo cable for the camera.

All materials must be RoHS Compliant

Figure 1-5 I/O Combo Cable Specifications



1	Cable: #26x11C+#28COAXx2C+22c2c OD=7.5 mm	9	HT-TUBE-Ø5mm*20mm
2	SR PVC #SC09095	10	Phone jack
3	Housing: Molex 51021-1400 or equivalent	11	DC 5.5*2.1, female #955-913
4	Thermal: Molex 50058-8000 or equivalent	12	Nylon-insulated butt splice conn.: KST #BNYT0.5
5	Housing: JST PHR-4 or equivalent	13	Terminal: CY U8005-BS0 or equivalent
6	Terminal: JST SPH-002T-P0.5S or equivalent	14	HT-Tube-Ø3.5mm*10mm
7	PVC Tube Ø2.6mm*135mm	15	Wire: UL1007 #24
8	Label		

Pin assignment:

Camera Input/Output Connections	P1	A(COLOR)	P3	P2
DI_4	1	Brown		
DI_3	2	Light-green		
DI_2	3	Orange		
DI_1	4	Yellow		
DO_2	5	Green		
DO_1	6	Blue		
DO+	7	Purple		
Reserved	8	Pink		
RS485-	9	White		
RS485+	10	Gray		

Camera Input/Output Connections	P1	A(COLOR)	P3	P2
DI-	11	Light blue		
AUDIO_IN	12	Red	1	
AUDIO_GND	13	—	GND	GND
AUDIO_OUT	14	White		1,2

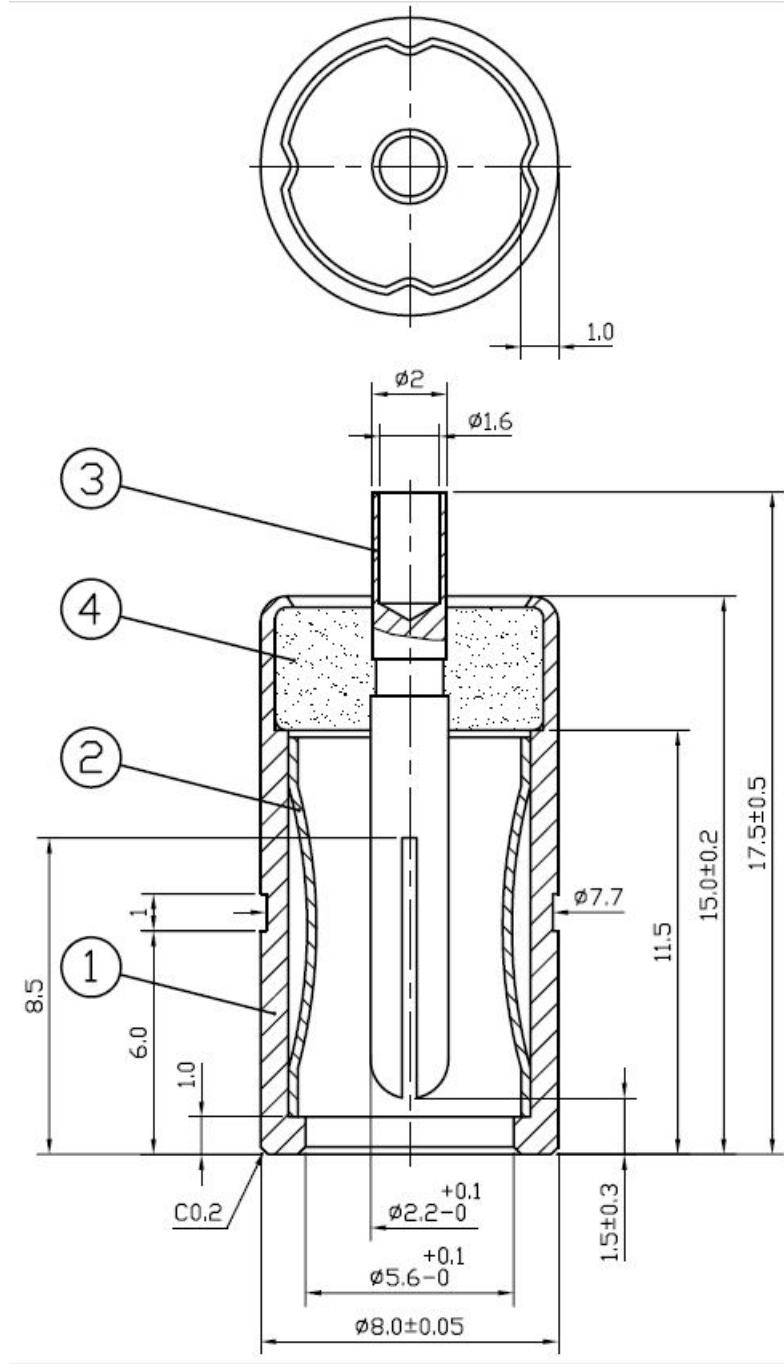
P5	P4
1 (black)	—
2 (black)	—
3 (red)	+
4 (red)	+

The 24V DC socket dimensions are shown in [Figure 1-6](#). The DC socket should comply with a DC jack of the following parameters:

- Connector—Straight round barrel
- Pin size /DC plug dimensions—2.1 x 5.5 x 10 mm (AxBxC)
  - A inner diameter: 2.1mm
  - B outer diameter: 5.5mm
  - C length: 10 mm



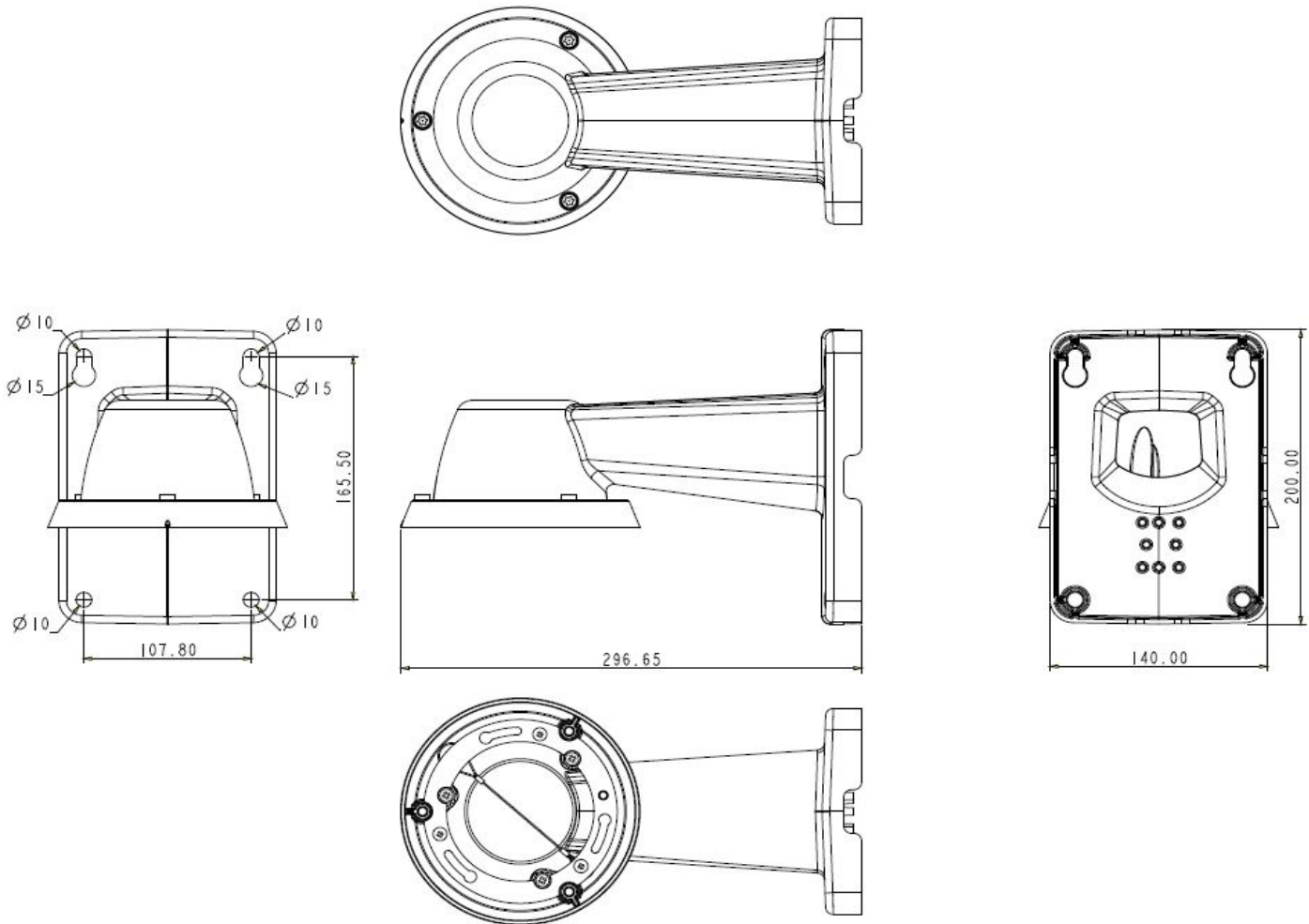
Figure 1-6 24V DC Socket Dimensions



# Mechanical Dimensions

Figure 1-7 shows the dimensions of the wall mount bracket and its mounting holes.

Figure 1-7 Mechanical Dimensions



## Network Deployment

The following sections provide information about deploying the camera on a network:

- [Setting up the Network Camera over the Internet, page 1-26](#)
- [General Connection, page 1-29](#)

## Setting up the Network Camera over the Internet

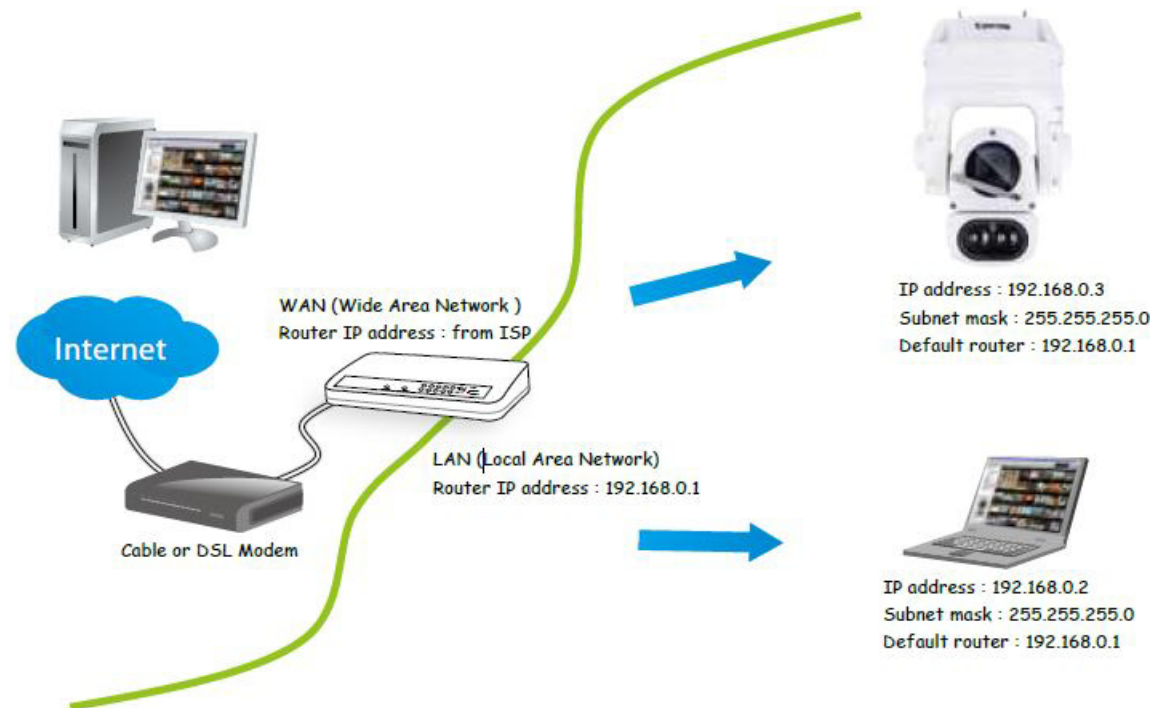
There are several ways to set up the Network Camera over the Internet. The first way is to set up the Network Camera behind a router. The second way is to utilize a static IP. The third way is to use PPPoE.

### Internet Connection via a Router

Before enabling the access to the Network Camera over the Internet, make sure you have a router and follow these steps:

- Step 1** Connect your camera behind a router, the Internet environment is illustrated in [Figure 1-8](#).

**Figure 1-8** Connecting the Camera Via a Router



- Step 2** In this case, if the Local Area Network (LAN) IP address of your camera is 192.168.0.3, forward the following ports for the camera on the router.:

- Secondary HTTP port: 8080
- RTSP port: 554
- RTP port for audio: 5558
- RTCP port for audio: 5559
- RTP port for video: 5556
- RTCP port for video: 5557

If you have changed the port numbers on the Network page, open the ports accordingly on your router. For information about how to forward ports on the router, see your router documentation.

- Step 3** Find out the public IP address of your router provided by your Internet Service Provider (ISP).

Use the public IP and the secondary HTTP port to access the camera from the Internet. See the [“Network > General settings”](#) section on page 5-20 for more information.

For example, your router and IP settings may look like this:

Device	IP Address: Internal Port	IP Address: External Port (Mapped Port on the Router)
Public IP of router	122.146.57.120	
LAN IP of router	192.168.2.1	
Camera 1	192.168.2.10:80	122.146.57.120:8000
Camera 2	192.168.2.11:80	122.146.57.120:8001
...	...	...

Configure the router, virtual server, or firewall so that the router can forward any data coming into a preconfigured port number to a camera on the private network, and allow data from the camera to be transmitted to the outside of the network over the same path.

From	Forward to
122.146.57.120:8000	192.168.2.10:80
122.146.57.120:8001	192.168.2.11:80
...	...

When properly configured, you can access a camera behind the router using the HTTP request such as: `http://122.146.57.120:8000`.

If you change the port numbers on the Network configuration page, open the ports accordingly on your router. For example, you can open a management session with your router to configure access through the router to the camera within your local network. See your network administrator for router configuration if you have trouble with the configuration.

For more information about network configuration options (such as that of streaming ports), choose **Configuration > Network** in the IP camera web-based interface. Cisco also provides the automatic port forwarding feature as an NAT traversal function with the precondition that your router must support the UPnP port forwarding feature.

#### Internet connection with static IP

Choose this connection type if you are required to use a static IP for the Network Camera. See the [“Network > General settings” section on page 5-20](#) for more information.

#### Internet connection via PPPoE (Point-to-Point over Ethernet)

Choose this connection type if you are connected to the Internet via a DSL Line. See the description of PPPoE (Point-to-point over Ethernet) in the [“Network > General settings” section on page 5-20](#).

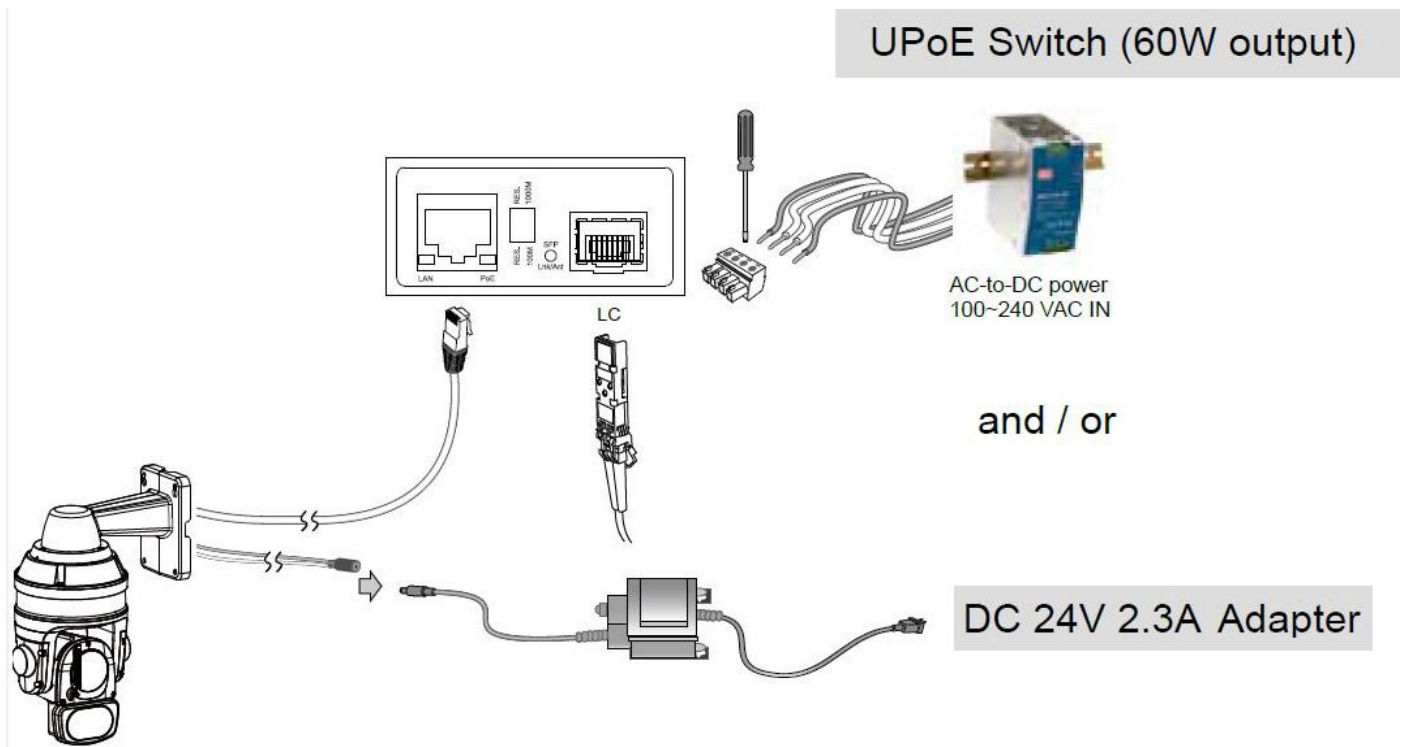
## General Connection

**Step 1** Connect the Network Camera's Ethernet cable (CAT5e) to a PoE Plus switch.

A 60W PoE output port alone can not drive the onboard heater, so if using the PoE switch alone, the application does not apply in low-temperature condition. When working under a temperature lower than  $-10^{\circ}\text{C}$ , a DC 24V 2.3A power adapter is required.

**Step 2** Connect the power wires to a DC 24V power adapter (user-supplied). The DC 24V adapter can drive the camera and the onboard heater.

You can connect both power sources for redundancy in power supply.

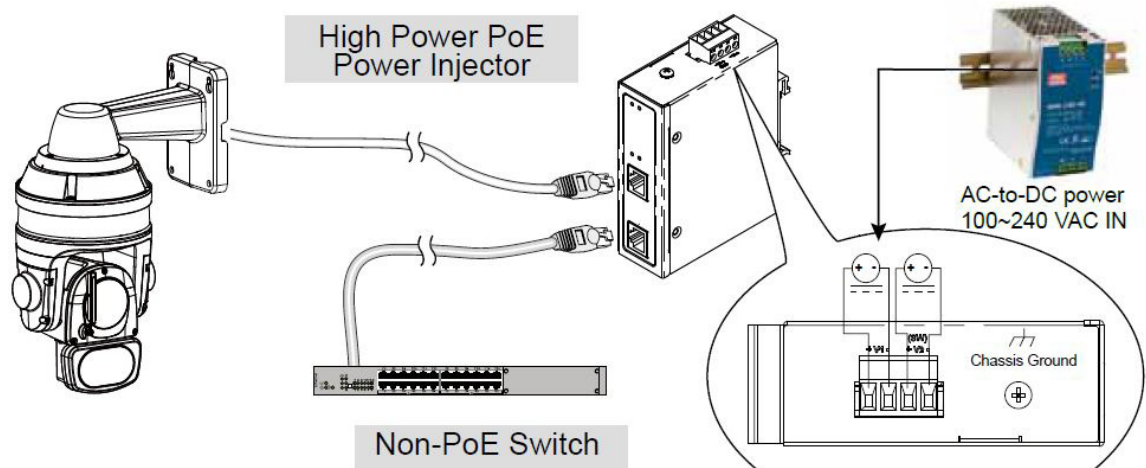


## Power over Ethernet (High Power PoE)

### Using a Non-PoE Switch

Use a High Power PoE power injector capable of 60W output or higher to connect between the camera and a non-PoE switch, as shown in [Figure 1-9](#). Sufficient power is required for low temperature conditions when the onboard heater is activated

**Figure 1-9** Connecting the Camera to a Non-PoE Switch



- Currently the Network Camera utilizes a 32-bit ActiveX plugin. You cannot open a management/view session with the camera using a 64-bit IE browser.
- If you encounter this problem, try execute the Iexplore.exe program from C:\Windows\SysWOW64. A 32-bit version of IE browser will be installed.
- On Windows 7, the 32-bit explorer browser can be accessed from here: C:\Program Files (x86)\Internet Explorer\iexplore.exe
- If you experience compatibility issues between the plug-in control, you may try to uninstall the Camera Stream Controller located in: C:/Program Files (x86)/Camera Stream Controller