Installation Guide

Avigilon™ H4 PTZ Dome Camera Models:

1.0C-H4PTZ-DP45 and 2.0C-H4PTZ-DP30

Important Safety Information

This manual provides installation and operation information and precautions for the use of this device. Incorrect installation could cause an unexpected fault. Before installing this equipment read this manual carefully. Please provide this manual to the owner of the equipment for future reference.

This Warning symbol indicates the presence of dangerous voltage within and outside the product enclosure that may result in a risk of electric shock, serious injury or death to persons if proper precautions are not followed.

This Caution symbol alerts the user to the presence of hazards that may cause minor or moderate injury to persons, damage to property or damage to the product itself if proper precautions are not followed.

WARNING — Failure to observe the following instructions may result in severe injury or death.

- Installation must be performed by qualified personnel only, and must conform to all local codes.
- This product is intended to be supplied by a UL Listed Power Unit marked "Class 2" or "LPS" or "Limited Power Source" with output rated 24 VAC +/- 10%, 80 VA min.; 24 VDC +/- 10%, 57 W min.; Power over Ethernet (PoE) Plus IEEE802.3at compliant Power Sourcing Equipment (PSE) or 60 W PoE PSE.
- Any external power supply connected to this product may only be connected to another Avigilon product of the same model series. External power connections must be properly insulated.
- Do not connect directly to mains power for any reason.

CAUTION — Failure to observe the following instructions may result in injury to persons or damage to the device.

- Do not install near any heat sources such as radiators, heat registers, stoves, or other sources of heat.
- Do not subject the device cables to excessive stress, heavy loads or pinching.
- Do not open or disassemble the device. There are no user serviceable parts.
- Refer all device servicing to qualified personnel. Servicing may be required when the device has been damaged (such as from a liquid spill or fallen objects), has been exposed to rain or moisture, does not operate normally, or has been dropped.
- Do not use strong or abrasive detergents when cleaning the device body.
- Use only accessories recommended by Avigilon.
- This product should be installed in restricted access locations.

Regulatory Notices

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus complies with Canadian ICES-003.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications made to this equipment not expressly approved by Avigilon Corporation or parties authorized by Avigilon Corporation could void the user's authority to operate this equipment.

Disposal and Recycling Information

When this product has reached the end of its useful life, please dispose of it according to your local environmental laws and guidelines.

Risk of fire, explosion, and burns. Do not disassemble, crush, heat above 100 °C (212 °F), or incinerate.

European Union:

This symbol means that according to local laws and regulations your product should be disposed of separately from household waste. When this product reaches its end of life, take it to a collection point designated by local authorities. Some collection points accept products for free. The separate collection and recycling of your product at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

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Avigilon Corporation
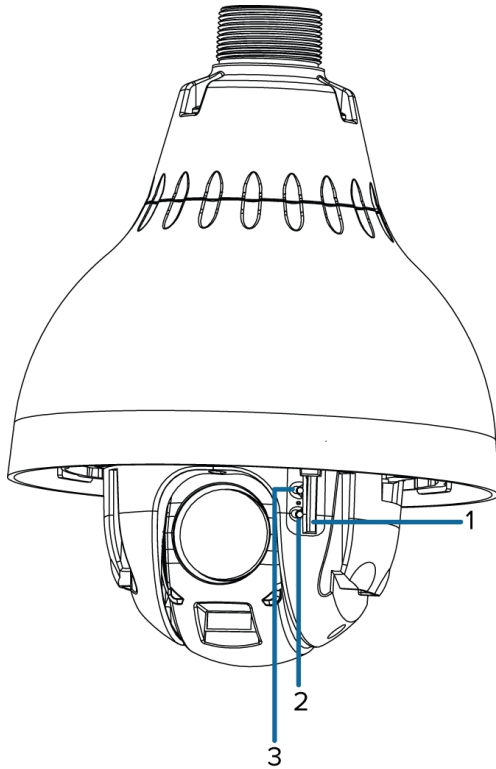avigilon.com

PDF-H4PTZ-DP-A

Revision: 5 - EN

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Overview

Front View

1. **SD card slot**
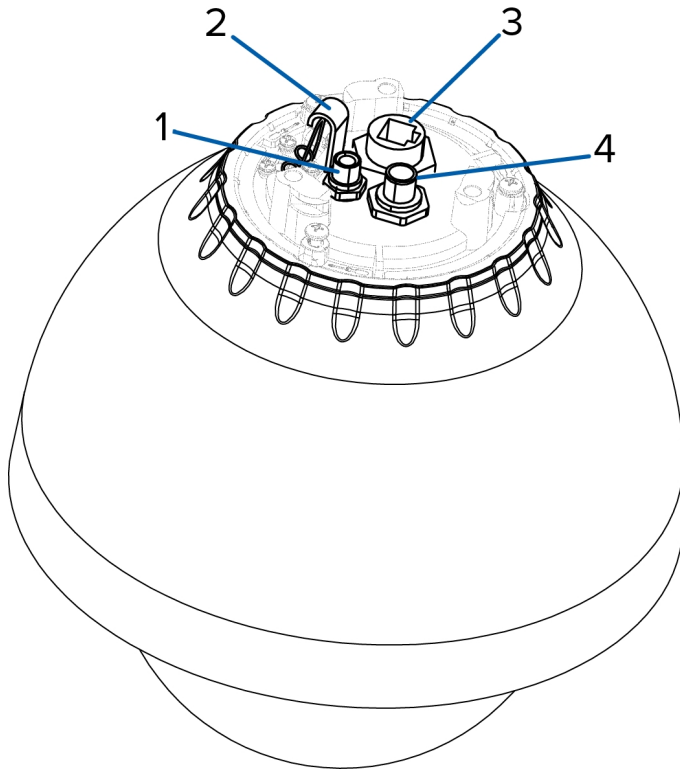
   Accepts an SD card for onboard storage.

2. **Connection status LED indicator**

   Provides information about device operation. For more information, see *Connection Status LED Indicator* on page 19.

3. **Link LED indicator**

   Indicates if there is an active connection in the Ethernet port.

Top View

1. **External power**

   Accepts an external power connection when Power over Ethernet is not available.

2. **Lanyard anchor**

   The safety lanyard attaches to the anchor to prevent the camera from falling during installation.

3. **Ethernet port**

   Accepts an Ethernet connection to a network. Server communication and image data transmission occurs over this connection. Also receives power when it is connected to a network that provides Power over Ethernet.

4. **External I/O**

   Provides connections to external input/output and audio devices.

Pendant Mount Adapter
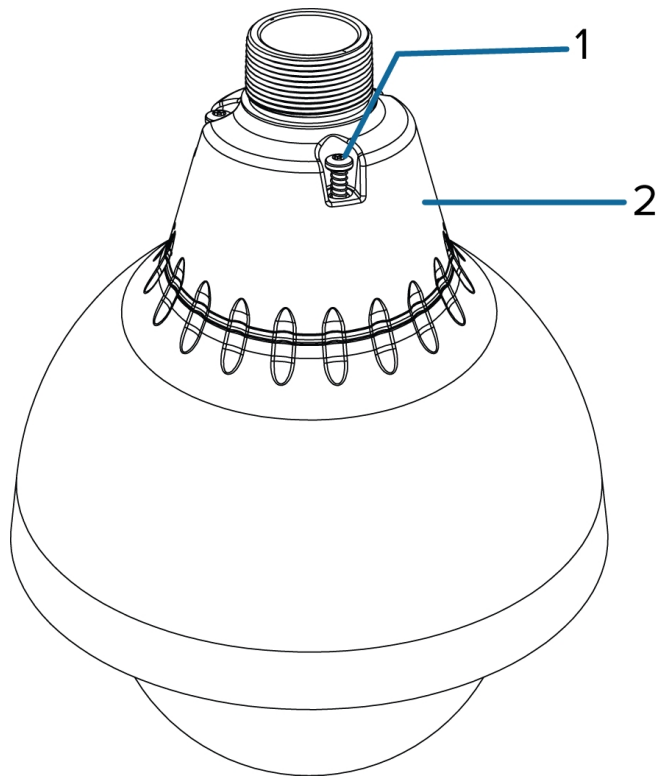
1. **Tamper resistant screws**

   Star captive screws to fix the dome camera to the mounting adapter.

2. **1-1/2" NPT mount adapter**

   Standard 1-1/2" NPT adapter for mounting the dome camera to a pendant mount bracket.

Installation

Camera Package Contents

Ensure the camera package contains the following:

- Avigilon H4 PTZ Dome Camera
    - PTZMH-MT-NPTA1 kit:
        - 1 ½" male NPT adapter
    - PTZMH-ACCS-CABL1 kit:
        - 1 ½" NPT locking nut
        - T20 Torx key
        - Teflon Sealing Tape
        - RJ-45 crimp-on plug and weather-resistant housing
        - External Power wiring harness
        - External I/O wiring harness

Ensure the pendant wall mount (CM-MT-WALL1) package contains the following:

- Pendant wall mount
- Mounting template sticker
- T20 Pin-In star-shaped driver
- 4 concrete anchors (#8-10)
- 4 screws (#8 x 1.25)
- RJ-45 grommet piercing cap
- Teflon sealing tape

Installation Steps

Complete the following sections to install the device.

Removing Protective Material Inside Dome Cover

The PTZ dome camera is packaged with protective material inside the dome cover to prevent damage to the camera and dome bubble during shipping. The protective material must be removed before the PTZ dome camera is installed.

1. Remove the dome cover by loosening the screws that fix the cover to the base. Use the T20 star-shaped key provided in the camera package.
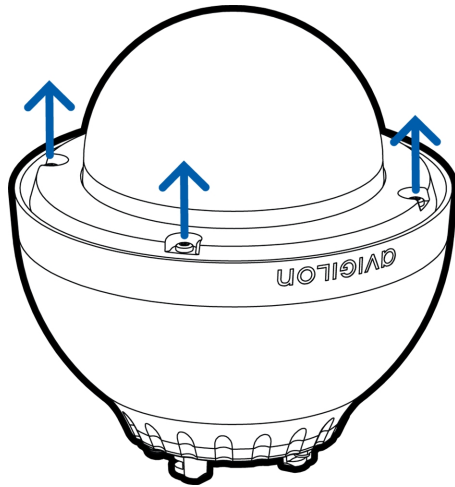
> **Note:** Be careful not to scratch or touch the dome bubble. The resulting marks or fingerprints may affect the overall image quality. Keep the protective covers on the outside of the dome bubble until the installation is complete.

2. Remove the protective material inside the dome cover.
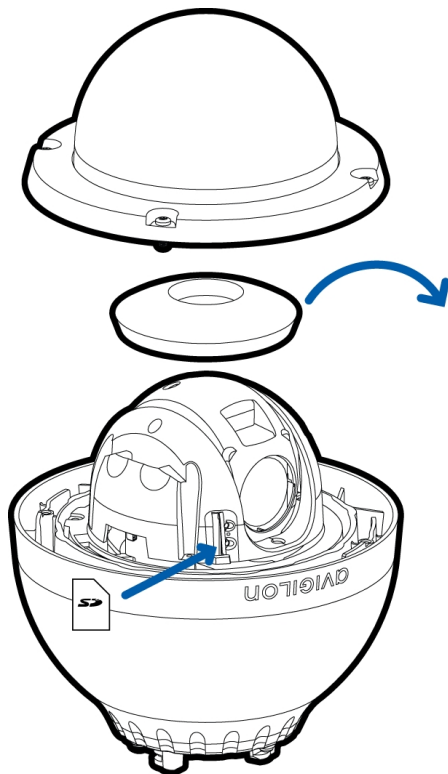
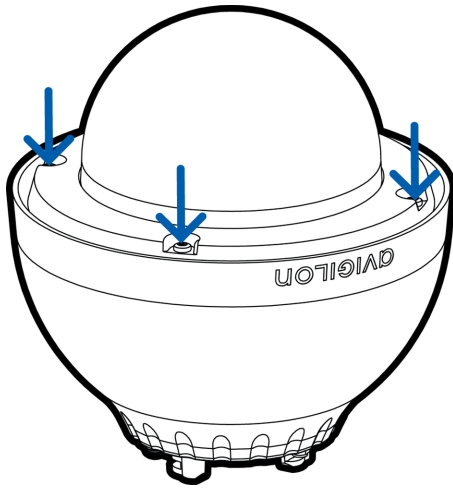3. If you are planning to use onboard storage, insert an SD card into the SD card slot on the PTZ camera. For more information, see *(Optional) Configuring SD Card Storage* below.

4. Attach the dome cover back to the base and tighten the screws.

(Optional) Configuring SD Card Storage

To use the camera's SD card storage feature, you must insert an SD card into the card slot.

It is recommended that the SD card have a capacity of 8 GB or more and a write speed of class 610 or better. If the SD card does not meet the recommended capacity or write speed, the recording performance may suffer and result in the loss of frames or footage.

1. Insert an SD card into the camera.

   ⚠️ **CAUTION —** Do not force the SD card into the camera or you may damage the card and the camera. The SD card can only be inserted in one direction.

2. Access the camera's web interface to enable the onboard storage feature. For more information, see the *Avigilon High Definition H4 and H5 IP Camera Web Interface User Guide*.

Installing the Pendant Wall Mount

1. Determine where the cables will enter the pendant wall mount.
   - If the cables will be pulled from inside the mounting surface, use the cable entry hole at the rear of the pendant wall mount.
   - If the cables will be coming out of an external conduit pipe, use the 3/4" NPT pipe entry hole on the bottom of the pendant wall mount.

2. Use the provided mounting template to drill four mounting holes into the mounting surface.
   - If you are using the rear cable entry hole, also drill the cable entry hole into the mounting surface.

3. Fasten the pendant wall mount bracket to the mounting surface.
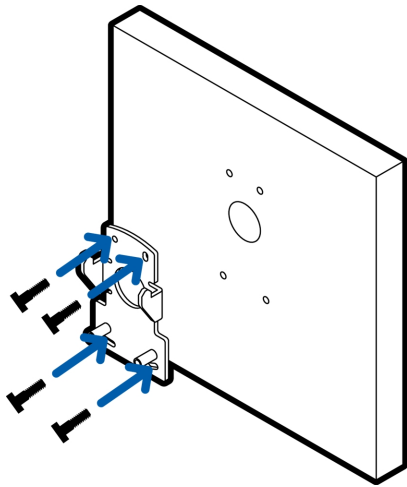
4. Insert the pendant wall mount over the bracket mounting tabs.
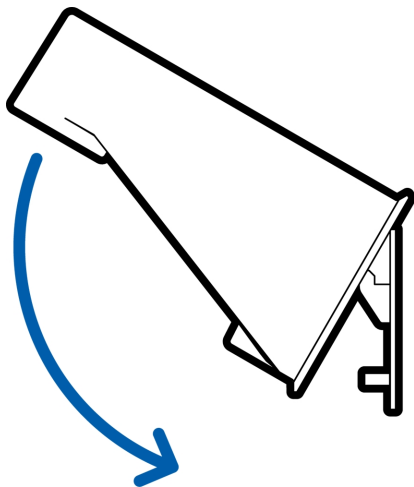
5. Pull the required cables through the preferred cable entry hole on the pendant wall mount.

    -   If you are using the pipe entry hole, pull the cables through the pipe conduit then the wall mount. Next, apply thread seal tape to the pipe conduit and screw it into the pipe entry hole.
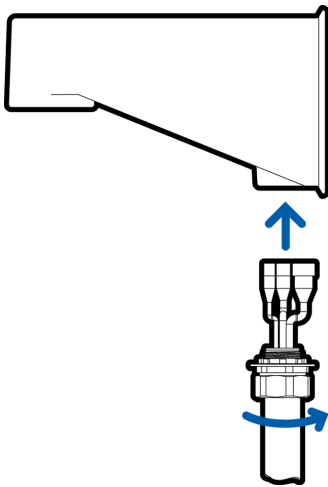
6. Tighten the wall mount screws to secure the wall mount to the bracket. Use the T20 star-shaped key provided in the camera package.
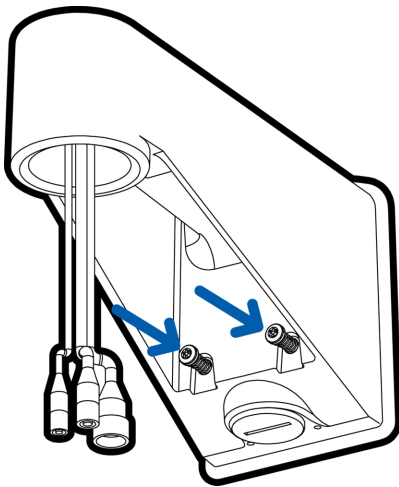
7. Wrap the thread of the NPT adapter with the supplied thread-sealing tape to create a water tight seal around the camera connection. There should be three to five turns around the entire threaded surface.

When applying the thread-sealing tape, wrap the tape clockwise.

This will ensure the tape does not unravel when installing the mating parts together.

> **Tip:** Always apply thread-sealing tape to threaded mounts to help prevent the threads from binding.

8. Loosely thread the lock nut onto the NPT adapter, then secure the NPT adapter into the pendant wall mount.
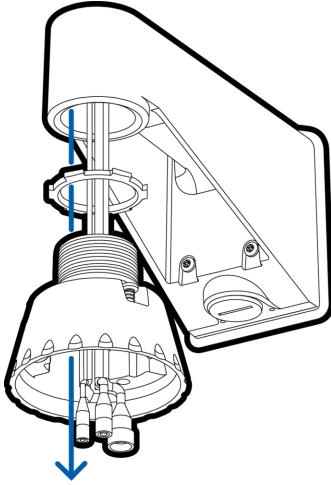
9. Connect the safety lanyard from inside the NPT mount adapter to the anchor on the PTZ dome camera.
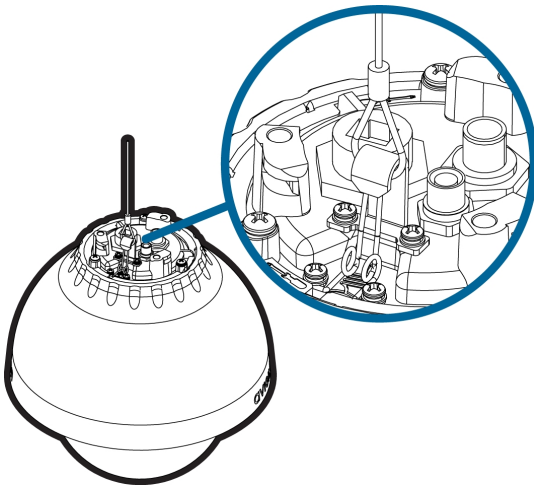
Connecting Cables

Refer to the diagrams in the Overview section for the location of the different connectors.

To connect the cables required for proper operation, complete the following:

1. Make sure the safety lanyard is connected to the PTZ dome camera.
2. If there are external input or output devices that need to be connected to the camera (for example: door contacts, relays, analog video, speakers, etc.), connect the devices to the camera I/O connector cable.

3. Connect power using one of the following methods:

- Power over Ethernet (PoE) Plus IEEE 802.3at Class 4 — Connect a PoE Plus compliant injector or switch to the Ethernet network cable.
- 60 W PoE Injector (POE-INJ2-60W) — Connect an Ethernet network cable to the injector.
- Cisco® UPoE capable switch, supporting 60 W over 4 pairs. Note that the Cisco switch must be configured with the *Force Four Pair* option enabled.
- External Power — Connect an auxiliary power source that supports up to 60 W.

   For more information, see *Connecting External Power* on page 14.

4. Connect a network cable to the Ethernet port (RJ-45 connector).

   The Link LED indicator will turn on once a network link has been established.

5. Check that the Connection Status LED indicator indicates the correct state. For more information, see *Connection Status LED Indicator* on page 19.

Securing the PTZ Dome Camera

After the cable connections have been made, secure the PTZ dome camera to the mount.

1. Attach the dome to the NPT adapter.

   a. Push the PTZ dome camera into the 1 1/2" NPT mount adapter.

   > **Note:** Be careful not to trap any cables between the dome camera housing and the mount adapter.

   b. Once the dome is aligned to the NPT adapter, turn the dome until it locks into place.
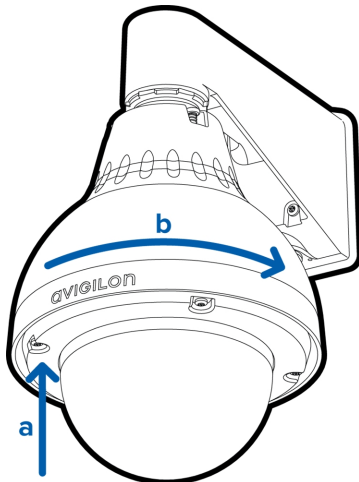
2. Use the Torx key provided with the dome camera to tighten the screws in the mount adapter.

   Adjust the NPT adapter as needed to reach all the screws.
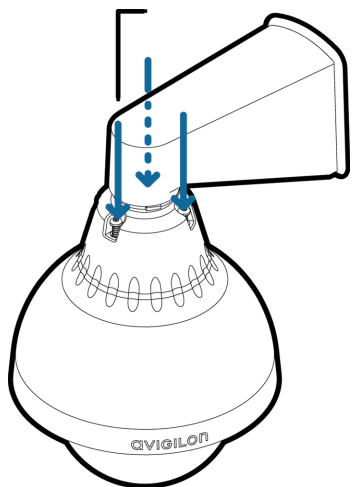
3. Make sure the mount adapter is secured, then tighten the lock nut to fix the dome camera to its final position.
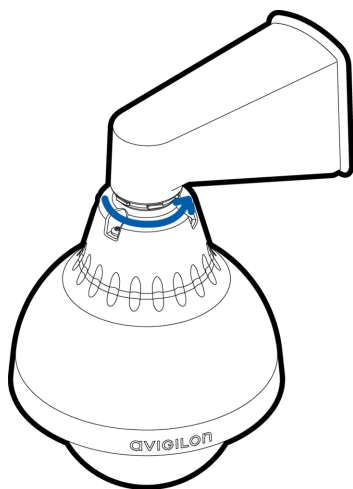
Initializing a Camera Username and Password

Cameras manufactured after January 1, 2020, do not have a default username or password and will be in a factory default state.

> **Important:** You must create a user with *administrator* privileges before the camera is operational.

The first user can be created using any of the following methods:

- Camera's Web Interface: enter the camera's IP address in a web browser to access the web interface. If the camera is in the factory default state you will be redirected to the Add a new user page to create the first user. For more information, see the *Avigilon High Definition H4 and H5 IP Camera Web Interface User Guide.*

- Camera Configuration Tool version 1.4.4 or later: cameras discovered in the factory default state will be identified by ⚠. Select the **Admin Users** tab to create the first user. For more information, see the *Avigilon Camera Configuration Tool User Guide*.

- USB Wi-Fi Adapter: when connecting a camera in the factory default state, you will be redirected to the Create Administrator User page to create the first user. For more information, see *Avigilon USB Wi-Fi Adapter System User Guide*.

- Avigilon Control Center software version 7.4 or later, or version 6.14.12 or later: when connecting a camera in the factory default state, the client software will ask you to create a new user. For more information, see the *Avigilon Control Center Client User Guide*.

- Avigilon Blue service v3.0 or later: when adding a camera you will be asked to create a new user for cameras in the factory default state. For more information, see the *Avigilon Blue Subscriber or Dealer User Guides*.

> **Tip:** If you are connecting your Avigilon camera to a 3rd party VMS, you will need to set up the first user through the camera's Web Interface, Camera Configuration Tool, or USB Wifi Adapter before you connect to the 3rd party VMS.

Assigning an IP Address

The camera automatically obtains an IP address when it is connected to a network.

> **Note:** If the camera cannot obtain an IP address from a DHCP server, it will use Zero Configuration Networking (Zeroconf) to choose an IP address. When set using Zeroconf, the IP address is in the 169.254.0.0/16 subnet.

The IP address settings can be changed using one of the following methods:

- Camera's web browser interface: http://*<camera IP address>*/
- Network video management software application (for example, Avigilon Control Center (ACC)™ software).
- ARP/Ping method. For more information, see *Setting the IP Address Using the ARP/Ping Method* on page 21.

> **Note:**
> Depending on the manufacture date of your camera, you will have one of the two options below to log in for the first time:

- Cameras manufactured after January 1, 2020: these cameras do not have a default username or password and will be in a factory default state. **You must create a user with *administrator* privileges before the camera is operational.** For more information, see *Initializing a Camera Username and Password* on page 11.
- Cameras manufactured before January 1, 2020: login to the camera using the default username of `administrator` with no password. It is recommended that you change the password after your first login.

Accessing the Live Video Stream

Live video stream can be viewed using one of the following methods:

- Web browser interface: http://*<IP address>*/
- Network video management software application (for example, the Avigilon Control Center software).

Note:
Depending on the manufacture date of your camera, you will have one of the two options below to log in for the first time:

- Cameras manufactured after January 1, 2020: these cameras do not have a default username or password and will be in a factory default state. **You must create a user with *administrator* privileges before the camera is operational.** For more information, see *Initializing a Camera Username and Password* on page 11.
- Cameras manufactured before January 1, 2020: login to the camera using the default username of `administrator` with no password. It is recommended that you change the password after your first login.

For More Information

Additional information about setting up and using the device is available in the following guides:

- *Avigilon Control Center Client User Guide*
- *Web Interface User Guide — Avigilon High Definition H4 and H5 IP Cameras*
- *Avigilon USB Wi-Fi Adapter System User Guide*
- *Avigilon Camera Configuration Tool User Guide*
- *Designing a Site with Avigilon Video Analytics*

These guides are available on **help.avigilon.com** and on the Avigilon website: **avigilon.com/support-and-downloads**.

Cable Connections

Connecting External Power

> **Note:** This procedure is not required if Power over Ethernet (PoE) is used.

1. Remove as much insulation as required to splice the supplied power connector to the power adapter wires (not included).

   Do not nick or damage the wires.

2. Remove the dummy plug from the power receptacle on the top of the camera.
3. Attach the power connector to the receptacle on the camera.

The power connector pin details are:

1. Brown — Power, accepts either polarity
2. Not used
3. Blue — Power, accepts either polarity

⚠ **WARNING —** This product is intended to be supplied by a UL Listed Power Unit marked "Class 2" or "LPS" or "Limited Power Source" with output rated 24 V AC +/- 10%, 80 VA min. or 24 V DC +/- 10%, 57 W min.

Connecting to External Devices

External devices, including audio and video devices, are connected to the camera through the I/O cable. The pinout for the I/O connector is shown here:
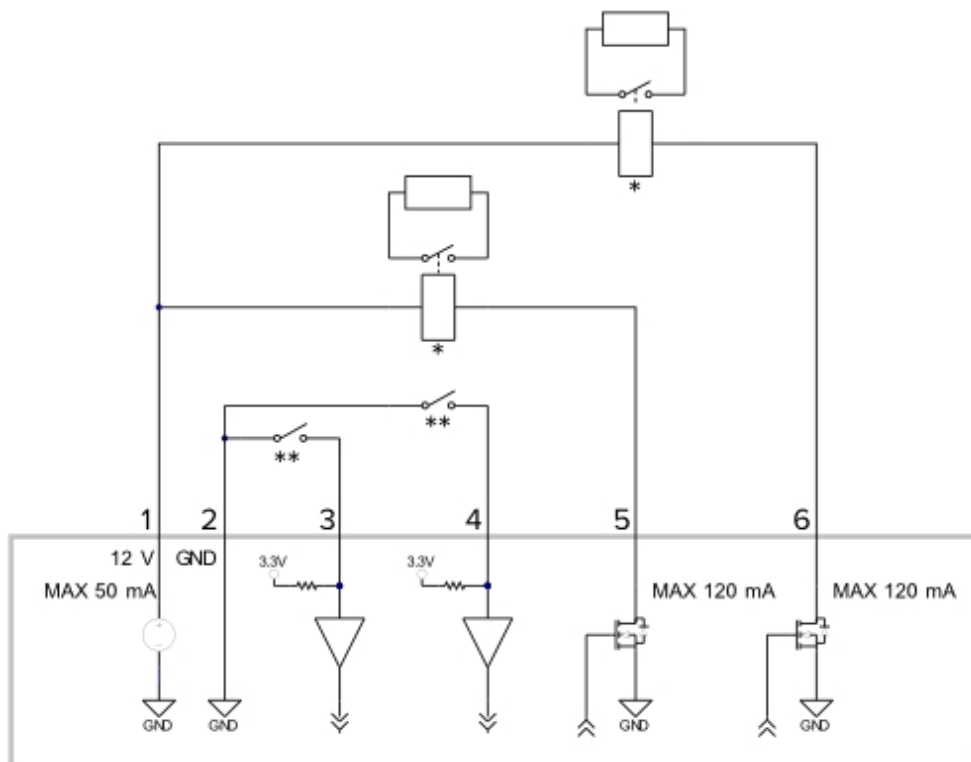
Figure 1: Example application.

1. Dark Red — +12 VDC, 50 mA max. output for relay drive
2. Grey — Relay ground return
3. Red — Relay input 1
4. Orange — Relay input 2
5. Pink — Relay output 1
6. Blue — Relay output 2

- * — Relay
- ** — Switch

Note: The 12 V connection can be used to energize a relay coil with up to 50 mA. If more than 50 mA is required, an external power supply up to 25 VDC at 120 mA can be used.

- White — Audio/video analog ground return
- Brown — Analog audio input
- Green — Analog audio output

- Yellow — Analog video output
- Black — not connected
- Purple — not connected

The camera can be connected to an external microphone, speaker and video monitor through the I/O connector.

Note: The camera only supports line level mono audio input and an NTSC or PAL video output.

The video output signal is determined by the camera flicker control setting. When the camera flicker control is set to 60 Hz, the video output signal is NTSC. When the flicker control is set to 50 Hz, the video output signal is PAL. Use the Camera Installation Tool to configure the camera's flicker control in the Image and Display setup.

Setting the Home Preset Position

The PTZ camera supports self-learning video analytics from the home preset position. The home preset position is typically the field of view the PTZ camera returns to after being used for investigations.

Before you can configure the camera's home position, you must connect the camera to a site in the ACC™ Client software. For more information about adding cameras to a site and the following steps, see the *Avigilon Control Center Client User Guide*.

To set the home preset position, display the live video from the PTZ camera then complete the following steps:

> **Tip:** Name the preset position "Home" so that it will be easy to find when configuring the camera for other applications.

1. Move the camera's field of view into position.
2. In the **Presets** drop-down list, select a number then click .
3. In the dialog box, enter a name for the preset.
4. Select the **Set as home preset** check box if you want this to be the camera's Home preset.
5. Click **OK**.

After you've set the camera's home preset position, you can configure the required video analytics events in the ACC Client software.

Manually Returning to the Home Position

After the home preset position has been configured, you can set the PTZ camera to return to the configured field of view by clicking .

Automatically Returning to the Home Position

You can also configure the PTZ camera to automatically return to the home preset position after the camera is left idle for a set amount of time. This can be configured in two ways: through a PTZ tour or a rule.

A PTZ tour can be configured from the camera web interface or in the ACC Client software. To configure the PTZ camera to automatically return to the home position, create a new tour and add only the home position to the preset list. Next, select the **Set as default tour** check box and use the **Default Tour Idle Start Time (Minutes)** field to define the expected amount of idle time before the camera returns to the home position.

To use the rule method, you must have an Enterprise Edition or Standard Edition version of the Avigilon Control Center system. To configure the PTZ camera to automatically return to the home position, create a rule that includes the following settings:

- On the Select Rule Event(s) page, select **PTZ idle**.
- On the Select Rule Action(s) page, select **Go to Home Preset**.

Connection Status LED Indicator

Once connected to the network, the Connection Status LED indicator will display the progress in connecting to the Network Video Management software.

The following table describes what the LED indicator shows:

Connection State	Connection Status LED Indicator	Description
Obtaining IP Address	One short flash every second	Attempting to obtain an IP address.
Discoverable	Two short flashes every second	Obtained an IP address but not connected to the Network Video Management software.
Upgrading Firmware	Two short flashes and one long flash every second	Updating the firmware.
Connected	On	Connected to the Network Video Management software or an ACC™ Server. The default connected setting can be changed to Off using the camera's web user interface. For more information see the *Avigilon High Definition H4 and H5 IP Camera Web Interface User Guide*.

Resetting to Factory Default Settings

If the device no longer functions as expected, you can choose to reset the device to its factory default settings.

Use the firmware revert button to reset the device. The firmware revert button is shown in the following diagram:

> **Note:** Be careful not to scratch the dome bubble.
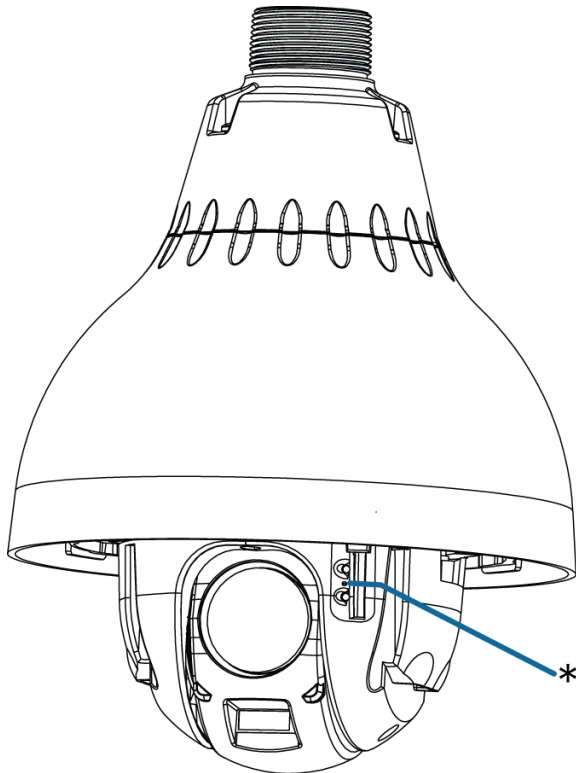
Figure 2: The firmware revert button between the status LEDs.

1. Ensure the camera is powered on.
2. Remove the dome cover by loosening the screws that fix the cover to the base. The Torx key included with the dome camera can be used to loosen the screws
3. Using a straightened paperclip or similar tool, gently press and hold the firmware revert button for two seconds.
4. Re-install the dome cover.

> ⚠ **CAUTION —** Do not apply excessive force. Inserting the tool too far may damage the camera.

Setting the IP Address Using the ARP/Ping Method

Complete the following steps to configure the camera to use a specific IP address:

1. Locate and copy down the MAC Address (MAC) listed on the Serial Number Tag for reference.
2. Open a Command Prompt window and enter the following commands:
    a. `arp -s` *<New Camera IP Address>* *<Camera MAC Address>*

       For example: `arp -s 192.168.1.10 00-18-85-12-45-78`

    b. `ping -l 123 -t` *<New Camera IP Address>*

       For example: `ping -l 123 -t 192.168.1.10`

3. Reboot the camera.
4. Close the Command prompt window when you see the following message:

    `Reply from` *`<New Camera IP Address>`*`: ...`

Cleaning

Dome Bubble

If the video image becomes blurry or smudged in areas, it may be because the dome bubble requires cleaning.

To clean the dome bubble:

- Use hand soap or a non-abrasive detergent to wash off dirt or fingerprints.
- Use a microfiber cloth or non-abrasive fabric to dry the dome bubble.

Important: Failure to use the recommended cleaning materials may result in a damaged or scratched dome bubble. A damaged dome bubble may negatively impact image quality and cause unwanted IR light reflecting into the lens.

Body

- Use a dry or lightly dampened cloth to clean the camera body.
- Do not use strong or abrasive detergents.

Specifications

Camera

Lens	4.3 to 129mm, F/1.6 – F/4.7, autofocus
Audio Input/Output	Line level input and output
Video Output	NTSC/PAL
SD Storage	SD/SDHC/SDXC slot – minimum class 4; class 6 or better recommended

Network

Network	100Base-TX
Cabling Type	CAT5
Connector	RJ-45
API	ONVIF compliance version 1.02, 2.00, Profile S (www.onvif.org)
Security	Password protection, HTTPS encryption, digest authentication, WS authentication, user access log, 802.1x port based authentication.
Streaming Protocols	IPv4, HTTP, HTTPS, SOAP, DNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, Zeroconf, ARP, LLDP, RTP/UDP, RTP/UDP multicast, RTP/RTSP/TCP, RTP/RTSP/HTTP/TCP, RTP/RTSP/HTTPS/TCP, HTTP

Mechanical

Dimensions Ø x H	226 mm x 299.77 mm (8.9" x 11.8")
Weight	3.9 kg (8.6 lbs)
Dome Bubble	Nylon
Body	Aluminum
Housing	Pendant mount
Finish	Powder coat, cool gray
Tilt	-10° to 90°, e-Flip, 360°/second
Pan	360°, endless, 450°/second

Electrical

Power Consumption	57 W max 80 VA with 24 V AC power

Power Source	V DC: 24 V +/- 10%
	V AC: 24 Vrms +/- 10%, 50 or 60Hz
	PoE: IEEE 802.3at Class 4 PoE+, or 60 W PoE (POE-INJ2-60W)
Power Connector	Waterproof 3-pin connector

Environmental

Operating Temperature	-40 °C to +50 °C (-40 °F to 122 °F) with external power or 60 W PoE
	-10 °C to +50 °C (-14 °F to 122 °F) with IEEE 802.3at Class 4 PoE + power
Storage Temperature	-10 °C to +70 °C (14 °F to 158 °F)
Humidity	0-95% non-condensing

Certifications

Certifications	UL cUL CE ROHS WEEE RCM EAC KC
Safety	UL 60950-1 CSA 60950-1 IEC/EN 60950-1
Environmental	IEC 60529 IP66 and IP67 rating
Electromagnetic Emissions	FCC Part 15 Subpart B Class B EN 55022 Class B EN 55032 Class B IC ICES-003 Class B EN 61000-6-3 EN 61000-3-2 EN 61000-3-3 KN 32
Electromagnetic Immunity	EN 55024 EN 61000-6-1 EN 50130-4 KN 35

Limited Warranty and Technical Support

Avigilon warranty terms for this product are provided at **avigilon.com/warranty**.

Warranty service and technical support can be obtained by contacting Avigilon Technical Support: **avigilon.com/contact-us/**.