

Installation Guide

Avigilon[™] High Definition H.264 PTZ IP Dome Camera Models:

1.0W-H3PTZ-DP20 and 2.0W-H3PTZ-DP20

Important Safety Information

This manual provides installation and operation information and precautions for the use of this camera. 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 use.



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



The 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%, 50 VA min.; 24 VDC +/- 10%, 35 W min. or Power over Ethernet (PoE) Plus IEEE802.3at Type 2 compliant Power Sourcing Equipment (PSE) rated 42.5-57 VDC, 25.5W min.
- 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 or damage to the camera.

- Do not install near any heat sources such as radiators, heat registers, stoves, or other sources of heat.
- Do not subject the cables to excessive stress, heavy loads or pinching.
- Do not open or disassemble the device. There are no user serviceable parts.
- Refer all 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.

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.

FCC Notice

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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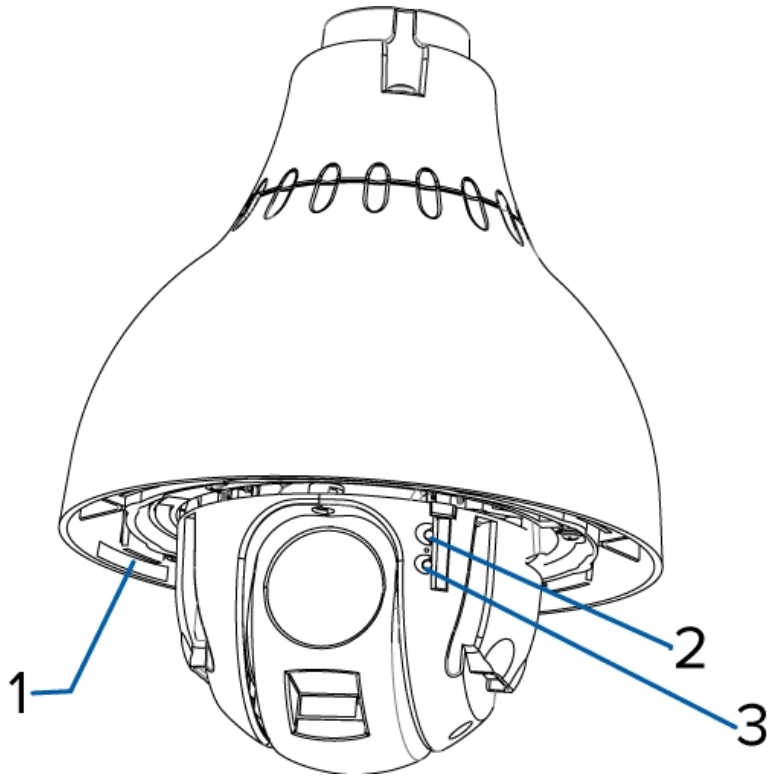
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Overview

Front View



1. **Serial number tag**

Device information, product serial number and part number label.

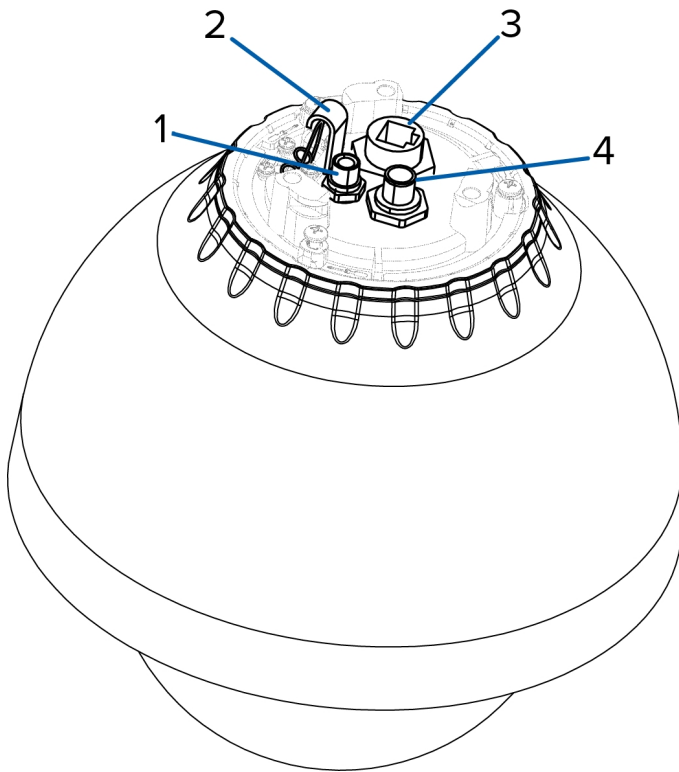
2. **Connection status LED**

Provides information about camera operation. For more information, see *LED Indicators* on page 14.

3. **Link LED**

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 or operation below -30 °C is required.

2. **Lanyard anchor**

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

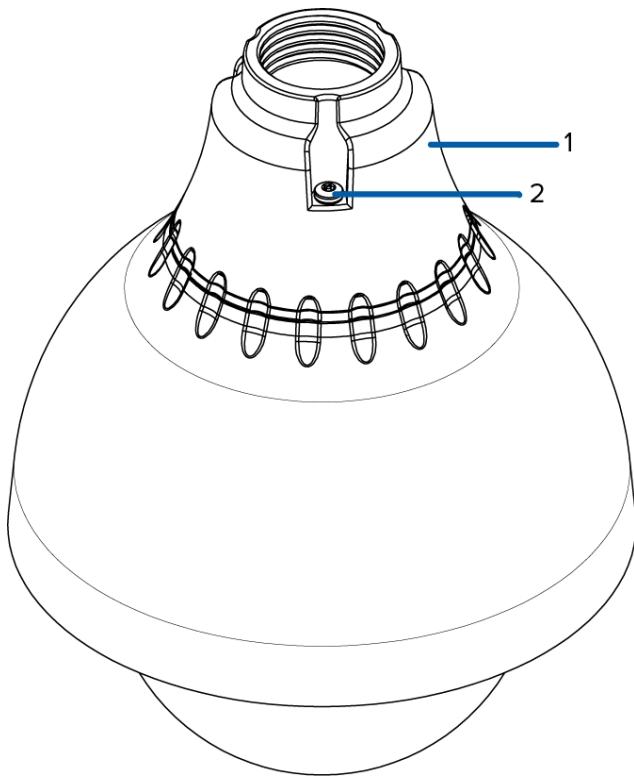
3. **Ethernet port**

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

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

2. **Tamper resistant screws**

Torx captive screws to fix the dome camera to the NPT adapter.

Installation

Camera Package Contents

Ensure the package contains the following:

- Avigilon™ High Definition PTZ Dome Camera
- H3-MH-NPTA1 kit:
 - 1 ½” NPT Adapter
- CAM-ACCS-H3PTZ kit:
 - T20 Torx key
 - Teflon Sealing Tape
 - RJ-45 crimp-on plug and weather-resistant housing
 - External Power wiring harness
 - External I/O wiring harness

Precautions for Installing Near Salt Water

Salt environments are hard on camera paint and external appearances but the camera's functionality will not be affected if the cameras are installed as described in this guide.

Follow these precautions to avoid camera issues when installing in a salt heavy environment:

- Use mounting accessories offered by Avigilon. All Avigilon accessories are tested to work with Avigilon cameras in the rated environments.
- If you use a third-party accessory, you *must* ensure that the material is compatible with the finish of the camera housing or galvanic corrosion may occur.
- Never pair steel mounting accessories with aluminum camera enclosures. Steel corrodes aluminum when salt is introduced. The corrosion is an electrochemical reaction and will cause the corrosion to spread across the entire camera body.
- Always insulate any camera surface that is in contact with another metal or conductive material. It is recommended that you always isolate the mounting screws from the mounting surface and camera housing with rubber or plastic shoulder washers.

Installation Steps

Complete the following steps to install the camera:

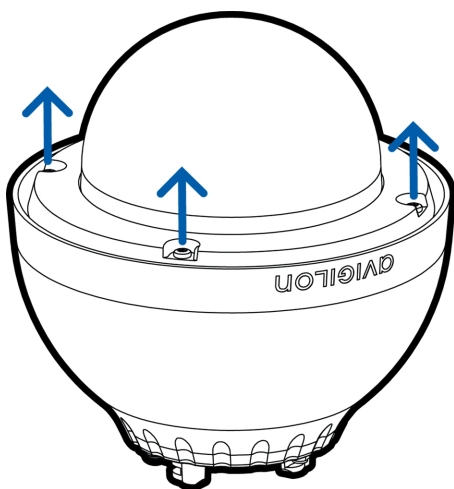
<i>Removing Protective Material Inside Dome Cover</i>	5
<i>Installing the Mount Adapter</i>	6
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Removing Protective Material Inside Dome Cover

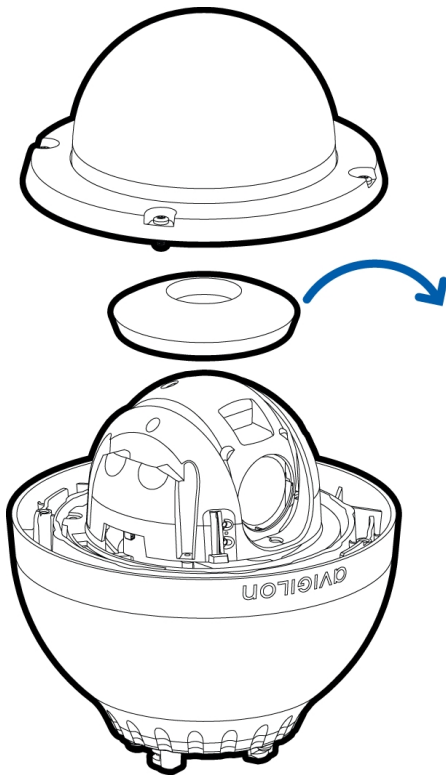
The PTZ dome camera is packaged with protective material inside the dome cover to prevent damage to the camera and dome bubble during shipping. The protective material must be removed before the PTZ dome camera is installed.

1. Remove the dome cover by loosening the screws that fix the cover to the base. Use the T20 Torx key provided in the camera package.

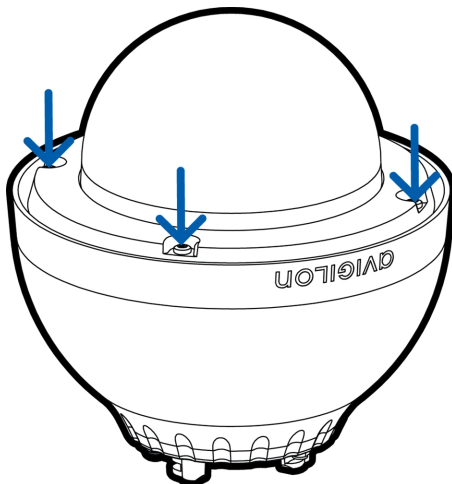


NOTE: Be careful not to scratch or touch the dome bubble. The resulting marks or fingerprints may affect the overall image quality. Keep the protective covers on the outside of the dome bubble until the installation is complete.

2. Remove the protective material inside the dome cover.



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



Installing the Mount Adapter



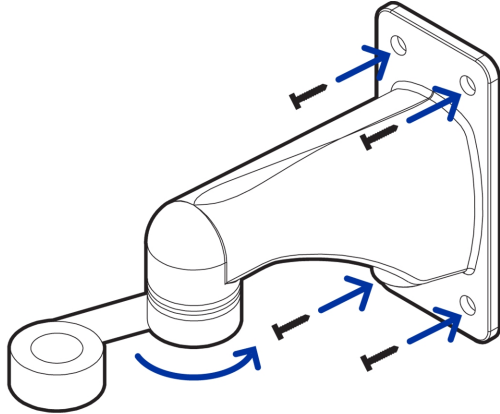
CAUTION — The dome camera must be mounted as instructed below or problems with moisture may arise and will not be covered by the dome camera warranty.

The dome camera must be mounted on a 1-1/2" NPT male threaded wall or ceiling mounting bracket. The mounting bracket is not included in the camera package.

1. Wrap the thread of the mounting bracket with the supplied Teflon sealing tape to create a water tight seal around the camera connection. There should be a minimum of three turns around the entire threaded surface.

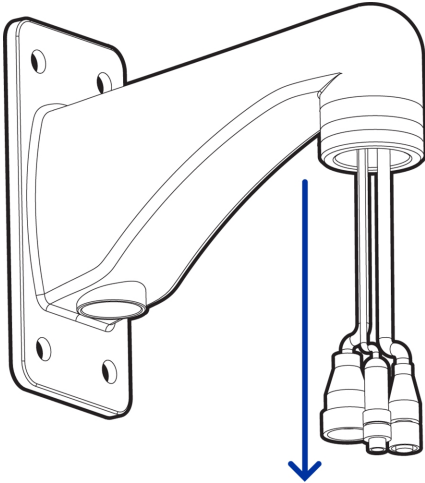
When applying the Teflon sealing tape, be sure to wrap in the same direction that the mount will be tightened. This will ensure the tape does not unravel when installing the mating parts together.

Tip: Always apply Teflon tape to threaded mounts to help prevent the threads from binding.

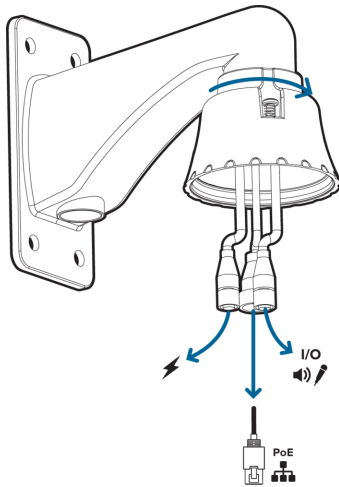


3 – 5x

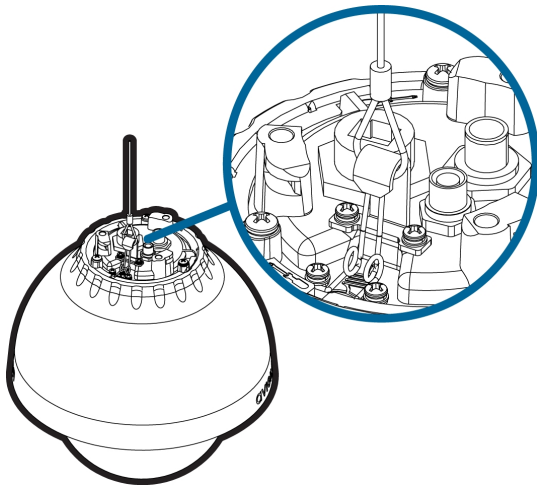
2. Pull the required cables through the mounting bracket then install the supplied connectors and wire assemblies.



3. Install the 1 1/2" NPT mount adapter.



4. 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.
 - External Power — Connect an external “Class 2” or “LPS” or “Limited Power Source” with output rated 24 VAC +/- 10%, 50 VA minimum or 24 VDC +/- 10%, 35 W minimum.

For more information, see *Connecting External Power* on page 11.

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

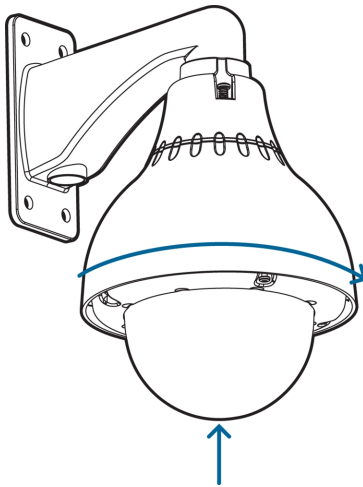
The Link LED will turn on once a network link has been established.

5. Check that the Connection Status LED indicates the correct state. For more information, see *LED Indicators* on page 14.

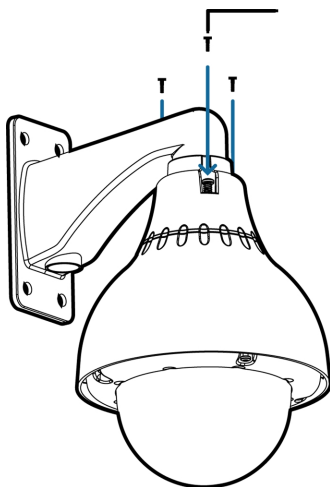
Securing the PTZ Dome Camera

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.



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 16.

NOTE: The default camera username is `admin` and the default password is `admin`.

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: The default camera username is `admin` and the default camera password is `admin`.

For More Information

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

- *Avigilon Control Center Client User Guide*
- *Avigilon High Definition H.264 Web Interface User Guide*
- *Avigilon Camera Configuration Tool User Guide*

The manuals are available on the Avigilon website: <http://www.avigilon.com/support-and-downloads>

Cable Connections

Connecting External Power

NOTE: This procedure is not required if Power over Ethernet (PoE) is used.

If PoE is not available or operation below -30 °C is required, the dome camera can be powered with 24 V AC or 24 V DC through the removable power connector:

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%, 50 VA min. or 24 V DC +/- 10%, 35 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:

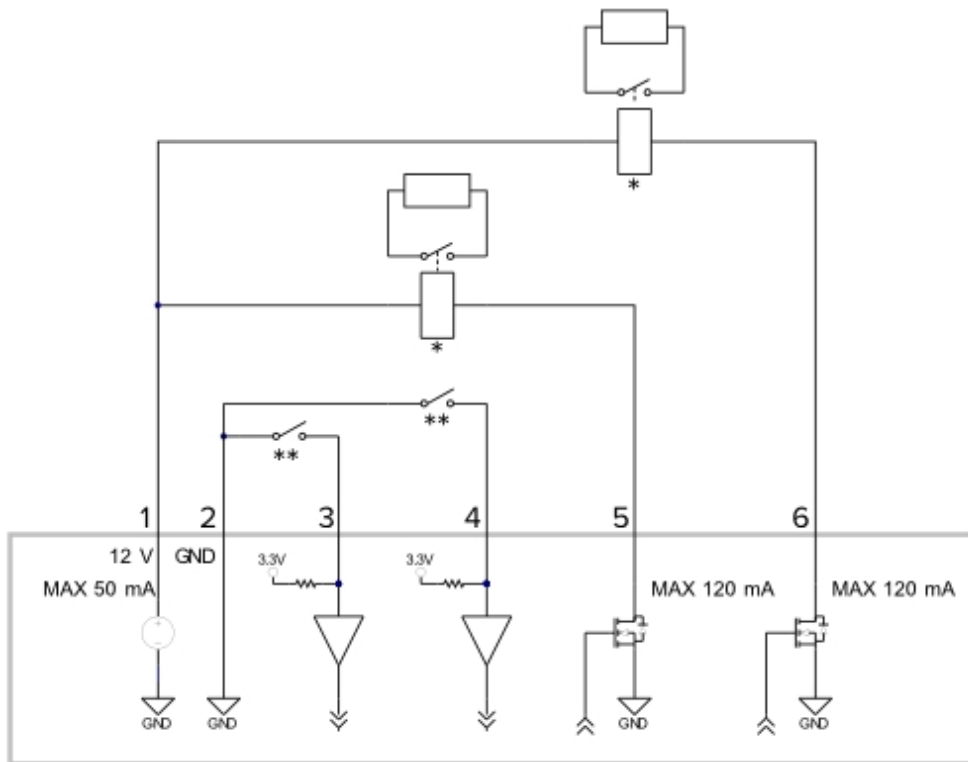


Figure 1: Example application.

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.

LED Indicators

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

The following table describes what the LEDs indicate:

Connection State	Connection Status LED	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 is 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.

Resetting to Factory Default Settings

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

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

NOTE: Be careful not to scratch the dome bubble.

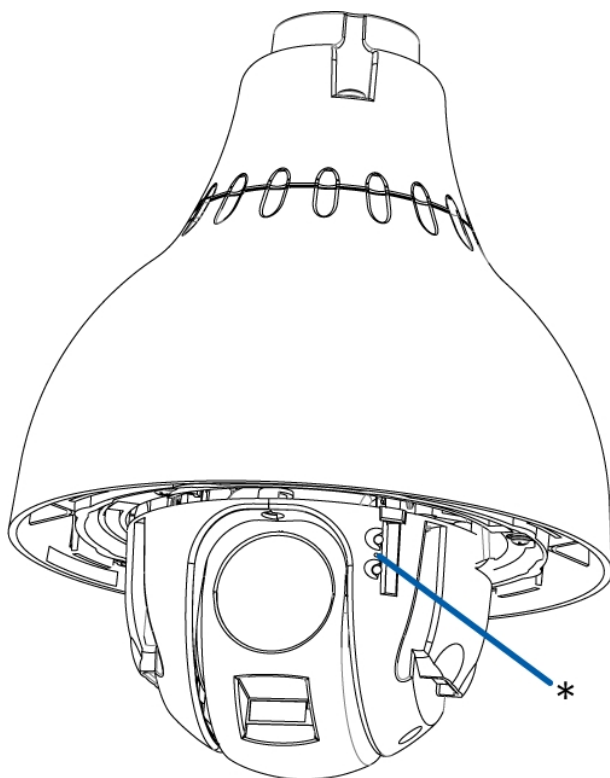


Figure 2: The firmware revert button between the status LEDs.

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 will 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	4.7-94mm, 20x zoom, F1.6 and automatic focus
Audio Input/Output	Line level input and output
Video Output	NTSC/PAL

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	Polycarbonate, clear
Body	Aluminum
Housing	Pendant mount
Finish	Powder coat, cool gray 2
Tilt	186°, E-flip, 0.05 - 360°/sec
Pan	360°, endless, 0.05 - 450°/sec

Electrical

Power Consumption	35 W with DC power
	50 VA with AC power
	25.5 W with IEEE 802.3at Class 4 PoE Plus
Power Source	VDC: 24 V +/- 10%
	VAC: 24 V +/- 10%
	PoE: IEEE 802.3at Class 4 PoE Plus compliant
Power Connector	Waterproof 2-pin connector

Environmental

Operating	-30 °C to + 50 °C (-22 °F to 122 °F) with IEEE 802.3at Class 4 PoE Plus power
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Temperature	-45 °C to + 50 °C (-50 °F to 122 °F) with external 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	IK10 Impact Rating IEC 60529 IP66 Rating UL/CSA/IEC/60950-22
Electromagnetic Emissions	FCC Part 15 Subpart B Class B EN 55022 Class B IC ICES-003 Class B EN 61000-6-3 EN 61000-3-2 EN 61000-3-3
Electromagnetic Immunity	EN 55024 EN 61000-6-1

Limited Warranty and Technical Support

Avigilon warrants to the original consumer purchaser that this product will be free of defects in material and workmanship for a period of 3 years from date of purchase. The warranty period shall be limited to a period of 2 years from date of purchase for all moving parts (including but not limited to fans, pan/tilt motors, lens motors, irises and lens assemblies).

The manufacturer's liability hereunder is limited to replacement of the product, repair of the product or replacement of the product with repaired product at the discretion of the manufacturer. This warranty is void if the product has been damaged by accident, unreasonable use, neglect, tampering or other causes not arising from defects in material or workmanship. This warranty extends to the original consumer purchaser of the product only.

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In no event shall Avigilon be liable for any indirect, incidental, special, consequential, exemplary, or punitive damages whatsoever (including but not limited to, damages for loss of profits or confidential or other information, for business interruption, for personal injury, for loss of privacy, for failure to meet any duty including of good faith or of reasonable care, for negligence, and for any other pecuniary or other loss whatsoever) arising from the use of or inability to use the product, even if advised of the possibility of such damages. Since some jurisdictions do not allow the above limitation of liability, such limitation may not apply to you.

This limited warranty gives you specific legal rights and you may also have other rights which vary from jurisdiction to jurisdiction.

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