avigilon™

a Motorola Solutions Company

Installation Guide

Avigilon H4 SL Dome Camera Models with Surface Mount Adapter:

1.3C-H4SL-D, 1.3C-H4SL-D-IR,1.3C-H4SL-DO-IR, 2.0C-H4SL-D, 2.0C-H4SL-D-IR, 2.0C-H4SL-DO-IR, 3.0C-H4SL-D, 3.0C-H4SL-D-IR, 3.0C-H4SL-DO-IR

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.
- For EN 50121-4 compliance, this product is intended to be supplied by a EN 50121-4 power source.
- The H4SL-D product is intended to be supplied by Power over Ethernet (PoE) that is a "Limited Power Source" or "LPS" rated 48 VDC, 4W min.
- The H4SL-DO product is intended to be supplied by Power over Ethernet (PoE) that is a "Limited Power Source" or "LPS" rated 48 VDC, 7W 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 to persons or damage to the device.

- Do not expose the camera directly to high levels of x-ray, laser, or UV radiation. Direct exposure may cause permanent damage to the image sensor.
- 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.

Legal Notices

Disclaimer

Table of Contents

Overview

Cover View

1. **Dome cover**

    Vandal resistant dome cover.

    Only available on H4SL-DO models.

2. **Surface mount adapter**

    Used to mount the dome camera to a wall, ceiling or electrical box.

3. **Tamper resistant screws**

    Star-shaped captive screws to fix the dome cover to the base.

4.   **Side cable entry cover**

    Covers the side cable entry hole.

Mounting Adapter View
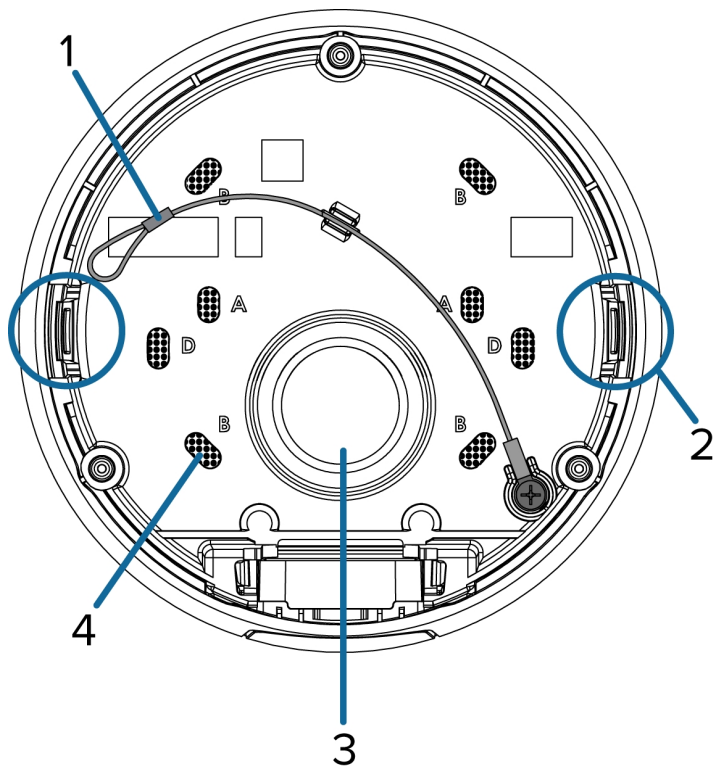
1. **Lanyard**

   Connects to the lanyard anchor on the camera base.

2. **Camera housing clips**

   Snaps to hold camera module during installation.

3. **Cable entry hole**

   An entry hole for the cables required for camera operation.

4. **Mounting holes**

   Holes for mounting the adapter to the following:

   > A — UK standard single gang box
   >
   > B — Octagon gang box
   >
   > D — US standard single gang box

Camera Base Bottom View
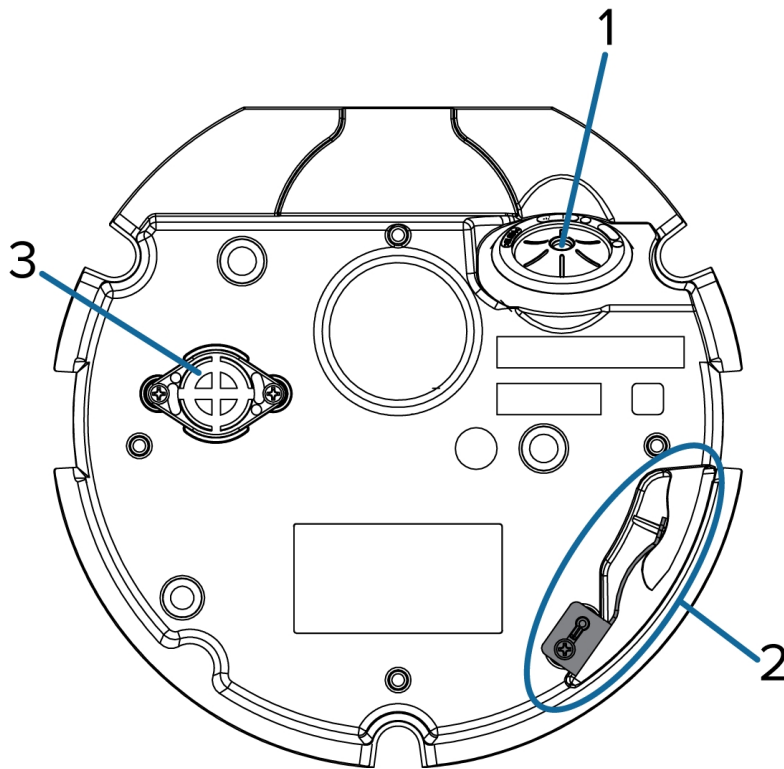
1. **Cable entry hole**

   An entry hole for the cables required for camera operation.

2. **Lanyard anchor**

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

3. **Vent**

   Vent to allow moisture vapor to escape the sealed housing and equalize pressure.

   Only available on H4SL-DO models.

Camera Base Front View
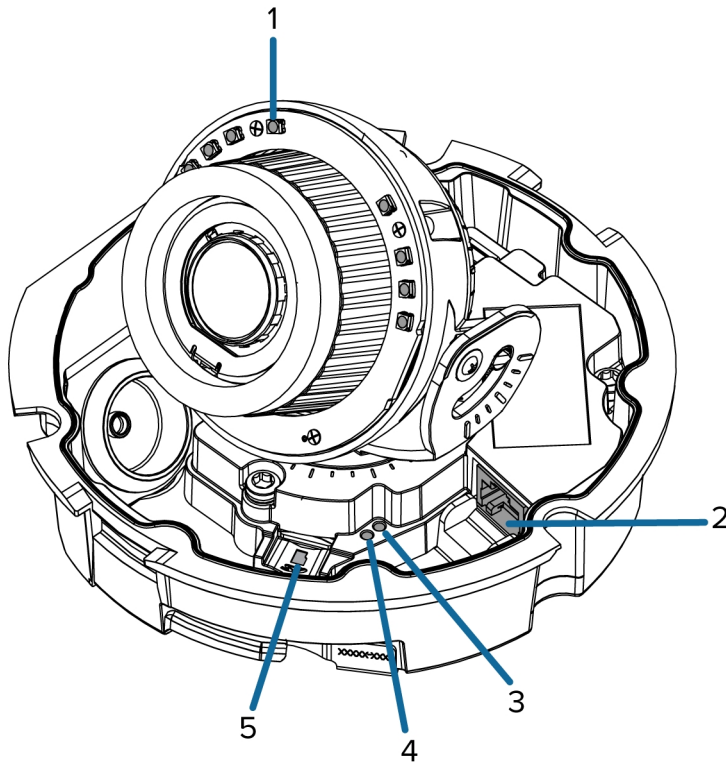
1. **IR illuminator**

   Provides scene illumination in the IR spectrum.

   Only available on -IR models.

2. **Ethernet port**

   Accepts power and Ethernet connection to the network.

   The camera can only be powered by Power over Ethernet (PoE). Server communication and image data transmission also occur over this connection.

3. **Connection status LED indicator**

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

4. **Link LED indicator**

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

5. **microSD card slot**

   Accepts a microSD card for onboard storage. For more information, see *(Optional) Configuring microSD Card Storage* on page 16.

Camera Base Rear View
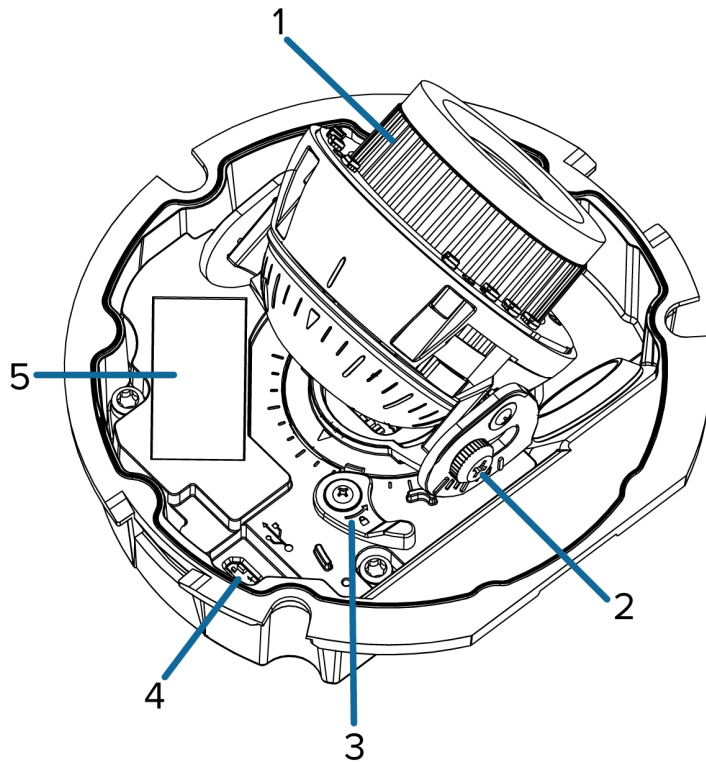
Displayed IR illuminators only available on -IR models.

1. **Azimuth control**

   Provides control of the image angle.

2. **Tilt lock thumb screw**

   Provides a locking mechanism for the image tilt adjustment.

3. **Pan lock latch**

   Provides a locking mechanism for the image pan adjustment.

4. **Micro USB port**

   Accepts a micro USB to USB adapter. Only required when using the Avigilon USB Wi-Fi Adapter.

5. **Serial number tag**

   Device information, product serial number and part number label.

Installation

Required Tools and Materials

The following tools are required to complete the installation but are not included in the package:

- No. 2 Phillips screwdriver — for attaching camera to an electrical box or mounting surface.
- T20 Pin-In star-shaped driver

Camera Package Contents

Ensure the package contains the following:

- Avigilon H4 SL Dome Camera (Indoor model — H4SL-D)
  - Mounting template sticker
  - 4 screws and anchors for solid walls
  - Surface mount adapter
  - Side conduit cover
- Avigilon H4 SL Dome Camera (Outdoor model — H4SL-DO)
  - Mounting template sticker
  - RJ-45 grommet piercing cap
  - 4 screws and anchors for solid walls
  - Surface mount adapter
  - Side conduit cover
  - Side conduit plate (2 sizes)
  - Conduit grommet
  - Cable entry grommet

Installation Steps

Complete the following sections to install the device.

Removing the Dome Cover

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.

- Remove the dome cover by releasing the elastic strap holding the dome cover to the camera base.
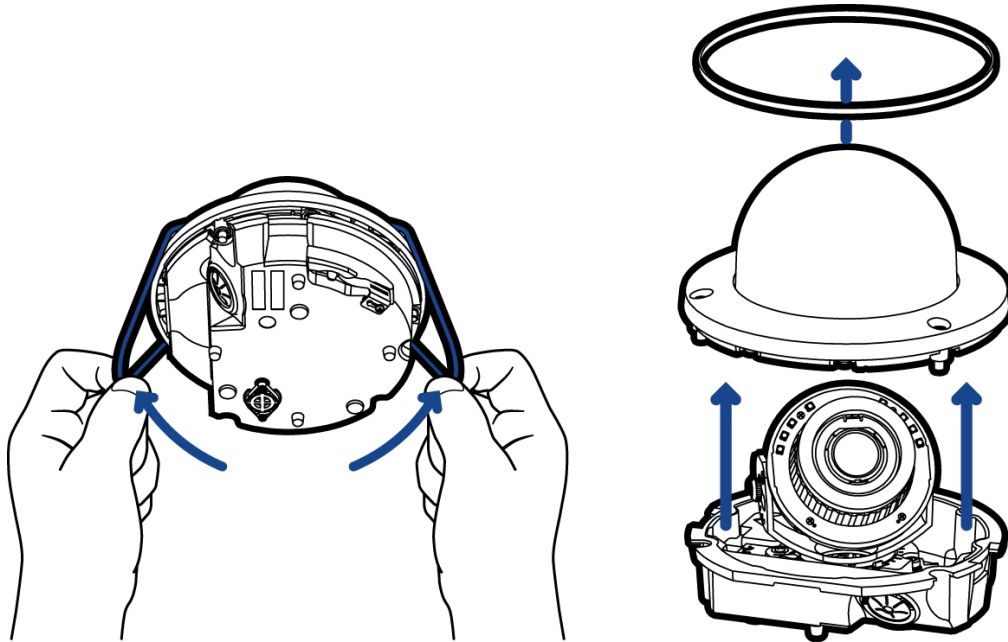
Inserting Cables through the Sealing Grommet

Always use the provided sealing grommet to prevent dust and debris from entering the camera.

1. Remove the sealing grommet from the camera base.

2. Push the Ethernet cable through the grommet.

   If you are installing the indoor model (H4SL-D), you should be able to simply push the cable, crimped or uncrimped, through the grommet by hand.

   If you are installing the outdoor model (H4SL-DO), use one of the following methods:

a. If the Ethernet cable is uncrimped, push the cable through the grommet.

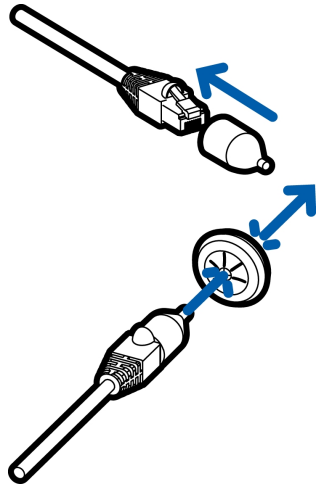b. If the Ethernet cable is already crimped, place the grommet piercing cap on the Ethernet connector then push the cable through the grommet.

Ensure that the orientation of the cable and grommet matches the one shown in the image.

Using the Surface Mount Adapter

The dome camera is provided with a surface mount adapter that can be mounted to a wall, ceiling or electrical box.

If the dome camera needs to be installed in a different way, use one of the other mounting adapter options and refer to their installation manuals for more information.

- In-ceiling mounting adapter (H4SL-MT-DCIL).
- Pendant NPT mounting adapter (H4SL-MT-NPTA).
    - Pendant wall mounting adapter (CM-MT-WALL) — must be used with NPT mounting adapter.

Mounting the Dome Camera Using the Bottom Cable Entry

Perform the following steps if the required cables will be coming from inside the mounting surface and the camera will be mounted immediately over the cable hole. Use this procedure on surfaces that can be easily drilled into, and when the cables should be kept out of sight.

Perform the following steps to mount the dome camera to a ceiling or wall:

1. Use the mounting template to drill 4 mounting holes into the mounting surface and drill the cable entry hole.

2. Pull the required cables through the cable entry hole.

    Make sure the cables are threaded through the sealing grommet from the camera base. For more information, see *Inserting Cables through the Sealing Grommet* on the previous page

3. Drive 4 screws to fasten the mounting adapter to the ceiling or wall.

Mounting the Dome Camera Using the Side Cable Entry

Perform the following steps if you will be mounting to a surface with the required cables coming out of an external conduit pipe. Use this procedure if the mounting surface cannot be easily cut, or when cables must be brought along the outside of the mounting surface.

1. Use the mounting template to drill four mounting holes into the mounting surface.

   Make sure the mounting template is aligned to where the conduit will enter the mounting adapter.
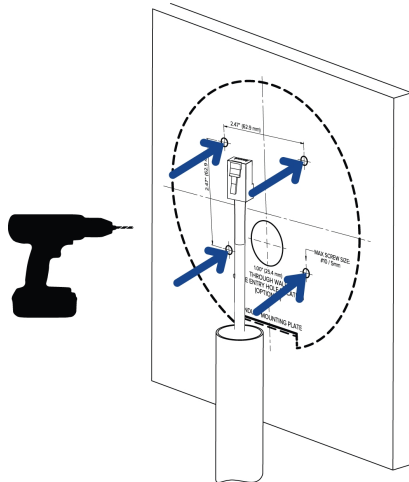
2. Pull the required cables through the conduit.
3. Slide the side cable cover off the mounting adapter.
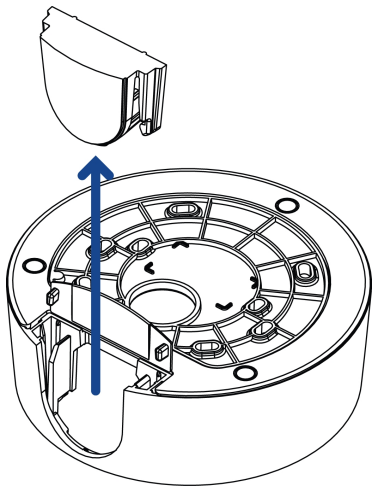
4. Depending on the conduit used, make the required adjustments to the side cable entry hole:

- If you are using a 1/2" or 20 mm interior conduit, install the provided side conduit cover on to the mounting adapter.
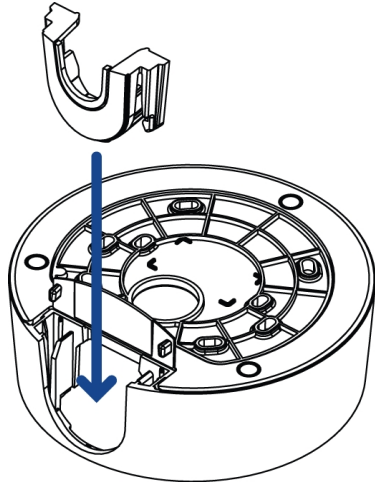
- If using ¾" or 25 mm interior conduit, remove the center knockout piece on the provided side conduit cover then install the side conduit cover on to the mounting adapter.
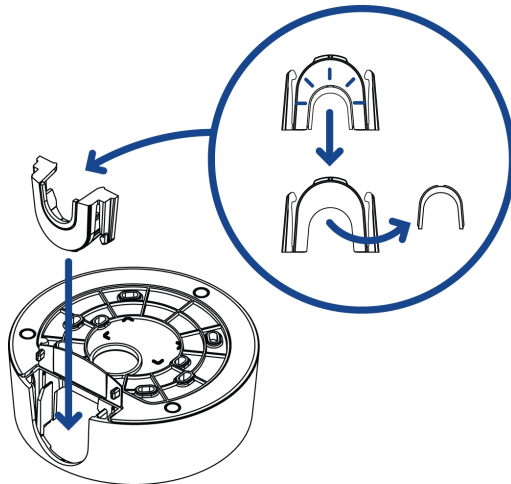
- If using ½" or ¾" exterior conduit, install a conduit plate to an external conduit adapter, then slide the mounting adapter over the conduit and plate assembly. Ensure the plate is compatible with the type of conduit used.
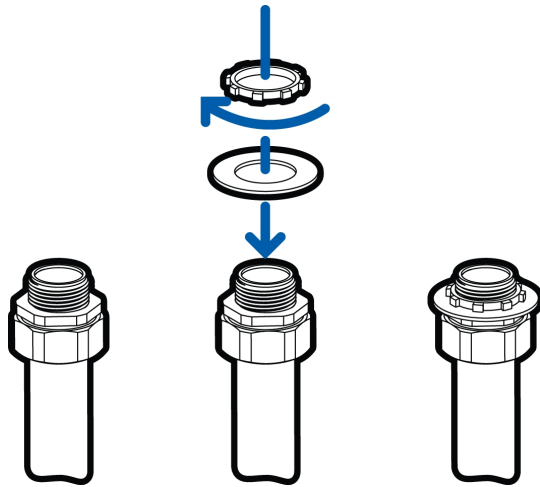
If you are installing the outdoor model (H4SL-DO), you may need to cut off part of the rubber gasket on the mounting adapter to make room for the plate.
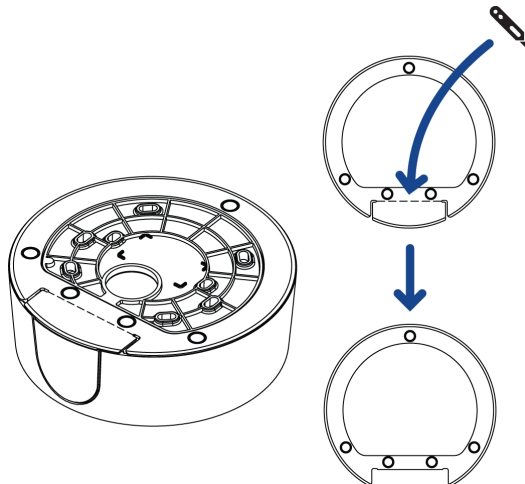
5. Drive 4 screws to fasten the mounting adapter to the ceiling or wall.
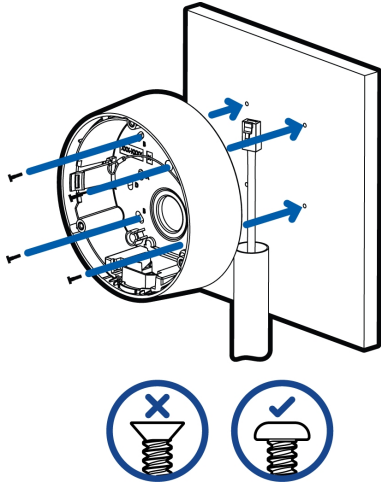
Mounting the Dome Camera to an Electrical Box

Perform the following steps if the required electrical components and cables will be contained in an electrical gang box inside the mounting surface.

1. Pull the required cables through the cable entry hole.

    Make sure the cables are threaded through the sealing grommet from the camera base. For more information, see *Inserting Cables through the Sealing Grommet* on page 7.

2. Use pan head screws to install the mounting adapter to the electrical box.

    Select the hole configuration that matches the electrical box shape:

    > A — UK standard single gang box
    >
    > B — Octagon gang box
    >
    > D — US standard single gang box
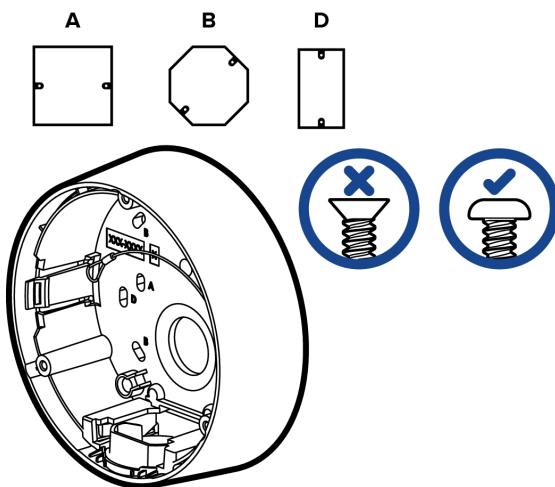
Installing the Camera Base to the Mounting Adapter

After you install the mounting adapter, mount the camera base to the adapter.

1. Attach the lanyard on the mounting adapter to the anchor on the camera base.
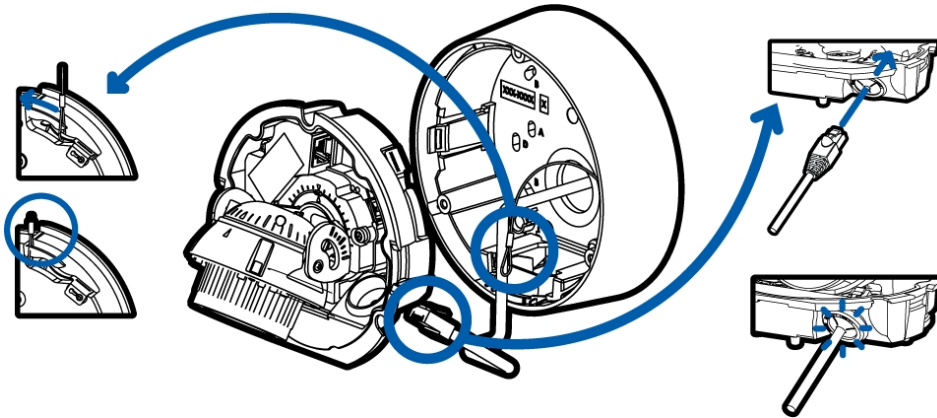
2. Pull the required Ethernet cable through the cable entry hole on the camera base.

3. Install the grommet into the cable entry hole on the camera base.

   Make sure the grommet flange is securely seated on the inside and outside of the cable entry hole.

4. Connect the cable to the Ethernet port.

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

5. Align the large orange arrow on the camera base to the side cable entry hole on the mounting adapter then press the camera base into the mounting adapter. The camera base clicks into place and is held securely.
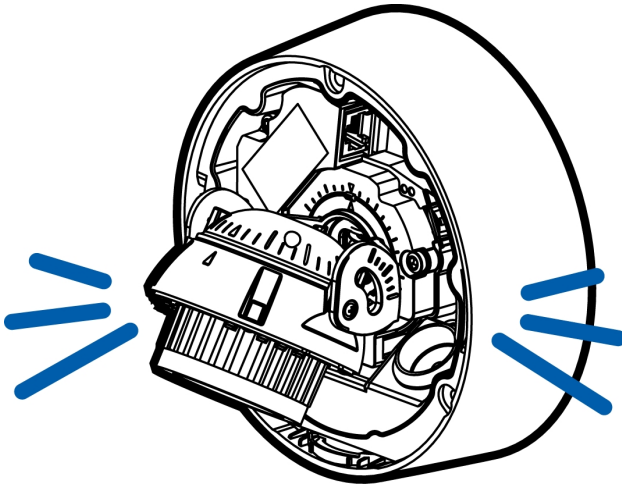
(Optional) Using the USB Wi-Fi Adapter

If you have a USB Wi-Fi Adapter (H4-AC-WIFI), attach it to the camera's micro USB port to access the camera's mobile web interface.

After you connect to the Wi-Fi signal broadcast by the adapter, you can access the mobile web interface from any mobile device using the following address:

http://camera.lan

For more information about configuring the camera from the mobile web interface see *Avigilon USB Wi-Fi Adapter System User Guide*.

> **Note:** The camera will reserve the 10.11.22.32/28 subnet for internal use while the USB Wi-Fi Adapter is plugged in.

Assigning an IP Address

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

> **Note:** If the device 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:

- The mobile web interface using the USB Wifi Adapter. For more information, see *(Optional) Using the USB Wi-Fi Adapter* on the previous page.
- Device's web browser interface: http://*<camera IP address>*/.
- Network Video Management software application (for example, the Avigilon Control Center™ software).
- ARP/Ping method. For more information, see *Setting the IP Address Using the ARP/Ping Method* on page 22.

> **Note:** The default device username is `administrator` with no password.

Accessing the Live Video Stream

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

- The mobile web interface using the USB Wifi Adapter. For more information, see *(Optional) Using the USB Wi-Fi Adapter* on the previous page.
- Web browser interface: http://*< camera IP address>*/.
- Network Video Management software application (for example, the Avigilon Control Center™ software).

> **Note:** The default device username is `administrator` with no password.
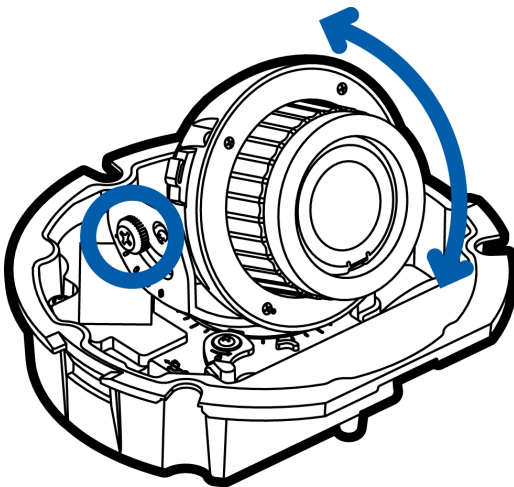
Aiming the Dome Camera

Reference the camera's live stream as you aim the camera.

1. Unlock the pan lock latch on the camera base, then pan the lens until it is aimed in the correct direction.

    If the camera stops panning before it reaches its final destination, stop and pan the camera in the opposite direction.
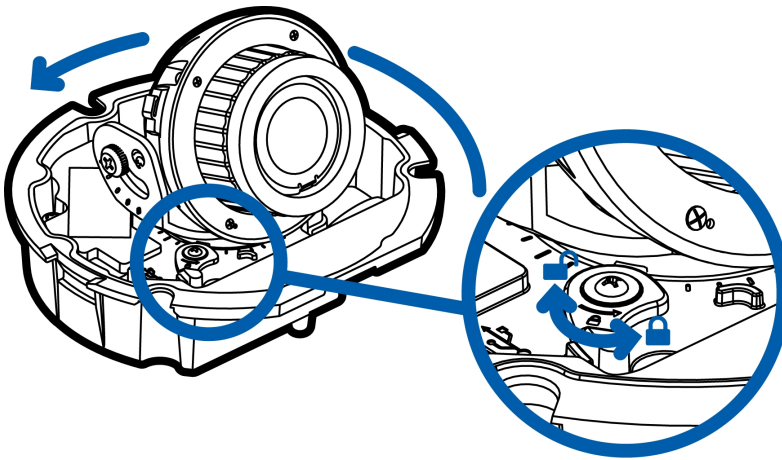
2. Loosen the tilt lock thumb screw to tilt the lens.

3. Adjust the tilt angle of the camera as needed.
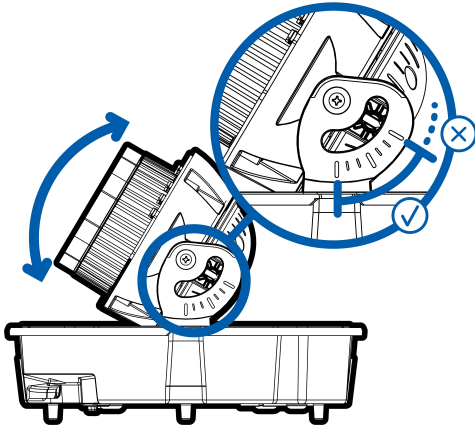
Avigilon recommends that you adjust the tilt angle within the range indicated by the markings for best results. Tilting the camera past these markings is possible, but may result in infrared reflections beyond an acceptable level.

4. Lock the pan lock latch and tighten the tilt lock screw to secure the dome camera's position.

5. Rotate the azimuth control ring to set the image to the correct angle.
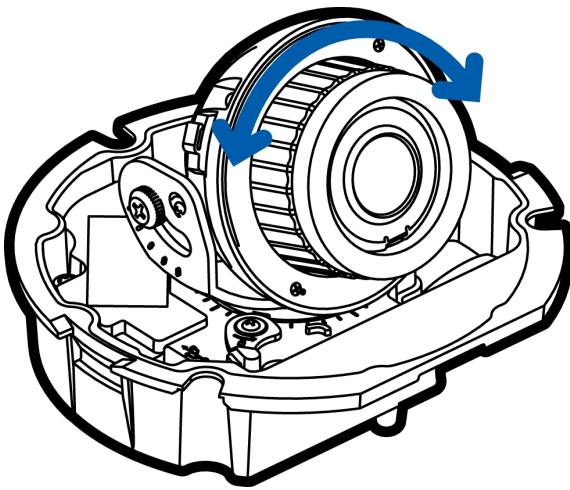
6. In the camera web browser interface or the Avigilon Control Center software, adjust the camera's Image and Display settings.

(Optional) Configuring microSD Card Storage

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

It is recommended that the microSD card have a write speed of class 10 or better. If the microSD card does not meet the recommended write speed, the recording performance may suffer and result in the loss of frames or footage.

1. Insert a microSD card into the camera.

> ⚠️ **CAUTION —** Do not force the microSD card into the camera or you may damage the card and the camera.

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 Dome Cover

1. Attach the dome cover to the base by tightening the screws with the Torx driver.
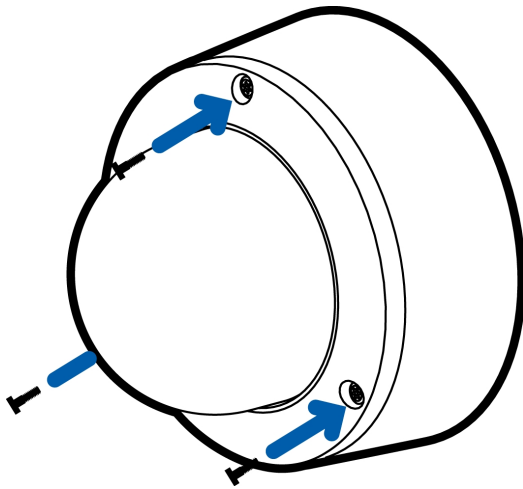
2. Remove the protective cover on the outside of the dome bubble.

Zooming and Focusing the Dome Camera

Ensure this procedure is performed after the dome cover is installed so you can accommodate for the focus shift caused by the dome bubble.

> **Note:** If the H4SL-DO camera model is powered while the temperature is below -30 °C (-22 °F), the zoom and focus may be disabled for the first 45 minutes while the camera warms up.

- In the camera web browser interface or the Avigilon Control Center software, use the camera's Image and Display settings to zoom and focus the camera.
    a. Use the zoom buttons to zoom the camera in or out.
    b. Click **Auto Focus** to focus the lens.
    c. Use the focus near and far buttons to manually adjust the focus.

Configuring the Camera

Once installed, use one of the following methods to configure the camera:

- If you have the USB Wifi Adapter, you can access the mobile web interface to configure the camera. For more information, see *Avigilon USB Wi-Fi Adapter System User Guide*.

- If you have installed multiple cameras, you can use the Avigilon Camera Configuration Tool to configure common settings. For more information, see the *Avigilon Camera Configuration Tool User Guide*.

- If the camera is connected to the Avigilon Control Center system, you can use the client software to configure the camera. For more information, see the *Avigilon Control Center Client User Guide.*

- If the camera is connected to a third-party network management system, you can configure the camera's specialty features in the camera's web browser interface. For more information, see the *Avigilon High Definition H4 and H5 IP Camera Web Interface User Guide.*

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**.

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*.

Removing the Dome Camera from the Mounting Adapter

1. Loosen the star-shaped screws and remove the dome cover.
2. Locate the small orange arrows that point at the camera housing clips.
3. Insert a flat head screwdriver or grommet piercing cap against one of the camera housing clips.
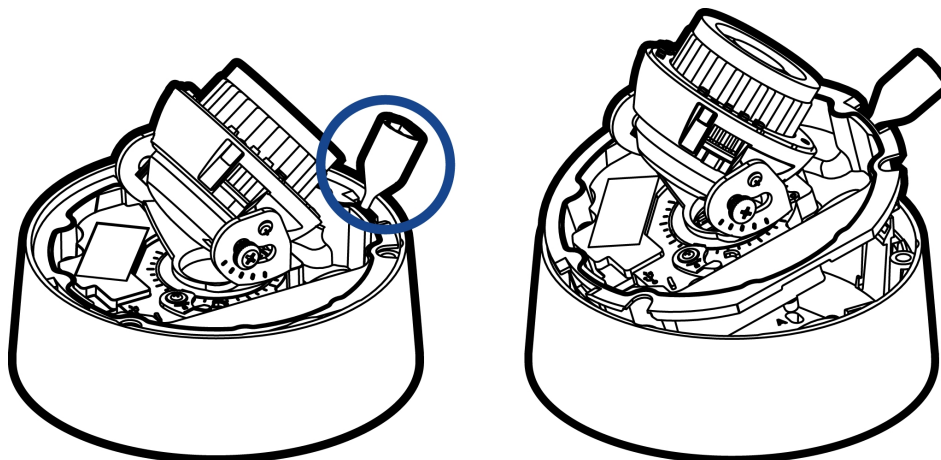
4. Lever one side of the camera base out of the clip.
5. Lift the camera base out of the adapter.

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:
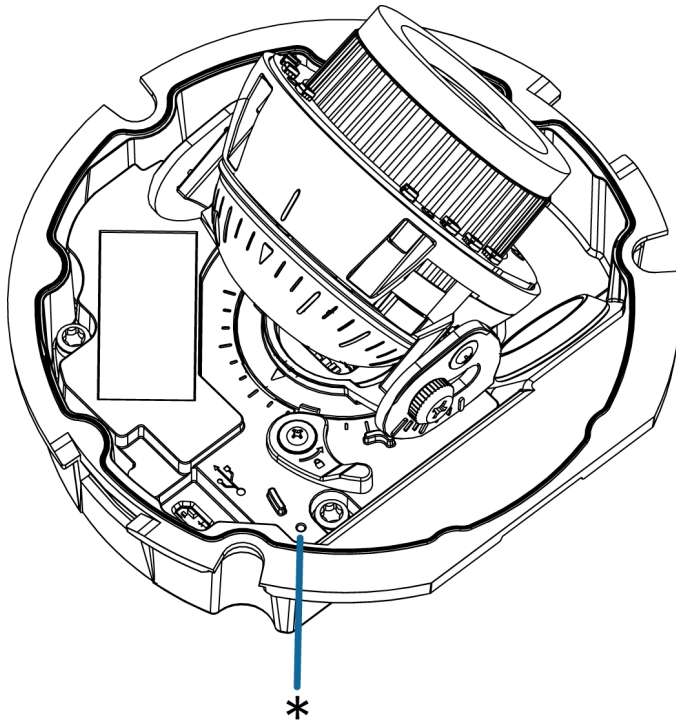
1. Ensure the device is powered on.

2. Using a straightened paperclip or similar tool, gently press and hold the firmware revert button.

3. Release the button after three seconds.

⚠️ **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:

> **Note:** The ARP/Ping Method will not work if the **Disable setting static IP address through ARP/Ping method** check box is selected in the camera's web browser interface. For more information, see the *Avigilon High Definition H4 and H5 IP Camera Web Interface User Guide*.

1. Locate and make note of 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>*`: ...`

Specifications

Camera

Lens	3-9 mm, motorized, varifocal
USB Port	USB 2.0
SD Storage	microSD/microSDHC/microSDXC slot – minimum class 6; class 10/UHS-1 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)
Device Management Protocols	SNMP v2c SNMP v3
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, RTP/UDP, RTP/UDP multicast, RTP/RTSP/TCP, RTP/RTSP/HTTP/TCP, RTP/RTSP/HTTPS/TCP, HTTP

Mechanical

Dimensions L x W x H	147 mm x 147 mm x 119 mm; (5.8" x 5.8" x 4.7")
Weight	H4SL-D — 0.76 kg (1.68 lbs) H4SL-DO — 0.78 kg (1.72 lbs)
Dome Bubble	Polycarbonate, clear
Body	Polycarbonate
Housing	Surface mount H4SL-D — tamper resistant H4SL-DO — vandal resistant
Finish	Fog coat, cool grey
Adjustment Range	360° pan, 30° – 95° tilt, ±180° azimuth

Electrical

Power Consumption	H4SL-D — 4 W max
	H4SL-DO — 7 W max
Power Source	PoE: IEEE802.3af Class 3 compliant
RTC Backup Battery	3V manganese lithium

Environmental

Operating Temperature	H4SL-D — 0 °C to 55 °C (32 °F to 131 °F)
	H4SL-DO — -30 °C to 60 °C (-22 °F to 140 °F)
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 IEC 62471
Environmental (H4SL-DO only)	IK10 Impact Rating Meets IEC 60529 IP66 Weather Rating IEC/UL/CSA 60950-22
Electromagnetic Emissions	FCC Part 15 Subpart B Class B EN 55022 Class B EN 55032 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/.