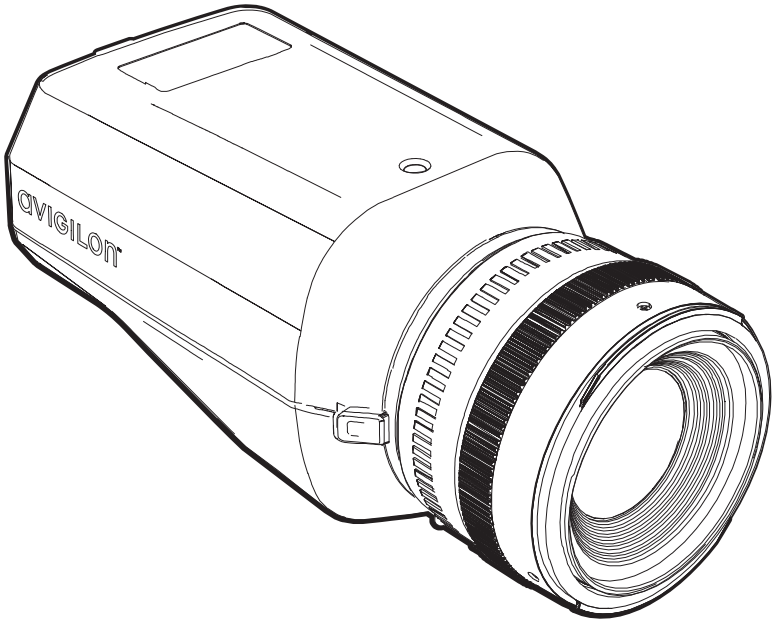
AVIGILON™



Installation Guide

Avigilon™ H5 Pro High Definition Professional IP Camera Models:

61C-H5PRO-B, 40C-H5PRO-B, 26C-H5PRO-B, 16C-H5PRO-B and 8C-H5PRO-B

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.

- Do not use near water or expose to dripping or splashing.
- Do not place objects filled with liquids above the device.
- Do not expose to rain or moisture.
- For indoor use only.
  If used outdoors, an approved outdoor mounting adapter or enclosure is required. Consult with Avigilon for more information.
- 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 12 VDC, 18 W min; 24 VAC, 21 VA min; or Power over Ethernet (PoE+), rated 43-57V, 18 W min.
- 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.

- Use only UL-listed mounting bracket suitable for the mounting surface and minimum 0.5 kg (1.1 lb) weight, plus the weight of the attached lens.
- Avoid leaving the image sensor exposed for extended periods of time. Always cover the image sensor with either a lens or a dust cap.
- Do not allow dust, moisture or any other foreign debris to enter the lens mount.
- Never touch any glass elements inside the lens mount.
- Do not point the lens directly at the sun or other extremely bright objects or damage to the image sensor may occur.
- Use of controls or adjustments or performance of procedures other than those specified in this document may result in hazardous radiation exposure.

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.

The Surface Mount and Pendant Mount models comply with EN 60529 IP66 and IP67 rating.

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.

UK Product Security and Telecommunications Infrastructure (PSTI) Act: Avigilon cameras comply with the PSTI requirements. For more information, see the published **PSTI Statement of Compliance**.

For Korea

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모든 지역에서 사용할 수 있습니다.

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.

This equipment contains a coin cell battery.

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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H5PRO-A

Revision: 1 - EN

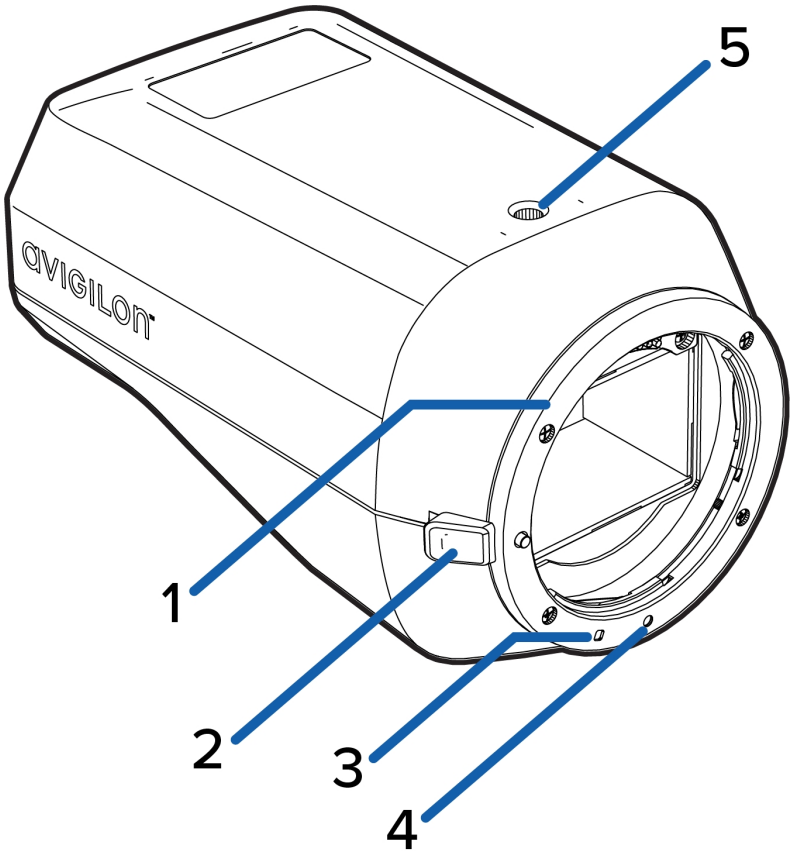
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Overview

Front View



1. **Lens mount**

   Accepts EF and EF-S lenses.
2. **Lens release button**

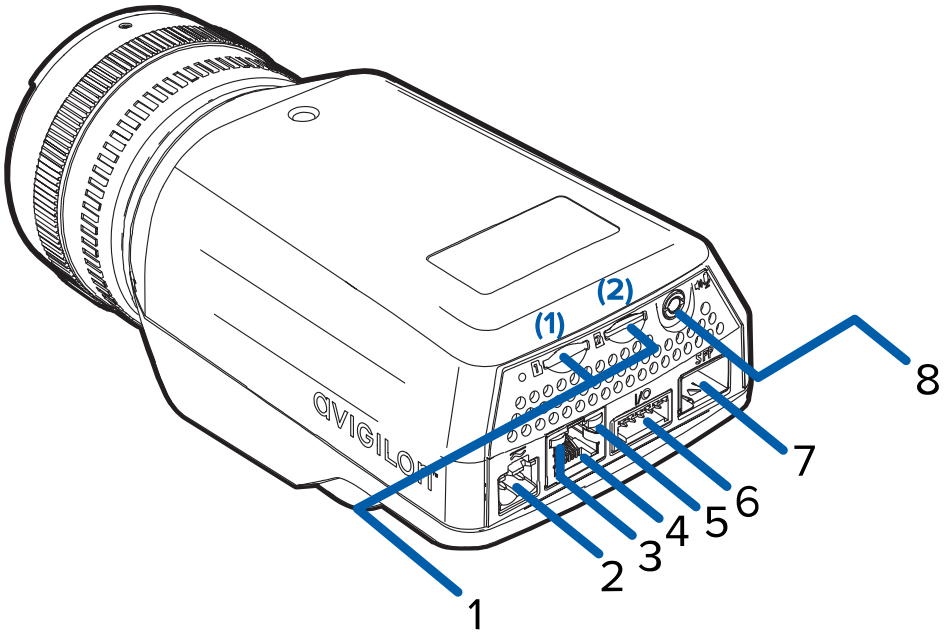
   Releases the lens that is mounted on the camera.
3. **EF-S mount index**

   A white mark on the lens mount to help you align an EF-S lens to the camera.
4. **EF mount index**

   A red mark on the lens mount to help you align the EF lens to the camera.
5. **Camera mounts**

   Provides mounting points for the camera. Mounts accept 1/4”-20 UNC bolts commonly found on tripods and mounting brackets.

Rear View



1. **SD card slots**

   Accepts up to two microSD cards for onboard storage in slot (1) or slot (2). Install microSD cards so the metal contacts are facing down.

2. **Power connector block**

   Accepts a terminal block with either an AC or DC power connection. DC input can be either polarity. Only required when Power over Ethernet is not available.

3. **Link LED indicator**

   Amber LED indicates if there is an active connection in the Ethernet port.

4. **Copper Ethernet port**

   Accepts an RJ-45 connector for connecting to a 1000BASE-T Gigabit Ethernet network using Cat5e or better cabling. 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.

5. **Connection status LED indicator**

   Green LED provides information about device operation. For more information, see *Connection Status LED Indicator* on page 14.

6. **I/O connector block**

   Provides connections to external input/output devices.

7. **SFP optical fiber Ethernet port**

   Accepts a 1000BASE-X SFP fiber transceiver module compatible with the SFP MSA specification for connecting to an optical network. This optical port can be used instead of the copper Ethernet port for network connection. When an SFP module is installed, server communication and image data

transmission occurs over this fiber connection and copper Ethernet communication is disabled.

8. **Audio I/O connector**

   Accepts a mini-jack connector (3.5 mm).

Installation

Required Tools and Materials

- Small slotted screwdriver with 5/64” or 2 mm blade width — for connecting power when not using Power over Ethernet.
- Mounting bracket, enclosure or tripod.
- EF or EF-S mount lens

Camera Package Contents

Ensure the package contains the following:

- Avigilon™ High Definition Professional IP Camera
- Power terminal block
- Dust cap
- I/O terminal block

Installation Steps

Complete the following sections to install the device.

Mounting and Aiming Video Analytics Cameras

When installing an Avigilon video analytics camera, follow the listed mounting and aiming recommendations to maximize the camera's analytics capabilities:

- The camera should be installed above 2.74 m (9 feet).
- The camera should tilt downwards no more than 45 degrees.
- The camera image should be level with the horizon line.
- The camera should be mounted to a stable surface to minimize the physical movement of the camera after installation.

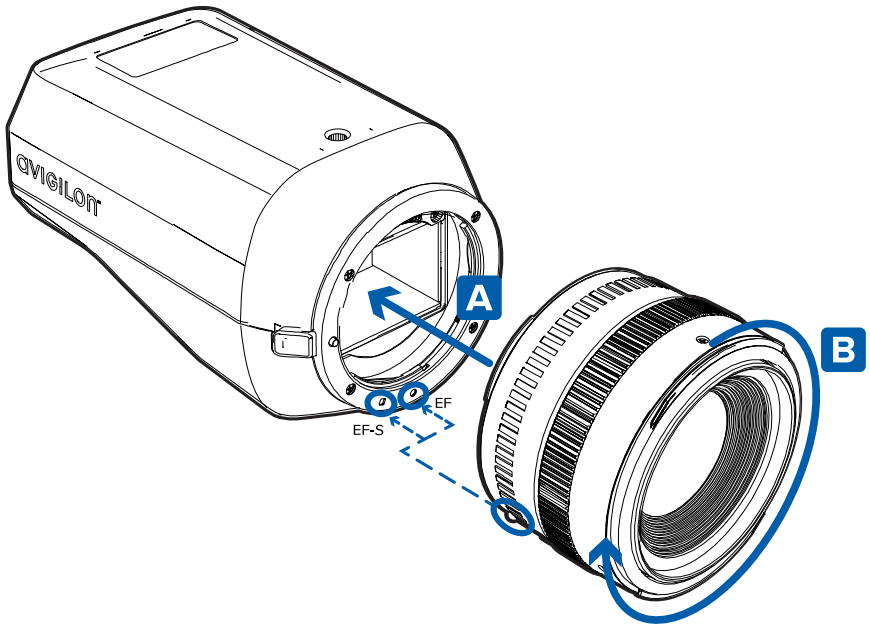
For more details, see *Designing a Site for Video Analytics*. The document is available on the Avigilon website.

Mounting the Lens

Important: Avigilon cameras require high-quality lenses to take full advantage of their advanced imaging capabilities. To avoid poor image quality caused by incorrect lens selection, only use lenses

that are recommended by Avigilon for use with this camera model. For a list of lenses recommended for use with this camera model, contact your Avigilon dealer or representative.

Note: If the lens includes a collar, the collar must be used to prevent damage to the lens mount on the camera.



The recommended maximum weight of the lens is 1050 g (2.31 lb). Any lens that is heavier shall be supported by a separate mounting bracket for the lens supplied by the lens manufacturer.

To mount a lens to the camera, complete the following steps:

1. Do not connect power to the camera until after the lens is mounted.
2. If the lens includes a collar, install the collar to the lens first.
3. Remove the dust cap from the lens mount.
4. Align the lens to the appropriate index marker on the lens mount (A).
    - Red mark: EF mount index
    - White mark: EF-S mount index
5. Turn the lens clockwise until it locks into place (B).

To detach a lens, complete the following steps:

1. Disconnect power from the camera.
2. While pressing the lens release button, turn the lens counterclockwise until it stops.
3. Remove the lens from the camera. Immediately mount another lens or a dust cap on the lens mount to prevent contamination.

CAUTION —

- Never touch the image sensor or any glass elements inside the lens mount. Only clean the image sensor with the recommended cleaning tools.
- Do not allow dust, moisture or any other foreign debris to enter the lens mount.
- Avoid leaving the image sensor exposed for extended periods of time.
- Always cover the image sensor with either a lens or a dust cap.

Mounting the Camera

1. Use the ¼”-20 UNC threaded holes to mount the camera on to a bracket, tripod or in an enclosure as required.
    - Mount the camera using the tripod collar on the lens.
    - If the lens does not have a tripod collar, use the threaded hole at the bottom of the camera.

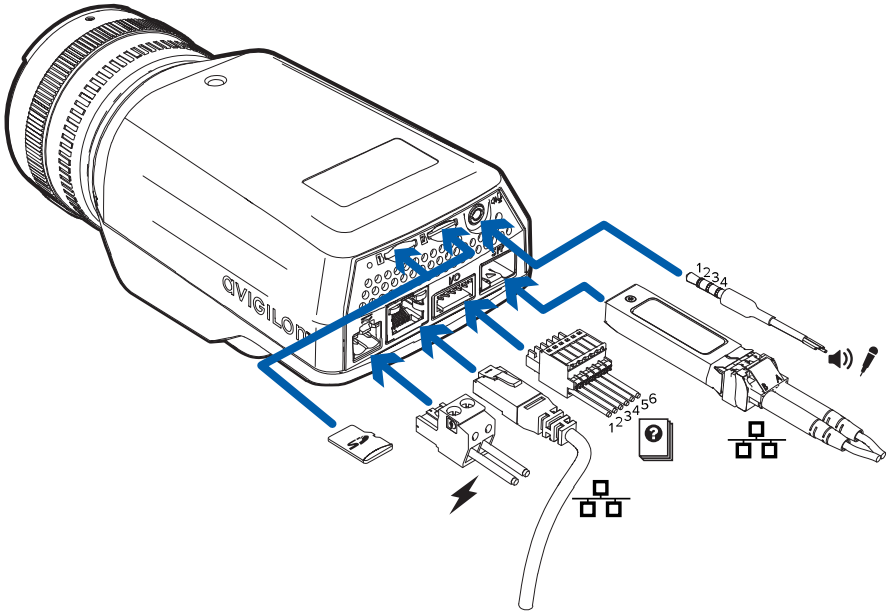
Consult the installation instructions provided with the bracket, tripod or enclosure for detailed mounting instructions.

CAUTION — Always mount the camera from the lens tripod collar when the lens includes a collar. The camera shall be mounted horizontally or with the lens pointed downwards.

WARNING — Use only UL-listed mounting bracket suitable for the mounting surface and minimum 0.4 kg (0.9 lb) weight plus the weight of the attached lens.

Connecting Cables

Refer to the diagrams in the image below or see *Overview* on page 1 for the location of the different connectors.



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

1. If external input or output devices are part of the installation (for example: door contacts, relays, etc.), connect the devices to the I/O connector block.
2. If an external microphone or speaker is required, connect the devices to the audio connector.
3. Connect power using one of the following methods:
    a. Power over Ethernet (PoE+) Class 4 — If PoE is available, the LEDs will turn on. If you are connecting to the network using the SFP port, the copper Ethernet port is disabled. It is not recommended to power the camera using PoE when using the SFP port.
    b. External Power — Connect an external 12 V DC or 24 V AC power source to the power connector block. Use this power connection as an alternative to PoE operation or when using an SFP module for optical Ethernet communications.

    Note: The lens must be mounted before you power the camera.
4. Connect to the network using one of the following methods:
    a. Ethernet port (RJ-45 connector) for 1000-BASE-T or 100-BASE-TX network connection.
    b. SFP port (optical fiber using an SFP module) for 1000-BASE-SX or 1000-BASE-LX network connection.

    Tip: If the expected camera bandwidth will be near 80 Mbps or more, Avigilon recommends

connecting the camera to a Gigabit Ethernet connection.

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 14.

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: 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*.
- 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 Cloud Services (ACS) 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 Cloud Services User Guide*.

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 or Camera Configuration Tool 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 17.

Note: The camera does 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 the previous page.

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).

Aiming and Focusing the Camera

Use the Avigilon Control Center Client or camera web interface to aim and focus the camera. Consult the software user guide for more information.

1. If available, adjust the zoom using the appropriate ring on the lens.
2. If the lens has an auto focus (AF) mode, set the lens switch to the AF position to allow the camera web interface or ACC Client to control the camera's focus.
    a. Click **Auto Focus** to focus the lens.
    b. If the preferred focus was not achieved, use the focus near and far buttons to adjust the focus.

(Optional) Configuring Onboard Storage

To use the camera's onboard storage feature, you must insert 1 or 2 microSD cards into the microSD card slots. For the location of the microSD card slots, see *Overview* on page 1. Currently, the camera only supports 1 microSD card for onboard storage and you will only be able to configure the microSD card that is inserted first, in either slot. The second microSD card slot is reserved for future features.

It is recommended that the microSD card have a capacity of 64 GB or more, and a write speed of class 10 or better. If the microSD card does not meet the recommended capacity or write speed, the performance of the onboard storage may suffer and result in the loss of frames or footage.

Ensure the microSD card is designed for continuous video recording or the microSD card life expectancy may be adversely affected.

1. Insert the microSD card into the camera.

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

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*
- *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**.

Cable Connections

Connecting External Power

If PoE is not available, the camera needs to be powered through the removable power connector block. Refer to the diagrams in this guide for the location of the power connector block.

The power consumption information is listed in the product specifications.

To connect power to the power connector block, complete the following steps:

1. Remove the power connector block from the camera.
2. Remove the insulation from ¼" (6 mm) of the power wires. Do not nick or damage the wires.
3. Insert the two power wires into the two terminals on the power connector block. The connection can be made with either polarity.

   Use a small slotted (5/64" or 2 mm blade width) screwdriver to loosen and tighten the terminals.
4. Attach the power connector block back into the camera.

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 12 VDC, 18 W min; 24 VAC, 21 VA min; or Power over Ethernet (PoE+), rated 43-57V, 18 W min.

Non-Seamless Failover

- If the camera has power available from both an external Aux power supply and a PoE PSE (Power Sourcing Equipment) device, the camera will draw power from Aux.
- When the camera is using Aux power, PoE power negotiation is inhibited.
- If the camera loses Aux power, the camera will power-off while waiting to transition to PoE power.
- If the external Aux power re-energizes, the camera might reboot while transitioning back to using Aux power. The camera might not reboot if the external Aux power supply reacts quickly enough to the increase in load.
- Ensure that sufficient power is manually reserved on the PSE, as the camera will not request PoE power until the camera loses Aux power.

Connecting to External Devices

External devices are connected to the camera through the I/O terminal block. The pinout for the I/O terminal block is shown in the following diagram:

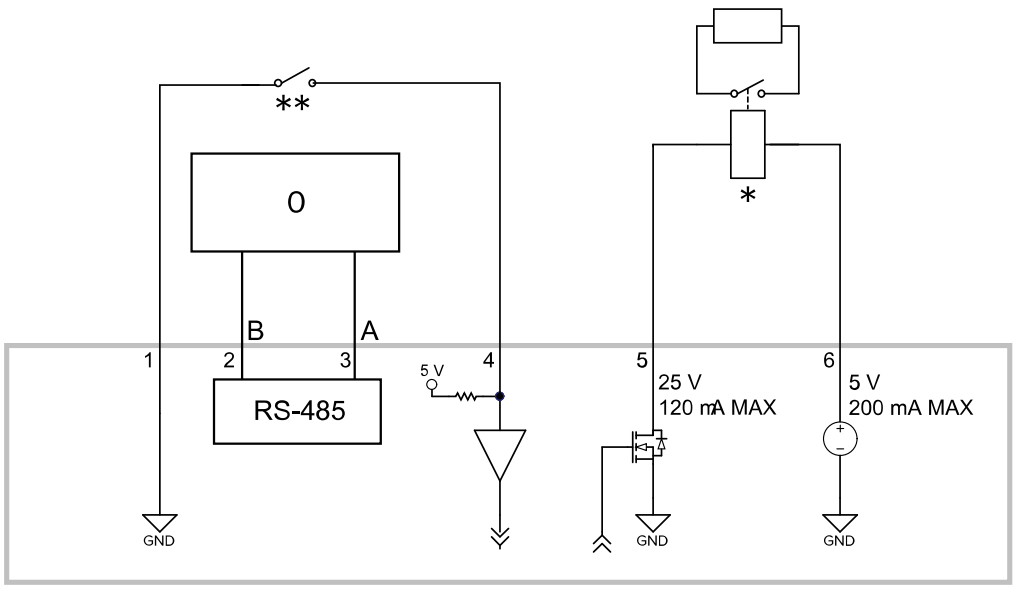


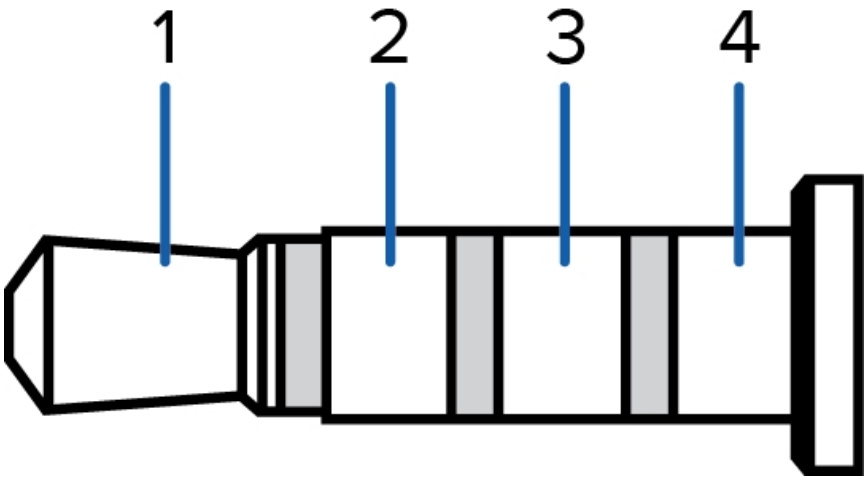
Figure 1: Example application.

1. Ground
2. RS-485B
3. RS-485A
4. Relay input
5. Relay output
6. +5 VDC, 200 mA max. output for relay drive

- 0 — External device
- * — Relay
- ** — Switch

Note: The 5 V connection can be used to energize a relay coil with up to 200 mA. If more than 200 mA is required, an external power supply up to 25 VDC at 120 mA can be used.

The pinout for the connector is shown in the following diagram:



The wiring for the connector pinout is shown in the following table:

Ring	Purpose	Wire
1	Audio IN	Red
2	Audio OUT	Black
3	GND	Yellow
4	No connection	Green

Connection Status LED Indicator

Once connected to the network, the green 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*.

Troubleshooting Network Connections and LED Behavior

Note: For any of the below LED behaviors, ensure that the camera is getting power and is using a good network cable before trying another solution.

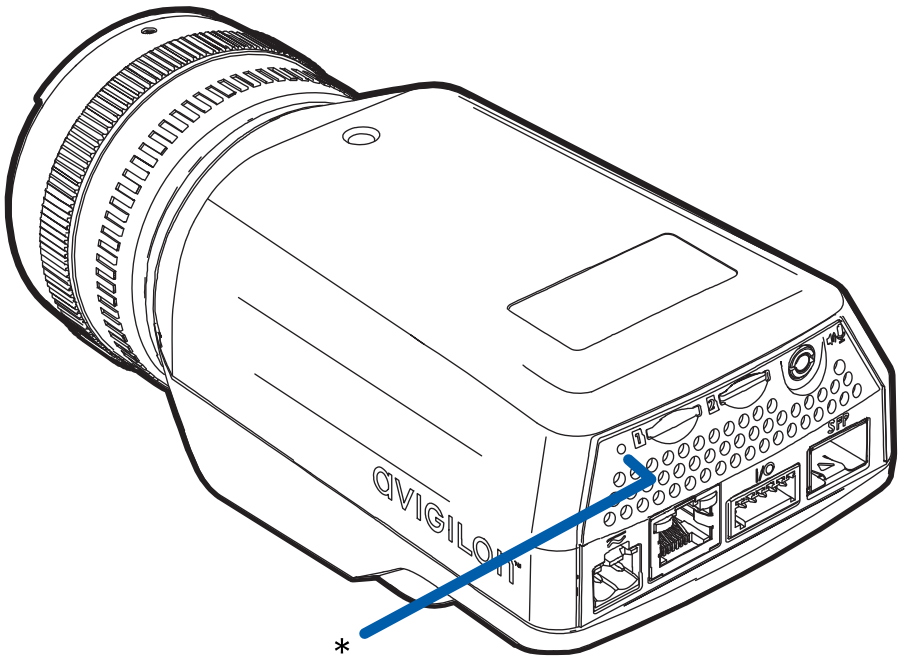
LED Behavior	Suggested Solution
Green LED is off and amber is on	Perform a factory reset of the camera using the physical firmware revert button. Resetting through the camera's web interface will not produce the desired result.
Both LEDs are off and the camera is not connected or streaming video	Check the **General** setup page in the camera's web interface to ensure the LEDs are not disabled. If the LEDs are not disabled, perform a factory reset of the camera using the physical firmware revert button. Resetting through the camera's web interface will not produce the desired result.

LED Behavior	Suggested Solution
Both LEDs are blinking several times at the same time, then pause and repeat the blinking	Perform a factory reset of the camera using the physical firmware revert button. Resetting through the camera's web interface will not produce the desired result.
A different LED blinking pattern than those described above	Perform a factory reset of the camera using the physical firmware revert button. Resetting through the camera's web interface will not produce the desired result.

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:



While the camera is powered, use a straightened paperclip or similar tool to gently press and hold the firmware revert button for 3 seconds and then release the button.

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

Image Sensor

The image sensor is protected from contamination by protective glass. However, the protective glass can be contaminated by dust and other debris.

To clean the protective glass, perform the following steps:

1. Remove the lens or dust cap.
2. Using a photographic-grade bulb-type blower (commercially available), blow away any dust or foreign debris from the protective glass inside the lens mount.
3. Immediately replace the lens or dust cap.

If the protective glass is still not clean, obtain an image sensor cleaning swab and solution. Follow the cleaning instructions provided by the manufacturer.

CAUTION —

- Never touch the image sensor or any glass elements inside the lens mount. Only clean the image sensor with the recommended cleaning tools.
- Do not allow dust, moisture or any other foreign debris to enter the lens mount.
- Avoid leaving the image sensor exposed for extended periods of time.
- Always cover the image sensor with either a lens or a dust cap.

Body

Use a dry or lightly dampened cloth to clean the camera body.

CAUTION — Do not use strong or abrasive detergents when cleaning the camera body.

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**.