AVIGILON™
TRUSTED SECURITY SOLUTIONS™

Installation Guide

Avigilon Presence Detector with Ceiling or Wall Mount Adapters:

APD-S1-D and APD-MT-WALL1 (optional)

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.

- 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 device.

- Do not expose the device 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 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.
- This product should be installed by a trained professional and should beinstalled in restricted access locations.

Regulatory Notices

- Installation must be performed by qualified personnel only, and must conform to all local codes.
- The APD product is intended to be supplied by Power over Ethernet (PoE) that is a “Limited Power Source” or “LPS” rated 48 VDC, 3W.
- This product is intended to be used in a Network Environment 0 per IEC TR62101. The device is to be connected only to PoE networks that comply with IEEE 802.3af without routing to the outside plants.
- Do not connect directly to mains power for any reason.

FCC/ISED Notices

- FCC ID: 2ANC5-APDS1D
- This equipment may only be operated indoors. Operation outdoors is in violation of 47 U.S.C. 301 and could subject the operator to serious legal penalties.
- This equipment complies with the FCC and ISED Canada radiation exposure limits. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body.
- 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.
- **NOTE:** 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 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.
- Any changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate this equipment.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
- IC ID: 23071-APDS1D
- This Class B digital apparatus complies with Canadian ICES-003 (B)/NMB-3(B)

- This Device complies with Industry Canada License-exempt RSS standard(s). Operation is subject to the following two conditions: 1) this device may not cause interference, and 2) this device must accept any interference, including interference that may cause undesired operation of the device.
- Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
- Do not connect directly to mains power for any reason.

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

This document has been compiled and published covering the latest product descriptions and specifications. The contents of this document and the specifications of the products discussed herein are subject to change without notice. Avigilon Corporation reserves the right to make any such changes without notice. Neither Avigilon Corporation nor any of its affiliated companies: (1) guarantees the completeness or accuracy of the

information contained in this document; or (2) is responsible for your use of, or reliance on, the information. Avigilon Corporation shall not be responsible for any losses or damages (including consequential damages) caused by reliance on the information presented herein.

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Revision: 1 - EN

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Table of Contents

Overview

The APD device uses a short-range radar sensor to detect motion in small indoor areas and is suitable for use in places where it is not possible to use cameras. It is designed to detect the presence of moving objects, and it is capable of detecting fine motion, such as respiration. The device is used to detect people who enter its range and linger for extended periods of time, and can detect people who are standing still or sleeping, and then send notifications to ACC servers connected to the device. It detects presence using motion only and cannot quantify the number of moving objects in range.

Typically, it is configured to send notifications after it has detected that:

- An object has moved into range and lingered for a period of time.
- There is no longer any moving object in range after default period of time.

The notifications received by the ACC server can be used to trigger alarms using the Rules functionality in the ACC software. These alarms can then be monitored in the ACC client or ACC Mobile applications and then acted upon.

The configurable settings for the device allow you to specify:

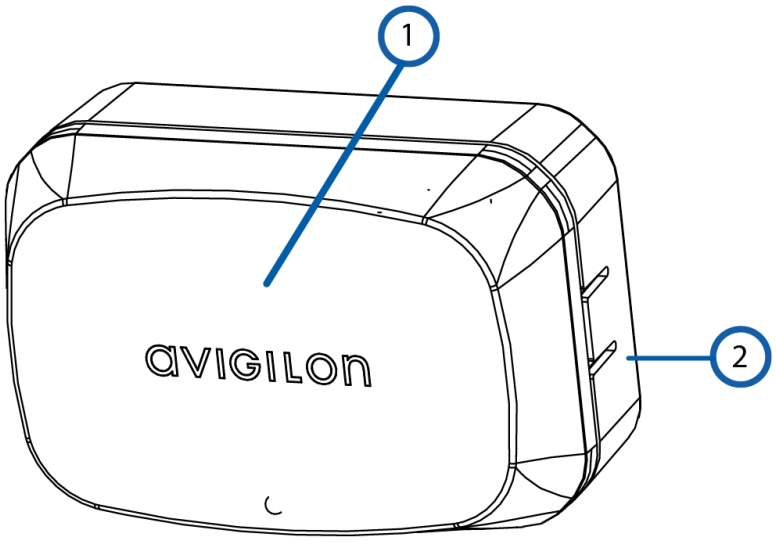
- The range for the device. which must be set so that unwanted motion is not detected, such as people walking along a hallway on the other side of an enclosed area being monitored.
- The dwell time for a detected object, which is the amount of time that moving objects are detected in range before a notification is sent out.
- The sensitivity of the sensor to motion.

Configuration can be completed using the APD Web User Interface (WebUI) when the device is installed and connected to the network. After the device is also connected to an ACC server, configuration changes can be made using either the WebUI or the ACC client. for more information, see the *APD Web Interface User Guide* and *AvigilonControl Center Client User Guide*.

The device requires two minutes to learn the environment that is in range any time that it is powered on, or after the range is reset. It requires 20 seconds to process changes to dwell time and sensitivity settings. During this time, its status appears as "Initializing".

While the device is learning its environment (that is, detecting and recording the normal fixed objects in range), no people or moving objects should be present within range of the device.

Device Attached to the Ceiling Bracket



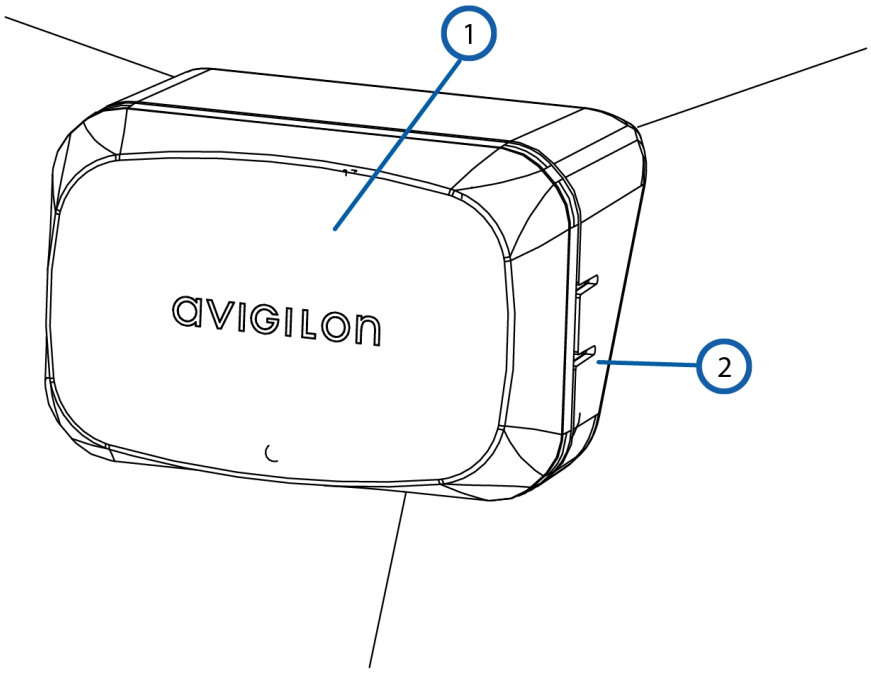
1. **APD body**

   The main body of the APD device.

2. **Ceiling Bracket**

   Used to mount the APD device to the ceiling, with the device pointing directly downwards.

Device Attached to Wall or Corner Bracket



1. **APD body**

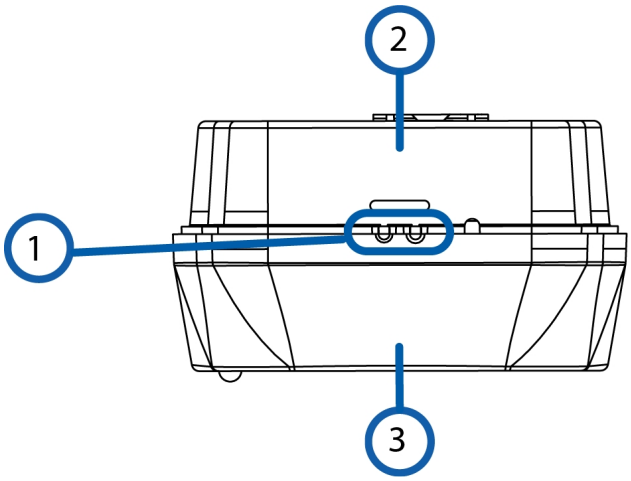
   The main body of the APD device.

2. **Wall or Corner Bracket**

   Used to mount the APD device to a wall or corner, with the device angled 30° downwards.

   NOTE: The bracket for mounting the APD device is an optional accessory that must be ordered together with the device.

LED Indicators



1. **Connection status LED**

   Provides information about device operation. For more information, see *LED Indicators* on page 19.

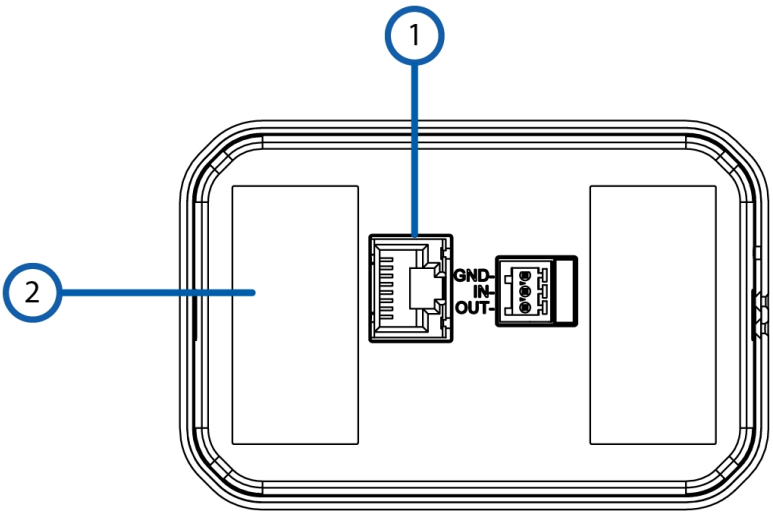
2. **Back of the device**

   The section of the device inserted into the mounting bracket.

3. **Front of the device**

   The section of the device that is external to the mounting bracket.

Back of Device



1. **Ethernet port**

   Accepts power and Ethernet connection to the network.

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

2. **Serial number tag**

   Contains the serial number and MAC address of the device. Copy down this information for later use if you plan to configure a static IP address for this device. For more information, see *Setting the IP Address Using the ARP/Ping Method* on page 23.

3. **Connection status LED**

   Provides information about device operation. For more information, see *LED Indicators* on page 19.

Positioning the APD Device

The APD device is packaged with a ceiling mount adapter. A wall or corner mount adapter is also available as an optional accessory.

When the device is mounted to the ceiling it detects presence inside a cone projected down from the sensor. Fine motion, such as respiration and heartbeat, is detected within a smaller diameter cone than actual movement is detected.

The wall or corner mounting adapter points downward at a fixed 30° angle. This allows for a roughly oval-shaped detection zone on the floor that tapers towards the wall upwards to the sensor. As with the ceiling mount, fine motion, such as respiration and heartbeat, is detected within a smaller oval area than actual movement is detected. (See the tables and figures)

You must determine the exact location for the APD device before you install it. The sensor in the device detects only within a very specific field of view.

Use the diagrams in *Side view of ceiling mounted device* below and *Top view of ceiling mounted device* on the next page to determine the best placement of the device to detect respiration and motion and motion only for a ceiling mounted device.

Use the diagrams in *Side view of wall mounted device* on the next page and *Side view of ceiling mounted device* below to determine the best placement of the device to detect respiration and motion and motion only for a wall mounted device.

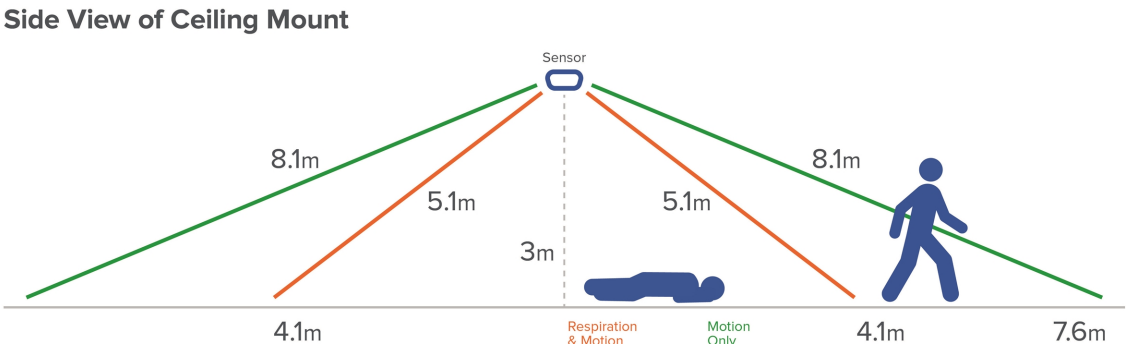


Figure 1: Side view of ceiling mounted device

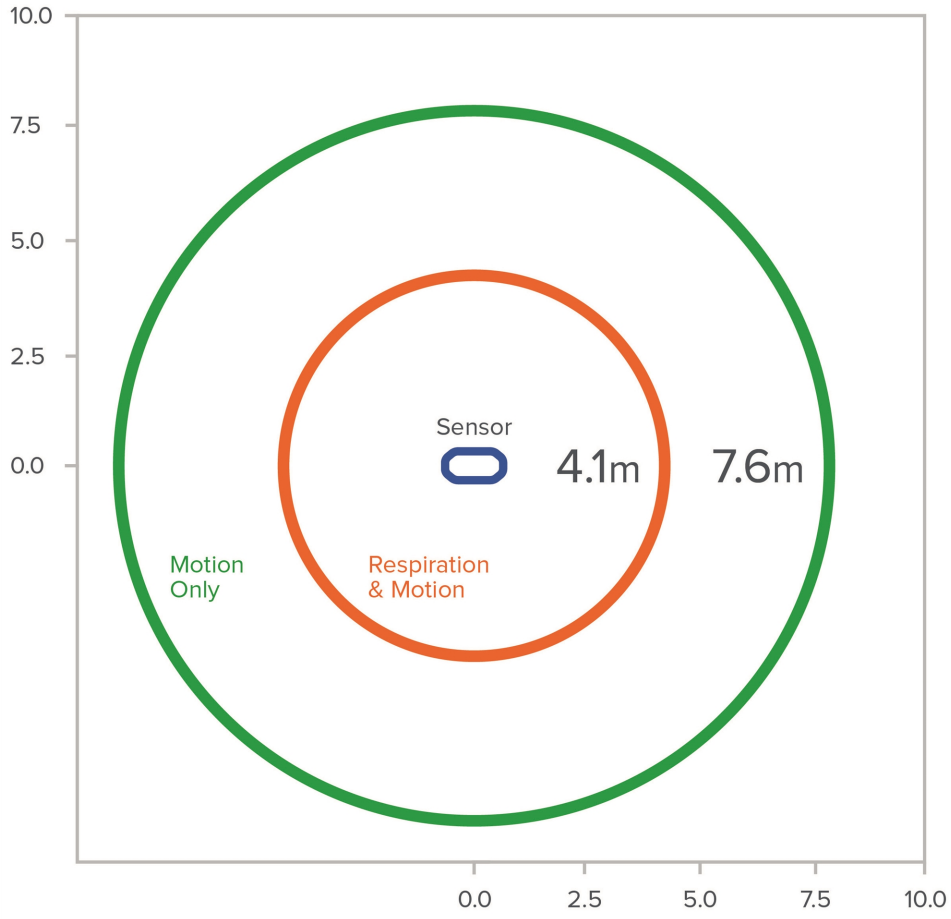


Figure 2: Top view of ceiling mounted device

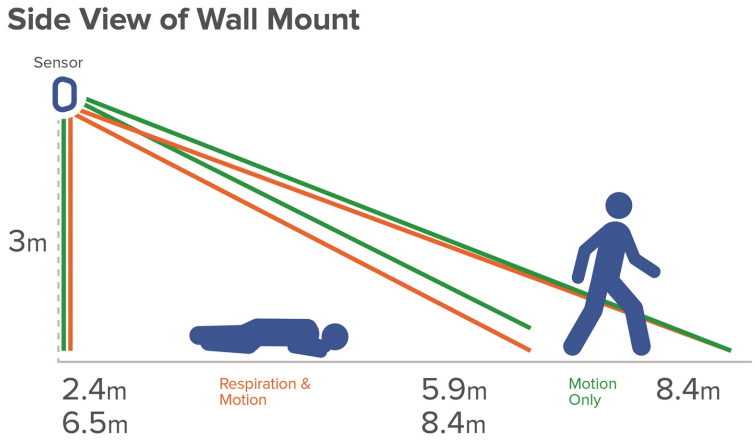


Figure 3: Side view of wall mounted device

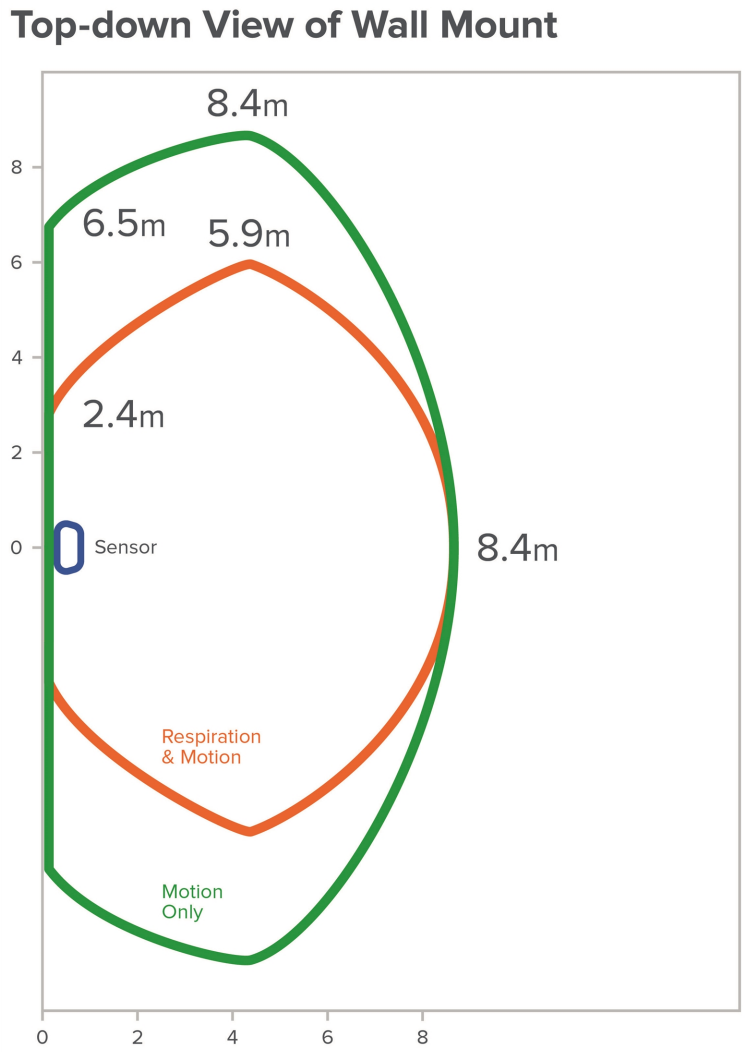


Figure 4: Top view of wall mounted device

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 the device to the mounting surface.

Camera Package Contents

Ensure the package contains the following:

- Avigilon Avigilon Presence Detector (APD)

  Provided accessories that are not required for this installation:

  - 4 screws and anchors for solid walls
  - Surface mount adapter

Installation Steps

Complete the following sections to install the camera.

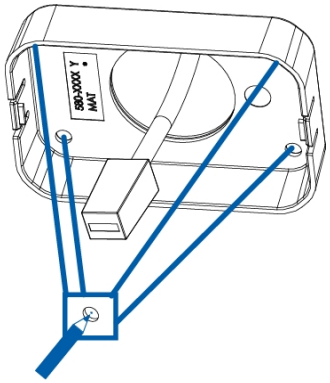
Mounting the APD With the Surface Mount Adapter

The Avigilon Presence Detector device is provided with a surface mount adapter that can be mounted to a ceiling. If the APD device needs to be installed on a wall or in a corner, use the wall or corner mounting adapter, which is an optional accessory. See *Positioning the APD Device* on page 12 for more information.

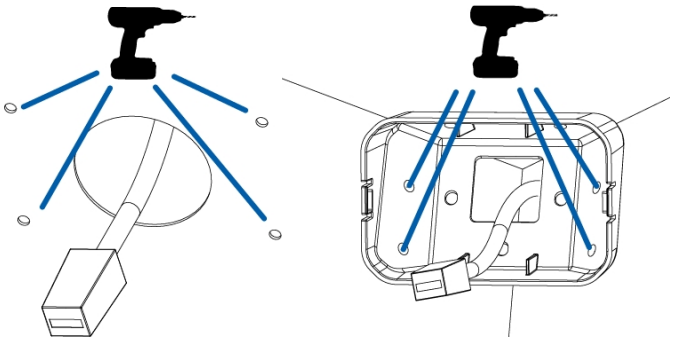
The APD device should be installed on a surface that can be easily drilled into. It is connected to a previously installed Ethernet cable coming from inside the mounting surface and the mounting adapter is attached over the cable hole. The cable hole should be positioned on the ceiling or wall to provide optimal coverage.

Perform the following steps to mount the appropriate adapter to a ceiling or wall:

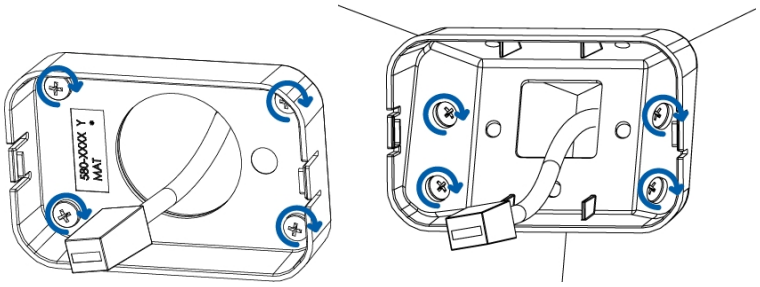
1. Use the mounting adapter as a template to mark the position of the 4 mounting screws into the mounting surface.



2. Drill the holes for the screws into the mounting surface



3. Insert the anchor plugs for the screws and then drive the four screws to fasten the mounting adapter to the ceiling or wall.



Installing the Device in the Mounting Adapter

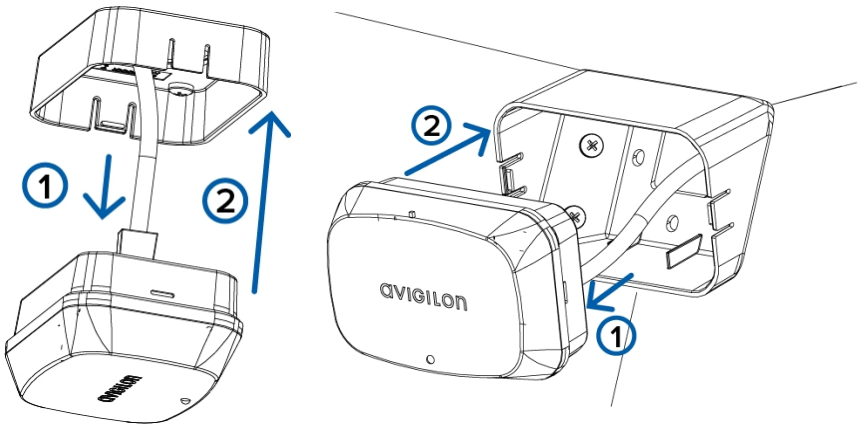
After you install the mounting adapter, mount the APD device to the adapter:

1. Connect the Ethernet port attached to the device to the Ethernet cable that was pulled through the cable entry hole.

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

2. Align the housing clips on the device base to the attachment retainers on the mounting adapter. Press the

device base into the mounting adapter. The base clicks into place and is held securely.



Assigning an IP Address

The deviceautomatically 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:

- The mobile web interface using the USB Wifi Adapter. For more information, see *(Optional) Using the USB Wifi Adapter* on page 1.
- 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 23.

NOTE: The default device username is `administrator` with no password.

Configuring the APD Device

After the APD device is installed, use one of the following methods to configure the device:

- If the device is connected to your network, you can use the APD web user interface to configure the device. See the *APD Web Interface User Guide* for more information.
- If the device is connected to the Avigilon Control Center system, you can use the client software to configure the device. See the *Avigilon Control Center Client User Guide* for more information.

Initializing the APD Device

The APD device takes two minutes to learn the background and initialize after it is powered on or the detection range is reset. It is recommended that no people are in range of the device during the initialization.

While the device is initializing, the LED light on the front of the device will blink. As soon as it is initialized, the LED will stop blinking.

In normal operation the sensor in the APD device will detect a person in range within two to three seconds . A signal is then sent out, which all the Control Center servers connected to the device receive, and the LED on the front will turn on. After the person is out of range for 51 seconds, a signal will be sent out, and the sensor will turn off.

Most of the configurable settings for the APD device can be modified in the Control Center client software and the Device Web User Interface. See the *ACC User Guide* and the *Device Web User Interface Guide* for more information.

The WebUI for the device provides a Range Test Mode that can be used during installation, maintenance, or similar situations. This mode enables the sensor to detect a person in range within two to three seconds and to detect the absence of a person within range within five seconds. This provides almost immediate feedback on detection, however at a much lower level of sensitivity. In Range Test Mode, the device is cannot reliably detect breathing and other fine motion. Therefore, it is only suitable for installation and set up activities. The default setting for Range Test Mode is disabled. After it is enabled and it is not disabled within one hour, it is automatically. If the device is powered off when it is in Range Test Mode, it is disabled after it is powered on again. See the *Device Web User Interface Guide* for more information.

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: **avigilon.com/support-and-downloads**.

LED Indicators

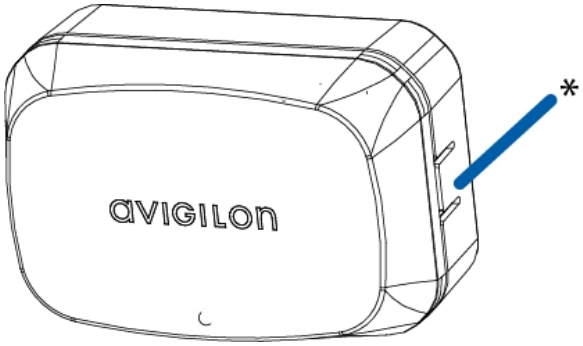
Once connected to the network, the Connection Status LED will display the progress in connecting to the Network Video Management software.

The following table describes what the LEDs indicate:

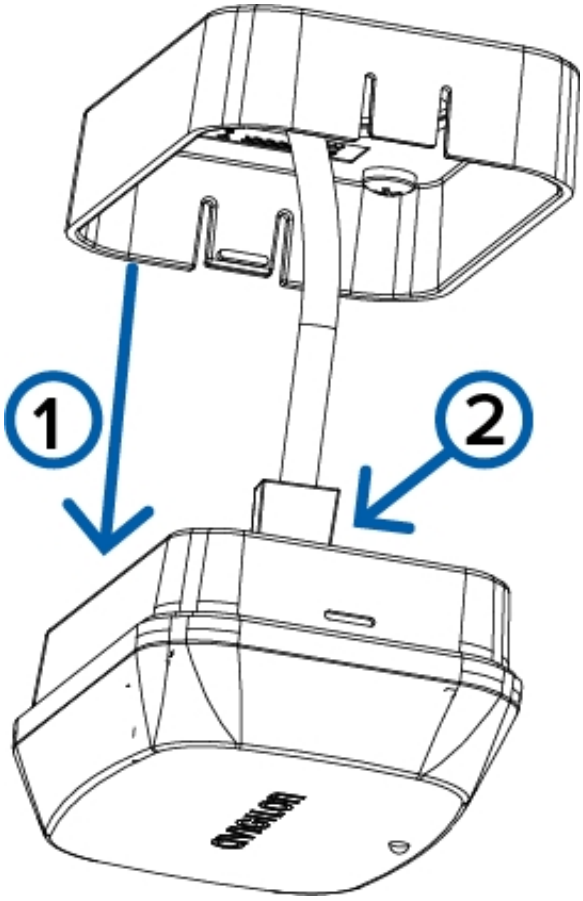
Connection State	Connection Status LED	Description
Obtaining IP Address	One short flash every second	Attempting to obtain an IP address.
Discoverable	Two short flashes every second	Obtained an IP address but is not connected to the Network Video Management software.
Upgrading Firmware	Two short flashes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

Removing the APD Device from the Mounting Adapter

1. Apply force to slightly open the plastic tab on one side of the mounting adapter to release the APDdevice from the adapter. Pull the APDdevice from the mounting adapter. You may want to use a tool with a flat edge such as a small screwdriver or a letter opener.



2. Pull the APDdevice out of the mounting adapter.

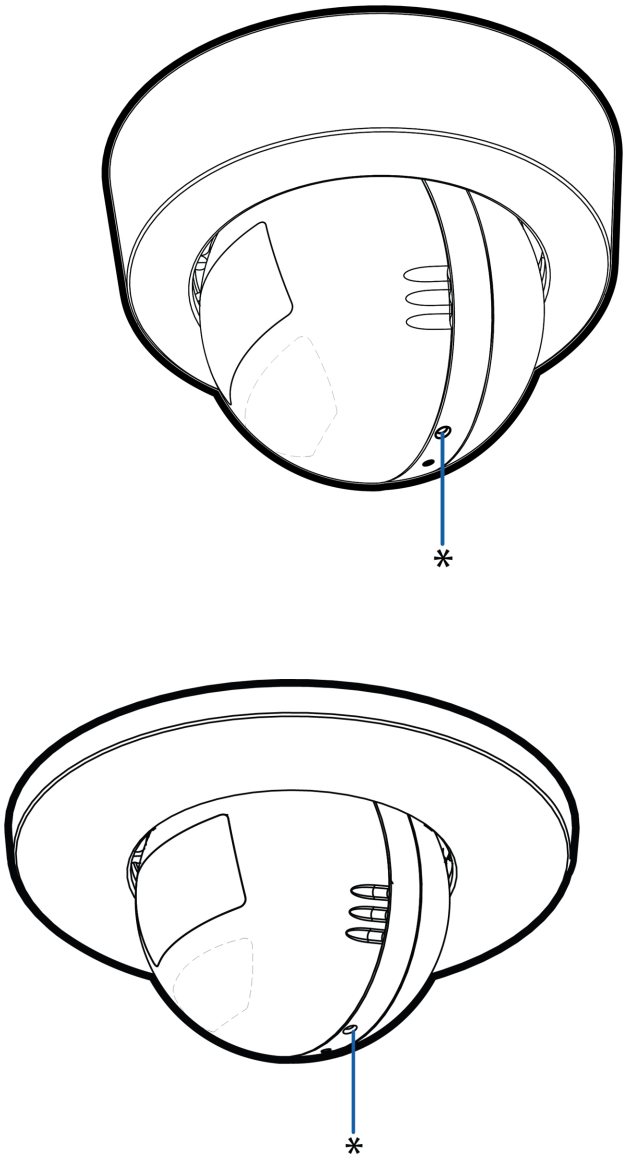


3. Detach the APDdevice from the network cable.

Resetting to Factory Default Settings

If the APD 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 will damage the device.

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 H.264 Web Interface User Guide*.

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>: ...`

Specifications

Camera	
Lens	2.8mm, F1.2, IR Corrected
HFOV (Angle of View	1.3 MP: (5:4) 74°; (16:9) 110° 2.0 MP: (5:4) 74°; (16:9) 110° 3.0 MP: (5:4) ?; (16:9) ?
Network	
Network	100Base-TX
Cabling Type	CAT5
Connector	RJ-45
ONVIF®	ONVIF compliant with 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
Protocols	IPv4, HTTP, HTTPS, SOAP, DNS, NTP, RTSP, RTCP, RTP, TCP, UDP, IGMP, ICMP, DHCP, Zeroconf, ARP
Streaming Protocols	RTP/UDP, RTP/UDP multicast, RTP/RTSP/TCP, RTP/RTSP/HTTP/TCP, RTP/RTSP/HTTPS/TCP, HTTP
Device Management Protocols	SNMP v2c SNMP v3
Mechanical	
Dimensions L x W x H	Surface Mount: 73 mm x 73 mm x 52 mm (2.9" x 2.9" x 2.0") In-ceiling Mount: 89 mm x 89 mm x 39 mm (3.5" x 3.5" x 1.5")
Max. Ceiling Thickness	Surface Mount: N/A In-ceiling Mount: 25 mm (1")
Camera Weight with Surface Mounting Bracket	H4M-D1 - 118 g (0.26 lbs) H4M-D1-IR - 120g (0.26 lbs)
Camera Weight with In-ceiling Mounting Bracket	H4M-D1 - 152 g (0.34 lbs) H4M-D1-IR - 154g (0.34 lbs)
Body	Polycarbonate and aluminum
Housing	Polycarbonate
Finish	Cool grey, black
Adjustment Range	360° pan, -5° to 75° tilt, ±115° azimuth
Electrical	
Power Consumption	4 W
Power Source	PoE: IEEE802.3af Class 2 compliant

RTC Backup Battery	3V manganese lithium
Environmental	
Operating Temperature	0 °C to 50 °C (32 °F to 122 °F
Storage Temperature	-30 °C to 70 °C (-22 °F to 158 °F)
Humidity	0-95% non-condensing
Certifications	
Certifications/ Directives	UL, cUL, CE, ROHS, WEEE, RCM
Safety	UL 62368-1, CSA 62368-1, IEC/EN 62368-1, IEC 62471
Environmental	Indoor Applications
Electromagnetic Emissions	FCC Part 15 Subpart B Class B, IC ICES-003 Class B, EN 55032 Class B, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3
Electromagnetic Immunity	EN 55024, EN 61000-6-1, EN 50130-4

Limited Warranty and Technical Support

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

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