Cisco Catalyst IW6300 Heavy Duty Series Access Point Hardware Installation Guide

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C O N T E N T S

C H A P T E R 1

Overview

This publication explains the steps for installing the Cisco Catalyst IW6300 Heavy Duty Series Access Point.

Note The documentation set for this product strives to use bias-free language. For purposes of this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. Exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation, or language that is used by a referenced third-party product.

Audience

This publication is for the person installing and configuring an access point for the first time. The installer should be familiar with network structures, terms, and concepts.

For installations in a hazardous locations environment, please refer to Getting Started and Product Document of Compliance for the Cisco Catalyst IW6300 Heavy Duty Series Access Points for additional installation information.

Warning Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030

Conventions

This publication uses the following conventions:

Convention	Description
boldface font	Commands, command options, and keywords are in boldface.
italic font	Arguments for which you supply values are in italics.
[ ]	Elements in square brackets are optional.
`screen font`	Terminal sessions and information the system displays are in screen font.
`boldface screen font`	Information you must enter is in boldface screen font.
`italic screen font`	Arguments for which you supply values are in italic screen font.
^	The symbol ^ represents the key labeled Control. For example, the key combination ^D in a screen display means hold down the Control key while you press the D key.
< >	Nonprinting characters, such as passwords, are in angle brackets.

This document uses the following conventions and symbols for notes, cautions, and warnings.

Note Means *reader take note.* Notes contain helpful suggestions or references to materials not contained in this manual.

Caution Means *reader be careful.* In this situation, you might do something that could result in equipment damage or loss of data.

Warning IMPORTANT SAFETY INSTRUCTIONS This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071 SAVE THESE INSTRUCTIONS

About the Access Point

Designed for the most hazardous industrial locations, Cisco Catalyst IW6300 Heavy Duty Access Points deliver wireless connectivity, IoT control, and robust data collection to dangerous environments.

With 802.11ac Wave 2 connectivity, dual Power over Ethernet Plus (PoE+) out for IoT sensors or peripherals, multiple power-in sources, and a variety of uplink options, the IW6300 provides a flexible wireless solution.

The IW6300 carries an IP66/IP67 rating and Class 1 Division 2 certification, as well as a temperature rating of -40°C to +75°C, making it an ideal mesh network component for heavy industry use. Additional customization beyond antenna and mounting options include WirelessHART, ISA100.11a, GPS, Bluetooth Low-Energy, and Zigbee modules, as well as customer or partner-built modules for specific use cases.

The detailed up-to-date technical specifications for the Cisco Catalyst IW6300 Heavy Duty Series Access Points are available in the Data Sheet:

https://www.cisco.com/c/en/us/products/collateral/wireless/industrial-wireless-6300-series/datasheet-c78-742907.html

Hardware Models

Figure 1: IW-6300H Access Points
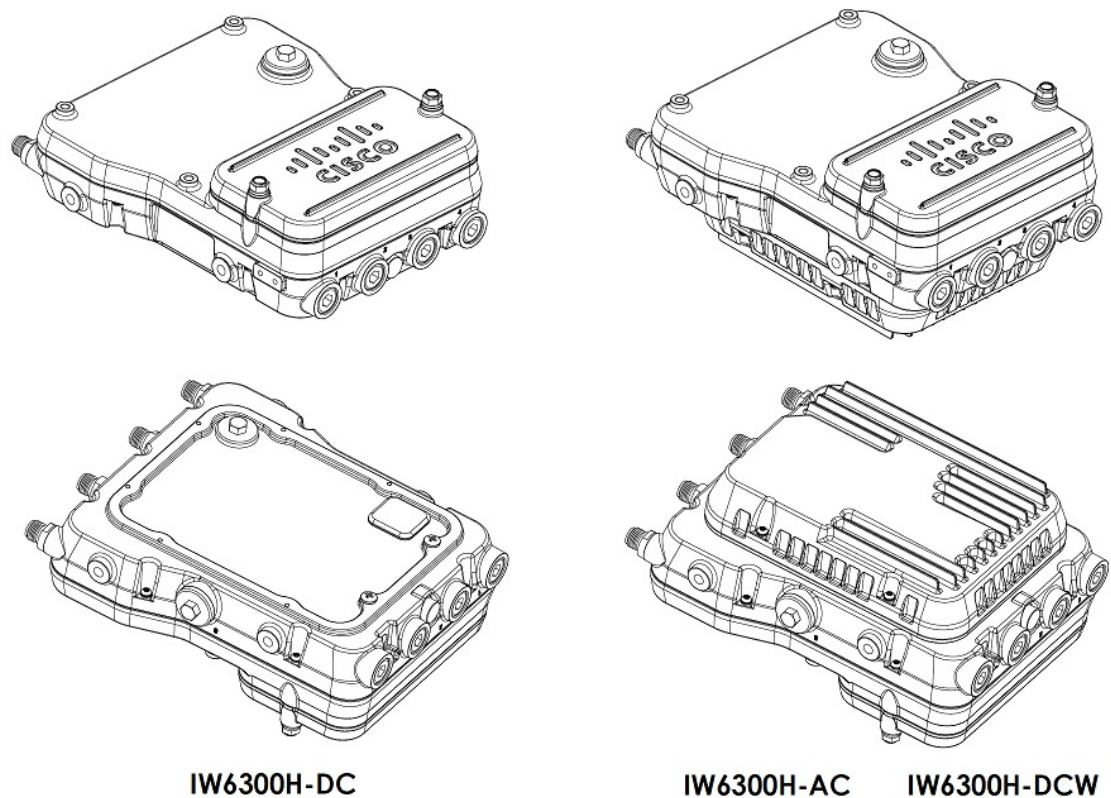
The model numbers (or part numbers) and configuration for the Cisco Catalyst IW6300 Heavy Duty Series Access Points are described in the following table.

Table 1: Cisco Industrial Wireless 6300 Series Access Point Model Numbers and Descriptions

Model (or part number)	Configuration
IW-6300H-AC-x-K9	IP66 and IP67 rated, hazardous location certified, AC power version. This model has 4 external antenna ports and contains a 2.4 GHz and 5 GHz radio with an option to configure in centralized, Flexconnect, or mesh mode and supports AC power source.

Model (or part number)	Configuration
IW-6300H-DCW-x–K9	IP66 and IP67 rated, hazardous location certified, DC wide range power version. This model has 4 external antenna ports and contains a 2.4 GHz and 5 GHz radio with an option to configure in centralized, Flexconnect, or mesh mode, and supports 10.8 VDC to 36 VDC power source. **Note** The marked DC input range is an absolute range. Do not apply tolerances.
IW-6300H-DC-x-K9	IP66 and IP67 rated, hazardous location certified, DC power version. This model has 4 external antenna ports and contains a 2.4 GHz and 5 GHz radio with an option to configure in centralized, Flexconnect, or mesh mode and supports 44 VDC to 57 VDC power source. **Note** The marked DC input range is an absolute range. Do not apply tolerances.

Note   The "-x" in the model number represents a regulatory domain for a specific country.

A detailed list of components supported by each access point model is shown in the following table.

Table 2: Components of Each Access Point Model

Product/PID	Power Input Option	Antenna Ports	Ethernet Ports	PoE Out Port	I/O Ports
IW-6300H-AC-x-K9	UPoE, PoE+, AC (100V to 240V)	Four Type N Connectors	One 100/1000Mbps SFP for WAN	35.3W	Four 1/2" NPT Ports
IW-6300H-DCW-x–K9	UPoE, PoE+, DC (10.8V to 36V)		One 100/1000Mbps RJ45 for WAN (UPoE or PoE+ in)		
IW-6300H-DC-x-K9	UPoE, PoE+, DC (44V to 57V)		Two 100/1000Mbps RJ45 for LAN (802.3at or 802.3af out)		

Note   For IW-6300H-DC-x-K9, when you use DC as input power option, if you want to output 802.3at type 2 PoE out power, DC input must >=51V. If you want to output 802.3af (802.3at type 1) PoE out power, DC input must >=45V.

Note   When powered with PoE+ or UPoE, the PoE Out power is not available, The PoE-Out port data link can still be active.

Hardware Features

This section describes the hardware features of the IW-6300H access point models.

Note The illustrations in this document show all available connections for the access point. Unused connections are capped with a connector plug to ensure the dust/watertight integrity of the access point. See the "Working with the Access Cover" section for further details.

Internal Connectors

The following figure shows the IW-6300H Access Point Internal Connectors.

Figure 2: IW-6300H Access Point Internal Connectors
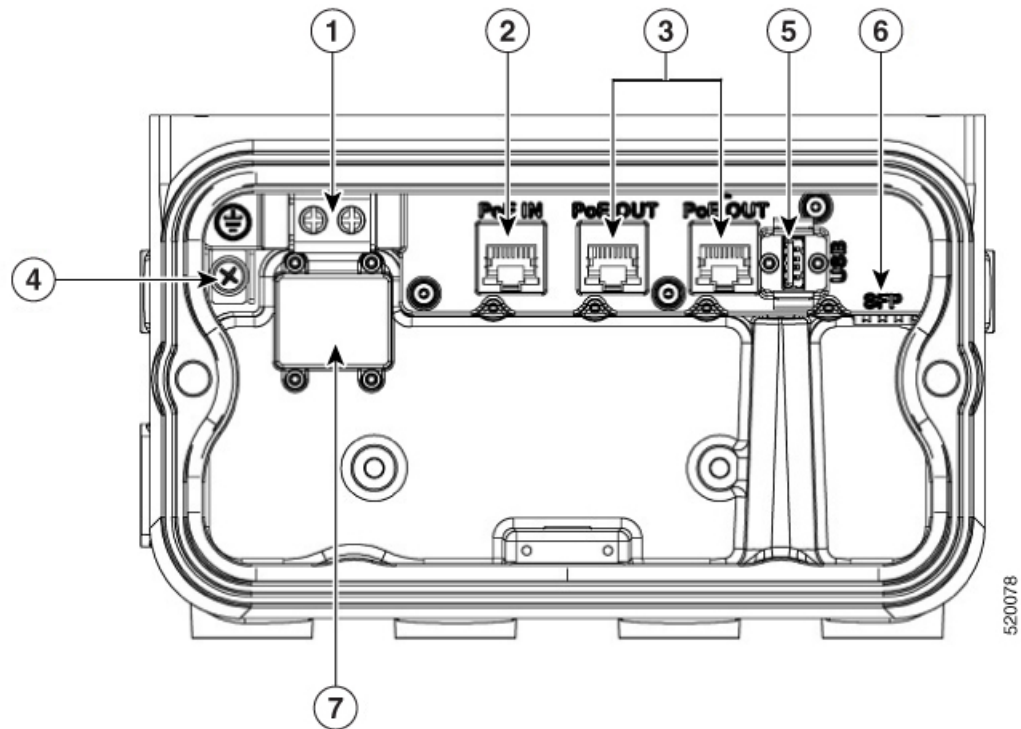
1	Power-IN (IW-6300H-DC-X-K9)	5	USB port
2	PoE In port	6	SFP port
3	PoE Out port	7	Terminal block location of IW-6300H-AC-X-K9 and IW-6300H-DCW-X-K9
4	Internal ground		

Console Port and Reset Button

The console port and reset button are under a covering M25 plug located on the side of the access point, as shown in the following figure.

Figure 3: W-6300H Access Point Console Port and Reset Button
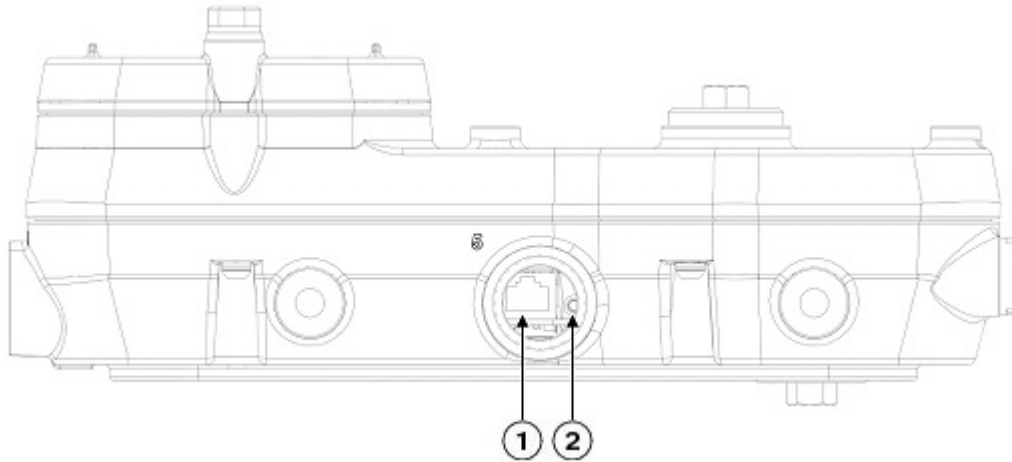
1	Console port	2	Reset button

Inspect the seal of the plug and properly tighten it at the time of installation, and also every time the plug is removed and replaced. Tighten the plug to 5-6 lb-ft. If you do not tighten the plug properly, it will not meet IP66/67 criteria, and may lead to water leaking into the unit.

Power Connector

The following figure shows the power connector of access point model IW-6300H-AC-x-K9.

Figure 4: Power Connector of Access Point Model IW-6300H-AC-x–K9
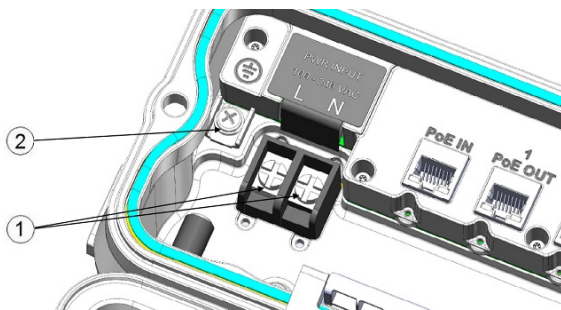
1	AC Power-IN	2	Internal ground

The following figure shows the power connector of access point model IW-6300H-DCW-x-K9.

Figure 5: Power Connector of Access Point Model IW-6300H-DCW-x–K9
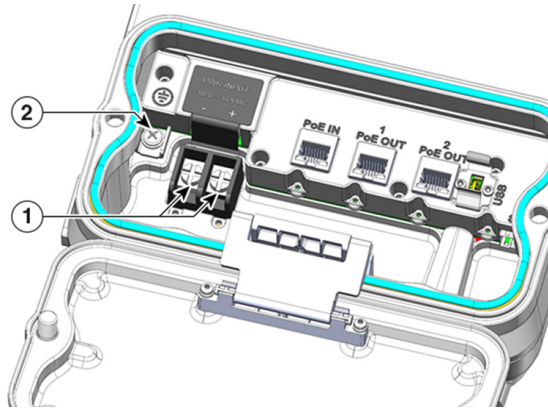
1	DC Power-IN	2	Internal ground

The following figure shows the power connector of access point model IW-6300H-DC-x-K9.

Figure 6: Power Connector of Access Point Model IW-6300H-DC-x–K9
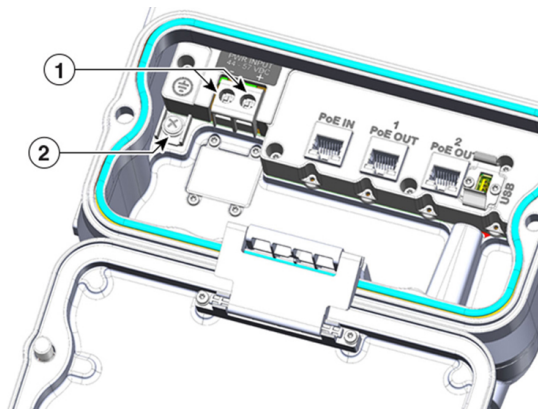
1	DC Power-IN	2	Internal ground

Antenna Ports

The access point antenna N-type connectors are located on the top of each model (see the following figure). The supported antennas can be directly attached to the access point or remotely located. When used in a Class 1, Zone 2, Division 2 hazardous location, this equipment must be mounted with proper RF cables (if required) and electrical wiring methods that comply with the governing electrical codes.

Note Antenna caps must be installed when an antenna is not in use (maximum torque range: 6.2-9.7 in-lbs).
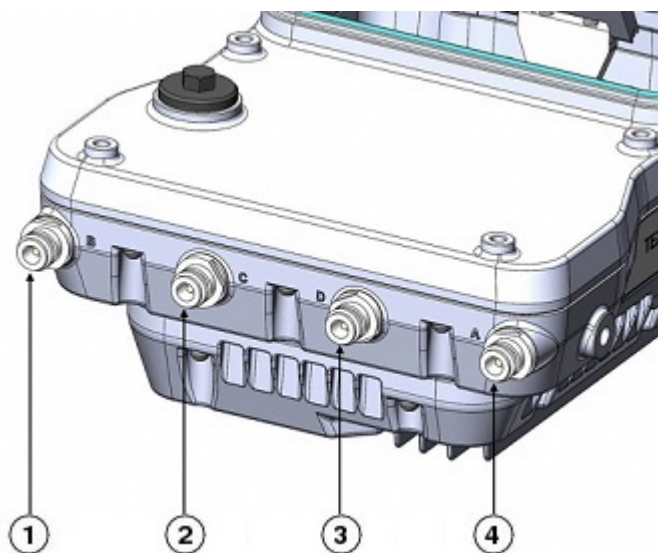
1	Antenna port B - Type N connector Wi-Fi 2.4/5 GHz TX/RX	3	Antenna port D - Type N connector Wi-Fi 5 GHz TX/RX
2	Antenna port C - Type N connector Wi-Fi 5 GHz TX/RX	4	Antenna port A - Type N connector Wi-Fi 2.4/5 GHz TX/RX

The IW-6300H access point can be configured via software to support dual band or single band antennas. When configured for dual band antennas, antenna ports A and B are used to support multiple input/output (MIMO) operation on both 2.4 and 5 GHz radios. When using Cisco Aironet omnidirectional antennas with Type N male connectors, the antennas can be connected directly to the access point. If the antennas are remotely located, an appropriate low loss RF cable should be used.

Note Ensure that the antenna band mode is configured before the access point is installed.

When configured for single band antennas, antenna ports A and B support MIMO operation on the 2.4 GHz radio and antenna ports C and D support MIMO operation on the 5 GHz radio. See the *Cisco Catalyst IW6300 Heavy Duty Series Access Point Software Configuration Guide*.

Use of four omnidirectional antennas attached directly to the Type N connectors is not recommended. To provide omnidirectional coverage with both 2.4 and 5 GHz radios using directly attached antennas, it is recommended to configure the IW-6300H in dual band mode, connect two dual band antennas such as AIR-ANT2547V-N, AIR-ANT2547V-N-HZ, or AIR-ANT2568VG-N to ports A and B, and cap ports C and D.

The 2 GHz b/g/n radio operates in 2.4 GHz ISM band. It supports channels 1-11 in the US, 1-13 in Europe, and 1-13 in Japan. It has 2 transmitters with a maximum total output power of 27 dBm for 802.11b/g/n operation. Output power is configurable for 8 levels in 3 dB steps. It has two receivers that enable maximum-ratio combining (MRC).

The 5 GHz a/n radio operates in the UNII-1 band (5.15-5.25 GHz), UNII-2 band (5.25 - 5.35 GHz), UNII-2 Extended/ETSI band (5.47 - 5.725 GHz), and the upper ISM band (5.725 - 5.850 GHz). It has two transmitters with a maximum total output power of 27 dBm depending on the regulatory domain. Tx power settings will change depending on the regulatory domain. Output power is configurable in 3 dB steps. Its two receivers enable maximum-ratio combining (MRC).

Power Sources

The Cisco Catalyst IW6300 Heavy Duty Series Access Points support the following power input options:

- Power over Ethernet
  - Power injector, AIR-PWRINJ-60RGD1= and AIR-PWRINJ-60RGD2=
  - Power over Ethernet Plus (PoE+) or Cisco Universal Power over Ethernet (UPOE) switch
- AC or DC power
  - IW-6300H-AC-x-K9: 85-264V~ maximum, marked 100-240V~, 50-60Hz, 1.3A
  - IW-6300H-DC-x–K9: 44 to 57Vdc, 1.2A
  - IW-6300H-DCW-x-K9: 10.8 to 36Vdc, 5.9A

Note   The marked DC input range is an absolute range. Do not apply tolerances.

Warning   Connect the unit only to DC power source that complies with the safety extra-low voltage (SELV) requirements in IEC 60950 based safety standards. Statement 1033

Power Injectors

The IW6300 series access points support the following power injectors:

- AIR-PWRINJ-60RGD1=
- AIR-PWRINJ-60RGD2=

Caution   Power injector AIR-PWRINJ-60RGDx= is not certified for installation within hazardous locations environments.

For more information about installing the AIR-PWRINJ-60RGDx= power injectors, see Cisco Aironet Series Power Injectors AIR-PWRINJ-60RGD1= and AIR-PWRINJ-60RGD2= Installation Instructions.

Ethernet (PoE) Ports

The access point supports two Ethernet uplink port (one PoE-In port and one SFP fiber port), and two PoE-Out ports. The access point Ethernet uplink port uses an RJ-45 connector (with weatherproofing) to link the access

point to the 10BASE-T, 100BASE-T or 1000BASE-T network. The Ethernet cable is used to send and receive Ethernet data and to optionally supply inline power from the power injector or a suitably powered switch port.

Tip　The access point senses the Ethernet and power signals and automatically switches internal circuitry to match the cable connections.

The Ethernet cable must be a shielded outdoor rated Category 5e (CAT5e) or better cable. The access point senses the Ethernet and power signals and automatically switches internal circuitry to match the cable connections.

Fiber Option

Warning　Class 1 laser product. Statement 1008

The factory-orderable fiber option provides a fiber input and output capability. Fiber data is transmitted and received over a single or dual-strand fiber cable, depending on the SFP, which is connected to the access point using these SFP modules:

- 1000BASE-LX single-mode rugged SFP (GLC-LX-SM-RGD=)
- 1000BASE-SX multi-mode rugged SFP (GLC-SX-MM-RGD=)
- 100BaseBX10-U rugged SFP (GLC-FE-100BX-URGD=)
- 100BASE-FX rugged SFP (GLC-FE-100FX-RGD=)
- 100BASE-LX10 rugged SFP (GLC-FE-100LX-RGD=)
- 1000BASE-T rugged SFP (GLC-T-RGD=)

Note　SFP modules are not hot-swappable. Plug and unplug the SFP module, the AP will reboot.

Client data is passed to the network controller through the fiber connection via a fiber-capable switch or controller. Configuration information can be found in the controller configuration guide of the switch or controller you are using.

I/O Ports

The four 1/2-NPT I/O ports are located at the bottom of the access point. These ports are tapered pipe threads. It is recommended that you use a 3/8" Allen wrench with 13-18" long wrench handle to remove the port plug.

Figure 8: 1/2-NPT I/O Ports
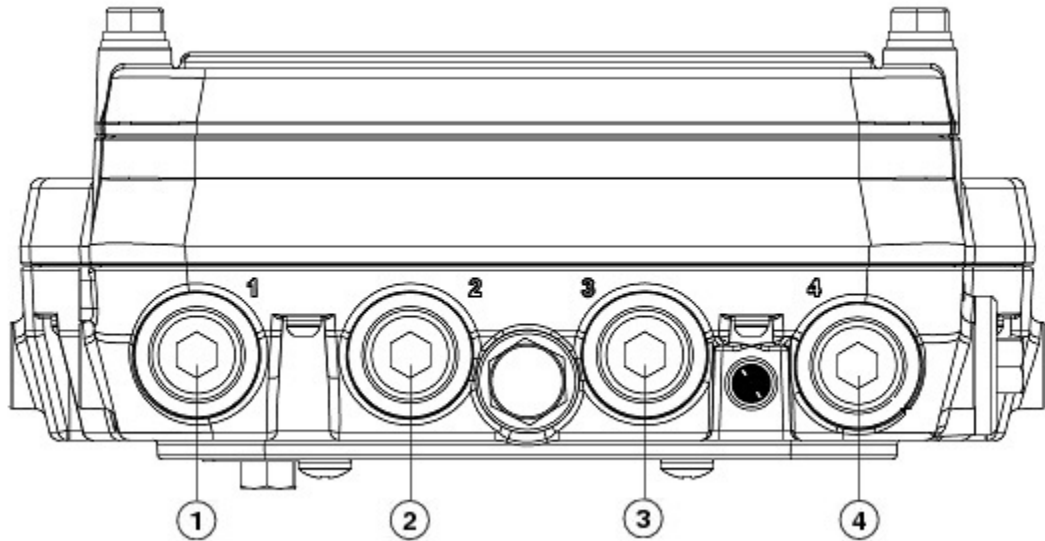
| 1 | AC or DC input | 3 | PoE port |
| 2 | PoE port | 4 | Fiber port |

Loctite 565 Thread Sealant needs to be applied to the threads prior to the installation, as shown in the following figure. Customer should supply certified 1/2'' NPT conduit, gland, or adapter for each port used for appropriate installation. (For example, Sealcon provides glands and adapters that are certified. See https://www.sealconex.com/?ex=9wkuir-fln65y-13897wy-drrs7y.)
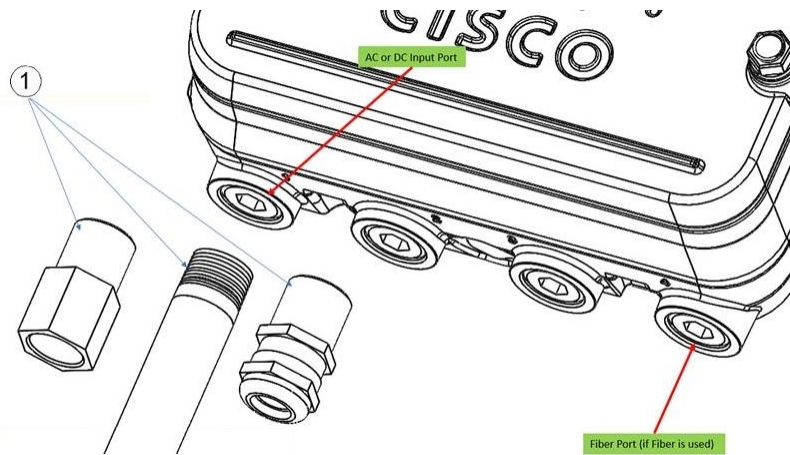
Optional Hardware

Depending on the order configuration, the following optional access point hardware may be part of the shipment:

 • Cisco Aironet Antennas

• Pole mount kits (IOT-ACCPMK=)

• Band installation tool for pole mount kit (AIR-BAND-INST-TL=)

• Power injector (AIR-PWRINJ-60RGDx=)

• SFP module

Finding the Product Serial Number

The access point serial number is on the side of the access point. The access point serial number label contains the following information:

• Serial number

• Access point MAC address, for example 68BDABF54600 (12 hexadecimal digits). It is located under the serial number.

You need your product serial number when requesting support from the Cisco Technical Assistance Center.

Related Documentation

To view all support information for the Cisco Catalyst IW6300 Heavy Duty Series Access Point, see:

https://www.cisco.com/c/en/us/support/wireless/industrial-wireless-6300-series/tsd-products-support-series-home.html

In addition to the documentation available on the support page, you will need to refer to the following guides:

• Cisco Wireless LAN Controller Configuration Guide

• Release Notes for Cisco Wireless LAN Controllers and Lightweight Access Points

• Cisco Mobility Express Configuration and User Guide

Click this link to browse to the Cisco Wireless documentation home page:

http://www.cisco.com/en/US/products/hw/wireless/index.html

To browse to the access point documentation, click **Cisco Catalyst IW6300 Heavy Duty Series Access Point** listed under "Outdoor and Industrial Wireless." The documentation can be accessed from the Support box.

To browse to the Cisco Wireless LAN Controller documentation, click **Standalone Controllers** listed under "Wireless LAN Controllers." The documentation can be accessed from the Support box.

Before You Begin

This chapter describes what steps you need to take before beginning the installation of your Access Point.

Unpacking the Access Point

When you are unpacking the access point, do not remove the foam blocks attached to the antenna connectors. The foam protects the antenna connectors during installation.

To unpack the access point, follow these steps:

Procedure

Step 1   Open the shipping container and carefully remove the contents.

Step 2   Return all packing materials to the shipping container, and save it.

Step 3   Ensure that all items listed in Package Contents, on page 13 are included in the shipment. If any item is damaged or missing, notify your sales representative.

Package Contents

The typical access point package contains the following items:

- Access point
    - IW-6300H-AC-x-K9 (AC power model)
    - IW-6300H-DC-x–K9 (DC power model)
    - IW-6300H-DCW-x-K9 (DC wide range power model)

- Mount kit: choose either IOT-ACCPMK or IOT-ACCPMKHZM for your specific requirement.

    - IOT-ACCPMK—Used in mild environment.

    - IOT-ACCPMKHZM—316 Stainless Steel bracket, with greater resistance to corrosion.

    - IOT-ACCPMK-LB—(Optional) Extender Bracket Kit. Used to install the AP with antennas facing down.

- Ground lug and screws with lock washers

- Weatherization tape and anti-seize compound

Tools and Hardware

The tools and hardware used to install the access point are described in the following sections:

Optional Tools and Hardware

The optional tools and hardware that can be obtained from Cisco are:

- Optional power injector (AIR-PWRINJ-60GRDx=)

- Antennas, 2.4/5-GHz

- Optional banding strap tool (BAND IT) (AIR-BAND-INST-TL=)

Optional Tools and Hardware That You Supply

Tools and materials that are user-supplied are:

- 1/2" or 13-mm socket wrench, used to open the Access Cover and to attach the mounting bracket

- #2 Phillips or Flat screw driver to clamp wire terminal and ground terminal

- 3/8" Allen wrench with 13-18" long wrench handle to remove 1/2" NPT port plugs

- Loctite 565 Thread Sealant for 1/2" NPT Ports

- 6-AWG copper ground wire

- Ethernet RJ-45 connector and installation tool

- Optional ground rod, as required by local regulations

- Optional ladder, power lift, rope, or other tools as required

- ESD-preventive cord and wrist strap

- Wire-stripping tools for stripping 14- and 18-gauge wires

- Crimping tool

If installed in a hazardous location, please note the additional items (see Product Document of Compliance for further details)

- ATEX/IECEx certified Armored cable for routing in conduit

- Customer supplied ATEX/IECEx certified 1/2" NPT conduit (rigid or flex), or ATEX/IECEx certified cable gland or barrier gland for each connection suitable to maintain IP66/67

- ATEX/IECEx certified AC or DC power cable, based on the AP model ordered

Pole Installation Hardware and Tools

To install the access point on a vertical metal, wood, or fiberglass pole, you need the following additional hardware and tools:

- Customer banding strap tool (BAND IT)—(AIR-BAND-INST-TL=)

- Customer-supplied 13-mm and box-end wrench or socket set

Warnings

Warning

IMPORTANT SAFETY INSTRUCTIONSThis warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071 SAVE THESE INSTRUCTIONS

Caution

The installer is responsible for obtaining any required local or national safety inspections of the structural integrity of the installation by the local authority/inspection department.

Warning

This equipment must be externally grounded using a customer-supplied ground wire before power is applied. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available. Statement 366

Warning

Read the installation instructions before connecting the system to the power source. Statement 1004

Warning

Ultimate disposal of this product should be handled according to all national laws and regulations. Statement 1040

Safety Information

Follow the guidelines in this section to ensure proper operation and safe use of the access point.

FCC Safety Compliance Statement

The FCC, with its action in ET Docket 96-8, has adopted a safety standard for human exposure to RF electromagnetic energy emitted by FCC-certified equipment. When used with approved Cisco Aironet antennas, Cisco Aironet products meet the uncontrolled environmental limits found in OET-65 and ANSI C95.1, 1991. Proper operation of this radio device according to the instructions in this publication results in user exposure substantially below the FCC recommended limits.

Safety Precautions

Warning	The AC power supply has double pole/neutral fusing. Statement 188
Warning	In order to comply with FCC radio frequency (RF) exposure limits, antennas should be located at a minimum of 7.9 inches (20 cm) or more from the body of all persons. Statement 332
Warning	Do not work on the system or connect or disconnect cables during periods of lightning activity. Statement 1001
Warning	Read the installation instructions before connecting the system to the power source. Statement 1004
Warning	This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. Statement 1017
Warning	This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available. Statement 1024
Warning	Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030

⚠

Warning   Ultimate disposal of this product should be handled according to all national laws and regulations. Statement 1040

⚠

Warning   When installing or replacing the unit, the ground connection must always be made first and disconnected last. Statement 1046

⚠

Warning   To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of:75° C (167° F) Statement 1047

⚠

Warning   Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits. When installing the antenna, take extreme care not to come into contact with such circuits, because they may cause serious injury or death. For proper installation and grounding of the antenna, please refer to national and local codes (for example, U.S.:NFPA 70, National Electrical Code, Article 810, Canada: Canadian Electrical Code, Section 54). Statement 1052

⚠

Warning   Installation of the equipment must comply with local and national electrical codes. Statement 1074

For safety and to achieve a good installation, please read and follow these safety precautions:

- Select your installation site with safety, as well as performance in mind. Remember: electric power lines and phone lines look alike. For safety, assume that any overhead line can kill.

- Call your electric power company. Tell them your plans, and ask them to come look at your proposed installation.

- Plan your installation carefully and completely before you begin. Successful raising of a mast or tower is largely a matter of coordination. Each person should be assigned to a specific task and should know what to do and when to do it. One person should be in charge of the operation to issue instructions and watch for signs of trouble.

- When installing the access point and antennas, remember:

    - Do not use a metal ladder.

    - Do not work on a wet or windy day.

    - Do dress properly—shoes with rubber soles and heels, rubber gloves, long sleeved shirt or jacket.

- Use a rope to lift the access point. If the assembly starts to drop, get away from it and let it fall.

- If any part of the antenna system should come in contact with a power line, do not touch it or try to remove it yourself. Call your local power company. They will remove it safely.

If an accident should occur, call for qualified emergency help immediately.

Avoiding Damage to Radios in a Testing Environment

The radios on outdoor units (bridges) have higher transmit power levels than radios on indoor units (access points). When you test high-power radios in a link, you must avoid exceeding the maximum receive input level for the receiver. At levels above the normal operating range, packet error rate (PER) performance is degraded. At even higher levels, the receiver can be permanently damaged. To avoid receiver damage and PER degradation, you can use one of the following techniques:

- Separate the omnidirectional antennas by at least 2 ft (0.6 m) to avoid receiver damage or by at least 25 ft (7.6 m) to avoid PER degradation.

Note These distances assume free space path loss and are conservative estimates. Required separation distances for damage and performance degradation levels in actual deployments are less if conditions are not non-line-of-sight.

- Reduce the configured transmit power to the minimum level.

- Use directional antennas, and keep them away from each other.

- Cable the radios together using a combination of attenuators, combiners, or splitters to achieve a total attenuation of at least 60 dB.

For a radiated test bed, the following equation describes the relationships among transmit power, antenna gain, attenuation, and receiver sensitivity:

```
txpwr + tx gain + rx gain - [attenuation due to antenna spacing] < max rx input level
Where:
txpwr = Radio transmit power level
tx gain = transmitter antenna gain
rx gain = receiver antenna gain
```

For a conducted test bed, the following equation describes the relationships among transmit power, antenna gain, and receiver sensitivity:

```
txpwr - [attenuation due to coaxial components] < max rx input level
```

Caution Under no circumstances should you connect the antenna port from one access point to the antenna port of another access point without using an RF attenuator. If you connect antenna ports, you must not exceed the maximum survivable receive level of 0 dBm. Never exceed 0 dBm, or damage to the access point can occur. It is recommended to keep the received signal strength at or below -30 dBm to avoid degraded PER. Using attenuators, combiners, and splitters having a total of at least 60 dB of attenuation ensures that the receiver is not damaged and that PER performance is not degraded.

Safety Precautions When Installing Antennas

Warning

Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits. When installing the antenna, take extreme care not to come into contact with such circuits, as they may cause serious injury or death. For proper installation and grounding of the antenna, please refer to national and local codes (e.g. U.S.: NFPA 70, National Electrical Code, Article 810, Canada: Canadian Electrical Code, Section 54). Statement 280

1. Before you install an antenna, contact your Cisco account representative to explain which mounting method to use for the size and type of antenna that you are about to install.

2. Select your installation site with safety, as well as performance, in mind. Remember that electric power lines and phone lines look alike. For your safety, assume that any overhead line can kill you.

3. Contact your electric power company. Tell them your plans and ask them to come look at your proposed installation.

4. Plan your installation carefully and completely before you begin. Each person involved in an installation should be assigned to a specific task and should know what to do and when to do it. One person should be in charge of the operation to issue instructions and watch for signs of trouble.

5. When installing your antenna, follow these guidelines:

    • Do not use a metal ladder.

    • Do not work on a wet or windy day.

    • Do dress properly—wear shoes with rubber soles and heels, rubber gloves, and a long-sleeved shirt or jacket.

6. If the assembly starts to drop, move away from it and let it fall. Because the antenna, mast, cable, and metal guy wires are all excellent conductors of electrical current, even the slightest touch of any of these parts to a power line completes an electrical path through the antenna and the installer.

7. If any part of the antenna system should come in contact with a power line, do not touch it or try to remove it yourself. Call your local power company to have it removed safely.

8. If an accident should occur with the power lines, call for qualified emergency help immediately.

Installation Guidelines

Because the access point is a radio device, it is susceptible to common causes of interference that can reduce throughput and range. Follow these basic guidelines to ensure the best possible performance:

• For information on planning and initially configuring your Cisco Mesh network, refer to the *Cisco Wireless Mesh Access Points, Design and Deployment Guide.*

• Review the FCC guidelines for installing and operating outdoor wireless LAN devices.

• Perform a site survey before beginning the installation.

• Install the access point in an area where structures, trees, or hills do not obstruct radio signals to and from the access point.

• The access points can be installed at any height, but best throughput is achieved when all the access points are mounted at the same height. Cisco recommends installing the access points no higher than 40 feet to allow support for wireless clients on the ground.

Note   To calculate path loss and to determine how far apart to install access points, consult an RF planning expert.

Site Surveys

Every network application is a unique installation. Before installing multiple access points, you should perform a site survey to determine the optimum use of networking components and to maximize range, coverage, and network performance.

Consider the following operating and environmental conditions when performing a site survey:

• Data rates—Sensitivity and range are inversely proportional to data bit rates. The maximum radio range is achieved at the lowest workable data rate. A decrease in receiver sensitivity occurs as the radio data increases.

• Antenna type and placement—Proper antenna configuration is a critical factor in maximizing radio range. As a general rule, range increases in proportion to antenna height. However, do not place the antenna higher than necessary, because the extra height also increases potential interference from other unlicensed radio systems and decreases the wireless coverage from the ground.

• Physical environment—Clear or open areas provide better radio range than closed or filled areas.

• Obstructions—Physical obstructions such as buildings, trees, or hills can hinder performance of wireless devices. Avoid locating the devices in a location where there is an obstruction between the sending and receiving antennas.

• Applications and type of devices to be used on the WLAN.

Before Beginning the Installation

Before you begin the installation process:

• Ensure that a site survey has been performed.

• Ensure that your network infrastructure devices are operational and properly configured.

• Ensure that your controllers are connected to switch trunk ports.

• Ensure that your switch is configured with untagged access ports for connecting your access points.

• Ensure that a DHCP server with Option 43 configured is reachable by your access points, or manually configure the controller information in the access point (for additional information, refer to the software configuration guide).

• Become familiar with the access point installation components.

CHAPTER 3

Installing the Access Point

This chapter describes how to install the access point.

Mounting on a Wall or a Pole

This section provides instructions for the physical installation of your access points. Personnel installing the access point must understand wireless access points and bridging techniques and grounding methods.

⚠

Caution　All installation methods for mounting an access point on any wall surface is subject to the acceptance of local jurisdiction.

Installation Option

The Cisco Catalyst IW6300 Heavy Duty Series Access Points are installed using the pole mount installation kit (IOT-ACCPMK), which is used for pole or wall installations.

⚡

Warning　Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030

⚡

Warning　Installation of the equipment must comply with local and national electrical codes. Statement 1074

Refer to these sections for installation details:

Access Point Mounting Orientation

Cisco Catalyst IW6300 Heavy Duty Series Access Points are only intended to be installed vertically with the antenna ports facing upwards. If you want the antennas to face down, you should use the Extender Bracket Kit (IOT-ACCPMK-LB=). Any other mounting orientation will compromise the IP66/67 and type 4X ingress ratings required for safety and hazardous locations compliance.

The access point is oriented with the system LED pointing down and the access cover facing out. This positioning allows the LEDs to be visible to someone on the ground below the access point, and the I/O interfaces are on the bottom to minimize moisture ingress in case ports are not adequately sealed.

Note Omnidirectional antennas are vertically polarized and should be mounted vertically.

The following figures show the dimension of the access point:

Figure 9: Unit Dimension - Front
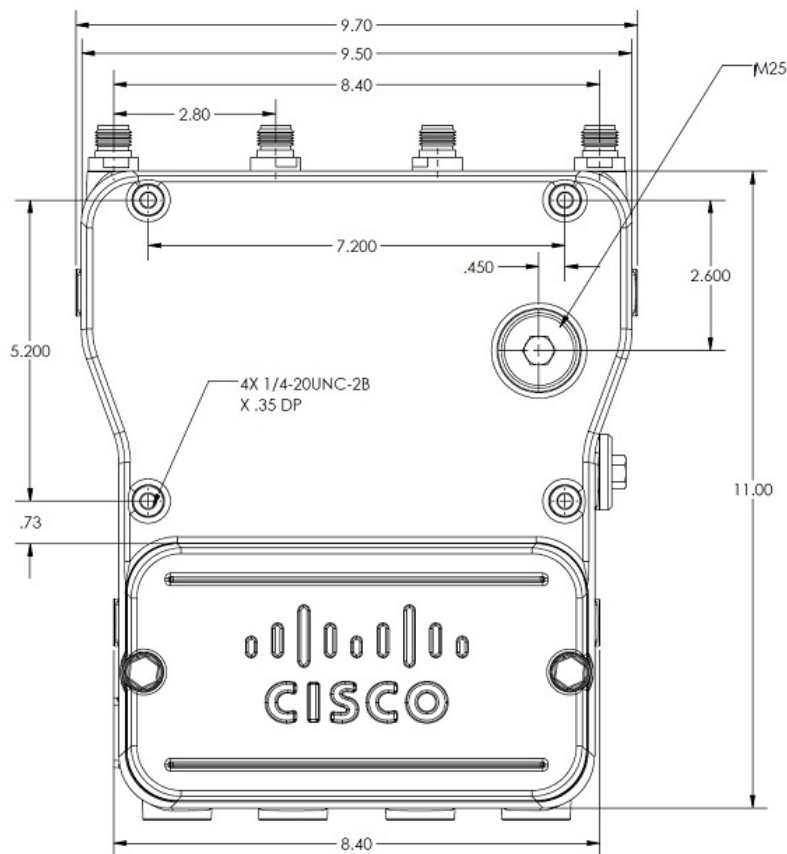
Figure 10: Unit Dimension - Side

IW6300H-DC

IW6300H-AC
IW6300H-DCW
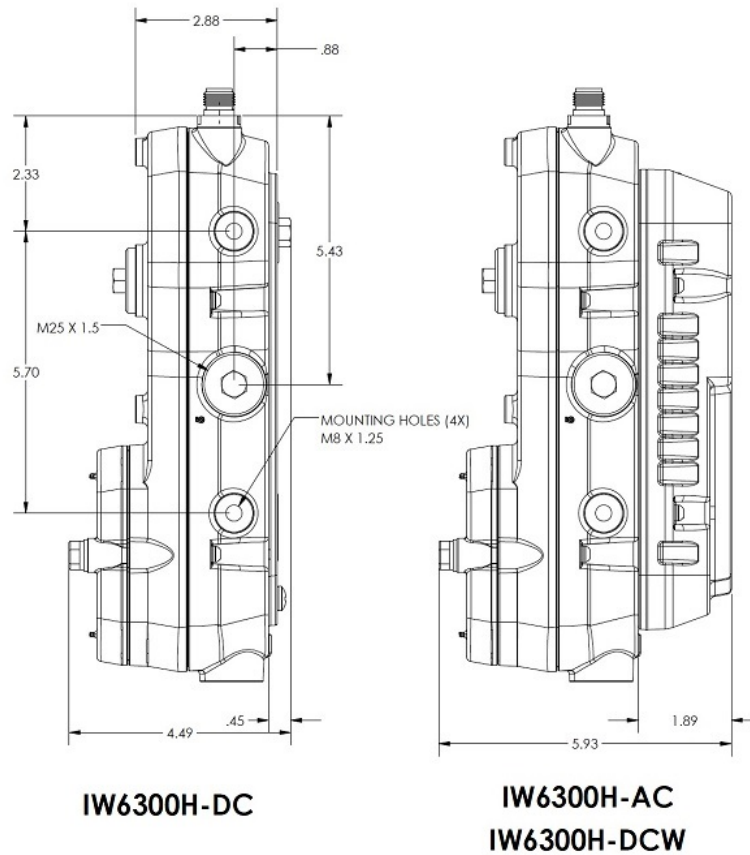
Mounting the Access Point on a Wall

The optional pole mount kit contains a mounting bracket for wall mounting. You can use the mounting bracket as a template to mark the positions of the mounting holes for your installation. You then install the mounting plate, and attach the access point when you are ready. The following table lists the material that you will need to provide in addition to the pole mount kit.

Table 3: Material Needed to Mount Access Point to a Vertical Wall

Materials Required	In Kit
Ground lug and screws (provided with access point)	Yes
Crimping tool for ground lug	No
Four M8 or 5/16 in. (31 mm) screws	No
Four wall anchors (specified for wall material)	No
Drill bit for wall anchors	No

Materials Required	In Kit
Electric drill and standard screwdriver	No
#6-AWG ground wire	No
Shielded outdoor-rated Ethernet (CAT5e or better) cable	No
Grounding block	No
Grounding rod	No
13-mm box-end wrench or socket set	No

⚠️ **Caution** The mounting surface, attaching screws, and optional wall anchors must be able to support a 50-lb(22.7 kg) static weight.

The mounting bracket can be used as a template to mark the screw hole locations. To mount the access point on a vertical wall, follow these instructions:

Procedure

Step 1 Use the mounting bracket as a template to mark four screw hole locations on your mounting surface. You can optionally use the individual mounting holes or the mounting slots.

Figure 11: Mounting Bracket Dimension
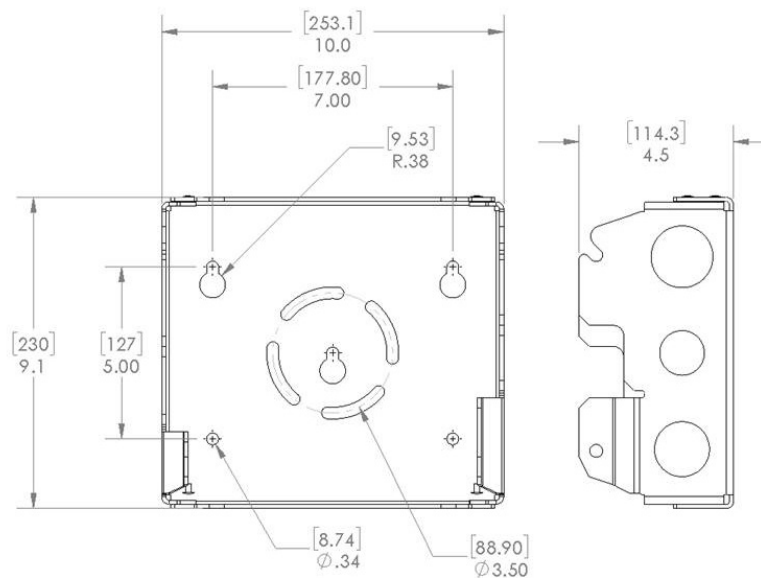
Figure 12: Screw Hole Locations on the Mounting Bracket
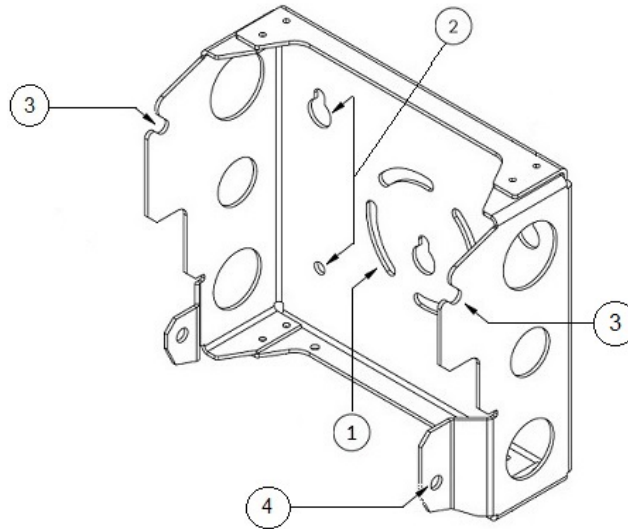
1	Mounting slots	3	Hands-free attach point
2	Mounting holes	4	Second support bolt hole

Step 2   Use four customer-supplied screws and optional screw anchors to attach the mounting plate to the mounting surface.

> **Note**   If necessary, use suitable screw anchors and an exterior-grade plywood backboard to mount the access point to stucco, cement, or drywall.
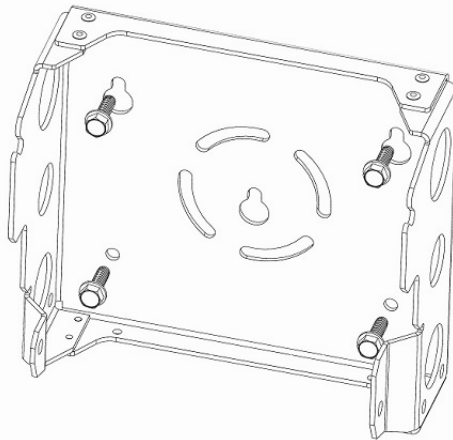
Step 3   Screw a M8 x16 bolt (with flat and lock washers) in the top support bolt hole on each side the access point. Do not screw the bolt all the way in; leave approximately a 0.25 inch (0.635 cm) space.

Step 4   Position the two bolts on the access point onto the hands-free attach points on each side of the mounting bracket. Ensure that the access point cover is facing out. Never leave the access point unattended until fully installed.

Figure 13: Support Bolt Installation
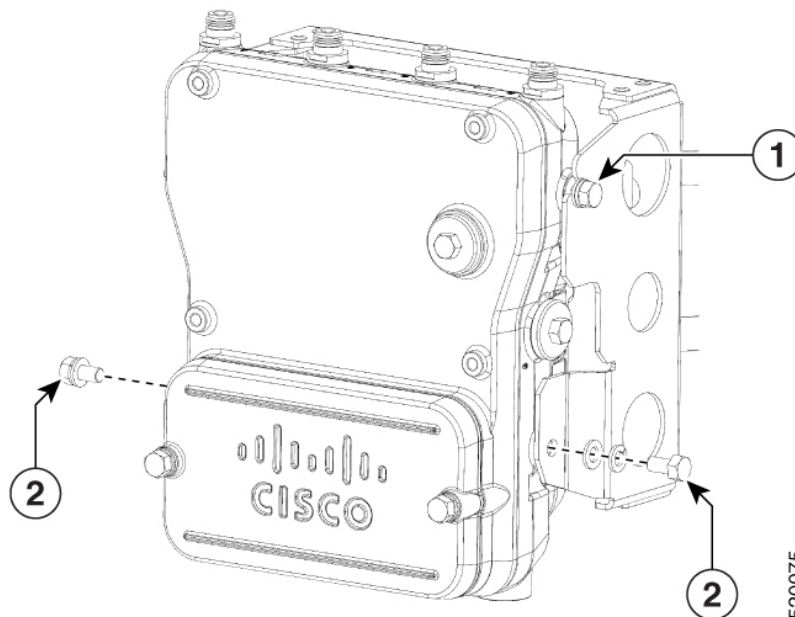
1	Top support M8 x16 bolt	2	Second support M8 x16 bolt

Step 5   Screw a M8 x16 bolt (with flat and lock washers) into the second bolt hole on each side of the access point.

Step 6   Ensure that the front of the access point is vertical, and tighten the four bolts to 6 to 7 ft-lbs (8.1 to 9.5 Nm).

Step 7   When using the Cisco Aironet Dual-Band Omnidirectional Antennas, connect them to the access point. Hand-tighten the antennas to the access point.

Step 8   Continue with Grounding the Access Point , on page 52 and Powering the Access Point, on page 54.

Wall Mounting with L Bracket

Cisco Catalyst IW6300 Heavy Duty Series Access Points are only intended to be installed vertically with the antenna ports facing upwards. If you want the antennas to face down, you should use the additional L Bracket (IOT-ACCPMK-LB) and the customer supplied RF cable is required.

⚠

Caution   The mounting surface, attaching screws, and optional wall anchors must be able to support a 50-lb(22.7 kg) static weight.

The mounting bracket can be used as a template to mark the screw hole locations. To mount the access point on a vertical wall, follow these instructions:

Procedure

Step 1   Use the mounting bracket as a template to mark four screw hole locations on your mounting surface. You can optionally use the individual mounting holes or the mounting slots.

Figure 14: Mounting Bracket Dimension
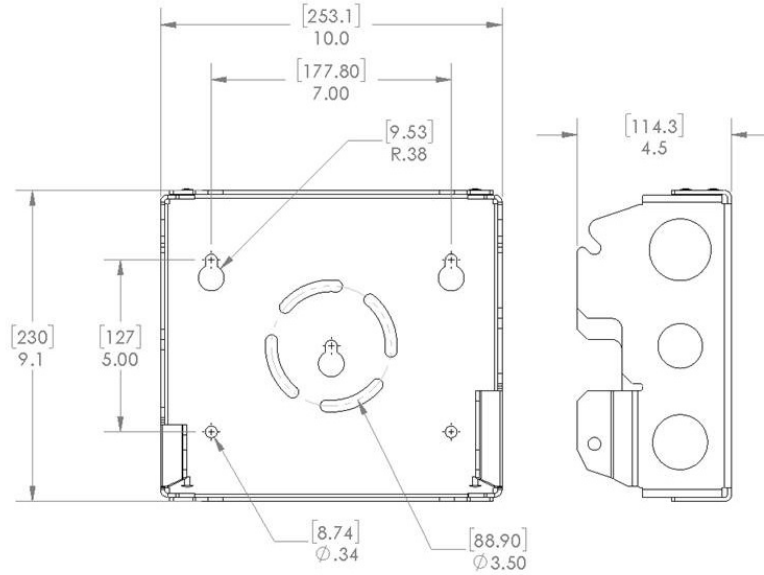
Figure 15: Screw Hole Locations on the Mounting Bracket
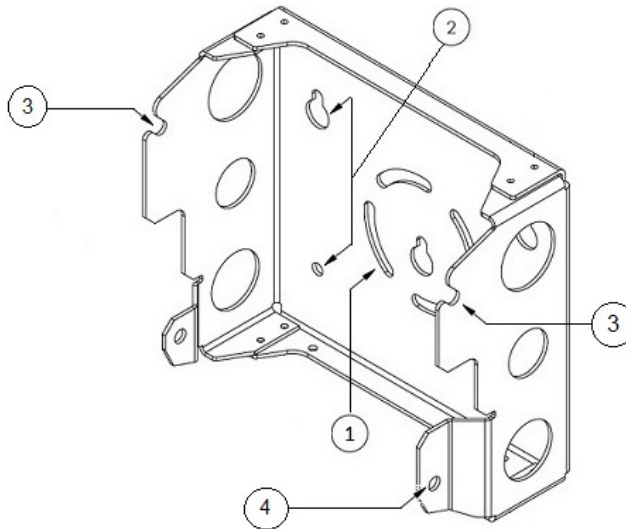
1	Mounting slots	3	Hands-free attach point
2	Mounting holes	4	Second support bolt hole

Step 2   Use four customer-supplied screws and optional screw anchors to attach the mounting plate to the mounting surface.

Note   If necessary, use suitable screw anchors and an exterior-grade plywood backboard to mount the access point to stucco, cement, or drywall.
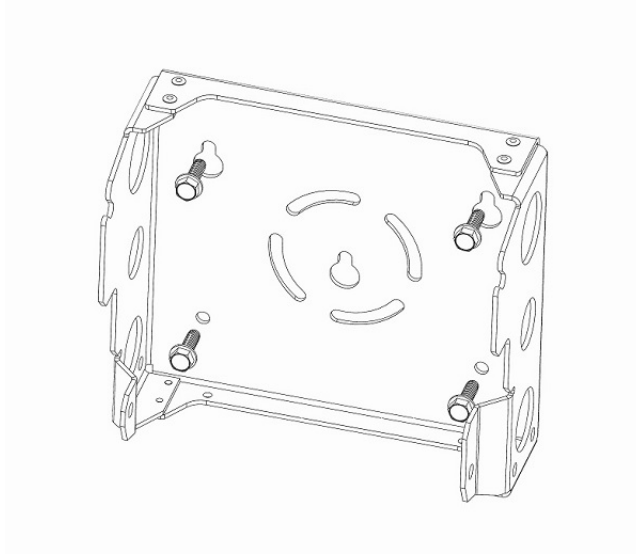
Step 3   Use four bolts (with flat and lock washers) to install the L brackets to the mounting bracket as shown below. Tighten the bolts to 6 to 7 ft-lbs (8.1 to 9.5 Nm).
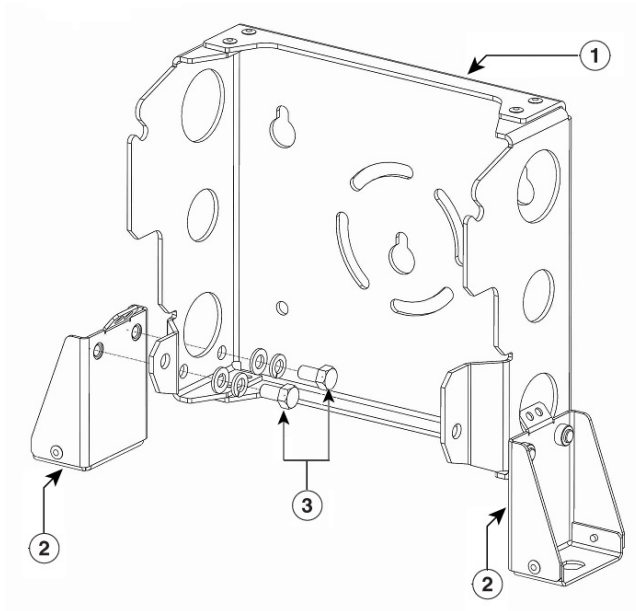
1	Mounting bracket	3	M8 x 16 bolts
2	L bracket		

Step 4   Screw a M8 x16 bolt (with flat and lock washers) in the top support bolt hole on each side the access point. Do not screw the bolt all the way in; leave approximately a 0.25 inch (0.635 cm) space.
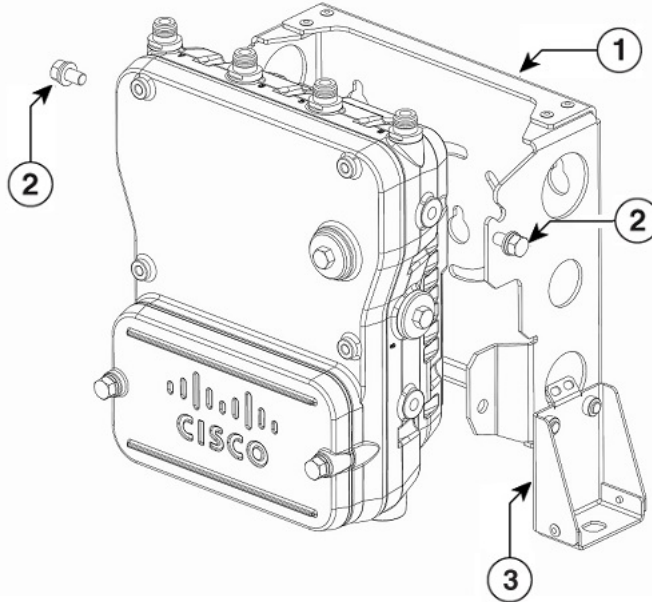
1	Mounting bracket	2	Top support M8 x16 bolt
3	L bracket		

Step 5   Position the two bolts on the access point onto the hands-free attach points on each side of the mounting bracket. Ensure that the access point cover is facing out. Never leave the access point unattended until fully installed.

Step 6   Screw a M8 x16 bolt (with flat and lock washers) into the second bolt hole on each side of the access point.

Figure 16: Support Bolt Installation
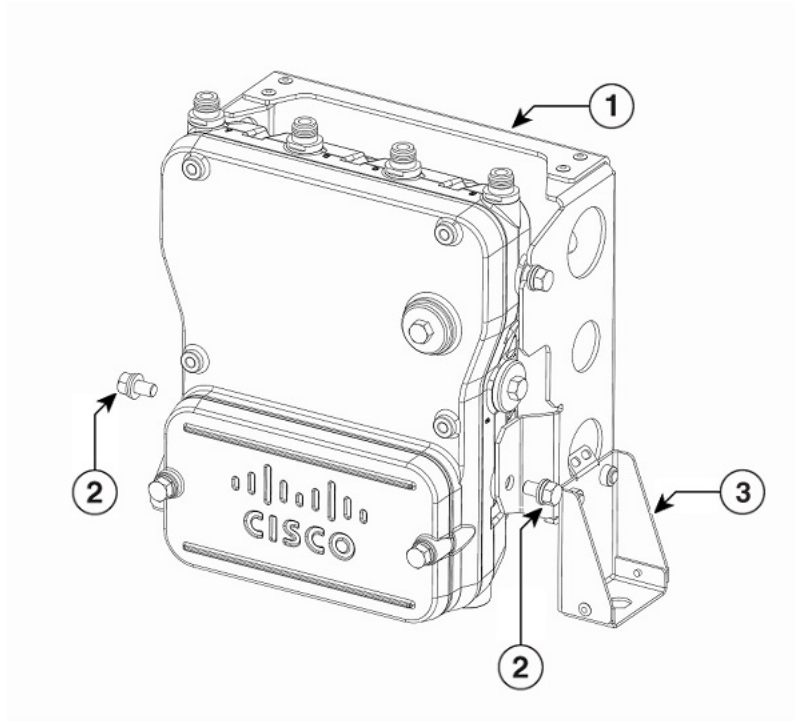
1	Mounting bracket	2	Second support M8 x16 bolt
3	L bracket		

Step 7   Ensure that the front of the access point is vertical, and tighten the four bolts to 6 to 7 ft-lbs (8.1 to 9.5 Nm).

Step 8   Insert the N-connector of the RF cable into the L-bracket and attach it with washer and nut (torque 12-15 in-lbs). Fix the RF cable to the L bracket with a zip tie cable as shown below.

   Note   For the RF cable, it is recommended that you use the 17in LMR240DB Jumper with Right Angle N-Style Male to N-Style Female Bulkhead Connectors. For more details about this cable, see https://ventevinfra.com/product/17in-lmr240db-jumper-with-right-angle-n-style-male-to-n-style-female-bulkhead-connectors/.
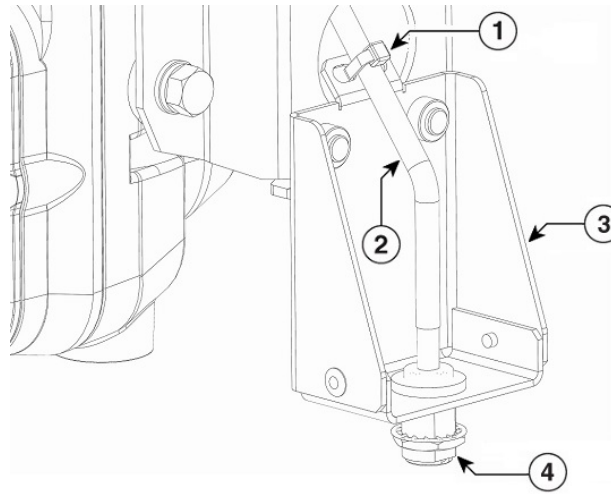
1	Zip tie cable	2	RF cable
3	L bracket	4	N-connector

Step 9 Attach the right angle N-connector of the RF cable to the access point antenna port (torque 12-15 in-lbs).
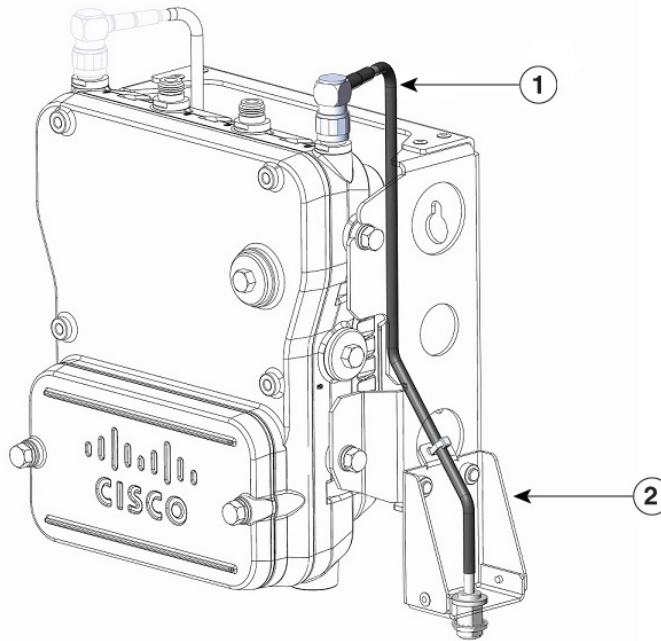
1	RF cable	2	L bracket

Step 10 Connect the antenna to the N-connector of the RF cable. Hand-tighten the antennas to the N-connector.
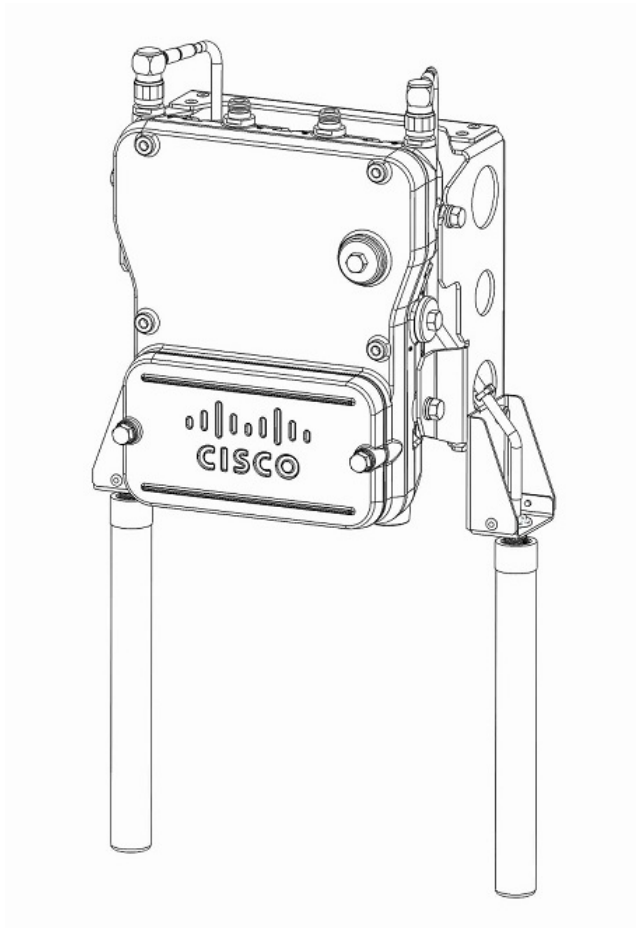
Step 11   Continue with Grounding the Access Point , on page 52 and Powering the Access Point, on page 54.

Mounting the Access Point on a Pole

When installing an access point on a vertical pole, you should use the optional Cisco pole mount kit. The kit supports metal, wood, or fiberglass poles from 2 to 16 inches in diameter.

Assembling the Pole Clamp Bracket and the Mounting Bracket

The pole mount kit contains several parts that you must assemble prior to mounting on a pole. First you need to assemble two strap brackets on the pole clamp bracket that are positioned for the pole diameter you are using to mount the access point. The following figure illustrates the pole diameter indicators and bolt holes on the pole clamp bracket.

Figure 17: Pole Clamp Bracket Adjustment Hole Locations

1	Pole size indicators	2	Bolt holes for pole diameters
	• 2 to 6 inches (5.08 cm to 15.24 cm)		(11 to 16 inches (27.94 cm to 40.64 cm) indicated)
	• 6 to 11 inches (15.24 cm to 27.94 cm)		
	• 11 to 16 inches (27.94 cm to 40.64 cm)		

To assemble the pole clamp bracket, follow these steps:

Procedure

Step 1 Position the strap brackets on the pole clamp bracket for the pole diameter you are using and secure each strap bracket with two M8 x16 bolts (with lock washers). Tighten the bolts to 13 to 15 ft lbs (17.6 to 20.3 Nm).
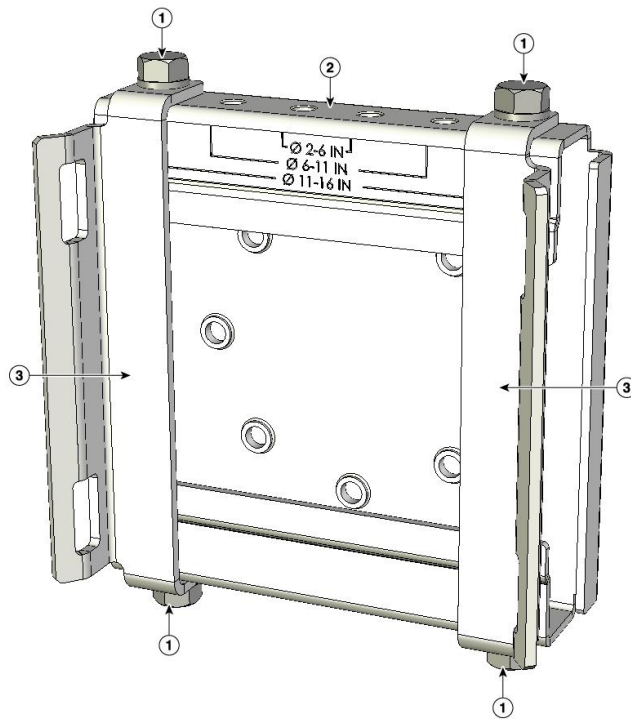
1	M8 x1.25x16 bolts (with lock washers)	2	Pole clamp bracket
3	Strap bracket (shown positioned for 11 to 16 inch diameter pole)		

Step 2 Screw the M8 nut onto the pole clamp bracket support bolt, and tighten just enough to prevent the bolt from falling off.

Step 3 Go to Pole Mounting, on page 34.

Pole Mounting

To mount your access point on a vertical pole, you need to install two metal bands around the pole to support the access point. This process requires extra tools and material not provided in the pole mount kit (see the following table).

Table 4: Materials Needed to Mount Access Point on a Pole

Mounting Method	Materials Required	In Kit
Vertical or streetlight pole	Two 0.75-in (1.9 cm) stainless steel bands	Yes
	Banding strap tool (BAND IT) (Cisco AIR-BAND-INST-TL=)	No
	Ground lug (provided with access point)	Yes
	Crimping tool for ground lug, Panduit CT-720 with CD-720-1 die (http://onlinecatalog.panduit.com)	No
	#6 AWG ground wire	No

To mount the access point onto a vertical pole, follow these steps:

Procedure

Step 1   Select a mounting location on the pole to mount the access point. You can attach the access point to any pole from 2 to 16 inch (5.1 to 40.6 cm) in diameter.

Step 2   For poles larger than 3.5 inch (8.9 cm), mount the pole clamp bracket assembly to a pole using two metal straps. Following the instructions provided with the banding strap tool (BAND IT) (AIR-BAND-INST-TL=), loop each metal strap twice through the slots on the strap bracket.

> **Caution**   Do not place the metal straps in the large open area between the pole clamp bracket and the strap brackets because this does not properly secure the access point.

Figure 19: Clamp Bracket Assembly Mounted on Poles Larger than 3.5 inch (8.9 cm)

1	Pole clamp bracket	3	Metal mounting strap
2	Strap slot in strap bracket	4	Pole

Step 3   For pole diameters of 3.5 inch (8.9 cm) or less, mount the pole clamp bracket assembly to a pole using two metal straps looped through the space between the pole clamp bracket and the strap brackets to provide maximum holding strength for extreme environments. Following the instructions provided with the banding strap tool (BAND IT) (AIR-BAND-INST-TL=), loop each metal strap twice.

Caution   Do not place the metal straps in the large open area between the pole clamp bracket and the strap brackets because this does not properly secure the access point.

Step 4   Position the pole clamp bracket on the pole as needed before tightening the metal bands.

Note   When the metal bands are tightened to the full tension, the pole clamp bracket cannot be adjusted unless the metal bands are cut or disassembled.

Step 5   Tighten the metal bands using the banding strap tool (BAND IT) (Cisco AIR-BAND-INST-TL=) by following the operating instructions in the box with the tool. Ensure that the metal bands are as tight as possible.

Step 6   Place the mounting bracket onto the pole clamp bracket support bolt.

Step 7   Install four M8 x16 bolts (with flat and lock washers) into the bolt holes.

Step 8   Hand-tighten the bolts and the nut (do not overtighten).

Step 9   Adjust the top edge of the mounting bracket until it is horizontal and tighten the bolts and the flange nut to 13 to 15 ft lbs (17.6 to 20.3 Nm).

Figure 20: Attach the Mount Bracket
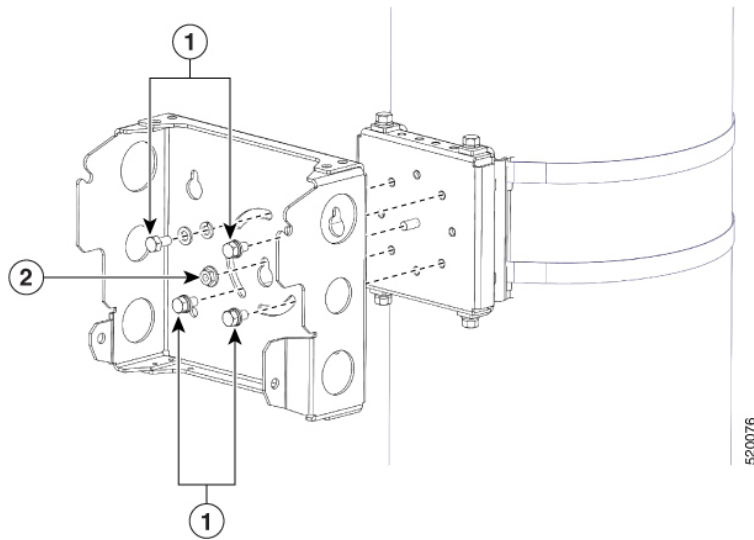
| 1	M8 x 16 bolts	2	Flange nut

Step 10   Screw a M8 x16 bolt (with a flat or lock washer) in the top support bolt hole on each side the access point. Do not screw the bolt all the way in. Leave a gap of approximately 0.25 inch (0.635 cm).

Step 11   Position the two bolts on the access point onto the hands-free attach point of the mounting bracket.

Note   The access point should be positioned with the LEDs on the bottom to allow viewing from the ground and with the hinged cover facing out.

Figure 21: Assembling Access Point to Hands-Free Attach Point with Top Support Bolts
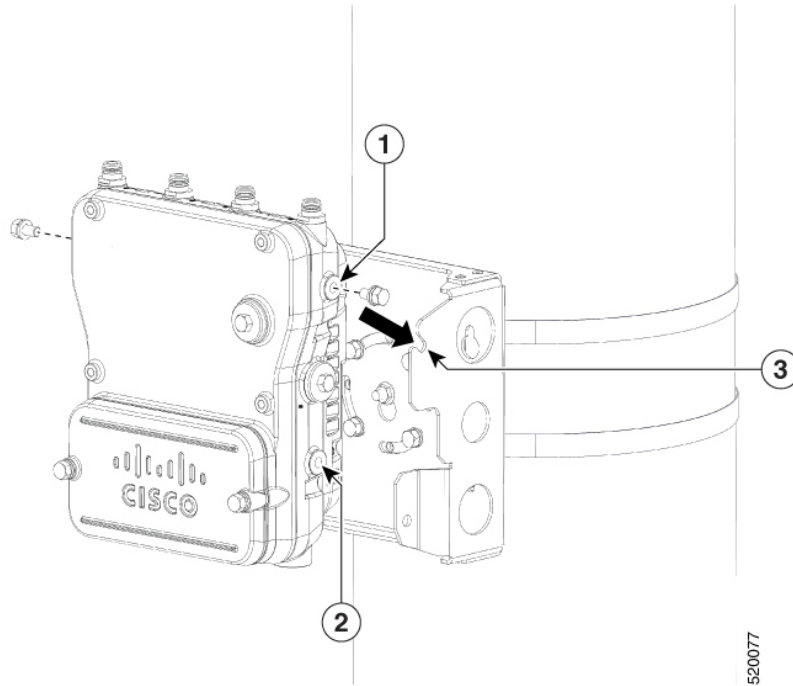
1	Top Support M8 x16 bolt hole	3	Hands-free attach point
2	Second M8 x16 bolt hole		

Step 12   Screw a M8 x16 bolt (with flat and lock washers) into the second bolt hole on each side of the access point.

Figure 22: Second Support Bolt Installation
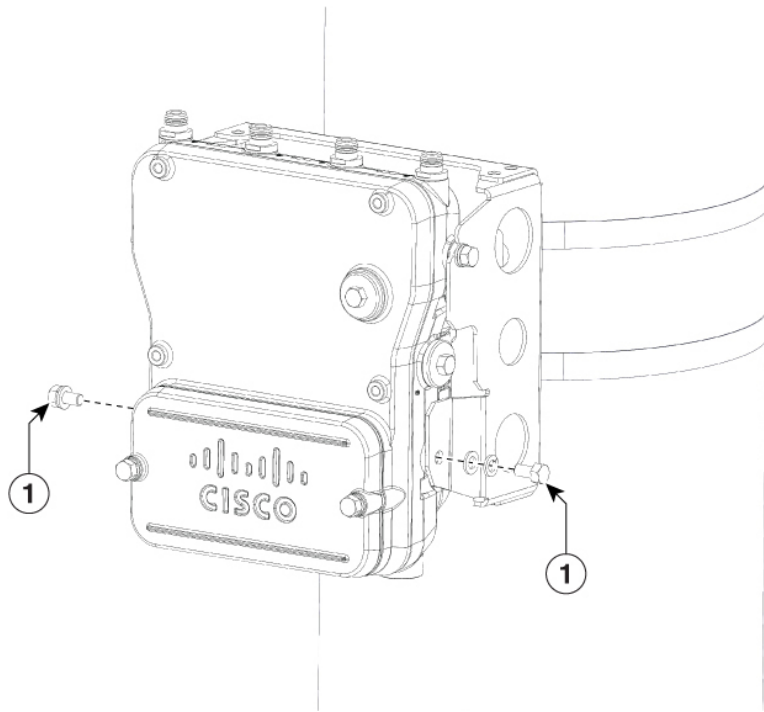
1	M8 x16 bolt

Step 13 Ensure that the front of the access point is vertical, and tighten the four bolts to 6 to 7 ft-lbs (8.1 to 9.5 Nm).

Figure 23: Assembled Access Point Hanging in Mounting Bracket
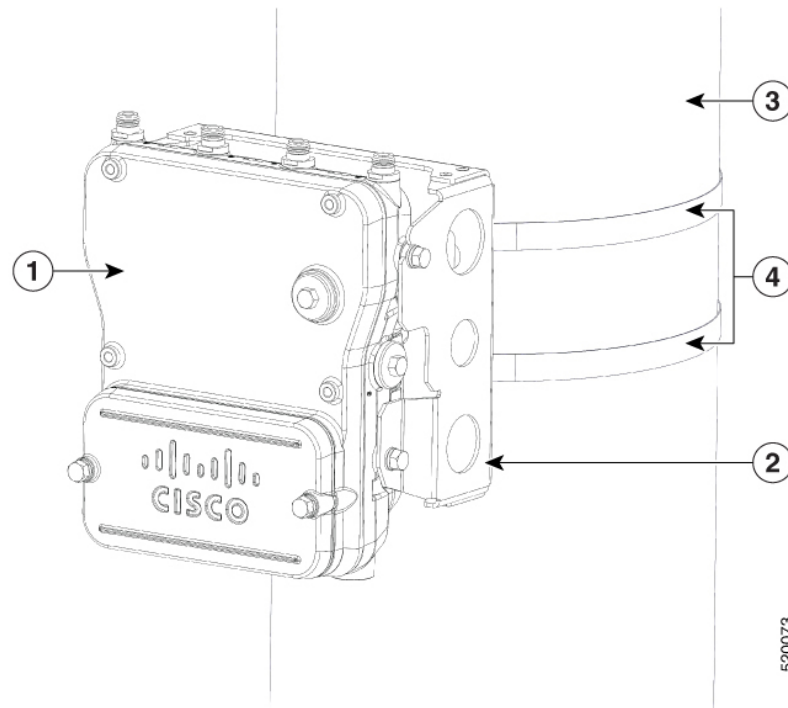
1	Access point	3	Pole (wood, metal, or fiberglass) 2 to 16 in. (5.1 to 40.6 cm) diameter
2	Mount bracket	4	Stainless steel mounting straps

Step 14   When using the Cisco Aironet Dual-Band Omnidirectional Antennas, connect them to the access point. Hand-tighten the antennas to the access point.

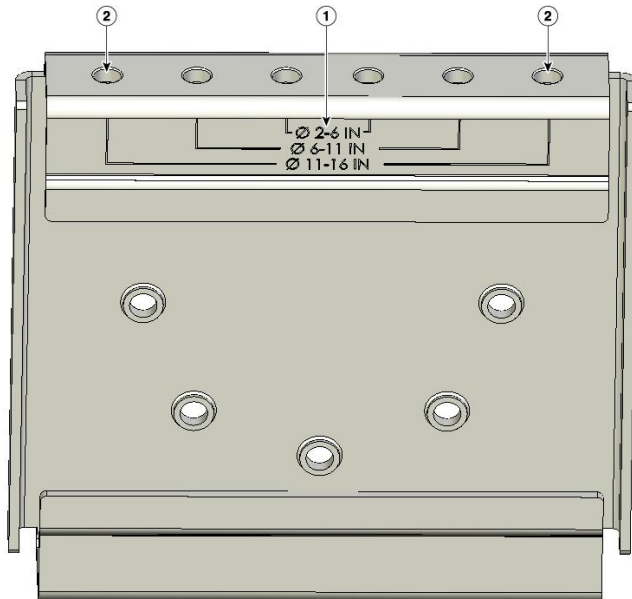**Step 15**   Continue with Grounding the Access Point , on page 52 and Powering the Access Point, on page 54.

Pole Mounting with L Bracket

Cisco Catalyst IW6300 Heavy Duty Series Access Points are only intended to be installed vertically with the antenna ports facing upwards. If you want the antennas to face down, you should use the additional L Bracket (IOT-ACCPMK-LB) and the customer supplied RF cable is required.

To mount the access point onto a vertical pole, follow these steps:

Procedure

Step 1   Select a mounting location on the pole to mount the access point. You can attach the access point to any pole from 2 to 16 inch (5.1 to 40.6 cm) in diameter.

Step 2   For poles larger than 3.5 inch (8.9 cm), mount the pole clamp bracket assembly to a pole using two metal straps. Following the instructions provided with the banding strap tool (BAND IT) (AIR-BAND-INST-TL=), loop each metal strap twice through the slots on the strap bracket.

Caution Do not place the metal straps in the large open area between the pole clamp bracket and the strap brackets because this does not properly secure the access point.

Figure 24: Clamp Bracket Assembly Mounted on Poles Larger than 3.5 inch (8.9 cm)

1	Pole clamp bracket	3	Metal mounting strap
2	Strap slot in strap bracket	4	Pole

Step 3 For pole diameters of 3.5 inch (8.9 cm) or less, mount the pole clamp bracket assembly to a pole using two metal straps looped through the space between the pole clamp bracket and the strap brackets to provide maximum holding strength for extreme environments. Following the instructions provided with the banding strap tool (BAND IT) (AIR-BAND-INST-TL=), loop each metal strap twice.

Caution Do not place the metal straps in the large open area between the pole clamp bracket and the strap brackets because this does not properly secure the access point.

Step 4 Position the pole clamp bracket on the pole as needed before tightening the metal bands.

Note When the metal bands are tightened to the full tension, the pole clamp bracket cannot be adjusted unless the metal bands are cut or disassembled.

Step 5 Tighten the metal bands using the banding strap tool (BAND IT) (Cisco AIR-BAND-INST-TL=) by following the operating instructions in the box with the tool. Ensure that the metal bands are as tight as possible.

Step 6 Place the mounting bracket onto the pole clamp bracket support bolt.

Step 7 Install four M8 x16 bolts (with flat and lock washers) into the bolt holes.

Step 8 Hand-tighten the bolts and the nut (do not overtighten).

Step 9 Adjust the top edge of the mounting bracket until it is horizontal and tighten the bolts and the flange nut to 13 to 15 ft lbs (17.6 to 20.3 Nm).

Figure 25: Attach the Mount Bracket
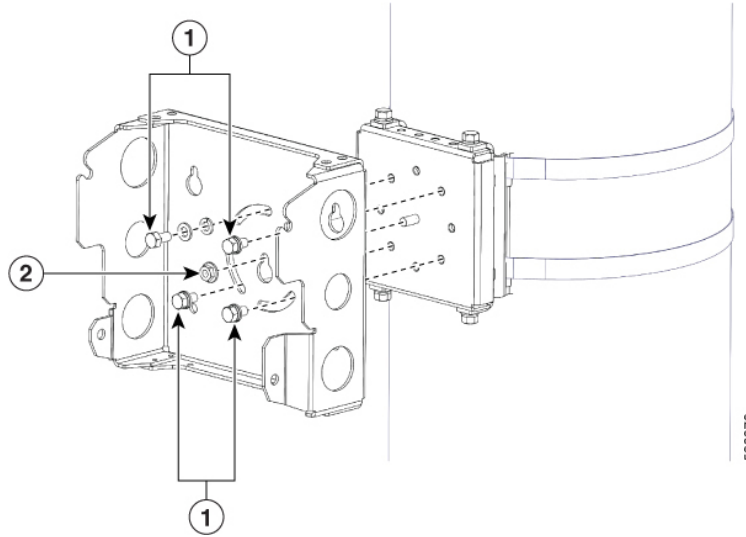
1	M8 x 16 bolts	2	Flange nut

Step 10   Use four bolts (with flat and lock washers) to install the L brackets to the mounting bracket as shown below. Tighten the bolts to 6 to 7 ft-lbs (8.1 to 9.5 Nm).
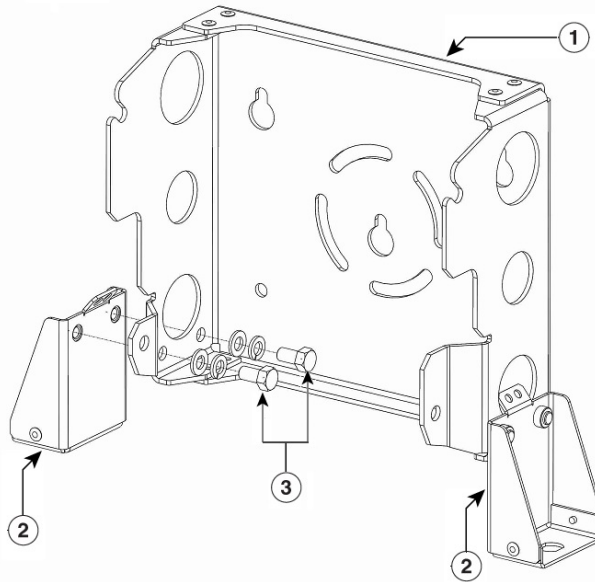
1	Mounting bracket	3	M8 x 16 bolts
2	L bracket		

Step 11   Screw a M8 x16 bolt (with a flat or lock washer) in the top support bolt hole on each side the access point. Do not screw the bolt all the way in. Leave a gap of approximately 0.25 inch (0.635 cm).

Step 12   Position the two bolts on the access point onto the hands-free attach point of the mounting bracket.

> **Note**   The access point should be positioned with the LEDs on the bottom to allow viewing from the ground and with the hinged cover facing out.
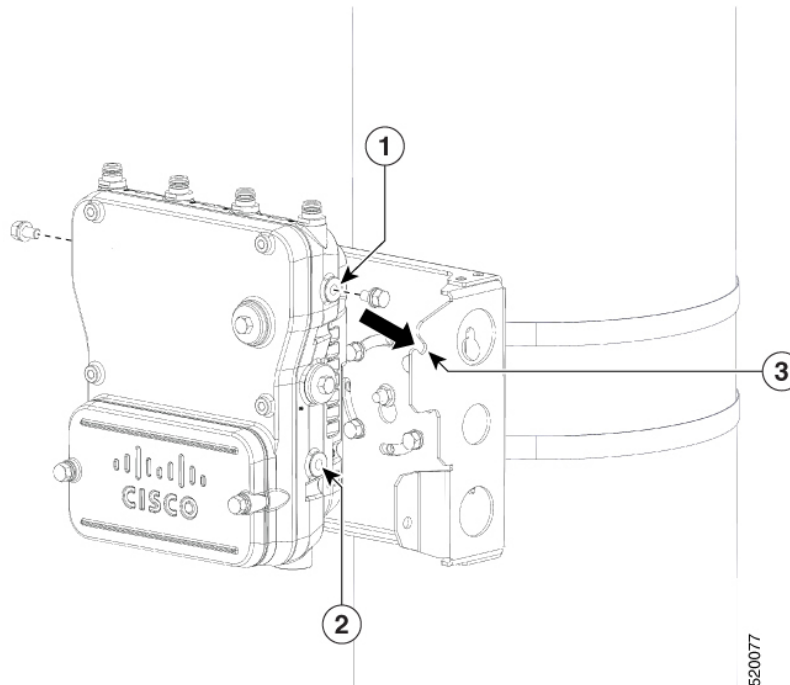
1	Top Support M8 x16 bolt hole	3	Hands-free attach point
2	Second M8 x16 bolt hole		

Step 13   Screw a M8 x16 bolt (with flat and lock washers) into the second bolt hole on each side of the access point.

Figure 26: Second Support Bolt Installation
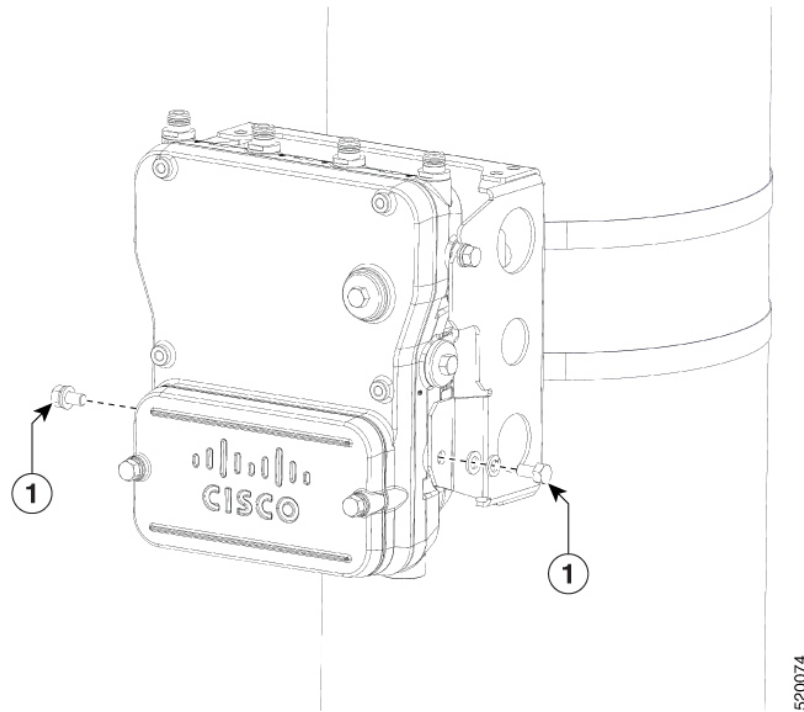
1	M8 x16 bolt

Step 14   Ensure that the front of the access point is vertical, and tighten the four bolts to 6 to 7 ft-lbs (8.1 to 9.5 Nm).

Figure 27: Assembled Access Point Hanging in Mounting Bracket
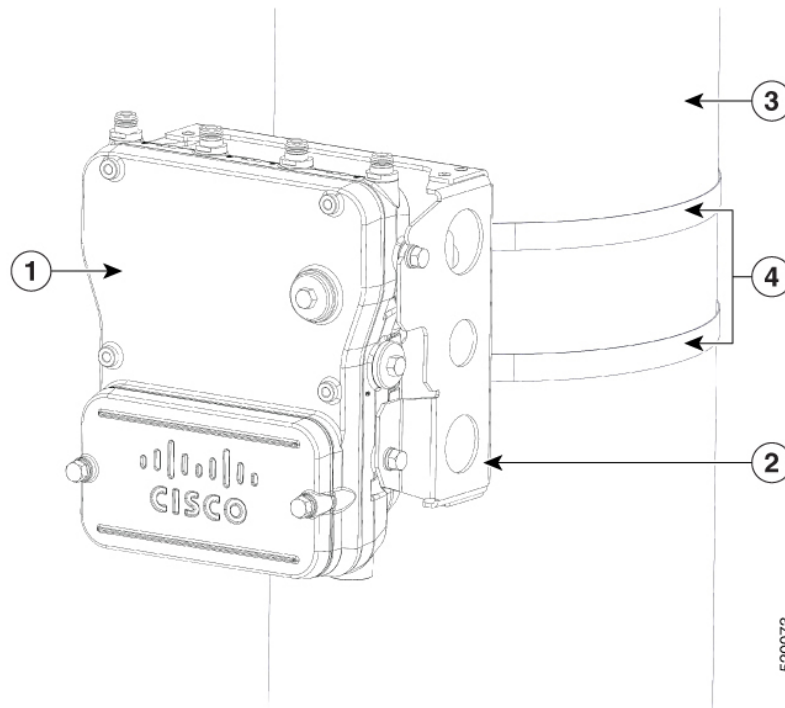
1	Access point	3	Pole (wood, metal, or fiberglass)2 to 16 in. (5.1 to 40.6 cm) diameter
2	Mount bracket	4	Stainless steel mounting straps

Step 15 Insert the N-connector of the RF cable into the L-bracket and attach it with washer and nut (torque 12-15 in-lbs). Fix the RF cable to the L bracket with a zip tie cable as shown below.

Note For the RF cable, it is recommended that you use the 17in LMR240DB Jumper with Right Angle N-Style Male to N-Style Female Bulkhead Connectors. For more details about this cable, see https://ventevinfra.com/product/17in-lmr240db-jumper-with-right-angle-n-style-male-to-n-style-female-bulkhead-connectors/.
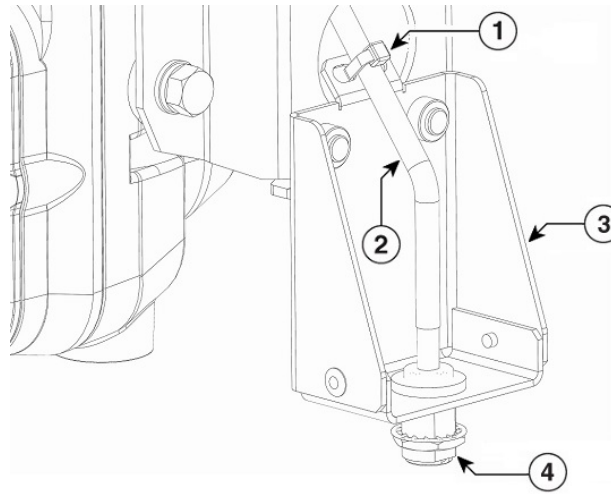
| 1 | Zip tie cable | 2 | RF cable |
| 3 | L bracket | 4 | N-connector |

Step 16   Attach the right angle N-connector of the RF cable to the access point antenna port (torque 12-15 in-lbs).
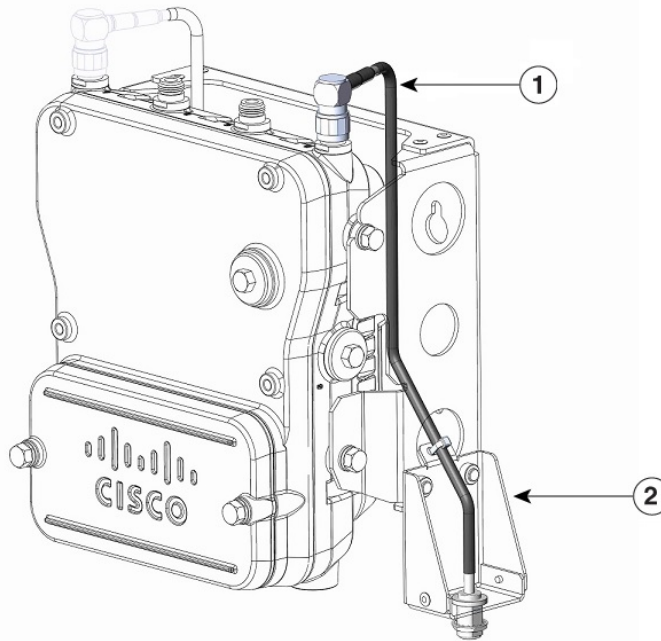
| 1 | RF cable | 2 | L bracket |

Step 17   Connect the antenna to the N-connector of the RF cable. Hand-tighten the antennas to the N-connector.
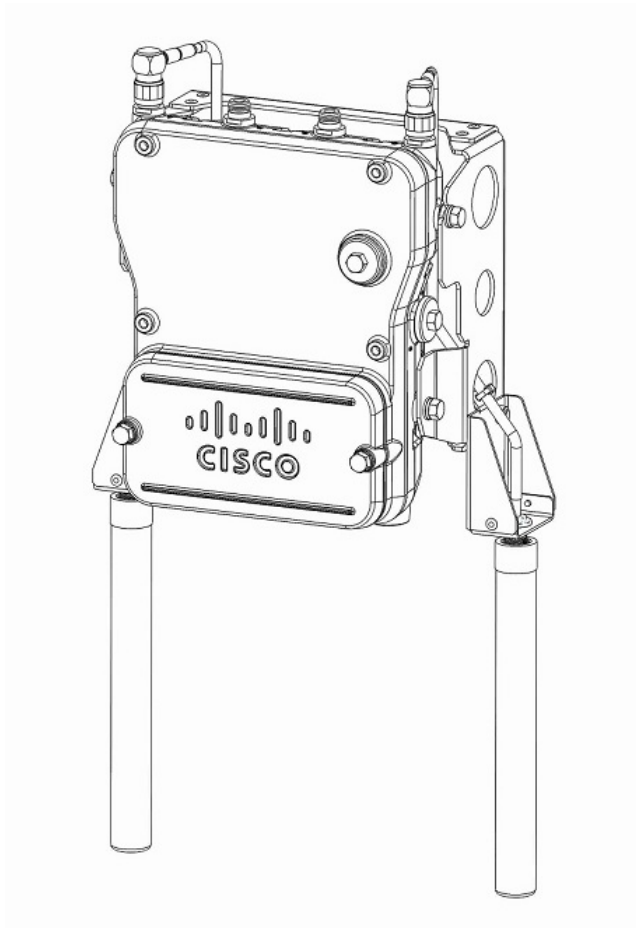
Step 18 Continue with Grounding the Access Point , on page 52 and Powering the Access Point, on page 54.

Working with the Access Cover

This section details opening and closing the access cover of the access point.

Opening the Access Cover

⚠

Caution The access cover must not be opened unless the area is considered non-hazardous and the AP has been powered off.

You need to open the access cover to access the AC or DC terminal block, the Ethernet ports, and when you are installing the fiber-optic SFP module.

To open the access cover, follow these steps:

Procedure

Step 1 Use 0.5-in (13-mm) box-end wrench or socket set to unscrew the two bolts on the front cover of the unit. Only unscrew the bolts about 2 turns until they are easily turned by hand, and the bolts are resting on springs.

Figure 28: Access Point Front View of Cover
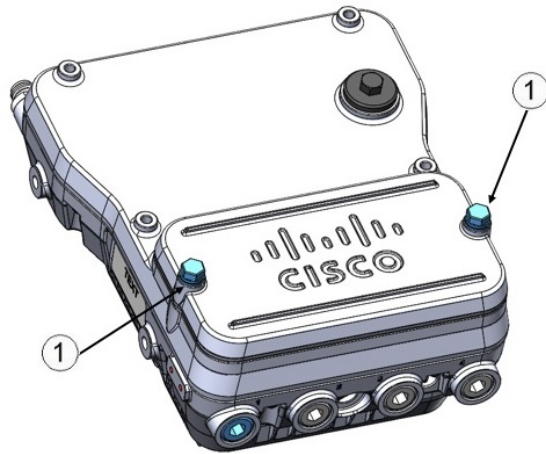
| 1 | M8 bolts |

Step 2 The cover is hinged on the bottom, and the bolts are designed to be captive. Carefully open the cover and fold the cover back.

Closing the Access Cover

To close the access cover, follow these steps:

Procedure

Step 1 Ensure that O-ring sealing surface is free of debris and that O-ring is undamaged and fully contained in groove.
Step 2 When closing the access cover, be careful not to pinch internal wires.
Step 3 Carefully position the cover flush with all sides of the access point, then slowly hand-tighten each bolt.
Step 4 When all bolts are hand-tightened, use a 13-mm closed-end wrench or socket to partially tighten the bolts in the tightening sequence. Tighten each bolt to 3 to 4 ft-lbs (4.1 to 5.4 Nm).
Step 5 Repeat Step 3 using the same tightening sequence to fully tighten each bolt to 6 to 7 ft-lbs (8.1 to 9.5 Nm).

Installing External Antennas

✎

Note When operating in the 5GHz UNII-1 band, all Omni Directional antennas should be installed vertically, and all directional antennas should be installed with the main beam aimed parallel to or tilted down toward the horizon.

The following table shows the external antennas supported by the IW-6300H access point.

Table 5: IW-6300H Access Point Supported External Antennas

Product ID	Frequency Band	Gain	Type
AIR-ANT2547V-N	2.4 / 5 GHz	4 / 7 dBi	Omnidirectional, vertically polarized, white
AIR-ANT2547VG-N	2.4 / 5 GHz	4 / 7 dBi	Omnidirectional, vertically polarized, gray
AIR-ANT2547V-N-HZ	2.4 / 5 GHz	4 / 7 dBi	Omnidirectional, vertically polarized, white, for Hazardous Locations
AIR-ANT2568VG-N	2.4 / 5 GHz	6 / 8 dBi	Omnidirectional, vertically polarized, gray
AIR-ANT2588P3M-N=	2.4 / 5 GHz	8 / 8 dBi	Directional, dual polarized, 3 port
AIR-ANT2513P4M-N=	2.4 / 5 GHz	13 / 13 dBi	Directional, dual polarized, 4 port
AIR-ANT2450V-N=	2.4 GHz	5 dBi	Omnidirectional, vertically polarized, white
AIR-ANT2450V-N-HZ=	2.4 GHz	5 dBi	Omnidirectional, vertically polarized, white, for Hazardous Locations
AIR-ANT2450VG-N=	2.4 GHz	5 dBi	Omnidirectional, vertically polarized, gray
AIR-ANT2450HG-N=	2.4 GHz	5 dBi	Omnidirectional, horizontally polarized, gray
AIR-ANT2480V-N=	2.4 GHz	8 dBi	Omnidirectional, vertically polarized
AIR-ANT2413P2M-N=	2.4 GHz	13 dBi	Directional, dual polarized, 2 port
AIR-ANT5150VG-N=	5 GHz	5 dBi	Omnidirectional, vertically polarized, gray
AIR-ANT5150HG-N=	5 GHz	5 dBi	Omnidirectional, horizontally polarized, gray
AIR-ANT5180V-N=	5 GHz	8 dBi	Omnidirectional, vertically polarized
AIR-ANT5114P2M-N=	5 GHz	13 dBi	Directional, dual polarized, 2 port

For installation instructions and detailed information on any of these antennas, refer to the following antenna guides:

Cisco Industrial Routers and Industrial Wireless Access Points Antenna Guide

http://www.cisco.com/c/en/us/support/wireless/aironet-antennas-accessories/products-installation-guides-list.html

Follow all safety precautions when installing the antennas. For information on safety, see Safety Precautions When Installing Antennas, on page 19.

Antennas Tested and Certified for Hazardous Locations and IP66/67

Antennas installed within a hazardous locations environment must be passive only, rated IP66/67 and compliant to IEC 60079-0. The following antennas were hazardous locations and IP66/67 certified with the IW6300H series:

Product Number	Description
AIR-ANT5180V-N (Cisco PN 07-1062-01)	4.9 GHz-5.8 GHz 8dBi Omni with N Connector by Laird Technologies
AIR-ANT2450V-N-HZ (Cisco PN 07-1133-01)	2.4 GHz 5 dBi Omni with N Connector by Pulse Electronics
AIR-ANT2480V-N (Cisco PN 07-1058-01)	2.4 GHz 8dBi Omnidirectional with fixed Type N Male Connector, by Laird Corporation
AIR-ANT2547V-N-HZ (Cisco PN 07-1134-01)	2.4-2.483. 5.25-5.85GHz 4/7 dBi Omni by Laird Technologies
AIR-ANT5114P2M-N (Cisco PN 07-1192-01)	5 GhZ Directional (Panel) Antenna by Pctel Inc
AIR-ANT2413P2M-N (Cisco PN 07-1193-01)	2.4 GHz Directional (Panel) Antenna by Pctel Inc
AIR-ANT2588P3M-N (Cisco PN 07-1194-01)	PDM24519-CS2 (Panel) Antenna by Laird
AIR-ANT2513P4M-N (Cisco PN 07-1284-01)	2.4 GHz/5GHz 13dBi (Panel) Antenna by Laird Technologies

In order to keep IW6300H and the above antennas compliant to hazardous locations requirements, the following conditions shall be met:

- Provision to protect antennas from unintentional damage shall be provided to the Cisco Catalyst IW6300 Heavy Duty Series Access Points.

- The maximum antenna inductance (10uH) and capacitance (0.01uF).

- Maximum cable length of 150ft shall be used for the antennas.

- If using a non-Cisco provided cable, the cable jacket must have a UL certified UV rating.

Antenna Selection Examples

The following examples list suggested antenna and RF accessory selections for typical installation scenarios.

✎

Note	Connecting four antennas directly to the chassis is not recommended. To provide omnidirectional coverage with both 2.4 and 5 GHz radios using directly attached antennas, it is recommended to configure the IW-6300H in dual band mode and connect two dual band omnidirectional antennas as described in the first row of the following table.

Use Case	Antennas	Coaxial Cables	Lightning Arrestors and/or Adapters	Installation	Antenna Mode Configuration
Omnidirectional access coverage on both radios	2x Dual-Band Omni-Directional Antennas AIR-ANT2547V-N, AIR-ANT2547VG-N, AIR-ANT2547V-N-HZ, or AIR-ANT2568VG-N	None	None	Connect antennas directly to ports A and B. Cap ports C and D with weatherproof caps.	Dual band
Omnidirectional access on 2.4 GHz, backhaul on 5 GHz	2x Dual-Band Omni-Directional Antennas AIR-ANT2547V-N, AIR-ANT2547VG-N, AIR-ANT2547V-N-HZ, or AIR-ANT2568VG-N or 2x 2.4 GHz 5 dBi Omnidirectional Antennas AIR-ANT2450V-N, AIR-ANT2450VG-N, AIR-ANT2450V-N-HZ, or AIR-ANT2450HG-N or 2x 2.4 GHz 8 dBi Omnidirectional Antennas AIR-ANT2480V-N and 1x 5 GHz 13 dBi Directional Antenna AIR-ANT5114P2M-N=	2x N(m) – N(m) cables: CAB-L400-5-N-N CAB-L400-5-N-NS CAB-L400-20-N-N CAB-L600-30-N-N or AIR-CAB025HZ-N	2x N(m)-N(f) Lightning Arrestor CGR-LA-NM-NF and 2x N(f)-N(f) adapter AIR-ACC370-NF-NF	Connect the two 2.4 GHz omnidirectional antennas directly to ports A and B. Mount the 5 GHz directional antenna with the included hardware and connect it to ports C and D via the adapters, coaxial cables, and lightning arrestors (if required).	Single band

Use Case	Antennas	Coaxial Cables	Lightning Arrestors and/or Adapters	Installation	Antenna Mode Configuration
Omnidirectional access on 5 GHz, backhaul on 2.4 GHz	1x 2.4 GHz 13 dBi Directional Antenna AIR-ANT2413P2M-N= and 2x Dual-Band Omni-Directional Antennas AIR-ANT2547V-N, AIR-ANT2547VG-N, AIR-ANT2547V-N-HZ, or AIR-ANT2568VG-N or 2x 5 GHz 5 dBi Omnidirectional Antennas AIR-ANT5150VG-N or AIR-ANT5150HG-N or 2x 5 GHz 8 dBi Omnidirectional Antennas AIR-ANT5180V-N	2x N(m) – N(m) cables: CAB-L400-5-N-N CAB-L400-5-N-NS CAB-L400-20-N-N CAB-L600-30-N-N or AIR-CAB025HZ-N	2x N(m)-N(f) Lightning Arrestor CGR-LA-NM-NF and 2x N(f)-N(f) adapter AIR-ACC370-NF-NF	Connect the two 5 GHz omnidirectional antennas directly to ports C and D. Mount the 2.4 GHz directional antenna with the included hardware and connect it to ports A and B via the adapters, coaxial cables, and lightning arrestors (if required).	Single band
Directional access and/or backhaul with both radios; both radios covering the same direction	1x 2.4-GHz/5-GHz 8-dBi Directional Antenna AIR-ANT2588P3M-N=	2x N(m) – N(m) cables: CAB-L400-5-N-N CAB-L400-5-N-NS CAB-L400-20-N-N CAB-L600-30-N-N or AIR-CAB025HZ-N	2x N(m)-N(f) Lightning Arrestor CGR-LA-NM-NF	Connect the coax cables from Ports A and B to the two outer ports of the antenna. Terminate the unused middle port of the antenna and Ports C and D of the IW-6300 with a weatherproof cap. Use lightning arrestors if required.	Dual band
	1x Four-Port Dual-Band Polarization-Diverse Antenna AIR-ANT2513P4M-N=	4x N(m) – N(m) cables: CAB-L400-5-N-N CAB-L400-5-N-NS CAB-L400-20-N-N CAB-L600-30-N-N or AIR-CAB025HZ-N	4x N(m)-N(f) Lightning Arrestor CGR-LA-NM-NF	Connect all four ports of the AIR-ANT2513P4M-N to all four ports of the IW-6300. Any port of the IW-6300 can connect to any port of the AIR-ANT2513P4M-N. Use lightning arrestors if required.	Single band

Use Case	Antennas	Coaxial Cables	Lightning Arrestors and/or Adapters	Installation	Antenna Mode Configuration
Directional coverage and/or backhaul with both radios; each radio covering a different direction	1x 2.4 GHz 13 dBi Directional Antenna AIR-ANT2413P2M-N= and 1x 5 GHz 13 dBi Directional Antenna AIR-ANT5114P2M-N=	4x N(m) – N(m) cables: CAB-L400-5-N-N CAB-L400-5-N-NS CAB-L400-20-N-N CAB-L600-30-N-N or AIR-CAB025HZ-N	4x N(m)-N(f) Lightning Arrestor CGR-LA-NM-NF and 4x N(f)-N(f) adapter AIR-ACC370-NF-NF	Connect the 2.4 GHz panel to ports A and B, connect the 5 GHz panel to ports C and D. Use lightning arrestors if required.	Single band

Non-Cisco Antennas

Cisco does not support any third-party antennas. RF connectivity and compliance of third party antennas is the user's responsibility. Cisco does not recommend any third-party antennas, and Cisco Technical Assistance Center will not be able to provide any support for third-party antennas. Cisco's FCC Part 15 compliance is only guaranteed with Cisco antennas or antennas that are of the same design and gain as Cisco antennas.

Grounding the Access Point

The access point must be grounded before connecting power.

In all outdoor installations you must follow these instructions to properly ground the case:

Procedure

Step 1   If using insulated 6-AWG copper ground wire, strip the insulation as required for the grounding lug.

Step 2   Use the appropriate crimping tool to crimp the bare 6-AWG copper ground wire to the supplied grounding lug.

Note   The grounding lug and hardware used must comply with local and national electrical codes.

Step 3   Open the anti-corrosion sealant (supplied), and apply a liberal amount over the metal surface, called the Ground Pad, where the ground strap screw holes are located (see the following figure).

Figure 29: Position of the Ground Pad on the Right Side of the AP
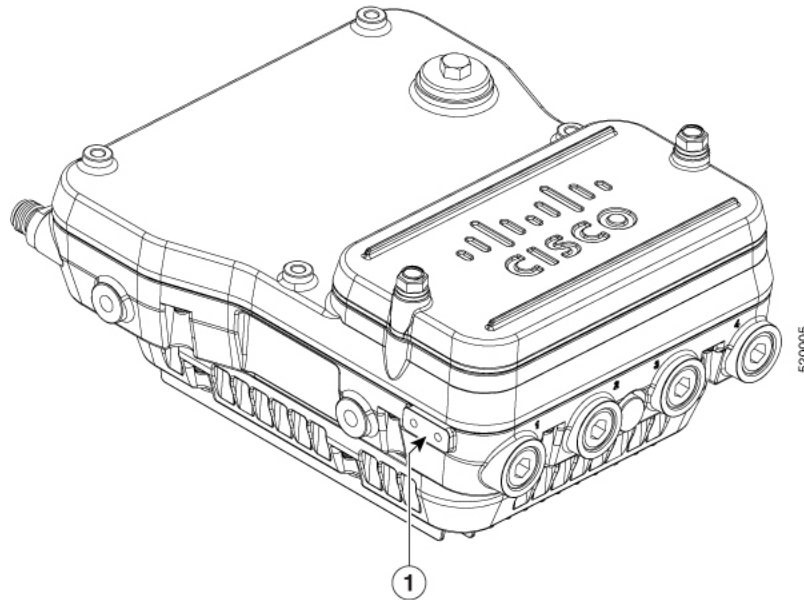
1	Ground pad, where the ground strap screw holes are located.

Step 4 Connect the grounding lug to the access point grounding screw holes using the supplied two Phillips head screws (M4 x10 mm) with lock washers. Tighten the grounding screw to 22 to 24 lb-in (2.49 to 2.71 Nm).
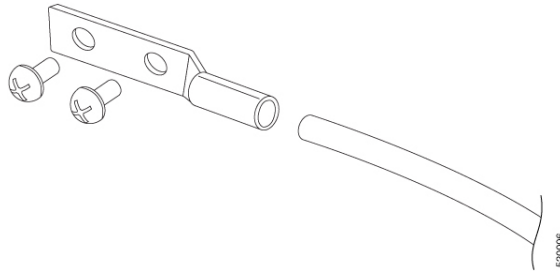
Step 5 If necessary, strip the other end of the ground wire and connect it to a reliable earth ground, such as a grounding rod or an appropriate grounding point on a metal streetlight pole that is grounded.

Using the Reset Button

The access point has a reset button located on the right side of the unit (see the following figure).

Figure 30: IW-6300H Access Point Console Port and Reset Button
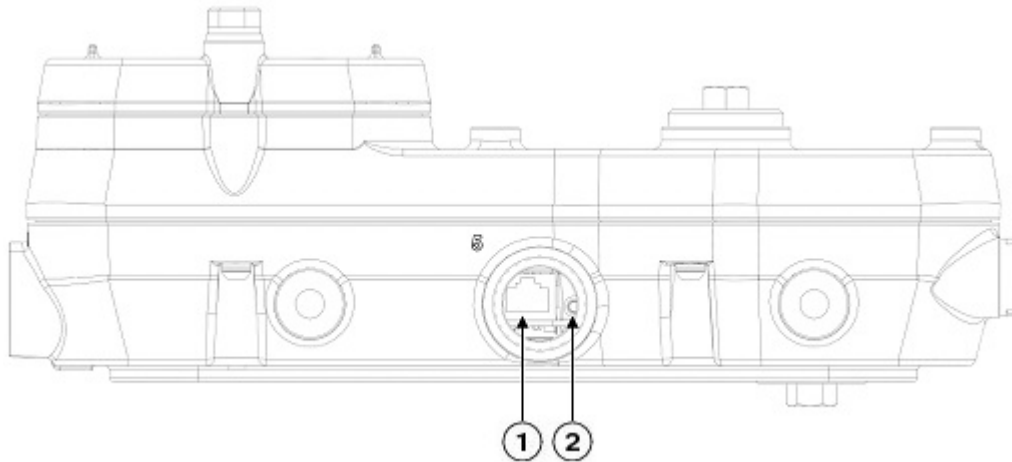
1	Console port	2	Reset button

The reset button is under a covering M25 plug. Properly tighten it at the time of installation, and also every time it is removed and replaced. Tighten the screw to 5-6 lb-ft. If you do not tighten the plug properly, it will not meet IP67 criteria, and may lead to water leaking into the unit.

Powering the Access Point

The access point can be powered by one of these methods:

- Power over Ethernet
    - Power injector, AIR-PWRINJ-60RGD1= and AIR-PWRINJ-60RGD2=
    - Power over Ethernet Plus (PoE+) or Cisco Universal Power over Ethernet (UPOE) switch

- AC or DC power
    - IW-6300H-AC-x-K9: 85-264V~ maximum, marked 100-240V~, 50-60Hz, 1.3A
    - IW-6300H-DC-x–K9: 44 to 57Vdc, 1.2A
    - IW-6300H-DCW-x-K9: 10.8 to 36Vdc, 5.9A

Note   The marked DC input range is an absolute range. Do not apply tolerances.

Note   In all cases above, the AC branch circuit powering the access point must be limited to no more than 20A from the over-protection device supplied by the user. This branch power protection must meet all local and national electrical codes.

The IW6300 access point for hazardous locations can be connected to more than one power source. The access point detects the available power sources and switches to the preferred power source using the following priority:

1. AC or DC power

2. Power over Ethernet

Connecting a Power Injector

The power injector provides 55 VDC to the access point over the Ethernet cable and supports a total end-to-end Ethernet cable length of 100 m (328 ft) from the switch to the access point.

⚠

Caution   Power injector AIR-PWRINJ-60RGDx= is not certified for installation within hazardous locations environments.

✎

Note   The PoE Out power is disabled when the access point is powered by the power injector. But the PoE Out data link can still be active when using power injector.

When your access point is powered by an optional power injector, follow these steps to complete the installation:

Procedure

Step 1   Before applying PoE to the access point, ensure that the access point is grounded (see Grounding the Access Point , on page 52).

Step 2   Connect a CAT5e or better Ethernet cable from your wired LAN network to the power injector.

Danger   To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord. Statement 1023

Use only the power injector (AIR-PWRINJ-60RGDx=) for the access point.

Note   The installer is responsible for ensuring that powering the access point from this type of power injector is allowed by local and/or national safety and telecommunications equipment standards.

Tip   To forward bridge traffic, add a switch between the power injector and controller. Refer to the latest *Cisco Wireless Mesh Access Points, Design and Deployment Guide* for more information.

Step 3   Ensure that the antennas are connected and that a ground is attached to the access point before you apply power to the access point.

Step 4   Ensure that the power injector is grounded. See the power injector installation guide for details: https://www.cisco.com/c/en/us/td/docs/wireless/access_point/power/guide/air_pwrinj_60rgd.html

Step 5   Connect a shielded outdoor-rated Ethernet (CAT5e or better) cable between the power injector and the PoE In connector of the access point.

Step 6   Connect the Ethernet cable to the access point PoE IN port (see Connecting an Ethernet Cable to the Access Point, on page 60).

Note When the access point is powered by PoE+ or UPoE, the PoE Out power is disabled. But the PoE Out data link can still be active.

Connecting AC Power to IW-6300H-AC-x-K9

Note When you install the conduit, be sure to comply with the local electrical codes for your area.

To route and connect the ground and AC power cabling to the IW-6300H-AC-x-K9 access point model, follow these steps:

Warning A readily accessible two-poled disconnect device must be incorporated in the fixed wiring. Statement 1022

Warning When installing or replacing the unit, the ground connection must always be made first and disconnected last. Statement 1046

Caution Always install the ground wire before connecting all power leads.

Procedure

Step 1 Open the access point cover. See Opening the Access Cover, on page 46 for instructions.
Step 2 Ensure a 6 AWG (13.3 mm^2) ground wire is connected to the access point (see Grounding the Access Point , on page 52).
Step 3 Route the AC power cable through the 1/2-NPT port.

Figure 31: Connecting Internal Ground and AC Power Connection for IW-6300H-AC-X-K9

3
2
1
PWR INPUT
100 - 240 VAC
L N
PoE IN
1
PoE OUT
2
PoE OUT
USB
520007
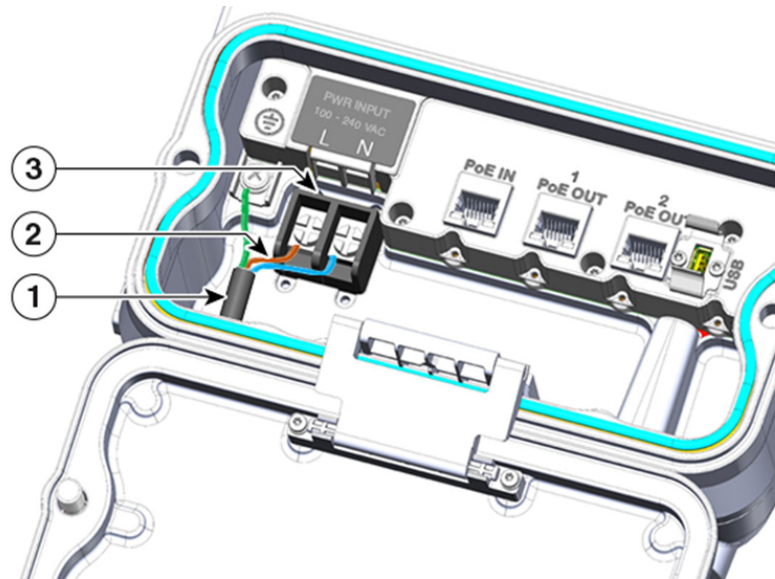
1	Customer-supplied harness	3	Terminal block
2	Customer-supplied cable (ATEX only)		

Step 4 Use a wire stripper tool to remove the insulation from each wire. Remove only enough wire to provide a solid connection in the terminal block. The hot wires should have no bare wire exposed after the connection is made.

Step 5 Insert the ground wire into the internal ground.

Step 6 Insert each hot wire into the AC entry terminal block.

Step 7 Use a Phillips screwdriver to tighten the terminal block set screws to secure the wires in the terminal block.

Step 8 Verify that no bare wire is exposed. If wire is exposed, remove it from the terminal block, adjust the length, and reinstall.

Step 9 Check your work.

Step 10 Close the access point cover. See Closing the Access Cover, on page 47 for details.

Connecting DC Power to IW-6300H-DCW-x-K9

Warning This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than:10 A. Statement 1005

Warning A readily accessible two-poled disconnect device must be incorporated in the fixed wiring. Statement 1022

⚠️

Warning   To reduce risk of electric shock, connect the unit only to DC power source that complies with the Safety Extra-Low Voltage (SELV) requirements in IEC 60950 based safety standards or ES1 requirements in IEC 62368 based safety standards. Statement 1033

To route and connect the power cable to the IW-6300H-DCW-x–K9 model, follow these steps:

Procedure

Step 1   Open the access point cover. See Opening the Access Cover, on page 46 for instructions.

Step 2   Ensure a 6 AWG ground wire is connected to the access point (see Grounding the Access Point , on page 52).

Step 3   Route the power cable through the 1/2 NPT port.

Step 4   Use a wire stripper tool to remove the insulation from each wire. Remove only enough wire to provide a solid connection in the terminal block. The hot wires should have no bare wire exposed after the connection is made.

Step 5   Insert the ground wire into the internal ground.

Step 6   Insert each hot wire into the terminal block.

Figure 32: IW-6300H-DCW-x-K9 Internal Ground and Terminal Block Location
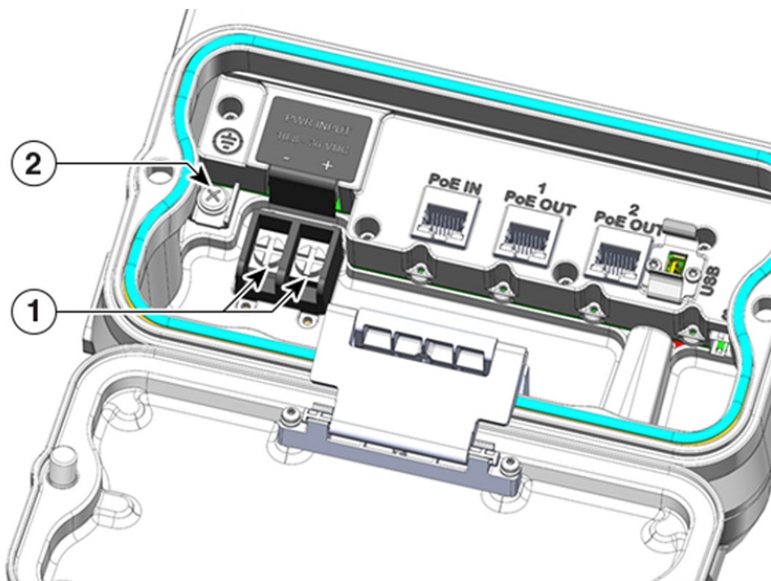
1	Terminal block	2	Internal ground

Step 7   Use a Phillips screwdriver to tighten the terminal block set screws to secure the wires in the terminal block.

Step 8   Verify that no bare wire is exposed. If wire is exposed, remove it from the terminal block, adjust the length, and reinstall.

Step 9   Check your work.

Step 10   Close the access point cover. See Closing the Access Cover, on page 47 for details.

Connecting DC Power to IW-6300H-DC-x-K9

Warning   This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than:5 A. Statement 1005

Warning   A readily accessible two-poled disconnect device must be incorporated in the fixed wiring. Statement 1022

Warning   To reduce risk of electric shock, connect the unit only to DC power source that complies with the Safety Extra-Low Voltage (SELV) requirements in IEC 60950 based safety standards or ES1 requirements in IEC 62368 based safety standards. Statement 1033

To route and connect the power cable to the IW-6300H-DC-x–K9 model, follow these steps:

Procedure

Step 1   Open the access point cover. See Opening the Access Cover, on page 46 for instructions.

Step 2   Ensure a 6 AWG ground wire is connected to the access point (see Grounding the Access Point , on page 52).

Step 3   Route the power cable through the 1/2-NPT port.

Figure 33: Connecting Internal Ground and DC Power for IW-6300H-DC-x-K9
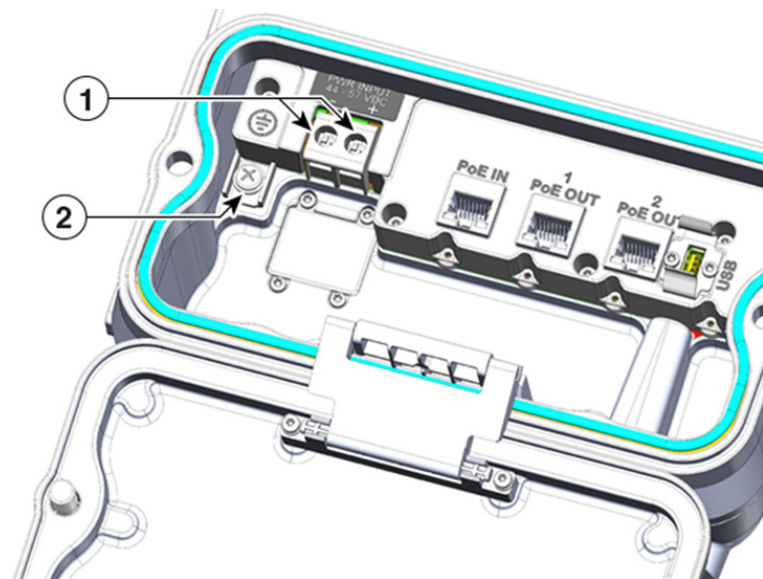
1	Terminal block	2	Internal ground

Step 4   Use a wire stripper tool to remove the insulation from each wire. Remove only enough wire to provide adequate crimp on to ring terminals (Cisco supplied).

Step 5 Remove terminal strip screw and square washer. Connect DC line to terminal strip location. Tighten terminal strip screws to secure ring terminal and wire.

Step 6 Secure DC input cord to wire tie anchor adjacent to terminal strip.

Step 7 Check your work.

Step 8 Close the access point cover. See Closing the Access Cover, on page 47 for details.

Connecting Data Cables

All models of the AP support data connections through the Ethernet port and the Small Form-factor Pluggable (SFP) port. However, both the Ethernet port and the SFP port cannot be used for data at the same time.

If the SFP is detected and active, the Ethernet port is disconnected. If the SFP is not detected, the Ethernet port stays connected

If you are using the SFP port, to delivery data through a fiber-optic cable, then the AP needs to be powered by DC power, power adapter, or by a power injector.

For details on installing Ethernet, see Connecting an Ethernet Cable to the Access Point, on page 60.

For details on installing a a fiber-optic cable, see Connecting a Fiber-optic Cable to the AP, on page 61.

Connecting an Ethernet Cable to the Access Point

The following tools and materials are required:

• Shielded outdoor-rated Ethernet (CAT5e or better) cable

Note The Ethernet cable from the power injector to the access point must be at least 10 ft (3.05 m) long.

• RJ-45 connector and installation tool

• Adjustable wrench

• Ex-certified cable gland or conduit

To connect the shielded Ethernet cable to the access point, follow these steps:

Procedure

Step 1 Disconnect power to the power injector, and ensure all power sources to the access point are turned off.

Step 2 Ensure a 6 AWG ground wire is connected to the access point (see Grounding the Access Point , on page 52).

Step 3 Use a 3/8" Allen wrench to remove the 1/2" NPT I/O port plug from the access point.

Step 4 Insert the unterminated end of the Ethernet cable into the conduit, and pull several inches of cable through the conduit.

Step 5 Install an RJ-45 connector on the unterminated end of the Ethernet cable using your Ethernet cable installation tool.

Warning   To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord. Statement 1023

Step 6   Carefully insert the RJ-45 cable connector through the I/O port and connect to the internal Ethernet connector.

Step 7   Route your Ethernet cable, and cut off any excess cable.

Step 8   Install an RJ-45 connector on the unterminated cable end, and insert it into the power injector.

Step 9   Apply sealant to the thread and then install the conduit or cable gland. Ensure the access cover gasket is fully in groove prior to closing the cover.

Step 10   Ensure that the antennas are connected to the access point before you apply power to the access point.

Step 11   Turn on power to the power injector.

Connecting a Fiber-optic Cable to the AP

Your require the following materials for connecting the fiber-optic cable to the AP:

- Small form-factor pluggable (SFP) transceiver module

- The cable glands or conduit are not supplied. Make sure that the cable size you choose is appropriate for conduit or Ex certified cable gland that is being used.

- Adjustable wrench

You can connect the fiber-optic networking cable to the SFP port. The small form-factor pluggable (SFP) transceiver module is used to connect the cable to the SFP port. To install the SFP transceiver module and the cable, follow this procedure:

Procedure

Step 1   Ensure that all power sources have been disconnected from the access point.

Step 2   Use a 3/8" Allen wrench to remove the covering plug from I/O port 4 as shown below. Open the access cover by loosening the M8 bolts with ½ or 13mm socket and swing the cover back.
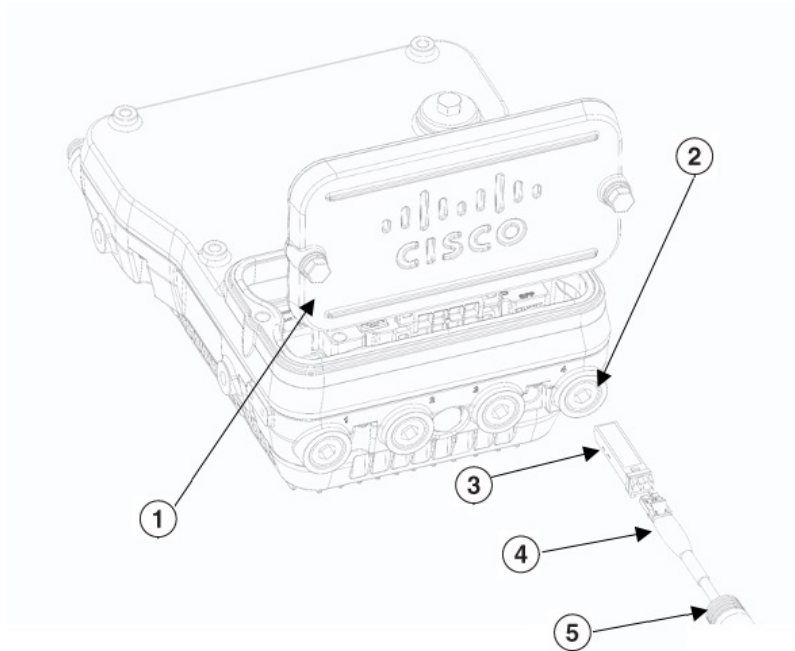
1	Access cover	4	Optic fiber cable
2	I/O port 4	5	Conduit or cable gland
3	SFP		

Step 3   Insert the SFP module into the SFP port, and ensure that it latches properly.

Note   Do not lean on or push on the access cover.
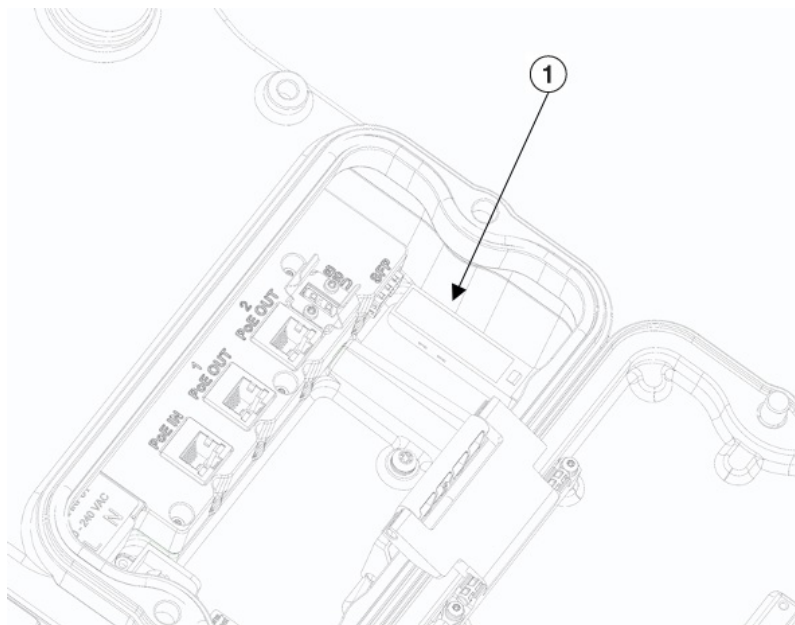
1	SFP

Step 4   Feed cable through conduit or certified cable gland per manufacturer's instructions. The cable size should meet a max exposed dimension for where the fiber cable jacket needs to start.

Figure 34: SC Fiber-optic cable
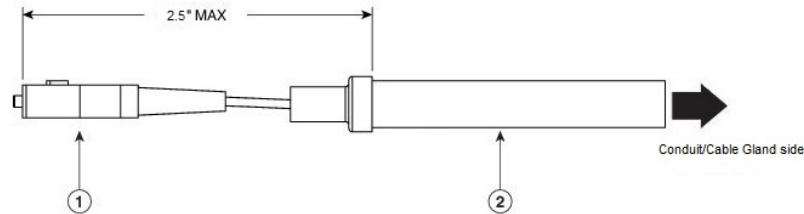
1	SC optic fiber connector	2	Cable jacket

Figure 35: Duplex LC Fiber Optic Cable
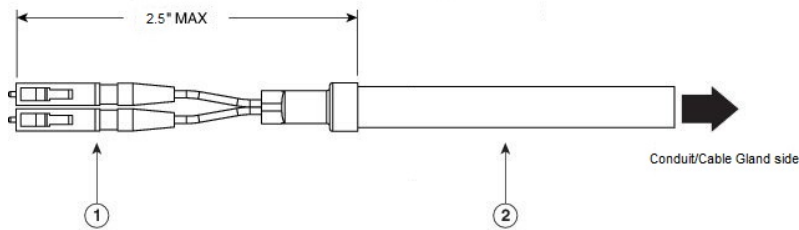
1	Duplex LC optic fiber connector	2	Cable jacket

Step 5   Insert the SC or LC optic fiber connector into the SFP module through I/O port 4 and ensure that it latches into place.
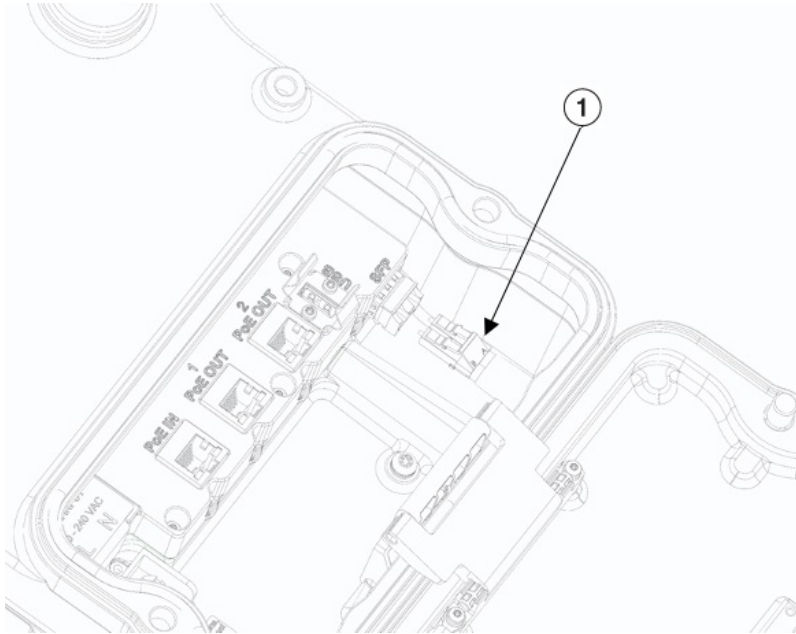
1	Fiber-optic cable

Step 6   Apply sealant to the thread and then install the conduit or cable gland. Ensure the access cover gasket is fully in groove prior to closing the cover.
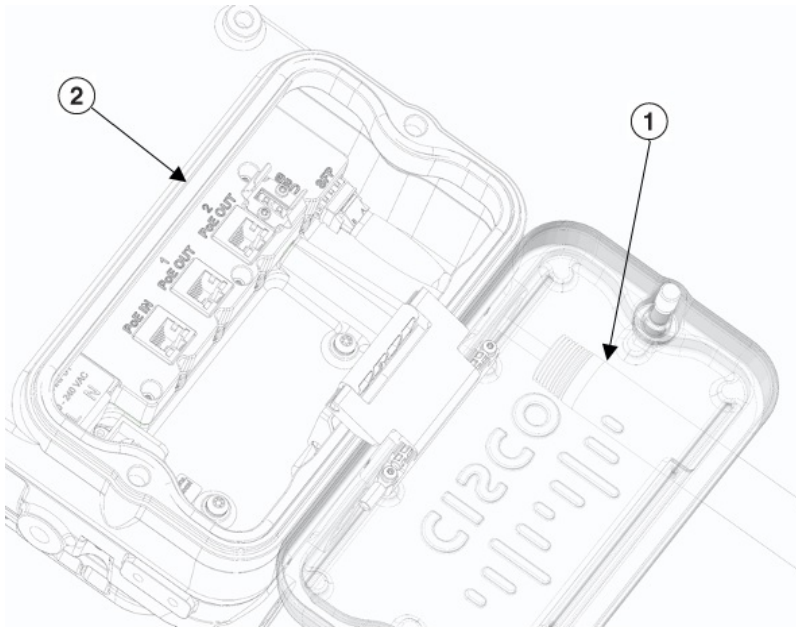
1	Conduit or cable gland	2	Ensure the gasket is fully in groove prior to closing cover.

Step 7   Close the cover and torque the M8 bolts to 6-7 ft-lbs.
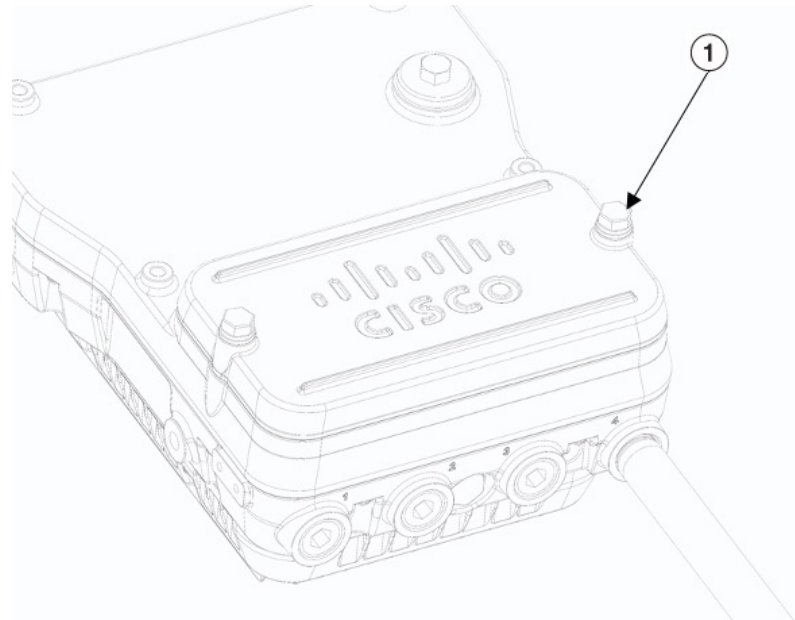
| 1 | M8 Bolt |

Performing Maintenance

The access point requires minimal periodic or preventive maintenance as it has no moving parts, filters, lubricants, or mechanical contact components. However, when installed in a hazardous location, periodic inspections should be conducted in order to ensure that the access point is operating satisfactory. This section provides information about performing maintenance on an access point installed in a hazardous location.

Additional maintenance information can be found in Chapter 4, "Troubleshooting" and the Troubleshooting a Mesh Network Guide.

Removing the Access Point from Service

When removing an access point from service, make sure you remove power from the access point before opening the cover and disconnecting the input wiring. When removing the wiring, the ground connection should be the last to be disconnected.

Conducting Periodic Inspections

The access point should be inspected periodically to ensure normal and airtight operation in the hazardous location environment. Table 6: Periodic Inspection Table, on page 66 lists the inspection routines and their periodicity.

Table 6: Periodic Inspection Table

Inspection Routine	Periodicity
Inspect O-ring seals and exterior electrical connections for aging, corrosion, and low ground resistance.	Every 3 years
Inspect cover and liquid-tight adapter gaskets for airtightness.	Every 5 years

Conducting Periodic Cleaning

The access point is designed to not require periodic cleaning.

Troubleshooting

This chapter provides troubleshooting procedures for basic problems with the access point.

Guidelines for Using the Access Points

Before deploying your access points, ensure that the following has been done:

- Your controllers are connected to switch ports that are configured as trunk ports.

- Your access points are connected to switch ports that are configured as untagged access ports.

- A DHCP server is reachable by your access points and has been configured with Option 43. Option 43 provides the IP addresses of the management interfaces of your controllers. Typically, a DHCP server can be configured on a Cisco switch.

- Optionally, a DNS server can be configured to enable CISCO-CAPWAP-CONTROLLER. Use local domain to resolve to the IP address of the management interface of your controller.

- Your controllers are configured and reachable by the access points.

- Your controllers are configured with the access point MAC addresses and the MAC filter list is enabled.

- If layer 3 functionality is enabled on your switch, make sure that DHCP broadcast and request can be passed.

Important Notes

Convergence Delays

During deployment, the access points can experience convergence delays due to various causes. The following list identifies some operating conditions that can cause convergence delays:

- A root access point (RAP) attempts to connect to a controller using any of the wired ports (cable, fiber-optic, or PoE-In). If the wired ports are operational, the RAP can potentially spend several minutes on each port prior to connecting to a controller.

- If a RAP is unable to connect to a controller over the wired ports, it attempts to connect using the wireless network. This results in additional delays when multiple potential wireless paths are available.

- If a MAP is unable to connect to a RAP using a wireless connection, it then attempts to connect using any available wired port. The access point can potentially spend several minutes for each connection method, before attempting the wireless network again.

Bridge Loop

The access point supports packet bridging between wired and wireless network connections. The same network must never be connected to multiple wired ports on an access point or on two bridged access points. A bridge loop causes network routing problems.

Controller DHCP Server

The controller DHCP server only assigns IP addresses to lightweight access points, Ethernet bridging clients on the mesh access points, and wireless clients associated to an access point. It does not assign an IP address to other devices.

MAP Data Traffic

If the signal on the access point backhaul channel has a high signal-to-noise ratio, it is possible for a MAP to connect to the controller, via parent node, but not be able to pass data traffic, such as pinging the access point. This can occur because the default data rate for backhaul control packets is set to 6 Mb/s, and the backhaul data rate set to auto by the user.

Controller MAC Filter List

Before activating your access point, you must ensure that the access point MAC address has been added to the controller MAC filter list and that Mac Filter List is enabled.

Note The access point MAC address and barcode is located on the side of the unit.

To view the MAC addresses added to the controller MAC filter list, you can use the controller CLI or the controller GUI:

- Controller CLI—Use the show macfilter summary controller CLI command to view the MAC addresses added to the controller filter list.

- Controller GUI—Log into your controller web interface using a web browser, and choose **SECURITY > AAA > MAC Filtering to view the MAC addresses added to the controller filter list.**

Accessing the Console Port and the Reset Button

The console port and reset button are under a covering M25 plug located on the side of the access point, as shown in the following figure.

Figure 36: IW-6300H Access Point Console Port and Reset Button
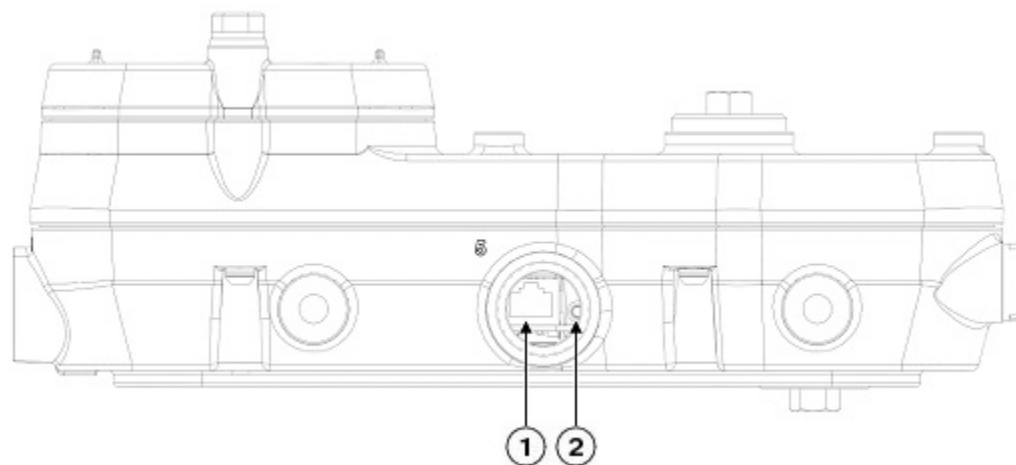
1	Console port	2	Reset button

Inspect the seal of the plug and properly tighten it at the time of installation, and also every time the plug is removed and replaced. Tighten the plug to 5-6 lb-ft. If you do not tighten the plug properly, it will not meet IP67 criteria, and may lead to water leaking into the unit.

Resetting the Access Point

Using the Reset button you can:

- Reset the AP to the default factory-shipped configuration.

- Clear the AP internal storage, including all configuration files.

To use the Reset button, press, and keep pressed, the Reset button on the access point during the AP boot cycle. Wait until the AP status LED changes to Amber. During this, the AP console shows a seconds counter, counting the number of seconds the Reset button is pressed. Then:

- To reset the AP to it's default factory-shipped configuration, keep the Reset button pressed for less than 20 seconds. The AP configuration files are cleared.

This resets all configuration settings to factory defaults, including passwords, WEP keys, the IP address, and the SSID.

- To clear the AP internal storage, including all configuration files and the regulatory domain configuration, keep the Reset button pressed for more than 20 seconds, but less than 60 seconds.

The AP status LED changes from Amber to Red, and all the files in the AP storage directory are cleared.

If you keep the Reset button pressed for more than 60 seconds, the Reset button is assumed faulty and no changes are made.

Monitoring the Access Point LEDs

If your access point is not working properly, look at the system LED and port LEDs. You can use them to quickly assess the status of the unit.

Note It is expected that there will be small variations in LED color intensity and hue from unit to unit. This is within the normal range of the LED manufacturer specifications and is not a defect.

The access point LED signals are listed in the following table.

Table 7: Access Point System LED Signals

LED Message Type	Color	Meaning
Boot loader status sequence	Blinking Green	Boot loader status sequence: • DRAM memory test in progress • DRAM memory test OK • Board initialization in progress • Initializing FLASH file system • FLASH memory test OK • Initializing Ethernet • Ethernet OK • Starting Cisco IOS • Initialization successful
Association status	Chirping (short blips) Green	This status indicates a normal operating condition. The unit is joined to a controller, but no wireless client is associated with it.
	Solid Green	Normal operating condition with at least one wireless client associated with the unit

LED Message Type	Color	Meaning
Operating Status	Blinking Amber	A software upgrade is in progress
	Cycling through Green, Red, and Amber	Discovery/join process is in progress
	Rapidly cycling through Red, Green, Amber, and Off	This status indicates that the Access Point location command has been invoked.
	Blinking Red	This status indicates that an Ethernet link is not operational
Boot loader warnings	Blinking Amber	Configuration recovery is in progress (the Reset button has been pushed for 2-3 seconds)
	Red	There is an Ethernet failure or an image recovery (the Reset button has been pushed for 20-30 seconds)
	Blinking Green	An image recovery is in progress (the Reset button has been released)
Boot loader errors	Red	There has been a DRAM memory test failure
	Blinking Red and Amber	There has been a FLASH file system failure
	Blinking Red and Off	This sequence may indicate any of the following: • Environment variable failure • Bad MAC address • Ethernet failure during image recovery • Boot environment failure • No Cisco image file • Boot failure
AP OS errors	Red	There has been a software failure; a disconnect then reconnect of the unit power may resolve the issue
	Cycling through Red, Green, Amber, and Off	This is a general warning of insufficient inline power

The access point port LED signals are listed in the following table.

Table 8: Access Point Port LED Signals

LED Message Type	Color	Meaning
Port link status	Green	Link on
	Blinking Green	Link activity
	Off	No link

Verifying Controller Association

To verify that your access point is associated to the controller, follow these steps:

Procedure

Step 1 Log into your controller web interface using a web browser.

You can also use the controller CLI show ap summary command from the controller console port.

Step 2 Click Wireless, and verify that your access point MAC address is listed under Ethernet MAC.

Step 3 Log out of the controller, and close your web browser.

Changing the Bridge Group Name

The bridge group name (BGN) controls the association of the access points to a RAP. BGNs can be used to logically group the radios to avoid different networks on the same channel from communicating with each other. This setting is also useful if you have more than one RAP in your network in the same area.

If you have two RAPs in your network in the same area (for more capacity), we recommend that you configure the two RAPs with different BGNs and on different channels.

The BGN is a string of ten characters maximum. A factory-set bridge group name (NULL VALUE) is assigned during manufacturing. It is not visible to you, but allows new access point radios to join a network of new access points. The BGN can be reconfigured from the Controller CLI and GUI. After configuring the BGN, the access point reboots.

After the access points are deployed and associated to the controller, the BGN should be changed from the default value to prevent the MAPs from attempting to associate to other mesh networks.

The BGN should be configured very carefully on a live network. You should always start with the most distant access point (last node) from the RAP and move towards the RAP. If you start configuring the BGN in a different location, then the access points beyond this point (farther away) are dropped, as they have a different BGN. MAPS with unconfigured BGNs will periodically join to RAPs with configured BGNs. This prevents the stranding of MAPs.

To configure the BGN for the access points using the controller GUI, follow these steps:

Procedure

Step 1	Log into your controller using a web browser.
Step 2	Click Wireless. When access points associates to the controller, the access point name appears in the AP Name list.
Step 3	Click on an access point name.
Step 4	Find the Mesh Information section, and enter the new BGN in the Bridge Group Name field.
Step 5	Click Apply.
Step 6	Repeat Steps 2 through 5 for each access point.
Step 7	Log out from your controller, and close your web browser.

Declarations of Conformity and Regulatory Information

This appendix provides declarations of conformity and regulatory information for the Cisco Catalyst iw6300 Heavy Duty Series Access Point.

Manufacturer Federal Communication Commission Declaration of Conformity Statement

Models	FCC ID
IW-6300H-AC-B-K9	LDKESW6300
IW-6300H-DC-B-K9	
IW-6300H-DCW-B-K9	

Declarations of Conformity and Regulatory Information

Requirements Of Operator To Register The RLAN Device Operating Outdoors In The 5150 -5250 MHz Band And Addressing Possible Interference Issues In This Band

Manufacturer:

Cisco Systems, Inc.170 West Tasman DriveSan Jose, CA 95134-1706USA

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

- Reorient or relocate the receiving antenna.

- Increase separation between the equipment and receiver.

- Connect the equipment to an outlet on a circuit different from which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician.

⚠

Caution   The Part 15 radio device operates on a non-interference basis with other devices operating at this frequency when using Cisco-supplied antennas. Any changes or modification to the product not expressly approved by Cisco could void the user's authority to operate this device.

⚠

Caution   To meet regulatory restrictions, the access point must be professionally installed.

Requirements Of Operator To Register The RLAN Device Operating Outdoors In The 5150 -5250 MHz Band And Addressing Possible Interference Issues In This Band

Section 15.407(j) of the rules established filing requirements for U-NII operators that deploy a collection of more than 1000 outdoor access points with the 5.15-5.25 GHz band, parties must submit a letter to the FCC lab acknowledging that, should harmful interference to licensed services in this band occur, they will be required to take corrective action. Corrective actions may include reducing power, turning off devices, changing frequency bands, and/or further reducing power radiated in the vertical direction.

This material shall be submitted to:

Federal Communications Commission

Laboratory Division, Office of Engineering and Technology

7435 Oakland Mills Road, Columbia, MD, 21046

Attn: U-NII Coordination

or via website at https://www.fcc.gov/labhelp

use subject line U-NII Filing

Industry Canada

Models	ISED ID
IW-6300H-AC-A-K9	2461N-ESW6300
IW-6300H-DC-A-K9	
IW-6300H-DCW-A-K9	

Canadian Compliance Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: (1) This device may not cause interference. (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil contient des émetteurs / récepteurs exemptés de licence qui sont conformes aux RSS exempts de licence d'Innovation, Sciences et Développement économique Canada. 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.

Cisco Catalyst Access Points are certified to the requirements of RSS-247. The use of this device in a system operating either partially or completely outdoors may require the user to obtain a license for the system according to the Canadian regulations. For further information, contact your local Industry Canada office.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

This radio transmitter has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Antenna Type	Antenna Gain (2.4 / 5 GHz)	Antenna Impedance
Dual-band Omni	6 / 8 dBi	50 ohms
Single-band Omni	8 / 8 dBi	50 ohms
Dual-Band Directional	13 / 13 dBi	50 ohms
Single-Band Directional	13 / 13 dBi	50 ohms

Operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

La bande 5 150-5 250 MHz est réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

Users are advised that high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

Les utilisateurs êtes avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5 250-5 350 MHz et 5 650-5 850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL

Declaration of Conformity for RF Exposure

This access point product has been found to be compliant to the requirements set forth in CFR 47 Section 1.1307 addressing RF Exposure from radio frequency devices as defined in Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields. Antennas that have 8 dBi to 14 dBi gain should be located at a minimum of 23.6 inches (60 cm) or more from the body of all persons. Antennas that have less than 8 dBi gain should be located at a minimum of 9.8 inches (25 cm) or more from the body of all persons.

This access point is also compliant to EN 50835 for RF exposure.

European Community, Switzerland, Norway, Iceland, and Liechtenstein

Access Point Models:

IW-6300H-AC-E-K9

IW-6300H-DC-E-K9

IW-6300H-DCW-E-K9

Declaration of Conformity With Regard To The R&TTE Directive 1999/5/EC

This declaration is only valid for configurations (combinations of software, firmware, and hardware) provided and supported by Cisco Systems. The use of software or firmware not provided and supported by Cisco Systems may result in the equipment no longer being compliant with the regulatory requirements.

Български [Bulgarian]	Това оборудване отговаря на съществените изисквания и приложими клаузи на Директива 1999/5/EC.
Česky [Czech]:	Toto zařízení je v souladu se základními požadavky a ostatními odpovídajícími ustanoveními Směrnice 1999/5/EC.
Dansk [Danish]:	Dette udstyr er i overensstemmelse med de væsentlige krav og andre relevante bestemmelser i Direktiv 1999/5/EF.
Deutsch [German]:	Dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie 1999/5/EU.
Eesti [Estonian]:	See seade vastab direktiivi 1999/5/EÜ olulistele nõuetele ja teistele asjakohastele sätetele.
English:	This equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Español [Spanish]:	Este equipo cumple con los requisitos esenciales asi como con otras disposiciones de la Directiva 1999/5/CE.
Ελληνική [Greek]:	Αυτός ο εξοπλισμός είναι σε συμμόρφωση με τις ουσιώδεις απαιτήσεις και άλλες σχετικές διατάξεις της Οδηγίας 1999/5/EC.
Français [French]:	Cet appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la Directive 1999/5/EC.
Íslenska [Icelandic]:	Þetta tæki er samkvæmt grunnkröfum og öðrum viðeigandi ákvæðum Tilskipunar 1999/5/EC.
Italiano [Italian]:	Questo apparato é conforme ai requisiti essenziali ed agli altri principi sanciti dalla Direttiva 1999/5/CE.
Latviešu [Latvian]:	Šī iekārta atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]:	Šis įrenginys tenkina 1999/5/EB Direktyvos esminius reikalavimus ir kitas šios direktyvos nuostatas.

142729

Nederlands [Dutch]:	Dit apparaat voldoet aan de essentiele eisen en andere van toepassing zijnde bepalingen van de Richtlijn 1999/5/EC.
Malti [Maltese]:	Dan l-apparat huwa konformi mal-ħtiġiet essenzjali u l-provedimenti l-oħra rilevanti tad-Direttiva 1999/5/EC.
Margyar [Hungarian]:	Ez a készülék teljesíti az alapvető követelményeket és más 1999/5/EK irányelvben meghatározott vonatkozó rendelkezéseket.
Norsk [Norwegian]:	Dette utstyret er i samsvar med de grunnleggende krav og andre relevante bestemmelser i EU-direktiv 1999/5/EF.
Polski [Polish]:	Urządzenie jest zgodne z ogólnymi wymaganiami oraz szczególnymi warunkami określonymi Dyrektywą UE: 1999/5/EC.
Português [Portuguese]:	Este equipamento está em conformidade com os requisitos essenciais e outras provisões relevantes da Directiva 1999/5/EC.
Slovensko [Slovenian]:	Ta naprava je skladna z bistvenimi zahtevami in ostalimi relevantnimi pogoji Direktive 1999/5/EC.
Slovensky [Slovak]:	Toto zariadenie je v zhode so základnými požiadavkami a inými príslušnými nariadeniami direktiv: 1999/5/EC.
Suomi [Finnish]:	Tämä laite täyttää direktiivin 1999/5/EY olennaiset vaatimukset ja on siinä asetettujen muiden laitetta koskevien määräysten mukainen.
Svenska [Swedish]:	Denna utrustning är i överensstämmelse med de väsentliga kraven och andra relevanta bestämmelser i Direktiv 1999/5/EC.

The following standards were applied:

EMC—EN 301 489-1: v2.1.1

Health & Safety—EN60950-1: 2005; EN 50385: 2002

Radio—EN 300 328 v 2.1.1; EN 301 893 v 2.1.1

The conformity assessment procedure referred to in Article 10.4 and Annex III of Directive 1999/5/EC has been followed.

This device also conforms to the EMC requirements of the Medical Devices Directive 93/42/EEC.

Note This equipment is intended to be used in all EU and EFTA countries. Outdoor use may be restricted to certain frequencies and/or may require a license for operation. For more details, contact Cisco Corporate Compliance.

The product carries the CE Mark:

Declaration of Conformity for RF Exposure

The following is the declaration of conformity for RF exposure for the United States, Canada, European Union and Australia.

United States

This system has been evaluated for RF exposure for Humans in reference to ANSI C 95.1 (American National Standards Institute) limits. The evaluation was based on ANSI C 95.1 and FCC OET Bulletin 65C rev 01.01. To maintain compliance, the minimum separation distance for antennas that have 8 dBi to 14 dBi gain, is 23.6 inches (60 cm) from general bystanders. The minimum separation distance from antennas that have less than 8 dBi gain to general bystanders is 9.8 inches (25 cm).

Canada

This system has been evaluated for RF exposure for Humans in reference to ANSI C 95.1 (American National Standards Institute) limits. The evaluation was based on RSS-102 Rev 5.

To maintain compliance, the minimum separation distance for antennas that have 8 dBi to 14 dBi gain, is 23.6 inches (60 cm) from general bystanders. The minimum separation distance from antennas that have less than 8 dBi gain to general bystanders is 9.8 inches (25 cm).

Ce système a été évalué pour l'exposition aux RF pour les humains en référence à la norme ANSI C 95.1 (American National Standards Institute) limites. L'évaluation a été basée sur RSS-102 Rev 2.

La distance minimale de séparation de l'antenne de toute personne est de 9.8 "(25 cm) pour les gains d'antenne jusqu'à 8 dBi et 23.6" (60 cm) pour les gains d'antenne de 14 dbi pour assurer le respect.

European Union

This system has been evaluated for RF exposure for Humans in reference to the ICNIRP (International Commission on Non-Ionizing Radiation Protection) limits. The evaluation was based on the EN 50385 Product Standard to Demonstrate Compliance of Radio Base stations and Fixed Terminals for Wireless Telecommunications Systems with basic restrictions or reference levels related to Human Exposure to Radio Frequency Electromagnetic Fields from 300 MHz to 40 GHz. To maintain compliance, the minimum separation distance for antennas that have 8 dBi to 14 dBi gain, is 23.6 inches (60 cm) from general bystanders. The minimum separation distance from antennas that have less than 8 dBi gain to general bystanders is 9.8 inches (25 cm).

Australia

This system has been evaluated for RF exposure for Humans as referenced in the Australian Radiation Protection standard and has been evaluated to the ICNIRP (International Commission on Non-Ionizing Radiation Protection) limits. To maintain compliance, the minimum separation distance for antennas that have 8 dBi to 14 dBi gain, is 23.6 inches (60 cm) from general bystanders. The minimum separation distance from antennas that have less than 8 dBi gain to general bystanders is 9.8 inches (25 cm).

Operation of Cisco Catalyst Access Points in Brazil

This section contains special information for operation of Cisco Catalyst access points in Brazil.

Access Point Models:

IW-6300H-AC-Z-K9

IW-6300H-DC-Z-K9

IW-6300H-DCW-Z-K9

Warning   This equipment is not entitled to the protection from harmful interference and may not cause interference with duly authorized systems.

Este equipamento não tem direito a proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados.

Guidelines for Operating Cisco Catalyst Access Points in Japan

This section provides guidelines for avoiding interference when operating Cisco Catalyst access points in Japan. These guidelines are provided in both Japanese and English.

Access Point Model:

IW-6300H-AC-Q-K9

IW-6300H-DC-Q-K9

IW-6300H-DCW-Q-K9

Japanese Translation

この機器の使用周波数帯では、電子レンジ等の産業・科学・医療用機器のほか
工場の製造ライン等で使用されている移動体識別用の構内無線局（免許を要する
無線局）及び特定小電力無線局（免許を要しない無線局）が運用されています。
1　この機器を使用する前に、近くで移動体識別用の構内無線局及び特定小電力
　　無線局が運用されていないことを確認して下さい。
2　万一、この機器から移動体識別用の構内無線局に対して電波干渉の事例が発
　　生した場合には、速やかに使用周波数を変更するか又は電波の発射を停止した
　　上、下記連絡先にご連絡頂き、混信回避のための処置等(例えば、パーティシ
　　ョンの設置など)についてご相談して下さい。
3　その他、この機器から移動体識別用の特定小電力無線局に対して電波干渉の
　　事例が発生した場合など何かお困りのことが起きたときは、次の連絡先へお問
　　い合わせ下さい。

連絡先 : 03-6434-6500

English Translation

This equipment operates in the same frequency bandwidth as industrial, scientific, and medical devices such as microwave ovens and mobile object identification (RF-ID) systems (licensed premises radio stations and unlicensed specified low-power radio stations) used in factory production lines.

1. Before using this equipment, make sure that no premises radio stations or specified low-power radio stations of RF-ID are used in the vicinity.

2. If this equipment causes RF interference to a premises radio station of RF-ID, promptly change the frequency or stop using the device; contact the number below and ask for recommendations on avoiding radio interference, such as setting partitions.

3. If this equipment causes RF interference to a specified low-power radio station of RF-ID, contact the number below.

Contact Number: 03-6434-6500

Statement 191—VCCI Class A Warning for Japan

Warning	This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio interference may occur, in which case, the user may be required to take corrective actions.
警告	この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 　　　　　　　　　　　　　　　　　　　　　　　　　　　VCCI-A

Administrative Rules for Cisco Catalyst Access Points in Taiwan

This section provides administrative rules for operating Cisco Catalyst Access Points in Taiwan. The rules are provided in both Chinese and English.

Chinese Translation

低功率電波輻射性電機管理辦法

第十二條　經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條　低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信法規定作業之無線電信。

低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

127048

English Translation

Administrative Rules for Low-power Radio-Frequency Devices

Article 12

For those low-power radio-frequency devices that have already received a type-approval, companies, business units or users should not change its frequencies, increase its power or change its original features and functions.

Article 14

The operation of the low-power radio-frequency devices is subject to the conditions that no harmful interference is caused to aviation safety and authorized radio station; and if interference is caused, the user must stop operating the device immediately and can't re-operate it until the harmful interference is clear.

The authorized radio station means a radio-communication service operating in accordance with the Communication Act.

The operation of the low-power radio-frequency devices is subject to the interference caused by the operation of an authorized radio station, by another intentional or unintentional radiator, by industrial, scientific and medical (ISM) equipment, or by an incidental radiator.

Chinese Translation

低功率射頻電機技術規範

4.7　　無線資訊傳輸設備

4.7.6　無線資訊傳輸設備須忍受合法通信之干擾且不得干擾合法通信；
　　　如造成干擾，應立即停用，俟無干擾之虞，始得繼續使用。

4.7.7　無線資訊傳輸設備的製造廠商應確保頻率穩定性，如依製造廠商
　　　使用手冊上所述正常操作，發射的信號應維持於操作頻帶中。 209139

English Translation

Low-power Radio-frequency Devices Technical Specifications

4.7

Unlicensed National Information Infrastructure

4.7.6

The U-NII devices shall accept any interference from legal communications and shall not interfere the legal communications. If interference is caused, the user must stop operating the device immediately and can't re-operate it until the harmful interference is clear.

4.7.7

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user manual.

Taiwan NCC Statement

English Translation

This product cannot be used unless installed and setup by professional staff, and may not be sold directly to the general consumer.

Chinese Translation

本器材須經專業工程人員安裝及設定，使得
設置使用，且不得直接販售給一般消費者。

English Translation

MPE standard value is 1mW / CM2, the assessment result is ? mW/CM2.

Chinese Translation

電磁波暴露量MPE 標準值1mW/cm^2，評估結果為＿＿ mW / CM2"

Statement 371—Power Cable and AC Adapter

接続ケーブル、電源コード、AC アダプタ、バッテリーなどの部品は、
必ず添付品または指定品をご使用ください。添付品・指定品以外の部品を
ご使用になると故障や動作不良、火災の原因となります。また、電気用
品安全法により、当該法の認定（PSE とコードに表記）でなく UL 認定
（UL または CSA マークがコードに表記）の電源ケーブルは弊社が指定す
る製品以外の電気機器には使用できないためご注意ください。

English Translation

When installing the product, please use the provided or designated connection cables/power cables/AC adapters. Using any other cables/adapters could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL-certified cables (that have the "UL" shown on the code) for any other electrical devices than products designated by CISCO. The use of cables that are certified by Electrical Appliance and Material Safety Law (that have "PSE" shown on the code) is not limited to CISCO-designated products.

EU Declaration of Conformity

All the Declaration of Conformity statements related to this product can be found at the following location:

http://www.ciscofax.com

Access Point Specifications

Technical Specifications

The following table lists the technical specifications for the Cisco Catalyst IW6300 Heavy Duty Series Access Points. For detailed specifications, refer to the Cisco Catalyst IW6300 Heavy Duty Series Access Point data sheet at:

https://www.cisco.com/c/en/us/products/collateral/wireless/industrial-wireless-6300-series/datasheet-c78-742907.html

Table 9: Technical Specifications

Category	IW-6300H-AC-x-K9	IW-6300H-DC-x–K9	IW-6300H-DCW-x-K9
Size	9.7 in. x 11 in. x 5.6 in. (24.7 cm x 28 cm x 14.2 cm)	9.7 in. x 11 in. x 3.8 in. (24.2 cm x 28 cm x 9.65 cm)	9.7 in. x 11 in. x 5.6 in. (24.7 cm x 28 cm x 14.2 cm)
Weight	13.3 lbs (6.03 kg)	9.8 lbs (4.45 kg)	12.7 lbs (5.76 kg)
Power sources	100 to 240 VAC, 1.3A,50–60 Hz	44 to 57VDC, 1.2A	10.8 to 36Vdc, 5.9A
Antenna connectors	Four Type N antenna connectors for 2.4 GHz radio and 5 GHz 802.11ac radio (depends on configuration)		
Ethernet connectors	• One 100/1000M SFP for WAN • One 10/100/1000M RJ45 for WAN (UPoE or PoE+ in) • Two 10/100/1000M RJ45 for LAN (802.3at or 802.3af out)		
Operating temperature	-40° to 75°C (-40° to 167°F) without solar loading, still air		
Storage temperature	-40° to 85°C (-40° to 185°F)		
Humidity	10 to 90% noncondensing		

Category	IW-6300H-AC-x-K9	IW-6300H-DC-x–K9	IW-6300H-DCW-x-K9
Environmental ratings	UL 50E (type 4X) EN/IEC 60529 (IP66 and IP67) UL/CSA/IEC 60950-22 outdoor rating		
Wind resistance	Wind resistance: • Up to 100 MPH sustained winds • Up to 165 MPH wind gusts		
WW EMC-Emissions: CLASS: A	FCC 47 CFR Part 15B ICES-003 Issue 6: 2016 CISPR 22 EN 55022 CISPR32 Edition 2 EN 55032:2015 EN 61000-3-2: 2014 (Applicable to IW-6300H-AC-X-K9 only) EN 61000-3-3:2013 (Applicable to IW-6300H-AC-X-K9 only) VCCI CLASS A AS/NZ CISPR32		
WW EMC-Immunity	CISPR24: 2010 + A1: 2015 EN 55024: 2010 + A1: 2015 CISPR35, EN 55035 EN 300386 V1.6.1		

Category	IW-6300H-AC-x-K9	IW-6300H-DC-x–K9	IW-6300H-DCW-x-K9
Radio (Wi-Fi)	FCC Part 15.247, 15.407 FCC 2.1091 RSS - 247 RSS-102 AS/NZS 4268 2017 MIC Article 2 paragraph 1 item (19)-2,3,3-2 KCC Notice No. 2013-1 EN 300 328 v2.1.1, v1.9.1, v1.8.1 EN 301 893 v2.1.1, v1.8.1, v1.7.1 EN 62311 LP0002: 2018 Regulatory Domain Support: FCC (Americas Middle East, Africa, and parts of Asia) ETSI (Europe, Middle East, Africa, and parts of Asia) TELEC (Japan) KCC (Korea)		
Radio EMC	EN 301 489 – 17 KN 301 489 – 17		
Safety	UL/CSA/EN/IEC 60950-1:2016 +A1:2010 +A11:2009 +A12:2011 +A2:2013 IEC 60950-1 UL/CSA/EN/IEC 62368-1		
Ingress (water and dust) Protection	UL 50E (type 4X) EN/IEC 60529 (IP66 and IP67) UL/CSA/IEC 60950-22 Outdoor rating		

Power Consumption Budget

The following table lists the power consumption budget for the IW-6300H access point configurations.

Table 10: IW-6300H Power Consumption

Element	Absolute Max Power (Watts)
Total power budget when using AC power source (100-240VAC)	28.0

Element	Absolute Max Power (Watts)
Total power budget when using DC power source (44-57VDC)	19.7
Total power budget when using DCW power source (10.8-36VDC)	27.9
Optional components	
2 clients of 802.3af (PoE) connected	30.8
1 client of 802.3at (PoE+) connected	30.0
Fiber used as backhaul	1.2
USB 2.0/3.0 add-on module connected	4.5
Total Power Consumption	
Total power consumption when AC powered (100-240VAC)	64.5
Total power consumption when DC powered (44-57VDC)	56.2
Total power consumption when DCW powered (10.8-36VDC)	64.4

Note   For IW-6300H-DC-x-K9, when you use DC as input power option, if you want to output 802.3at type 2 PoE out power, DC input must >=51V. If you want to output 802.3af (802.3at type 1) PoE out power, DC input must >=45V.

APPENDIX C

Access Point Pinouts

• Access Point Pinouts , on page 91

Access Point Pinouts

This appendix describes the pin signals of the access point Ethernet connectors, and the power injector input and output connectors. The following table describes the pin signals of the access point PoE Out connector.

Table 11: Access Point PoE Out Ethernet Connector Pinouts

Pin Number	Signal Name
1	Ethernet signal pair (10/100/1000BASE-T) and VDC return
2	
3	Ethernet signal pair (10/100/1000BASE-T) and VDC (+)
6	
4	Ethernet signal pair (10/100/1000BASE-T)
5	
7	Ethernet signal pair (10/100/1000BASE-T)
8	
Shield	Chassis ground

The following table describes the pin signals for the access point PoE In Ethernet connector.

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Table 12: Access Point PoE In Ethernet Connector Pinouts

Pin Number	Signal Name
1	Ethernet signal pair (10/100/1000BASE-T) and VDC
2	
3	Ethernet signal pair (10/100/1000BASE-T) and VDC
6	
4	Ethernet signal pair (1000BASE-T) and VDC
5	
7	Ethernet signal pair (1000BASE-T) and VDC
8	
Shield	Chassis ground

The following table describes the pin signals for the power injector input connector (To Switch).

Table 13: Power Injector AIR-PWRINJ-60RGD1= and AIR-PWRINJ-60RGD2= Input Connector (To Switch) Pinouts

Pin Number	Signal Name
1	Ethernet signal pair (10/100/1000BASE-T)
2	
3	Ethernet signal pair 10/100/1000BASE-T)
6	
4	Ethernet signal pair (1000BASE-T)
5	
7	Ethernet signal pair (1000BASE-T)
8	
Shield	Chassis ground

The following table describes the RJ-45 pin signals for the power injector output connector (To AP).

Table 14: Power Injector AIR-PWRINJ-60RGD1= and AIR-PWRINJ-60RGD2= Output Connector (To AP) Pinouts

Pin Number	Signal Name
1	Ethernet signal pair (10/100/1000BASE-T) and 55 VDC return
2	
3	Ethernet signal pair (10/100/1000BASE-T) and 55 VDC (+)
6	
4	Ethernet signal pair (1000BASE-T) and 55 VDC (+)
5	
7	Ethernet signal pair (1000BASE-T) and 55 VDC return
8	
Shield	Chassis ground

Note The power injector output connector (To AP) only supplies 55 VDC power when the Ethernet cable is connected to the IW6300 PoE IN connector.