



CHAPTER 3

Installing the 1552 Series Access Points in Hazardous Locations

This chapter describes how to install the 1552 access point for hazardous locations and contains the following sections:

- [Mounting on a Wall or a Pole, page 3-45](#)
- [Working with the Access Point Hinged Cover, page 3-58](#)
- [Grounding the Access Point \(all models\), page 3-60](#)
- [Installation Details for the 1552H Access Point, page 3-61](#)
- [Installation Details for the 1552SA and 1552SD Access Point, page 3-63](#)
- [Installation Details for the 1552WU Access Point, page 3-69](#)
- [Using the Reset Button, page 3-69](#)
- [Rebooting the Access Point, page 3-70](#)
- [Powering the Access Point, page 3-71](#)
- [Performing Maintenance, page 3-79](#)

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 Aironet 1552 Series Outdoor Mesh Access Point for Hazardous Locations are installed using the optional Pole Mount installation kit, 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

**Caution**

To provide inline PoE, you must use the power injector (AIR- PWRINJ1500-2=) specified for the access point. Other power injectors, PoE switches, and 802.3af power sources do not provide adequate power, which might cause the access point to malfunction and cause over-current conditions at the power source. You must ensure that the switch port connected to the access point has PoE turned off.

**Caution**

The power injector is not intended to be installed in a hazardous locations environment. If a PoE injector is required, it must be located in a non-hazardous locations environment.

Refer to these sections for installation details:

- [Access Point Mounting Orientation, page 3-46](#)
- [Mounting the Access Point on a Wall, page 3-46](#)
- [Mounting the Access Point on a Pole, page 3-51](#)

Access Point Mounting Orientation

When mounting an access point on a horizontal or vertical surface, you must ensure that the access point is oriented with the LED indicators pointing down (see [Chapter 2, “Pole Mount Installation”](#)). This positioning allows the LEDs to be visible to someone on the ground below the access point.

You must also ensure the access point is mounted with the hinged access cover facing out.

**Note**

Omnidirectional antennas are vertically polarized and should be mounted vertically.

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. [Table 3-1](#) lists the material that you will need to provide in addition to the pole mount kit.

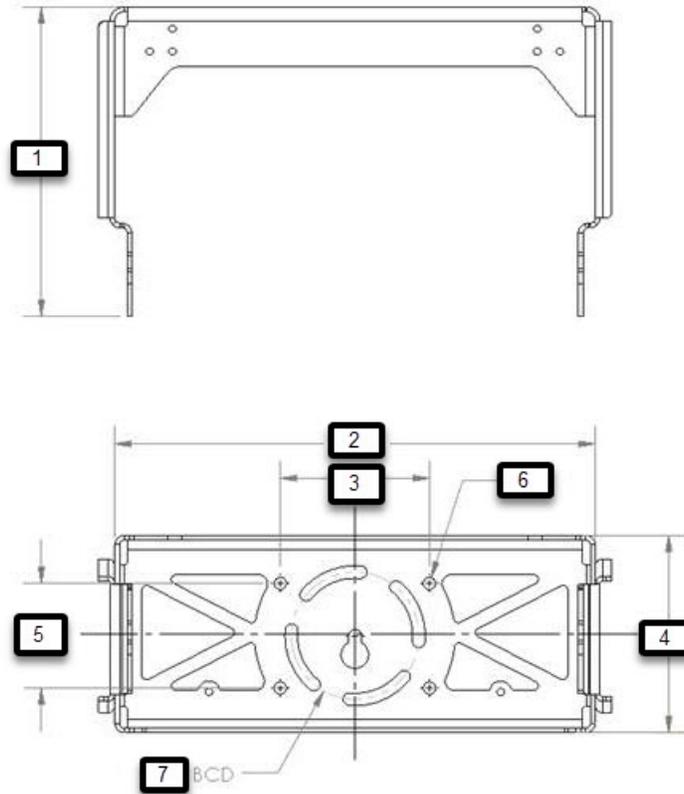
Table 3-1 *Material Needed to Mount Access Point to a Vertical Wall*

Materials Required	In Kit
• Ground lug and screws (provided with access point)	Yes
• Crimping tool for ground lug, Panduit CT-720 with CD-720-1 die (http://onlinecatalog.panduit.com)	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
• 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, or you can refer to the following diagram:

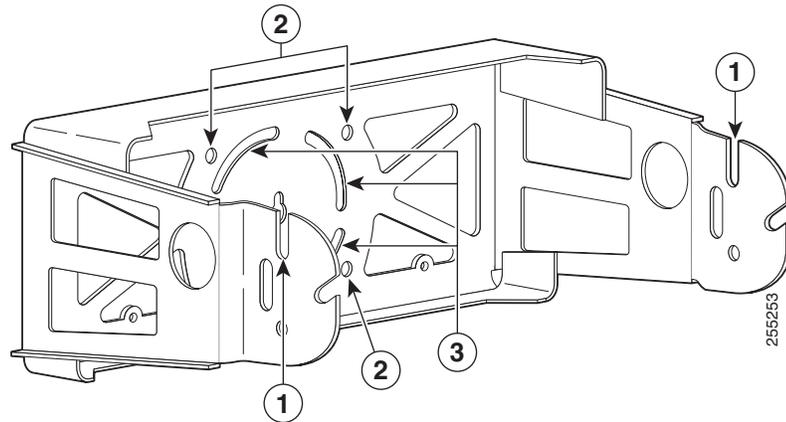


Note BCD is Bolt Circle Diameter.

1	8.49 inches (21.56 cm)	2	13.17 inches (33.45 cm)
3	4.09 inches (10.38 cm)	4	5.41 inches (13.74 cm)
5	2.88 inches (7.32 cm)	6	0.335 inches (0.851 cm)
7	0.350 inches (0.889 cm)		

To mount the access point on a vertical wall, follow these instructions:

- Step 1** Use the mounting bracket as a template to mark four screw hole locations on your mounting surface. See [Figure 3-1](#) for the mounting bracket screw hole locations. You can optionally use the individual mounting holes or the mounting slots.

Figure 3-1 Mounting Bracket for Wall Mounting

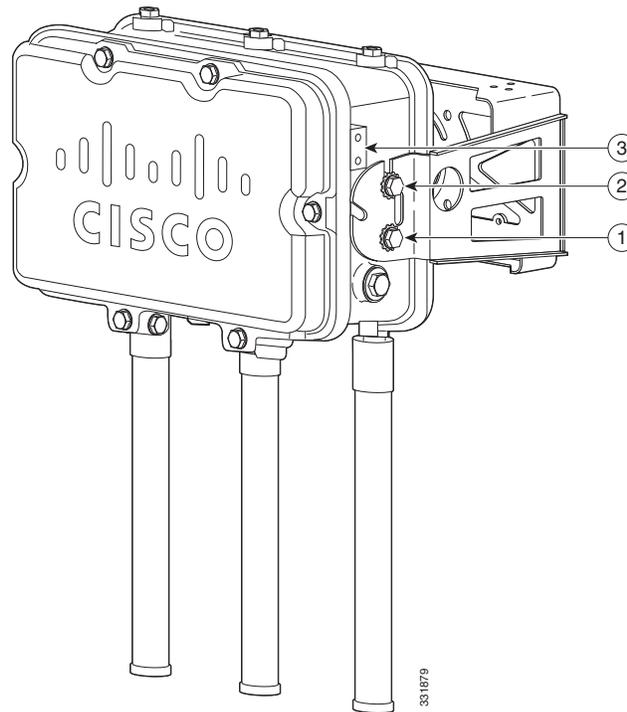
1	Access point quick mount notch	3	Mounting slots (allows bracket rotation)
2	Mounting holes		

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 in the top support bolt hole on each side the access point (see [Figure 3-2](#)). Do not screw the bolt all the way in; leave approximately a 0.25 inch (0.635 cm) space.

Figure 3-2 Location of Access Point Top Support Bolt Hole

1	M8 x16 bolt (supplied with pole mount kit)	3	Ground lug location (M4 x .7)
2	M8 x16 bolt (supplied with pole mount kit)		

- Step 4** Position the two bolts on the access point into the quick mount notches on each side of the mounting bracket (see [Chapter 2, “Pole Mount Installation”](#)). Ensure that the hinged door is facing out.
- 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 13 to 15 ft lbs (17.6 to 20.3 Nm).
- Step 7** When using the Cisco Aironet Dual-Band Omnidirectional Antennas, connect them to the access point as shown in [Figure 3-2](#). Hand-tighten the antennas to the access point.
- Step 8** Continue with the [“Grounding the Access Point \(all models\)”](#) section on page 3-60 and the [“Powering the Access Point”](#) section on page 3-71.

Mounting the Access Point on a Pole

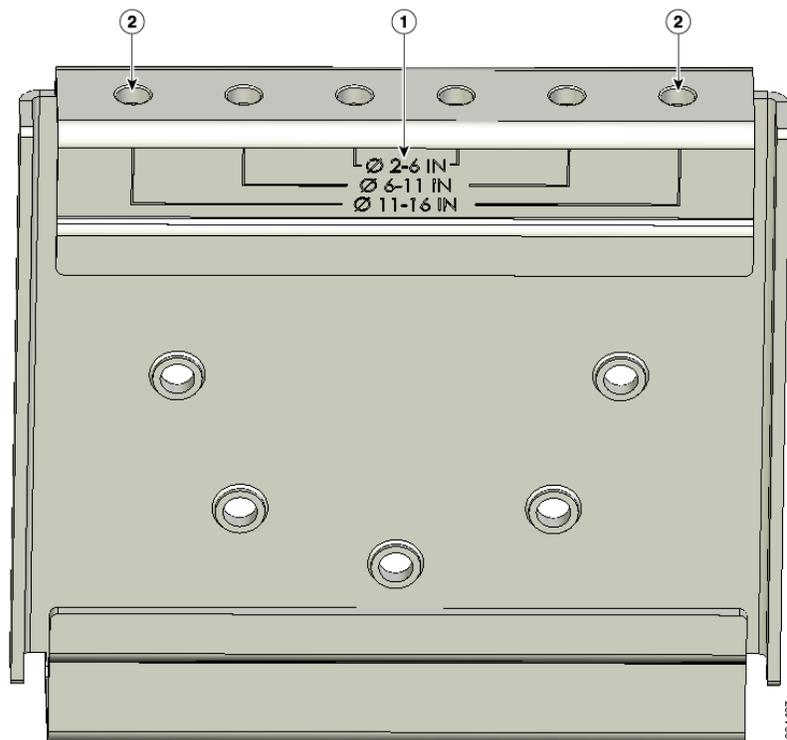
When installing an access point on a vertical pole, mast, or a streetlight pole, you should use the optional Cisco pole mount kit. The kit supports metal, wood, or fiberglass poles from 2 to 16 inches in diameter.

Assembling the Pole Clamp Bracket and the Mounting Bracket

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

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. [Figure 3-3](#) illustrates the pole diameter indicators and bolt holes on the pole clamp bracket.

Figure 3-3 Pole Clamp Bracket Adjustment Hole Locations

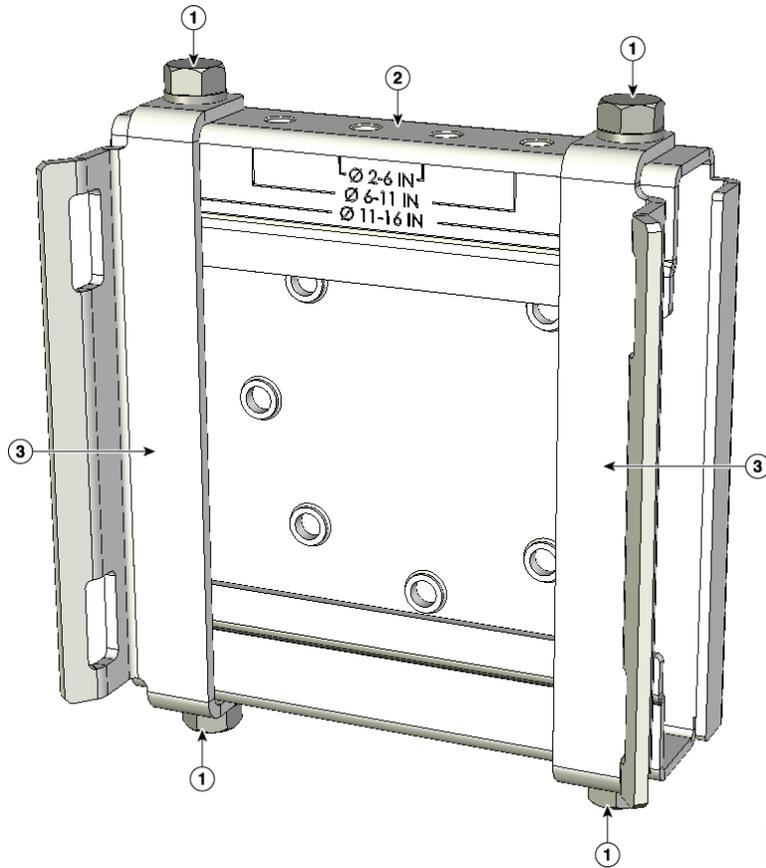


1	Pole size indicators <ul style="list-style-type: none"> • 2 to 6 inches (5.08 cm to 15.24 cm) • 6 to 11 inches (15.24 cm to 27.94 cm) • 11 to 16 inches (27.94 cm to 40.64 cm) 	2	Bolt holes for pole diameters (11 to 16 inches (27.94 cm to 40.64 cm) indicated)
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To assemble the pole clamp bracket, follow these steps:

- 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) (see [Figure 3-4](#)). Tighten the bolts to 13 to 15 ft lbs (17.6 to 20.3 Nm).

Figure 3-4 Assembled Pole Clamp Bracket and Strap Brackets



1	M8 x1.25x16 bolts (with lock washers)	3	Strap bracket (shown positioned for 11 to 16 inch diameter pole)
2	Pole clamp bracket		

- 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 the [“Pole Mounting”](#) section on page 3-53.

Pole Mounting

The access point can be installed where power is available, without the need for a wired LAN connection. The access point uses intelligent wireless routing that is based on the Adaptive Wireless Path Protocol (AWPP). AWPP enables a remote access point to dynamically optimize the best route to the wired LAN network using another access point.

The 1552 access point uses the 5 GHz radio for the Mesh backhaul and connections. The 2.4 GHz radio is used for local wireless client access.

To mount your access point on a vertical pole or streetlight 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 [Table 3-2](#)).

Table 3-2 Material 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 or streetlight pole, follow these steps:

- 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.



Note If you will be using a streetlight power tap adapter, position the access point within 3 ft (1 m) of the outdoor light control.

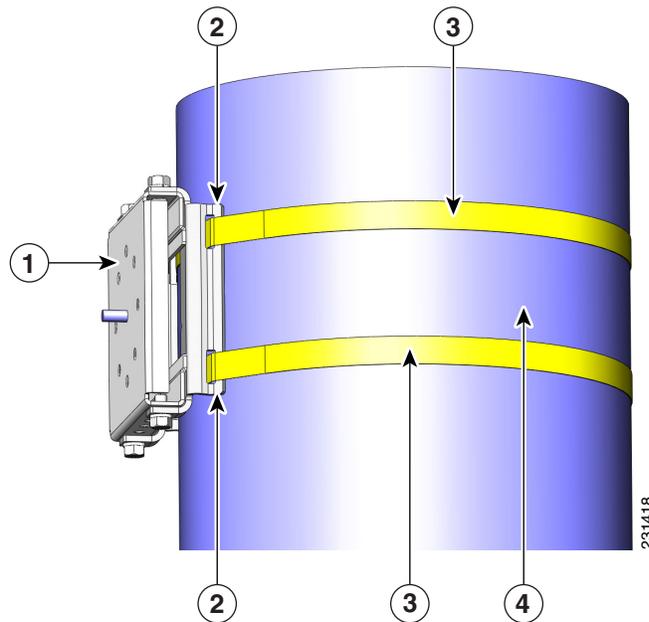
- Step 2** For poles larger than 3.5 inch (8.9 cm), mount the pole clamp bracket assembly to a pole (see [Figure 3-5](#)) using two metal straps. Following the instructions provided with the banding strap tool (BAND IT) (AIR-BAND-INST-TL=), loop each metal strap twice through the slots on the strap bracket.



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.

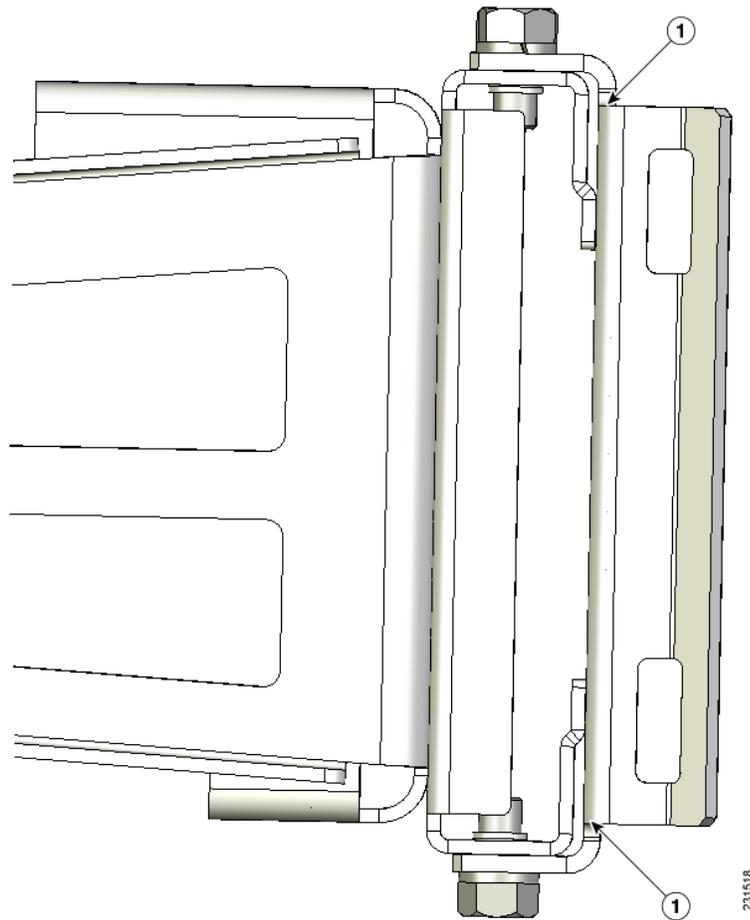
Figure 3-5 Clamp Bracket Assembly Mounted on Poles Larger than 3.5 inch (8.9 cm)



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 (see [Figure 3-6](#)) 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.

Figure 3-6 Metal Strap Open Space for 3.5 inch (8.9 cm) and Smaller Poles



1	Metal strap open space
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**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

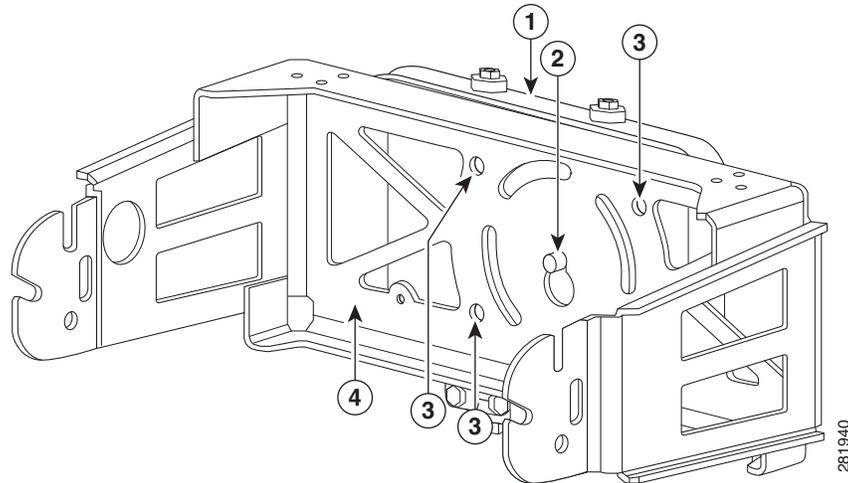
Place the mounting bracket onto the pole clamp bracket support bolt (see [Figure 3-7](#)).

Step 7

For vertical poles, position the mounting bracket as shown in [Figure 3-7](#). For horizontal streetlight poles, rotate the mounting bracket 90° from the position shown in [Figure 3-7](#).

Step 8 Install four M8 x16 bolts (with flat and lock washers) into the bolt holes.

Figure 3-7 Screw Hole Locations on the Mounting Bracket and Pole Clamp Bracket Assembly



1	Pole clamp bracket assembly	3	Bolt holes
2	Access point support bolt (M8 flange nut not shown)	4	Mounting bracket

Step 9 Hand-tighten the bolts and the nut (do not overtighten).

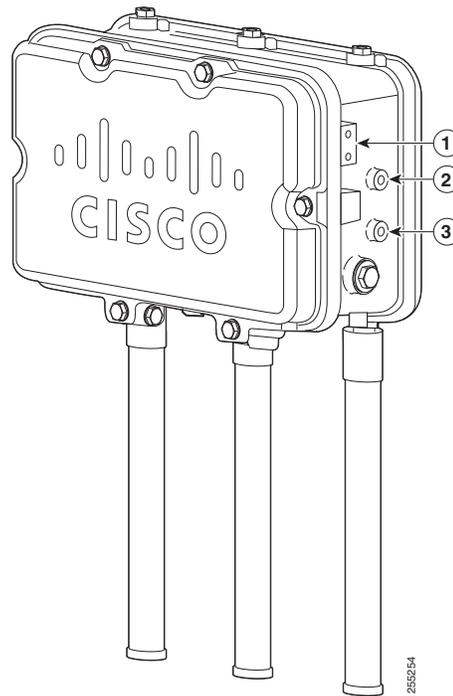
Step 10 Adjust the top edge of the mounting bracket until it is horizontal and tighten the bolts and the flange nut (see [Figure 3-7](#)) to 13 to 15 ft lbs (17.6 to 20.3 Nm).



Note The mounting bracket can be adjusted up to 45° to compensate for tilted horizontal streetlight poles.

Step 11 Screw a M8 x16 bolt (without a flat or lock washer) in the top support bolt hole on each side the access point (see [Figure 3-8](#)). Do not screw the bolt all the way in. Leave a gap of approximately 0.25 inch (0.635 cm).

Figure 3-8 Location of Access Point Top Support Bolt Holes

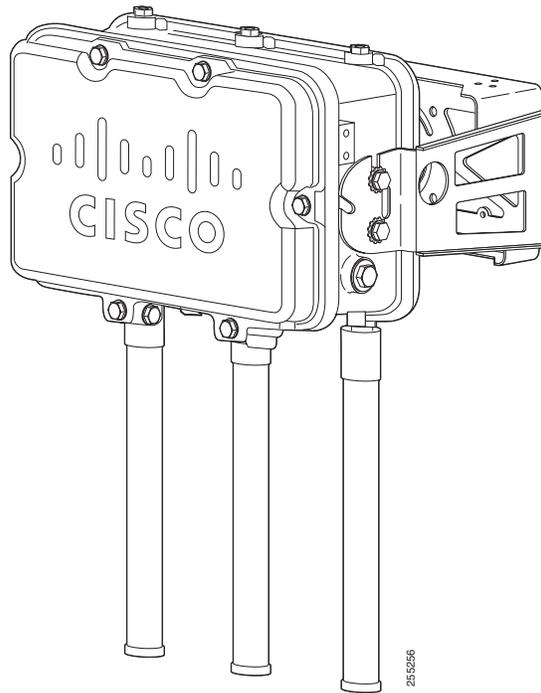


1	Ground lug screw holes location. M4x.7	3	Second M8 x16 bolt hole location
2	M8 x16 bolt hole (bolts are supplied with pole mount kit; install without flat or lock washers)		

Step 12 Position the two bolts on the access point into the access point quick-mount notch on the mounting bracket (see [Figure 3-9](#)).



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 3-9 Access Point Hanging in Mounting Bracket

- Step 13** Screw a M8 x16 bolt (with flat and lock washers) into the second bolt hole on each side of the access point (see [Figure 3-9](#)).
- Step 14** Ensure that the front of the access point is vertical, and tighten the four bolts to 13 to 15 ft lbs (17.6 to 20.3 Nm).
- Step 15** When using the Cisco Aironet Dual-Band Omnidirectional Antennas, connect them to the access point as shown in [Figure 3-9](#). Hand-tighten the antennas to the access point.
- Step 16** Continue with the “[Grounding the Access Point \(all models\)](#)” section on page 3-60 and the “[Powering the Access Point](#)” section on page 3-71.

Working with the Access Point Hinged Cover

This section details opening and closing the protective cover.

Opening the Access Point Hinged Cover



Caution

The hinged 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 point hinged cover to access the AC entry terminal block or 24 VDC terminal block, and when you are installing fiber-optic SFP module and fiber cable take-up reels.

To open the access point hinged cover, follow these steps:

- Step 1** Use 0.5-in (13-mm) box-end wrench or socket set to unscrew and remove the four bolts on the front cover of the unit. Only unscrew the hinge bolts about 2 turns until they are easily turned by hand, do not remove the bolts on the hinge ([Figure 3-10](#)).
- Step 2** The cover is hinged on the bottom. Carefully open the cover and remove the cover.



Note If the cover does not open easily, carefully loosen the hinge bolts again.

Figure 3-10 Access Point Front View of Hinged Cover



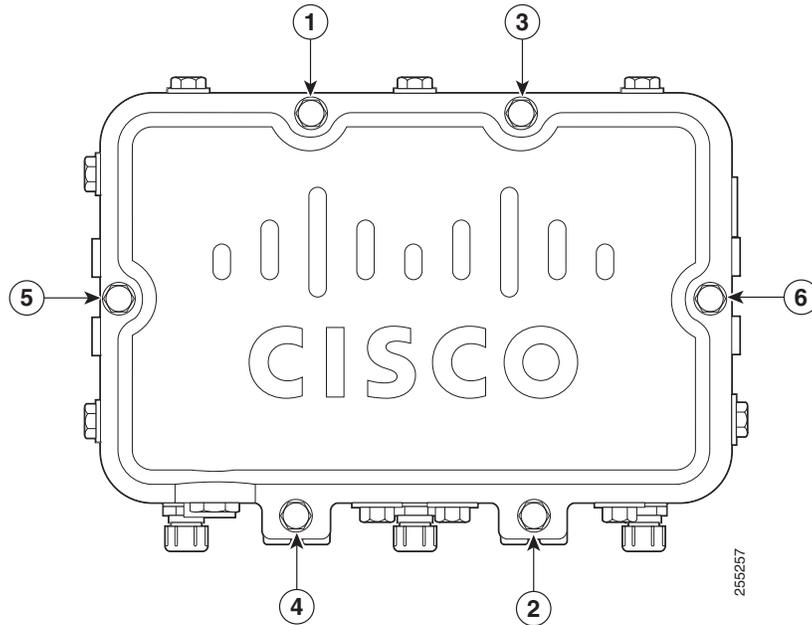
1	M8 x32 bolts	2	Cover hinge M8 x32 bolts
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Closing the Access Point Hinged Cover

To close the access point cover, follow these steps:

- Step 1** When closing the access point cover, be careful not to pinch internal wires.
- Step 2** Carefully position the cover flush with all sides of the access point, then slowly hand-tighten each bolt.
- Step 3** When all bolts are hand-tightened, use a 13-mm closed-end wrench or socket to partially tighten the bolts in the tightening sequence shown in [Figure 3-11](#). Tighten each bolt to 3 to 4 ft lbs (0.34 to 0.45 Nm).
- Step 4** Repeat [Step 3](#) using the same tightening sequence to fully tighten each bolt to 6 to 7 ft lbs (0.68 to 0.79 Nm).

Figure 3-11 Hinged Cover Bolt Tightening Sequence



1 - 6	Tighten the bolts in the numeric order shown, starting with 1.
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Grounding the Access Point (all models)

The access point must be grounded before connecting power.



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

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

In all outdoor installations and when powering the access point with AC power, you must follow these instructions to properly ground the case:

- 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 (Panduit PLCD6-10A-L).



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

- Step 3** Open the electrical joint compound (supplied), and apply a liberal amount over the metal surface where the ground strap screw holes are located (see [Figure 3-8](#)).
- Step 4** Connect the grounding lug to the access point grounding screw holes (see [Figure 3-8](#)) using the supplied two Phillips head screws (M4 x10 mm) with lock washers. Tighten the grounding screw to 22 to 24 in. lbs (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 (see [Chapter 2, “Components in a Typical Access Point Installation”](#)).

Installation Details for the 1552H Access Point

**Note**

There are differences in the port adapter sizes and threading between the different models. Be sure to review the connector details for the access point model you are installing in [Connectors, page 1-7](#).

The fiber-optic kit (AIR-1520-FIB-REEL=) enables the 1552H access point to support fiber-optic network connections. The kit contains these parts:

- Eight screws (#2-56 x.75 in) to attach reels
- Two small take-up reels
- Two large take-up reels
- Liquid-tight adapter(s)—Accepts a cable diameter of 0.20 to 0.35 inches (0.51 to 0.89 cm)

**Caution**

The liquid-tight adapter(s) supplied in the kit AIR-1520-FIB-REEL= are IP68/69 certified with .200 to .350 diameter cables but not ATEX certified or hazardous locations compliant. The installer must use cable glands/adapters appropriate to the installation.

**Note**

The SFP module is a separate orderable item. Refer to the ordering guide for applicable SFP options.

**Warning**

Class 1 laser product. Statement 1008

**Note**

You need a customer-supplied outdoor-rated fiber-optic cable with an LC connector. The cable diameter must be 0.20 to 0.35 in. (5.1 to 8.9 mm). The diameter of the sheathing surrounding each individual fiber must be 0.040 in. (1.0 mm) or less.

Connecting a Fiber-Optic Cable to the 1552H Access Point

**Note**

Please refer to the Declarations of Conformity and Regulatory Information when the AIR-CAP1552H-Q-K9 (POE input configuration only) will be installed in an explosive area in Japan.

To connect a fiber-optic cable to the 1552H access point, follow these steps:

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



Warning

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit. Statement 1028

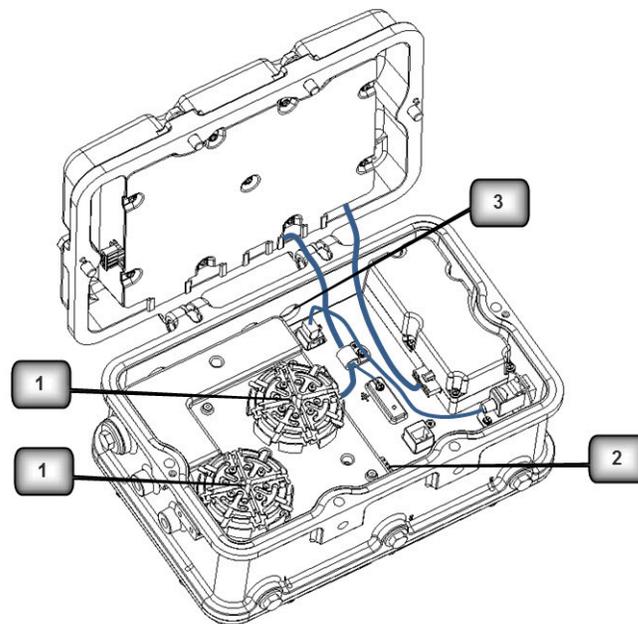
Step 2 Open the hinged cover (see the “Opening the Access Point Hinged Cover” section on page 3-58 for instructions).

Step 3 Place the two large reels with the small reels on top as shown in [Figure 3-12](#).

Step 4 Align the screw holes in the large and small reels, and insert four attachment screws in each of the reel pairs. Tighten the screws to 3 to 4 in. lbs (0.34 to 0.45 Nm).

Step 5 Remove the plug from the end of the SFP module, and insert the module into the SFP receptacle (see [Figure 3-12](#)).

Figure 3-12 *Fiber-Optic Cable Components (1552H)*



1	Fiber reels (large reel with small reel on top, 4 screws for each reel assembly)
2	SFP module slot
3	Fiber-optic connector port (1552H) Hole size is PG13.5

- Step 6** Loosen the round end of the liquid-tight connector by turning counterclockwise, but do not remove (see [Figure 3-13](#)).

Figure 3-13 *Liquid-Tight Adapter*



1	Thread end	2	Round end
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- Step 7** Carefully screw the threaded end of the adapter into the access point and hand-tighten.
- Step 8** Use an adjustable wrench, the 22 mm socket, or the Sealcon S-2200-WR wrench to tighten the threaded end of the adapter to 6 to 7 ft lbs (8.1 to 9.5 Nm).
- Step 9** Carefully remove approximately 1 to 2 ft (30.5 cm) of the external jacket from the fiber-optic cable, exposing the inner strand.
- Step 10** Carefully insert the fiber-optic LC cable connector into the rounded end of the liquid-tight adapter (see [Figure 3-13](#)), and push through the adapter.
- Step 11** Wrap excess fiber-optic cable around the take-up reels in a figure eight (8) pattern.
- Step 12** Insert the fiber-optic LC cable connector into the SFP module.
- Step 13** Use an adjustable or open-end wrench to tighten the round end of the adapter to 2.7 to 3.2 ft lbs (3.66 to 4.34 Nm).
- Step 14** Close the hinged cover (see the [“Closing the Access Point Hinged Cover”](#) section on page 3-59).

Installation Details for the 1552SA and 1552SD Access Point



Note

There are differences in the port adapter sizes and threading between the different models. Be sure to review the connector details for the access point model you are installing in [Connectors, page 1-7](#).

The fiber-optic kit (AIR-1550S-FIB-KIT=) enables the 1552SA and 1552SD access points to support fiber-optic network connections. The kit contains these parts:

- Two take-up reels
- One bracket to support the reels

- Eight screws (#2-56 x .31 in) to attach the reels
- Two screws (#4-40 x .25 in) to attach the bracket
- One grommet
- One port adapter (5/8-24 to 1/2-14 NPT).



Note The adapter in this kit is EX compliant with the 1552S models.

The installation may require the use of junction boxes which have Ex certifications. Cisco does not supply these, but recommends either the GRT50 or ERT50 models as shown in [Figure 3-14](#).

Figure 3-14 Junction Boxes

GR and GRF Conduit Outlet Boxes

Explosionproof, Dust-Ignitionproof
UNILETS™ for use with Threaded Metal Conduit. Furnished with Internal Ground Screw and O-ring.

NEC/CEC:
Class I, Division 1 and 2, Groups B, C, D
Class II, Division 1 and 2, Groups E, F, G
Class III
NEMA 3, 4, 4X
Class 1, Zone 1 and 2, IIA, IIB

Applications

- Complies with a wide range of classified area requirements.
- Corrosion-resistant: ideal indoors or out.
- For pulling of wires.
- Connect conduit lengths and change direction of conduit runs.
- Provide access for maintenance.

Features

- GR boxes offers ten hub arrangements.
- GRF boxes have integral mounting flange.
- Malleable iron bodies have high tensile strength, ductility and provides great resistance to corrosion, impact, and shock.
- Accurately tapped, tapered hub threads for tight, rigid joints and ground continuity.
- Furnished with covers.
- General purpose wiring.
- Function as sealing fittings when used with sealing covers (see NEC for restrictions).
- Internally threaded body with externally threaded cover.
- Covers have pry notches for bar or wrench.
- Accommodate sealing, stone, hub and union hub covers, and canopies.
- Standard o-rings provide rain-tight fit. NEMA 3, 4.
- Internal ground screw standard.
- Smooth, rounded integral bushing in each hub type box protects conductor insulation.

Standard Materials

- Body: malleable iron or copperfree (4/10 of 1% max.) aluminum
- Cover: copperfree (4/10 of 1% max.) aluminum

Standard Finishes

- Malleable iron bodies and covers: triple-coat — (1) zinc electroplate, (2) chromate, and (3) epoxy powder coat
- Aluminum bodies and covers: epoxy powder coat

Options

- To order body without cover, add suffix -LG to catalog number.
- For malleable iron body and cover, add suffix -M.

NEC/CEC Certifications and Complies

- UL Listed: E85310, E10444
- CSA Standard: C22.2 No. 25, C22.2 No. 30
- CSA Certified: 025875

ER Conduit Outlet Boxes

Explosionproof, Dust-Ignitionproof
UNILETS™ for use with Threaded Rigid Metal Conduit.

NEC/CEC:
Class I, Division 1 and 2, Group C, D
Class II, Division 1 and 2, Groups E, F, G
Class III

Applications

- Meet a wide range of classified area requirements.
- Corrosion-resistant — ideal indoors or out.
- For pulling of wires.
- Connect conduit lengths and change direction of conduit.
- Provide access for maintenance.

Features

- Malleable iron bodies have high tensile strength and ductility. Provides great resistance to corrosion, impact, and shock.
- Accurately tapped, tapered hub threads for tight, rigid joints and ground continuity.
- Furnished with covers.
- General purpose wiring.
- Compact, rectangular conduit outlet boxes are ideal in classified locations where space is limited.
- Six different hub arrangements.
- Ground surface contact between body and cover assures a flame-tight joint.
- Smooth, rounded integral bushing in each hub type box protects conductor insulation.

Standard Materials

- Bodies and covers: malleable iron

Standard Finishes

- Bodies and covers: malleable iron triple-coat — (1) zinc electroplate, (2) chromate, and (3) epoxy powder coat

NEC Certifications and Complies

- UL Standard: 886 (1203)
- UL Listed: E85310
- CSA Standard: C22.2 No. 30
- CSA Certified: 013017

CAUTION: FITTINGS: NEC/CEC EXPLOSIONPROOF OUTLET BODIES AND BOXES

Appletton

INDEX: NEC/CEC EXPLOSIONPROOF OUTLET BOXES

Appletton



Note The SFP module is a separate orderable item. Refer to the ordering guide for applicable SFP options.



Warning **Class 1 laser product.** Statement 1008



Note You need a customer-supplied outdoor-rated fiber-optic cable with an LC connector. The cable diameter must less than 0.40 in. (10.0 mm). The diameter of the sheathing surrounding each individual fiber must be less than 0.040 in. (1.0 mm).

Connecting a Fiber-Optic Cable to the 1552SA or 1552SD Access Point

**Note**

If a fiber installation kit is required for the installation, please ensure you order the hazardous locations compliant kit, AIR-1550S-FIB-KIT, and follow the instructions on installing the adapter below.

To connect a fiber-optic cable to the 1552SA or 1552SD access point, follow these steps:

Step 1

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

**Warning**

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit. Statement 1028

Step 2

Open the hinged cover (see the [“Opening the Access Point Hinged Cover”](#) section on page 3-58 for instructions).

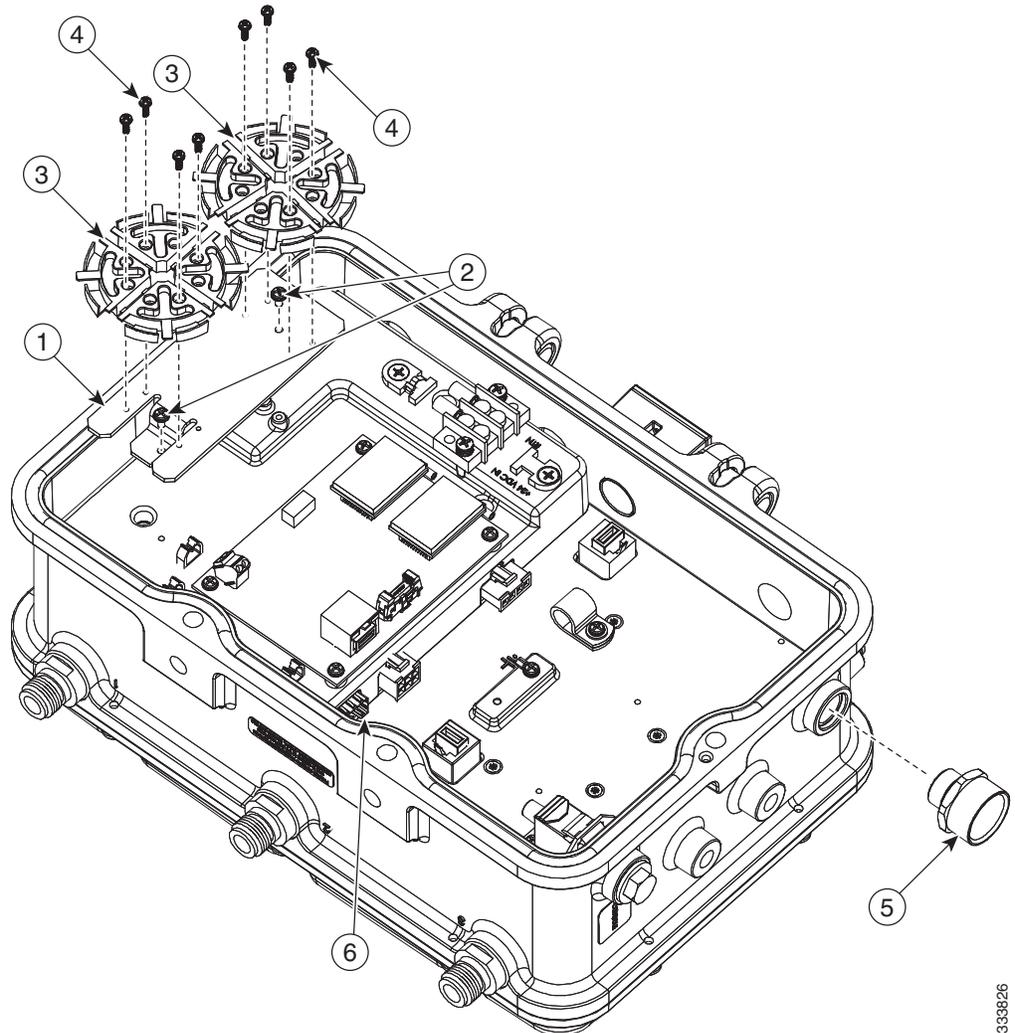
Step 3

Align the reel bracket to the AP and attach via two screws (#4-40 x .25 in). Tighten the screws to 5.5 to 6.0 in. lbs (0.62 to 0.68 Nm). (See [Figure 3-15.](#))

Step 4

Align each of the two reels to the installed bracket. Attach each reel to the bracket with four screws (#2-56 x .31 in). Tighten the screws to 3 to 4 in. lbs (0.34 to 0.45 Nm). (See [Figure 3-15.](#))

Figure 3-15 Fiber-Optic Cable Kit Components (1552SD shown)



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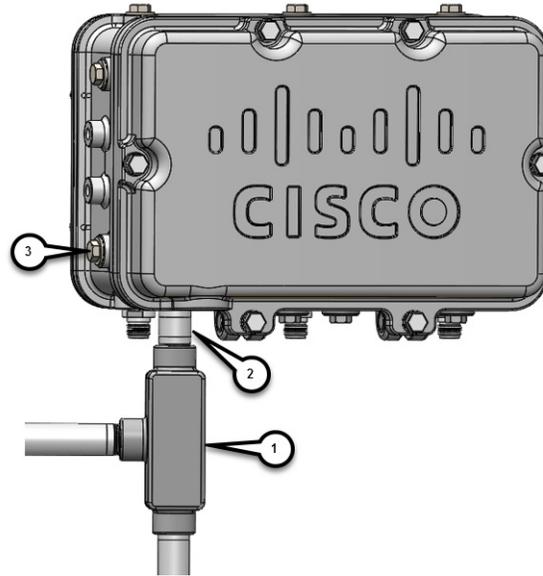
1	Reel bracket	2	Two screws for attaching reel bracket to AP (#4-40 x .25 in)
3	Two fiber reels	4	Eight screws, four to attach each reel to bracket (#2-56 x .31 in)
5	1/2-NPT port adapter from the kit. Do not use in hazardous location deployments.	6	SFP module slot

**Note**

Fiber and power can both be routed through the AC/DC port. If fiber and power are coming from the same area externally, route both through the AC/DC port. If fiber and power are coming from different areas externally, route them through one of the recommended junction boxes. The rest of this procedure will show routing through an ETRT50 junction box.

- Step 5** Attach the junction box to the chassis with a 1/2 NTP Male to Male connector. See [Figure 3-16](#) and [Figure 3-17](#).

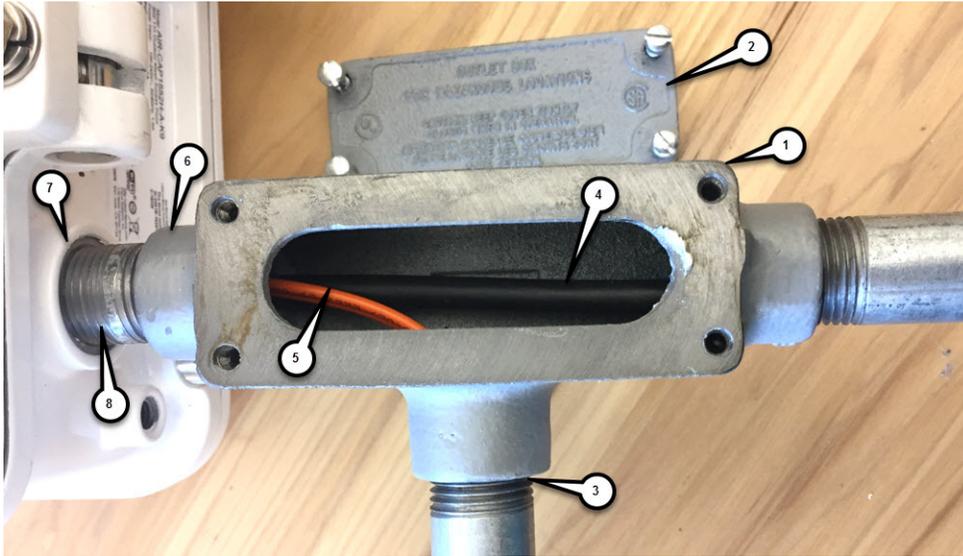
Figure 3-16 ERT50 Junction Box Assembly



1	ERT50 Junction Box
2	AC/DC Port
3	5/8-24 Port

- Step 6** Route the power cable and the fiber cable through the junction box using [Figure 3-17](#) as an example.

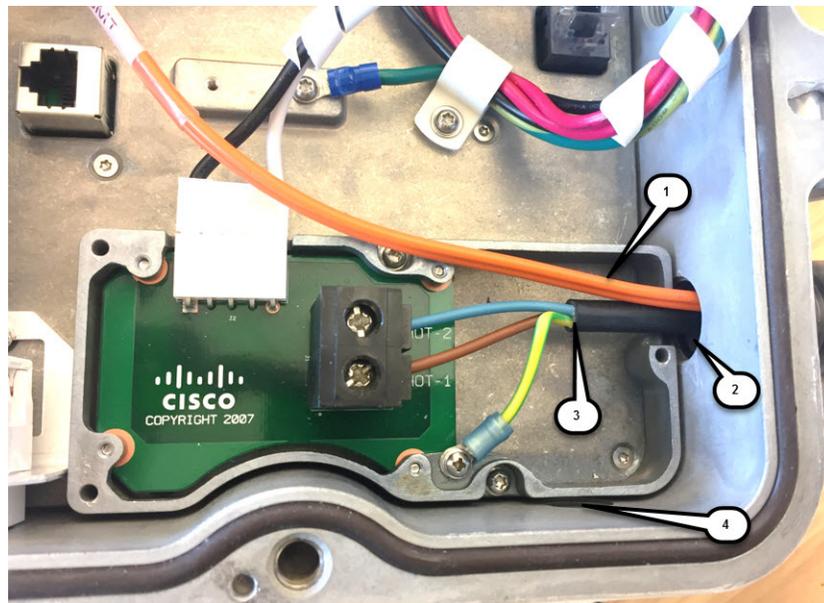
Figure 3-17 Routing Detail



1	ERT50 Junction Box	2	ERT50 Junction Box Cover (removed)
3	1/2NPT	4	Power Cable
5	Fiber Cable	6	1/2NPT
7	1/2NPT	8	1/2NPT Male to Male

Step 7 Complete the connections inside the 1552 as shown in [Figure 3-18](#).

Figure 3-18 Inside Connectivity



1	Duplex LC Fiber	2	AC/DC Entry Port
3	Power Cable	4	SCTE Port (shown for orientation purposes)



Note When installing the ½ NPT pipe or cable gland on the AP, the use of a thread sealant (for example, Loctite® 565) is required.

- Step 8** Wrap excess fiber-optic cable around the take-up reels using industry-standard methods and cable routing.
- Step 9** Insert the fiber-optic LC cable connector into the SFP module.
- Step 10** Secure fiber cable inside enclosure using appropriate methods to avoid fiber damage.
- Step 11** Close the cover to the junction box and the hinged cover (see [Closing the Access Point Hinged Cover, page 3-59](#)).

To complete the connectivity to a power source, go to [Powering the Access Point, page 3-71](#).

Installation Details for the 1552WU Access Point



Note There are differences in the port adapter sizes and threading between the different models. Be sure to review the connector details for the access point model you are installing in [Connectors, page 1-7](#).



Note The 1552WU does not support Fiber, therefore, there are no separate installation details for this model.

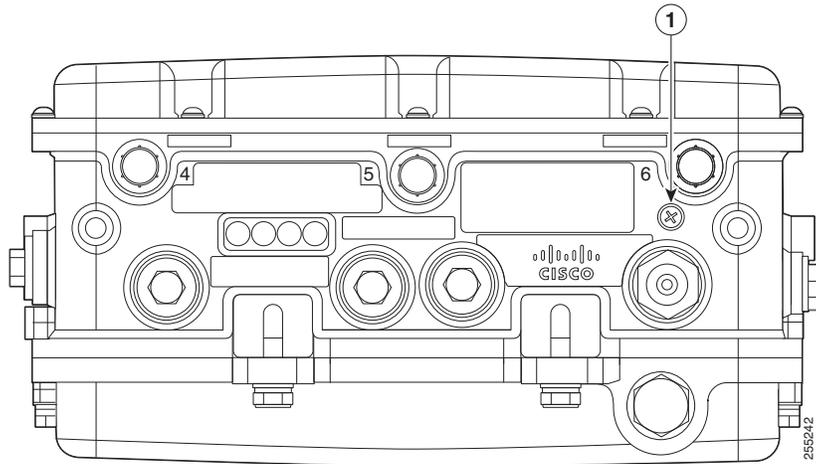
If installing the 1552WU with a WirelessHART antenna, read the [“WirelessHART Gateway Configuration” procedure on page 1-26](#) before continuing.

Using the Reset Button

The access point has a reset button located on the bottom of the unit (see [Figure 3-19](#)). The reset button is recessed in a small hole that is sealed with a screw and a rubber gasket. The reset button can be used to perform these functions:

- Reset the access point—Press the reset button for less than 10 seconds.
- Disable battery backup power—Press the reset button for more than 10 seconds.

Figure 3-19 Reset Button Location - Models AIR-CAP1552SA/SD-x-K9 and AIR-CAP1552H-x-K9



1 Reset button



Caution

Do not access the reset button in a Hazardous Location.

Rebooting the Access Point

To reboot (power cycle) the access point, follow these steps:

-
- Step 1** Use a Phillips screwdriver to remove the reset button screw ([Figure 3-19](#)). Be careful not to lose the screw.
 - Step 2** Use a straightened paperclip, and push the reset button for less than 10 seconds. This action causes the access point to reboot (power cycle), all LEDs to turn off for approximately 5 seconds, and then the LEDs to reactivate.
 - Step 3** Replace the reset button screw and use a Phillips screwdriver to tighten to 22 to 24 in. lbs (2.49 to 2.71 Nm).
-

Powering the Access Point



Explosion Hazard—The area must be known to be nonhazardous before installing, servicing, or replacing the unit. Statement 1082

**Note**

Please refer to the Declarations of Conformity and Regulatory Information when the AIR-CAP1552H-Q-K9 (POE input configuration only) will be installed in an explosive area in Japan.

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

1552H and 1552SA

100 to 240 VAC, 50-60Hz.

1552H

Power-over-Ethernet (PoE)—56 VDC power injector (AIR-PWRINJ1500-2=)

1552SD and 1552WU

24 VDC

**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 1552 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 power
2. DC power
3. Power over Ethernet

Connecting a 1552H Series Power Injector

The power injector provides 56 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.

**Note**

The power injector is not intended to be installed in a hazardous locations environment. If a PoE injector is required, it must be located in a non-hazardous location environment.

**Note**

The 1552SA/SD and 1552WU do not support PoE In.

**Note**

The Ethernet cable from the power injector to the access point (PoE In port) must be at least 10 ft (3.1 m) in length.

**Note**

The PoE Out port is disabled when the access point is powered by the power injector.

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

Step 1 Before applying PoE to the access point, ensure that the access point is grounded (see the [“Grounding the Access Point \(all models\)”](#) section on page 3-60).

Step 2 Review [Chapter 2, “Pole Mount Installation”](#) to identify the components needed for the installation.

**Note**

It is recommended to install the injector in its own IP67 enclosure such as a Hoffman box, since the PoE injector is not weather proof.

Step 3 Connect a CAT5e or better Ethernet cable from your wired LAN network to the power injector.

**Warning**

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

Use only the 1500 power injector (AIR-PWRINJ1500-2=) for the access point. This power injector is designed to meet the power requirements of the access point and is a listed Class 2 limited power source (LPS).

**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 *Cisco Wireless Mesh Access Points, Design and Deployment Guide, Release 7.0* for more information.

Step 4 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 5 Connect a shielded outdoor-rated Ethernet (CAT5e or better) cable between the power injector and the PoE In connector of the access point (see [Figure 3-20](#)).

Step 6 Connect the Ethernet cable to the access point PoE In port (see [“Connecting an Ethernet Cable to the Access Point \(all models\)”](#) section on page 3-73).

**Note**

When a 1552H access point is powered by PoE, the PoE Out port is not active.

Step 7 Continue with the [“What to Do Next”](#) section on page 3-80.

Connecting an Ethernet Cable to the Access Point (all models)



Note

Please refer to the Declarations of Conformity and Regulatory Information when the AIR-CAP1552H-Q-K9 (POE input configuration only) will be installed in an explosive area in Japan.

The following tools and materials are required:

- Shielded outdoor-rated Ethernet (CAT5e or better) cable with 0.2 to 0.35 in. (0.51 to 0.89 cm) diameter



Note

The Ethernet cable from the power injector to the access point must be at least 10 ft (3.05 m) long. The PoE Out port is disabled when the access point is powered by the power injector.

- RJ-45 connector and installation tool
- Adjustable wrench

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

Step 1

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



Warning

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit. Statement 1028

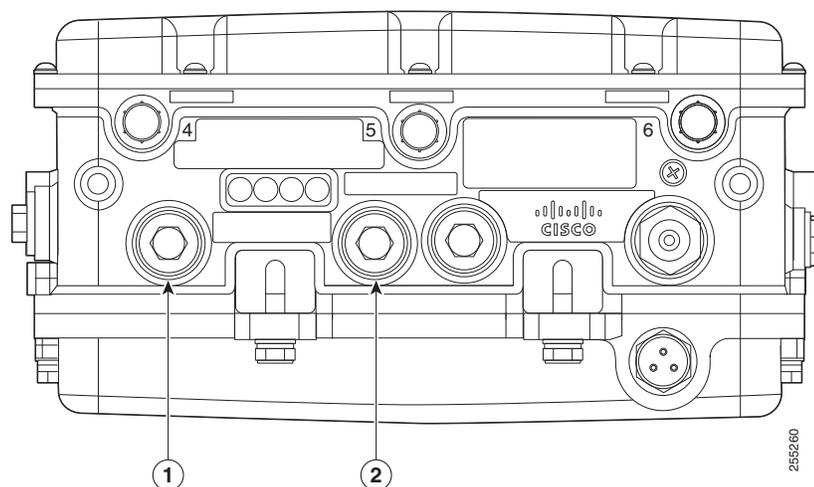
Step 2

Ensure a 6 AWG ground wire is connected to the access point (see the “[Grounding the Access Point \(all models\)](#)” section on page 3-60).

Step 3

Use an adjustable wrench, a 22-mm socket, or the Sealcon S-2200-WR wrench to remove the Ethernet connector plug from the access point (see [Figure 3-20](#) for the location).

Figure 3-20 Location of Ethernet Liquid-Tight Adapters (Only Models AIR-CAP1552SA/SD-x-K9, AIR-CAP1552H-x-K9, and AIR-CAP1552WU-A-K9)



1	ETH port (1552SA/1552SD/1552WU) or PoE In port (1552H) Hole size PG13.5	2	PoE Out port Hole size PG13.5
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Note For information on data cable entry, refer to [Figure 1-1 on page 1-7](#)

- Step 4** Loosen the round end of the liquid-tight adapter by turning counterclockwise, but do not remove (see [Figure 3-21](#)).

Figure 3-21 Liquid-tight Adapter



1	Thread end	2	Round end
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Caution The liquid-tight adapter(s) supplied in the kit AIR-1520-FIB-REEL= are IP68/69 certified with .200 to .350 diameter cables but not ATEX certified or hazardous locations compliant. The installer must use cable glands and/or adapters appropriate to the installation.

- Step 5** Insert the unterminated end of the Ethernet cable into the round end of the liquid-tight adapter (see [Figure 3-21](#)), and pull several inches of cable through the adapter.

- Step 6** Install an RJ-45 connector on the unterminated end of the Ethernet cable using your Ethernet cable installation tool.

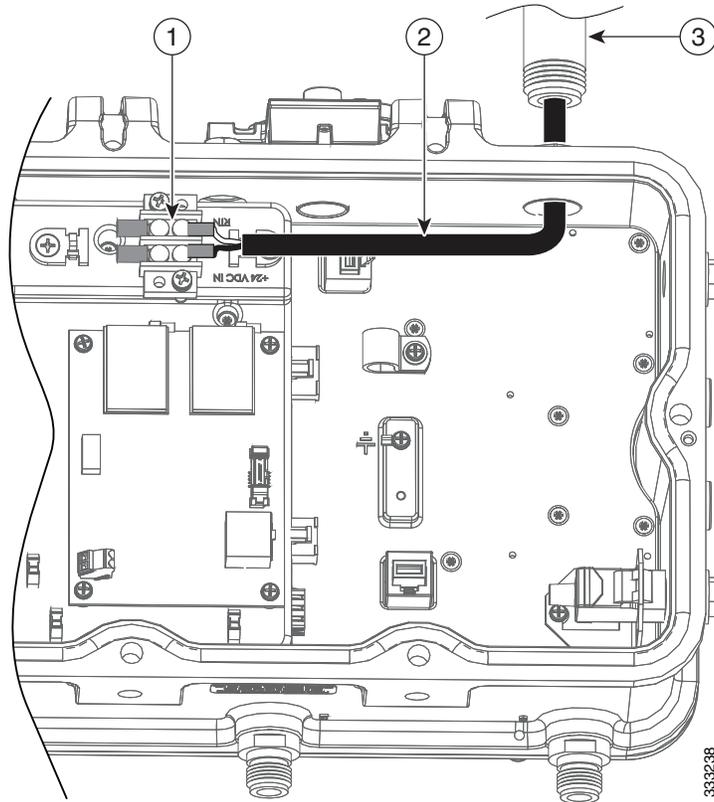


Warning **To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.** Statement 1023

- Step 7** Carefully insert the RJ-45 cable connector into the Ethernet port opening on the access point, and connect to the internal Ethernet connector (see [Figure 3-22](#)).

- Step 1** Open the access point hinged cover. See the “Opening the Access Point Hinged Cover” section on page 3-58 for instructions.

Figure 3-23 24 VDC Power Installation—Model AIR-CAP1552SD-A-K9 and AIR-CAP1552WU-A-K9



1	Terminal block	2	Customer-supplied harness
		3	Customer-supplied 1/2" NPT Pipe (North American/ATEX) or sheathed cable (ATEX only). The installer/integrator is responsible for supplying the appropriate certified components as part of the overall designed system and must maintain the access point environmental integrity of IP67 rating.

- Step 2** Route the 24 VDC power cable through the 1/2-NPT port.
- Step 3** 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 4** Remove terminal strip screw and square washer for connection labeled “RTN”. Connect DC return line to terminal strip location labeled “RTN”. Tighten terminal strip screw to secure ring terminal and wire.
- Step 5** Remove terminal strip screw and square washer for connection labeled “+24 VDC IN”. Connect +24 VDC hot line to terminal strip location labeled “+24 VDC IN”. Tighten terminal strip screw 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 hinged cover. See the “[Closing the Access Point Hinged Cover](#)” section on [page 3-59](#) for details.
-

Connecting Ground and AC Power

**Note**

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

Refer to “[Table D-2 Power Consumption Budget for the AIR-CAP1552H-x-K9, AIR-CAP1552SA/SD-x-K9, and AIR-CAP1552WU-A-K9 Access Point Configurations](#)” section on [page D-22](#) for Power distribution details.

To route and connect the ground and AC power cabling to the 1552H or 1552SA access point model, follow these steps:

**Warning**

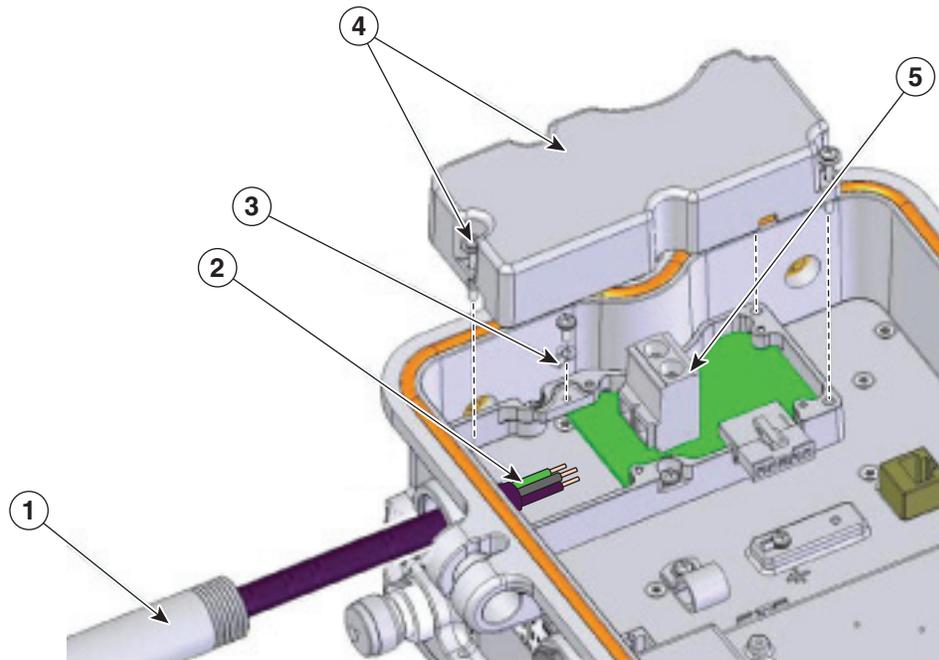
When installing or replacing the unit, the ground connection must always be made first and disconnected last. Statement 1046

**Caution**

Always install the ground wire before connecting all power leads.

- Step 1** Open the access point hinged cover. See the “[Opening the Access Point Hinged Cover](#)” section on [page 3-58](#) for instructions.
- Step 2** Use a Phillips head screwdriver to loosen the three captive screws that secure the AC entry module cover. ([Figure 3-24](#)).

Figure 3-24 AC Power Installation—Model AIR-CAP1552H-A-K9



1	Customer-supplied 1/2" NPT Pipe (North American/ATEX) or sheathed cable (ATEX only).	4	AC Entry Cover <ul style="list-style-type: none"> Loosen the captive screws (3x) to open cover. Reattach after harness has been installed.
2	Customer-supplied harness	5	Terminal block
3	Attach GND wire to terminal ring. Attach terminal ring to chassis as shown.		

Notes

- | | |
|---|--|
| 1 | The installer/integrator is responsible for supplying the appropriate certified components as part of the overall designed system and must maintain the access point environmental integrity of IP67 rating. |
| 2 | The water-tight gland device selected by the installer/integrator must be equal to or greater (better) than the specifications listed for device referenced as Sealcon CD-13AR-EX with a Buna-N O-ring. |
| 3 | The torque specification for water-tight glands are 6 to 7 ft-lbs (8.1 to 9.5 N.m). |

- Step 3** Remove the cover and set it aside.
- Step 4** Route the AC power cable through the 1/2-NPT port.
- Step 5** 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 6** Insert the ground wire into the provided ground lug and use a crimping tool to secure the connection.

- Step 7** Install the ground lug and tighten the connection with a Phillips screwdriver. To prevent stripping the screw threads, do not overtighten.
- Step 8** Insert each hot wire into the AC entry terminal block.
- Step 9** Use a Phillips screwdriver to tighten the terminal block set screws to secure the wires in the terminal block.
- Step 10** Verify that no bare wire is exposed. If wire is exposed, remove it from the terminal block, adjust the length, and reinstall.
- Step 11** Check your work.
- Step 12** Reinstall the AC entry module top cover and tighten the captive screws. Do not overtighten.
- Step 13** Close the access point hinged cover. See the “Closing the Access Point Hinged Cover” section on page 3-59 for details.
- Step 14** Install the Ethernet backhaul cable. See the next section for instructions.
-

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*. The troubleshooting document is available at cisco.com at the following URL:

http://www.cisco.com/en/US/docs/wireless/access_point/1520/troubleshooting/guide/TrbleshtMesh.html



Warning

Do not disconnect connections to this equipment unless power has been removed or you have verified that the area is nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product. Substitution of components may impair suitability for Class I, Zone 2, Division 2. Statement 1062



Warning

If you connect or disconnect the console cable with power applied to the unit or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

To verify unit operation, perform POST on the device in a nonhazardous location before installation. Statement 1080



Warning

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

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 AC input wiring. When removing the AC 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 3-3](#) lists the inspection routines and their periodicity.

Table 3-3 **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.

What to Do Next

When you power up a MAP that is not connected to a wired Ethernet, fiber-optic, or cable network to the controller, the access point uses the Cisco Adaptive Wireless Path Protocol (AWPP) to bind to another mesh access point (MAP) with the best path to a root access point (RAP) connected to the wired network to a controller. The access point sends a discovery request when powered up. If you have configured the access point in the controller correctly, the controller sends back a discovery response to the access point. When that happens, the access point sends out a join request to the controller, and the controller responds with a join confirmation response. Then the access point establishes a Control And Provisioning of Wireless Access Points (CAPWAP) connection to the controller and gets the shared secret configured on the controller.

Refer to the *Cisco Wireless LAN Controller Configuration Guide* for more information on configuring, monitoring, and operating your access points.