T670sn Access Point Quick Setup Guide

This Quick Setup Guide provides step-by-step instructions on how to field-install the RUCKUS T670sn access point (AP). For detailed information on planning the installation, performing a site survey, and operating the T670sn, refer to the *RUCKUS Outdoor Access Point User Guide*, available at https://support.ruckuswireless.com.

REMARQUE: The minimum software version for the T670sn AP is SmartZone (SZ) 7.0 or later, Unleashed (UN) 200.17 or later, and RUCKUS One (R1) 7.0.0.200 or later.

ATTENTION! Installation of this equipment must comply with local and national electrical codes.

ATTENTION! Only trained and qualified personnel should install, replace, or service this equipment. This equipment should be installed in restricted-access areas only.

ATTENTION! RUCKUS strongly recommends that you wear eye protection before mounting the T670sn.

PRUDENCE! Make sure that you form an 80mm - 130mm (3 in. to 5 in.) drip loop in any cable that is attached to the AP or the building. This will prevent water from running along the cable and entering the AP or the building where the cable terminates.

PRUDENCE! Be sure that grounding is available and that it meets local and national electrical codes. For additional lightning protection, use lightning rods and lightning arrestors.

PRUDENCE! Make sure that proper lightning surge protection precautions are taken according to local electrical code.

Ce guide dans d'autres langues

- 请从以下网站获得该指南的简体中文版 http://docs.commscope.com/?docs-box.
- Vous trouverez la version française de ce guide à l'adresse suivante http://docs.commscope.com/?docs-box.
- このガイドの日本語版は http://docs.commscope.com/?docs-box でご覧ください。
- 이 가이드의 한국어 버전은 웹 사이트 (http://docs.commscope.com/?docs-box) 에서 확인하시기 바랍니다.
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- Puede ver la versión en español (América Latina) de esta guía en http://docs.commscope.com/?docs-box

Before You Begin

Before deploying RUCKUS products, please check for the latest software and the release documentation.

- Release Notes and other user documentation are available at http://support.ruckuswireless.com/documents.
- Software upgrades are available at http://support.ruckuswireless.com/software.
- Software license and limited warranty information are available at https://support.ruckuswireless.com/programs-warranty_registration.

Before deploying your RUCKUS Access Point and stadium mounting enclosure, verify that all items listed in **Package Contents** are included in the package. If any item is damaged or missing, notify your authorized RUCKUS sales representative. Also, make sure that you have the required hardware and tools.

Required Hardware and Tools

- ½-in. (13-mm) flat-blade screwdriver or equivalent
- No. 2 Phillips screwdriver
- Small flat-blade screwdriver
- Torque wrench or torque screwdriver with sockets
- Long-nose pliers
- Electrical wire stripping and terminal crimping pliers
- Pipe, pole, or a sturdy flat mounting surface
- Electric drill with drill bits and customer-supplied wall anchors, flat washers, and hex nuts for flat-surface mount

Package Contents

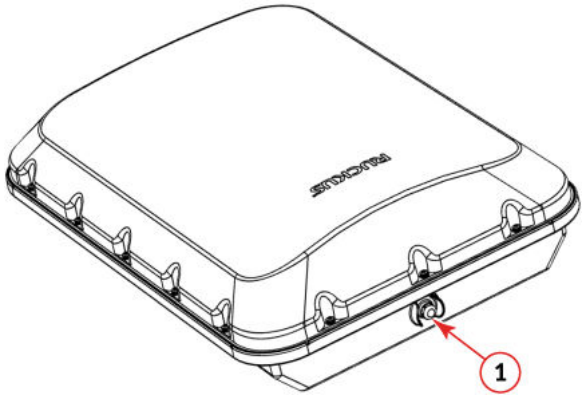
A complete T670sn field installation package includes all of the items listed below:

- T670sn Access Point
- M25 cable glands
- Outdoor AP Mounting Bracket kit
- One ground wire with lug
- Zip cord cable gland insert
- Four ½-in. (12.7-mm) wide adjustable clamps, 2.5-in. (63.5-mm) diameter, for main mounting bracket on poles
- Safety cable kit
- Declaration of Conformity

T670sn AP Orientation

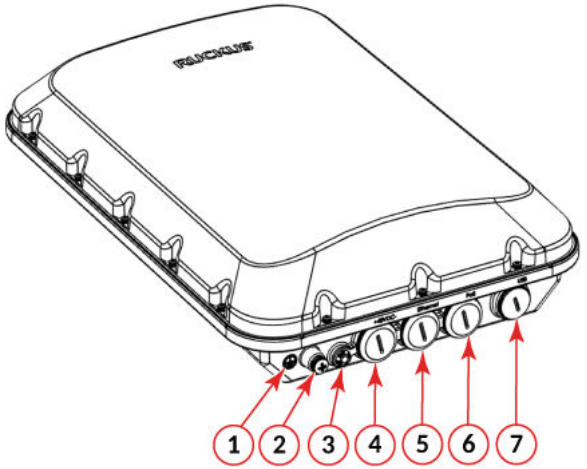
An introduction to the different views of the T670sn AP.

FIGURE 1 T670sn AP Vent-side View



- Protective vent to equalize pressure

FIGURE 2 T670sn AP Port-side View

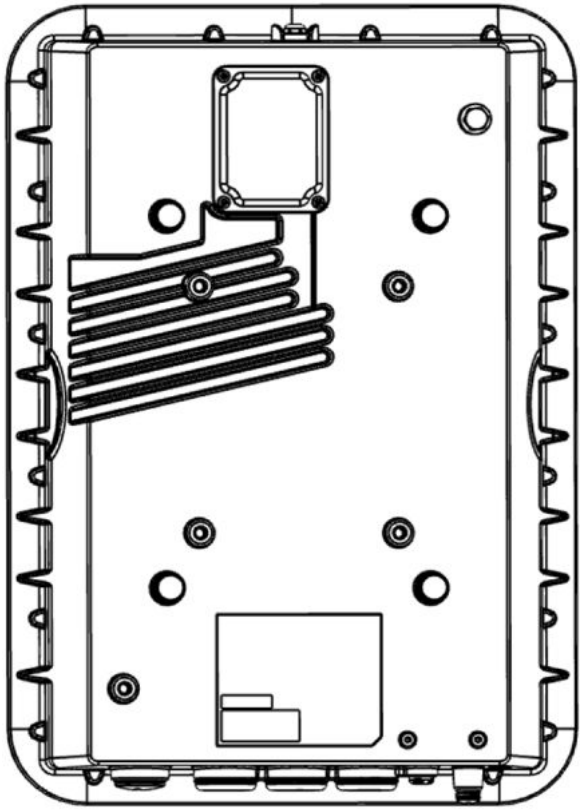


1. Ground symbol
2. Ground screw
3. LED indicators
4. DC
5. Ethernet
6. PoE IN
7. USB port

ATTENTION! Do not use any PoE injector not tested and approved by RUCKUS to power the T670sn Access Point. Only use a RUCKUS qualified or approved PoE injector.

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FIGURE 3 T670sn AP Rear View



Cable Assembly for PoE or Ethernet Installation

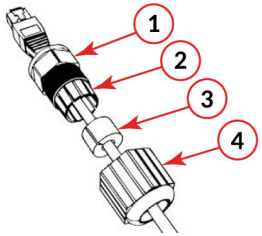
The T670sn may use zero, or one, or two RJ-45 cables: one for Ethernet when configured as a Root AP (RAP), and another when the T670sn is connecting to a peripheral device, such as a small cell or micro cell radio. When the T670sn uses RJ-45 cables, connect and seal the cables using the M25 data cable glands as shown in Figure 4.

REMARQUE: For PoE cabling, the cable must either be Cat 5E or better.

1. Feed the end of the cable through the gland dome, rubber grommet, clamping ring assembly and cable gland base, as shown in Figure 4.

   REMARQUE: Do not seat the clamping ring and rubber grommet into the cable gland base until the cable gland base has been torqued to specifications.

FIGURE 4 RJ-45 Cable and Cable Gland Assembly



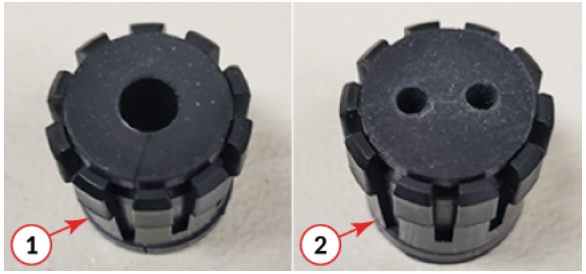
1. Cable gland base
2. Clamping ring
3. Rubber grommet
4. Gland dome

2. Use a wide flat-blade screwdriver to remove the PoE IN or ethernet port cap as shown in Figure 2 à la page 1.
3. Connect the cable to the Ethernet port in the AP.
4. Tighten the cable gland base to 7 N.m (62 in-lbs).
5. Wrap the clamping ring assembly around the rubber grommet. Make sure that the clamping ring assembly fully encloses the rubber grommet.
6. Seat the clamping ring assembly and rubber grommet in the cable gland base.
7. Hand-tighten the gland dome.

Cable Assembly for DC Installation

For DC installation, switch out the single hole grommet insert used for PoE or ethernet installation with the zipcord (dual hole) grommet insert of the cable gland.

FIGURE 5 Single Hole Grommet Insert and Zipcord (Dual Hole) Grommet Insert



1. Single Hole Grommet Insert
2. Zipcord (Dual Hole) Grommet Insert

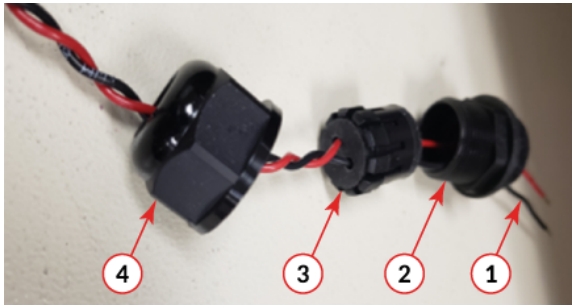
Follow the instruction to assemble the cable gland for DC.

1. Use a wide flat-blade screwdriver to remove the DC cap as shown in Figure 2 à la page 1.
2. Using a wire stripper, cut and strip the DC source wires.

   REMARQUE: Ensure there is an 8-mm with +/- 1-mm of expose pigtail on the DC power wires.

3. Insert the DC wires through the gland dome, rubber grommet, and cable body, as shown in Figure 6.

FIGURE 6 DC Power Cable and Zipcord Cable Gland Assembly



1. DC source wire
2. Cable body
3. Zipcord (dual hole) grommet
4. Gland dome

4. Insert the +/- DC wires into the correct DC terminal block as labeled on the DC port housing with the help of a small blade screwdriver. See Figure 7.

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FIGURE 7 Connecting DC Wires To Terminal Block



5. Tighten the terminal block screws to secure the wires.
6. Insert the cable body into the AP housing and tighten the cable body to 7 N.m (62 in-lbs) as shown in Figure 8.

FIGURE 8 Inserting the Cable Body



7. Insert the zipcord grommet into the cable body as shown in Figure 9.

FIGURE 9 Inserting the Zipcord Grommet



8. Hand-tighten the cable gland dome until the grommet squeezes against the DC wires as shown in Figure 10.

> **PRUDENCE!** RUCKUS strongly recommends that you form a drip loop on any cable that is connected to devices that are installed outdoors, to prevent water from running along the cable and entering electrical components.

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FIGURE 10 Tightening the Cable Gland Dome



Mounting Instructions

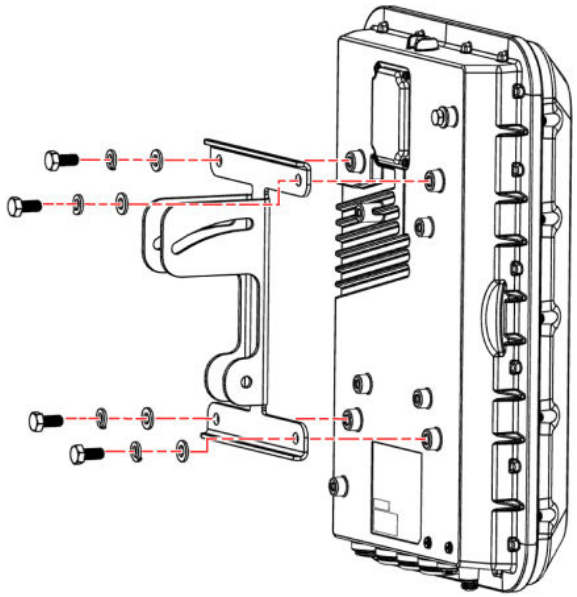
Attaching the AP Bracket to the Access Point

IMPORTANT-QSG: Before attaching the AP bracket to the AP, you must take into consideration the planned tilt configuration for the AP to ensure the AP bracket is oriented and attached appropriately. Figure 11 shows attaching the AP bracket with the adjustment slot at the top (nearest the vent) to accommodate a down-tilt configuration (see Figure 16 à la page 6 for reference).

If an up-tilt configuration is desired (refer to Figure 17 à la page 6), then attach the AP bracket with the adjustment slot at the bottom (nearest the cable ports).

1. Place the AP bracket onto the back side of the AP so that the four larger screw holes on the bracket align with the four screw holes on the AP.

FIGURE 11 Attaching the AP Bracket to the AP



2. Use four bolt-and-washer sets (each set comprising an M8 x 18mm long bolt, a split lock washer, and a flat washer) to mount the AP bracket to the back of AP. Tighten to 13.6 N.m (10 ft-lbs or 120 in-lbs).

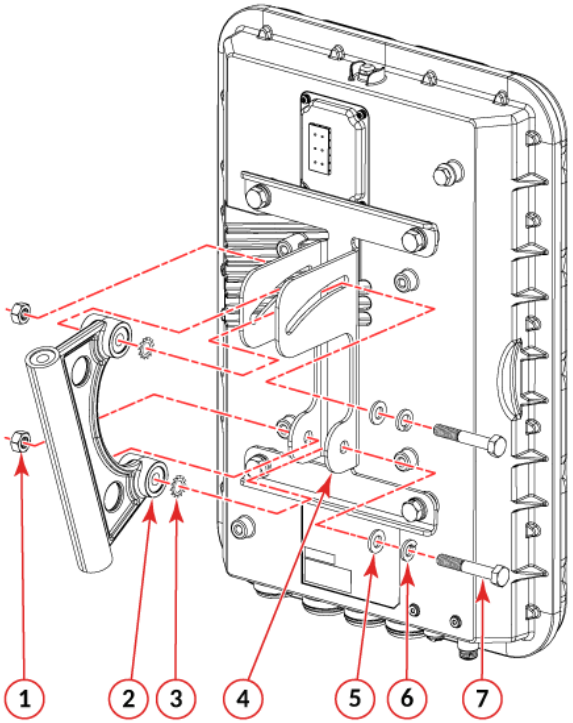
PRUDENCE! Make sure that the screws are no longer than 18mm. If a screw is longer than 18mm, it can damage the AP chassis.

REMARQUE: This kit may include extra screws, nuts, and washers. You may use the extras where required.

Mounting the Linkage Bracket to the AP Bracket

1. Insert two serrated external-tooth lock washers (3 in Figure 12) into the recess of the linkage bracket (2 in Figure 12).
2. Slide the linkage bracket and serrated external-tooth lock washers into the AP bracket (4 in Figure 12) such that the holes align for securing.
3. Secure the linkage bracket to the AP bracket using two bolt-and-washer sets (each set comprising an M8 x 80mm long bolt, a split lock washer, a flat washer, and a nut) as shown in Figure 12.

FIGURE 12 Attaching the Linkage Bracket to the AP Bracket



1. Hex nut
2. Linkage bracket
3. External-tooth lock washer
4. AP bracket
5. Flat washer
6. Split lock washer
7. M8 bolt

4. Loosely tighten bolt assemblies.

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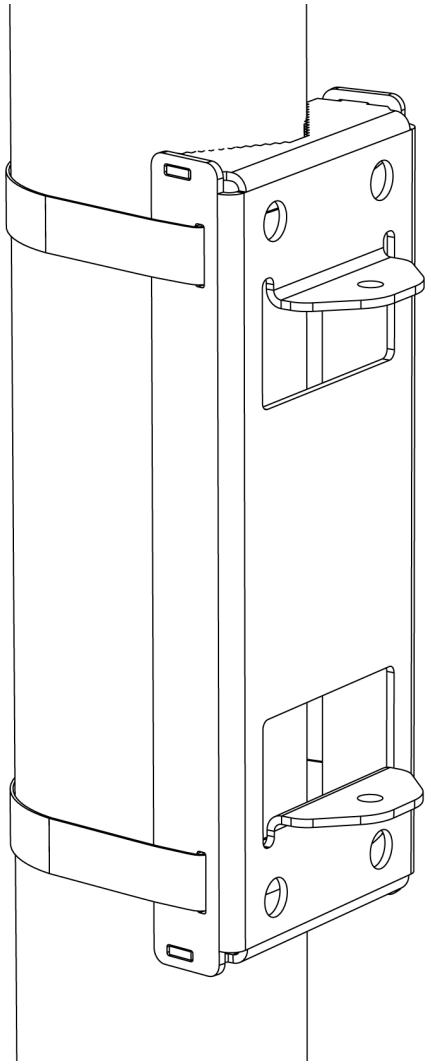
Attaching the Pole or Wall Bracket to a Pole

1. Insert the open end of one steel clamp through the upper two slots on the pole or wall bracket.
2. Take the other steel clamp and insert it through the lower two slots on the pole or wall bracket.

> **REMARQUE:** Multiple clamps can be daisy-chained together to accommodate larger poles.

3. Use the clamps to attach the pole or wall bracket to the pole. Tighten the clamps to 3 N.m (2.25 ft-lbs or 27 in-lbs) or per manufacturer's specifications.

FIGURE 13 Attaching the Pole or Wall bracket to a Vertical Pole

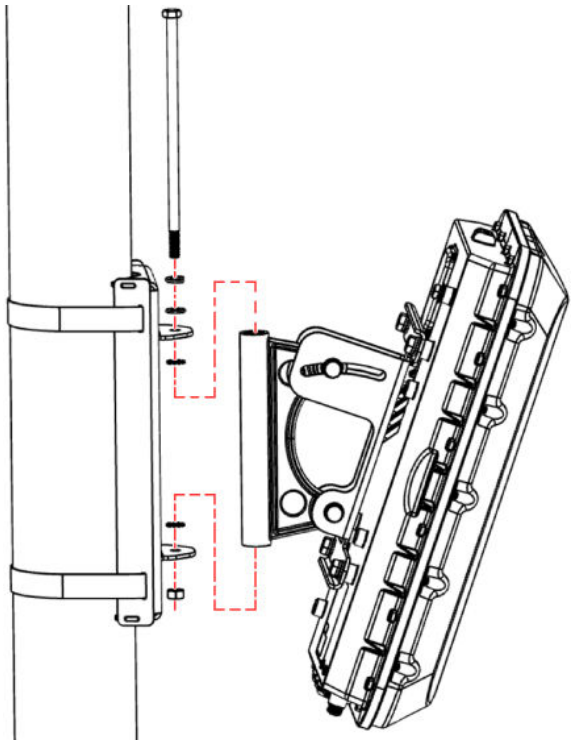


Attaching the Linkage Bracket to the Pole or Wall Bracket

1. Attach the linkage bracket to the pole or wall bracket using an M8 x 200mm long bolt, a split lock washer, a flat washer, two serrated external-tooth lock washers, and a nut.

> **REMARQUE:** The two serrated external-tooth lock washers must be seated in the upper and lower recesses of the linkage bracket barrel when the linkage bracket is inserted into the Pole/Wall bracket (as shown in Figure 14).

FIGURE 14 Attach the Linkage Bracket to the Pole or Wall Bracket

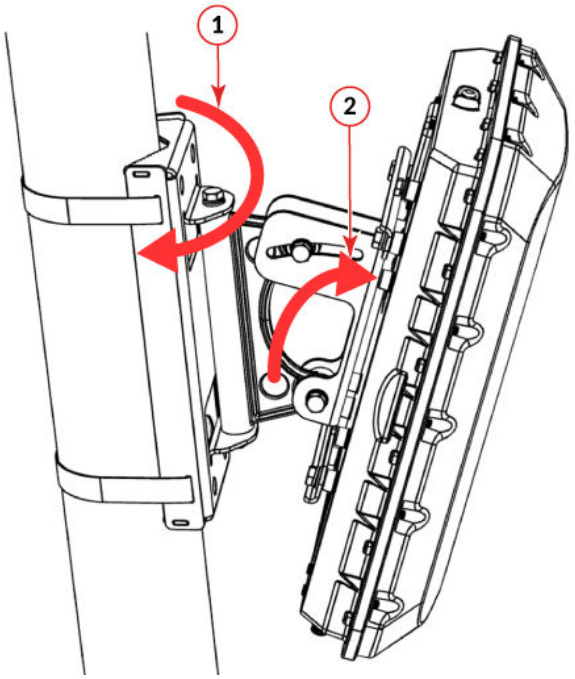


2. Loosely tighten the bolt assembly.

Set the Elevation and Azimuth

1. Set the elevation and azimuth as required for the AP.
2. Tighten the three M8 bolt assemblies to 13.6 N.m (10 ft-lbs or 120 in-lbs).

FIGURE 15 Setting Elevation and Azimuth



1. Azimuth configuration
2. Elevation configuration

For elevation adjustment, orient the portion of the bracket marked in blue color as shown Figure 16 and Figure 17.

> **REMARQUE:** For Figure 17, up-tilt configuration, reduce the transmit power so that the maximum Effective Isotropic Radiated Power (EIRP) at any elevation angle above 30 degrees as measured from the horizontal plane does not exceed 21dBm. Else, adhere to the local regulatory requirements.

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FIGURE 16 Down-tilt Configuration Adjustable up to -30 Degrees

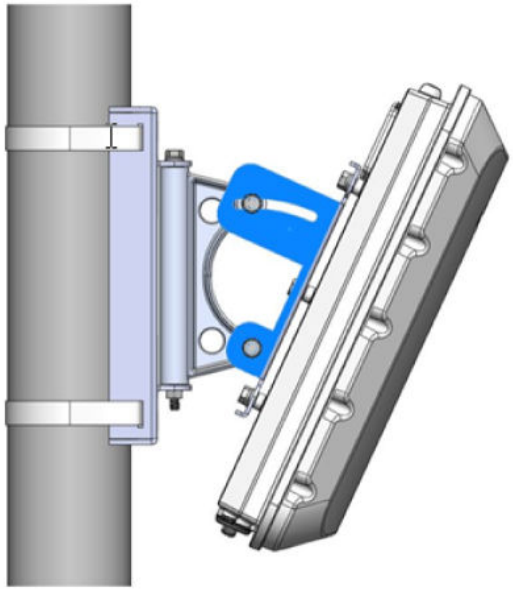
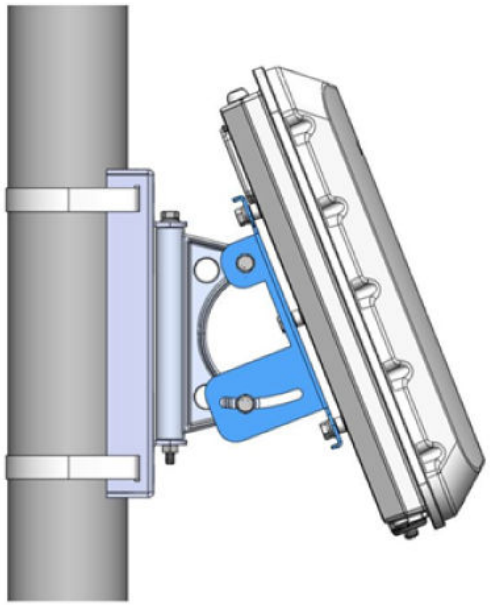


FIGURE 17 Up-tilt Configuration Adjustable up to +30 Degrees



Earth Grounding the AP

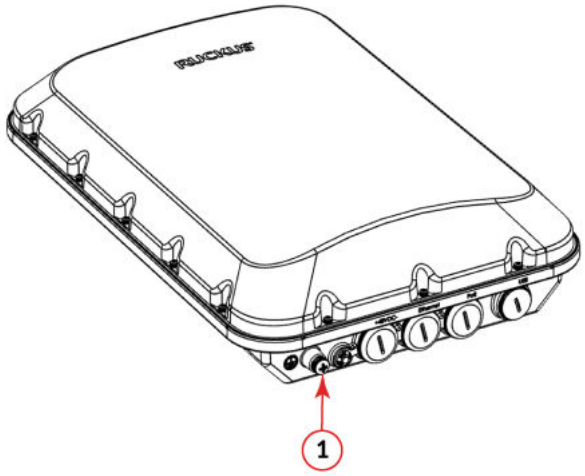
PRUDENCE! Make sure that earth grounding is available and that it meets local and national electrical codes. For additional lightning protection, use lightning rods and lightning arrestors.

REMARQUE: The color coding of ground wires varies by region. Before completing this step, check your local wiring standards for guidance.

Using the factory-supplied ground wire and ground screw/washer set, connect a good earth ground to the AP chassis ground point.

PRUDENCE! The AP includes one 9 mm stainless steel M6 x1 earth ground screw with split lock and flat washers. Make sure that any replacement screw is no longer than 9 mm. If a screw is longer than 9 mm, it can damage the AP chassis.

FIGURE 18 Ground Wire Connector on AP



1. Earth ground screw

Powering the AP

The AP can accommodate two sources of power: PoE (48V) power and 48VDC.

The AP can draw power from the Ethernet input as a BT Class 5 device, providing a maximum of 40W to the system. Alternately, power can be supplied through a customer-provided 48V DC power supply that will connect to a two-pin terminal block. The terminal block is accessible through a water-tight gland on one end of the unit. The terminal block connection has surge and polarity protection to protect against inserting the wrong polarity leads into the terminal block.

REMARQUE: If both the PoE and DC ports are used, separate cable glands must be used for each port. An additional cable gland (Part Number: 902-0183-0000) can be purchased.

REMARQUE: Use the zip cord cable gland insert for the M25 cable gland when DC power wires are used to ensure a water-tight seal.

REMARQUE: When both the 48V DC and the 48V PoE power supplies are active, the AP will prioritize the 48VDC power.

PRUDENCE! A typical 48V DC supply provides 48V + 5%.

1. Install the DC power supply as described in the RUCKUS DC power supply accessory installation guide (Part Number: 800-71750-001).
2. Connect the DC power cord to a DC power source.
3. Verify that the LED on the AP is blinking amber (may also be in a green state if a WLAN has been configured).

T670sn Sector Antenna Coverage

The T670sn AP is a tri-band AP supporting wide sector or narrow sector antenna modes for each of the three frequency bands. Antenna modes are configured using the controller management system to which the AP is registered (RUCKUS One, SmartZone, or Unleashed). The beam coverage for narrow or wide beams is given in the table below:

Tableau

Band	α (Wide Sector Side View) (Figure 19)	β1 (Wide Sector Top View) (Figure 20)	α (Narrow Sector Side View) (Figure 19)	β2 (Narrow Sector Top View) (Figure 20)
2.4 GHz	30°	100°	30°	40°
5 GHz (1st chain)	18°	110°	16°	25°
5 GHz (2nd chain)	20°	100°	20°	30°
6 GHz	20°	100°	20°	30°

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FIGURE 19 Wide and Narrow Sector, Side View

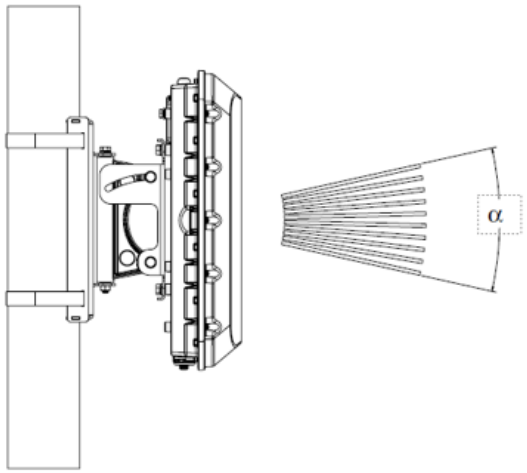
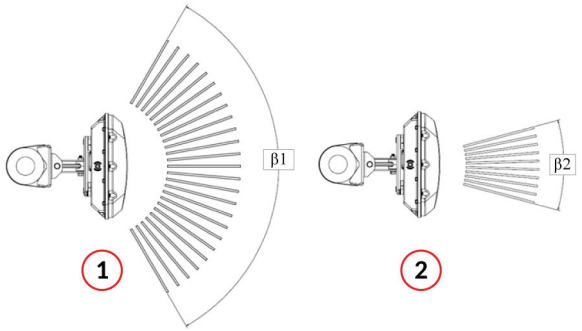


FIGURE 20 Wide and Narrow Sector, Top View



1. Wide sector Top view
2. Narrow sector Top view

Troubleshooting

PRUDENCE! If required, you can reset the AP to its factory default settings by pressing the reset button located inside the PoE IN port. Use the tip of a pen or a 3-mm flat-blade screwdriver to press the reset button.

- Soft reset: Press less than 4 seconds.
- Factory reset: Press more than 5 seconds and less than 15 seconds. The LED will alternate red and green.
- Recovery mode with factory defaults: Press more than 15 seconds. The LED will alternate between red and amber once before the AP reboots.

DO NOT RESET THE AP TO FACTORY DEFAULT SETTINGS UNLESS SO INSTRUCTED. (Doing this resets the AP IP address to 192.168.0.1.)

REMARQUE: After a reset, you can access the internal AP web interface using https://192.168.0.1. Your device must use any other address from 192.168.0.2 through 192.168.0.254, with subnet mask 255.255.255.0. The username is **super**, and the password is **sp-admin**.

REMARQUE: The 6GHz radio option is not allowed for use in China

For More Information

For information on how to configure and manage the AP, refer to the *RUCKUS Access Point User Guide*, available from http://docs.commscope.com/?docs-box.

For the product data sheet, refer to https://www.ruckusnetworks.com/products/wireless-access-points/.

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