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T750SE Access Point Quick Setup Guide

NOTE: The minimum software revision for the T750SE is ZoneDirector (ZD) 10.4.1 or later, or SmartZone (SZ) 5.2 or later, or standalone AP firmware 114.X or later.

This Quick Setup Guide provides step-by-step instructions on how to field-install the RUCKUS T750SE access point (AP). For detailed information on planning the installation, performing a site survey, and operating the T750SE, refer to the *RUCKUS Outdoor Access Point User Guide*, available at https://support.ruckuswireless.com.

WARNING! Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

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

CAUTION! Make sure that you form a 80mm - 130mm (3”-5”) 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.

CAUTION! 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.

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

WARNING! RUCKUS strongly recommends that you wear eye protection before mounting the T750SE.

This Guide in Other Languages

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

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 http://support.ruckuswireless.com/warranty.

  Before deploying your RUCKUS Access Point, 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

- 1/2” (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 surface
- Electric drill with drill bits and customer-supplied wall anchors, flat washers, and hex nuts for flat-surface mount

Package Contents

A complete T750SE field installation package includes all of the items listed below :

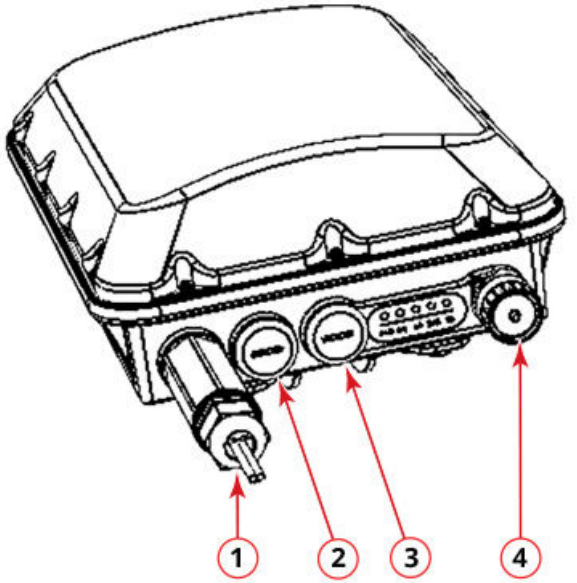
- T750SE Access Point
- M25 data cable gland extender
- Three M25 data cable glands
- Outdoor AP Mounting Bracket kit
- One ground wire with lug
- Cloud Management Statement
- Cable gland extender gasket
- AC Connector
- Zipcord cable gland grommet
- Four 1/2” (12.7 mm) wide adjustable clamps, 2.5” (63.5 mm) diameter, for main mounting bracket on smaller poles
- Safety cable kit
- Service Level Agreement/Limited Warranty Statement
- Declaration of Conformity
- Regulatory Statement
- RUCKUS AP Getting Started Guide
- This Quick Setup Guide

Mounting Instructions

Connecting and Sealing the RJ-45 Cables

The T750SE may use zero, or one or two RJ-45 cables, one for Ethernet when configured as a Root AP (RAP), and another when the T750SE is supplying PoE out to a peripheral device, such as a small cell or micro cell radio, and zero when using the SFP as a backhaul alternate with AC power. When the T750SE uses RJ-45 cables, connect and seal the cables using the M25 data cable glands as shown in Figure 2.

FIGURE 1 T750SE AP PoE IN and PoE OUT ports



1. SFP port
2. PoE IN
3. PoE OUT
4. AC port

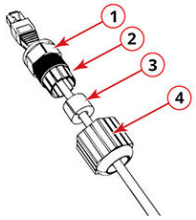
WARNING! Do not use any PoE injector not tested and approved by RUCKUS to power the T750SE Access Point.

WARNING! Do not plug PoE IN power into the PoE OUT port. See Figure 1.

1. Feed the end of the cable through the gland dome, rubber grommet, clamping ring assembly and cable gland base, as shown in Figure 2.

   NOTE: 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 2 RJ-45 Cable and Cable Gland Assembly



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

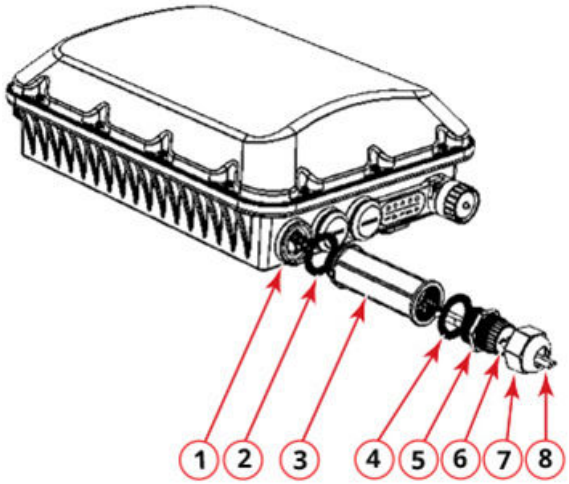
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2. Use a wide flat-blade screwdriver to remove the required (PoE OUT or PoE IN) blanking cap from the T750SE.
3. Connect the cable to the Ethernet port in the AP.
4. Tighten the cable gland base to 7 N.m (62 in-lbs).
5. Wrap the clamping ring assembly 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.

Connecting the SFP Optic Module Using a Single Diameter Cable

You can use a single diameter cable to connect to the SFP optic module.

FIGURE 3 SFP module cable gland assembly



1. SFP transceiver
2. Cable gland gasket
3. Cable gland extender
4. Cable gland gasket
5. Clamping ring
6. Cable gland grommet / zipcord cable gland grommet
7. Gland dome
8. Fibre cable

WARNING! The fiber cable is extremely fragile and must be handled with care.

NOTE: Do not insert the cable gland base/grommet/dome into the extender until the extender has been tightened. Step 5 must be performed before Step 6, else the fiber cable will twist.

1. Place the cable gland base to the cable gland extender and tighten the cable gland base to 7 N.m (62 in-lbs).
2. Fix the Cable gland extender gasket to the cable gland extender.
3. Feed the fiber cable through the gland dome, cable gland grommet, clamping ring, cable gland base, cable gland extender, and cable gland gasket as shown in Figure 3.
4. Connect the fiber cable to the SFP transceiver in the AP.
5. Tighten the cable gland extender to 7 N.m (62 in-lbs).
6. Insert the cable gland grommet into the clamping ring with the fiber cable in the center.
7. Insert the clamping ring into the cable gland base.
8. Tighten the cable gland dome to 7 in-lbs.

   The SFP module is hot-swappable and can be removed with fingers or simple tools.

Connecting the SFP Optic Module Using a Zipcord Cable

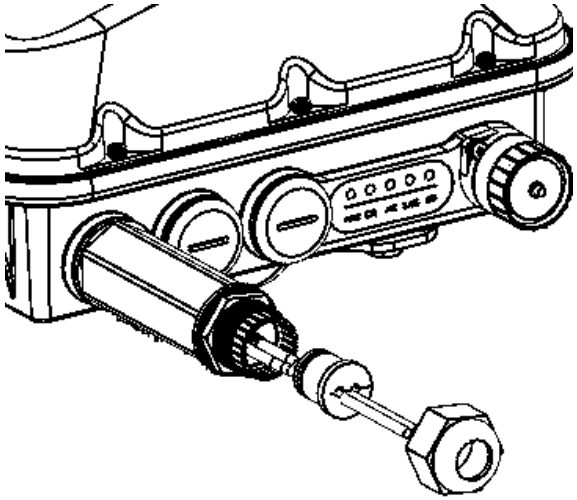
You can use a zipcord cable to connect to the SFP optic module.

WARNING! The zipcord fiber cable is extremely fragile and must be handled with care.

NOTE: Do not insert the cable gland base/grommet/dome into the extender until the extender has been tightened. Step 5 must be performed before Step 6, else the fiber cable will twist.

1. Place the cable gland base to the cable gland extender and tighten the cable gland base to 7 N.m (62 in-lbs).
2. Fix the Cable gland extender gasket to the cable gland extender.
3. Feed the zipcord fiber cable through the gland dome, zipcord cable gland grommet, clamping ring, cable gland base, cable gland extender, and cable gland gasket as shown in Figure 4.
4. Connect the zipcord fiber cable to the SFP transceiver in the AP.
5. Tighten the cable gland extender to 7 N.m (62 in-lbs).
6. Insert the zipcord cable gland grommet into the clamping ring with the zipcord fiber cable in the two holes.

FIGURE 4 Zipcord grommet with cable



7. Insert the clamping ring into the cable gland base.
8. Tighten the cable gland dome to 7 in-lbs.

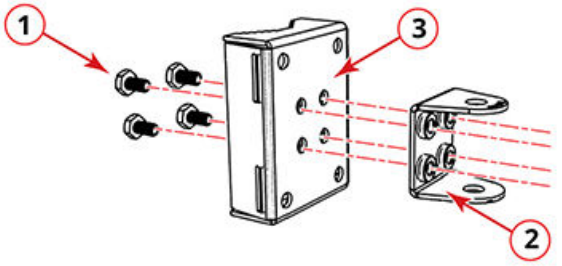
   The SFP module is hot-swappable and can be removed with fingers or simple tools.

Attaching the U-Joint Bracket to the Mounting Bracket

1. Position the U-joint bracket on the mounting bracket.

NOTE: Mount the U-joint bracket in any direction on the mounting bracket, preferably to allow AP azimuth adjustments. Then the AP bracket allows AP elevation adjustments.

FIGURE 5 U-joint bracket attached horizontally to the mounting bracket



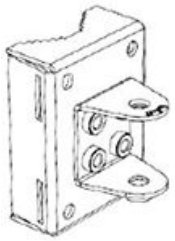
1. Bolts
2. U-joint bracket
3. Mounting bracket

2. Use four 1/4 - 28 bolt and washer sets to mount the U-joint bracket to the mounting bracket. Tighten the bolts to 9.5 N.m (84 in-lbs).
3. Continue with Attaching the Mounting Bracket to a Flat Surface *on page 2*.

Attaching the Mounting Bracket to a Flat Surface

1. Place the mounting bracket at the location on the flat surface where you want to mount the AP. Use the holes on the mounting bracket as a template to mark the locations of the mounting holes.

FIGURE 6 Mounting bracket flat surface holes



2. Remove the mounting bracket from the flat surface.
3. Drill holes required for the mounting hardware.

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NOTE: The hardware required for mounting to a wall are not included in the mounting kit.

4. Attach the mounting bracket to the flat surface using the mounting hardware.
5. Using the mounting hardware instructions, tighten the hardware to secure the mounting bracket.
6. Continue with Attaching the Mounting Bracket to a Pole *on page 3*.

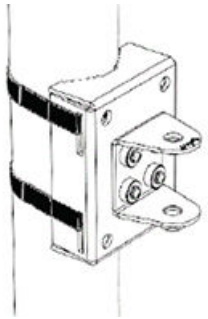
Attaching the Mounting Bracket to a Pole

1. Insert the open end of one steel clamp into the upper two slots on the mounting bracket.
2. Take the other steel clamp and insert it into the lower two slots on the mounting bracket.

NOTE: The clamps can be daisy-chained together to accommodate larger poles.

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

FIGURE 7 Attaching the mounting bracket to a vertical pole



4. Continue with Mounting the Linkage Bracket to the U-Joint Bracket *on page 3*.

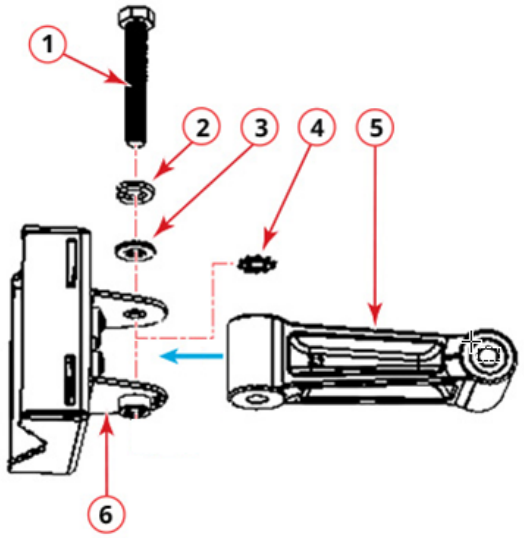
Mounting the Linkage Bracket to the U-Joint Bracket

1. The linkage bracket attaches to the U-joint bracket using an M8 bolt and washer set. The linkage bracket is symmetrical, and either end can be attached to the U-joint bracket.

NOTE: Make sure that linkage bracket is installed with its serrated external-tooth lock washer on the inside of the U-joint bracket flanges. This ensures that the azimuth adjustment does not change.

2. Loosely assemble the linkage bracket, the U-joint bracket, one serrated external-tooth lock washer, and one M8 bolt and washer set.

FIGURE 8 Attaching the linkage bracket to the U-joint bracket



1. M8 bolt
2. Lock washer
3. Flat washer
4. External-tooth lock washer
5. Linkage bracket
6. U-joint bracket

3. Set the azimuth required by the AP.
4. Tighten the M8 bolt to 13.6 N.m (120 in-lbs).
5. Continue with Attaching the AP Bracket to the Linkage Bracket *on page 3*.

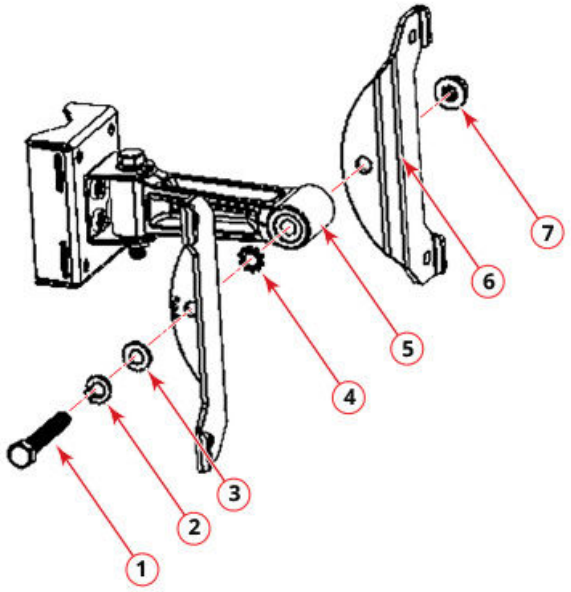
Attaching the AP Bracket to the Linkage Bracket

Attach the AP bracket to the linkage bracket using the included bolt, lock washer, flat washer, serrated external-tooth washer and nut shown in the illustration below.

The linkage bracket is symmetrical, and either end can be attached to the AP bracket.

Loosely assemble the AP bracket to the linkage bracket using the M8 bolt, washer and nut set.

FIGURE 9 Attach the linkage bracket to the AP bracket



1. M8 bolt
2. Locker washer
3. Flat washer
4. External-tooth lock washer
5. Linkage bracket
6. AP bracket
7. Nut

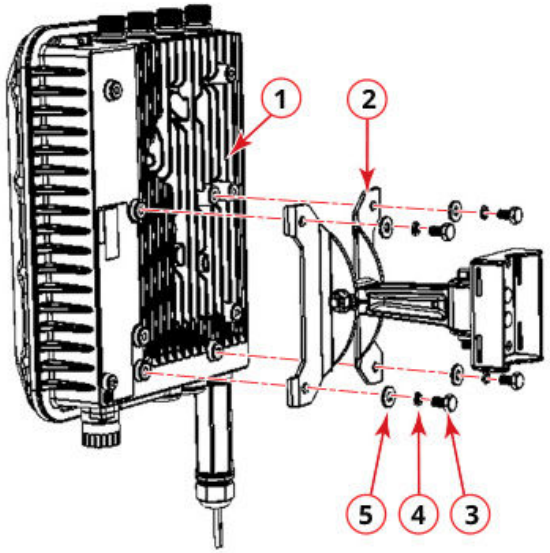
NOTE: Make sure that the linkage bracket is installed with its serrated external-tooth lock washer on the *inside* of the AP bracket flanges. This ensures that the elevation adjustment does not change.

Attaching the AP Bracket to the Access Point

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.

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FIGURE 10 Attaching the AP bracket to the AP



1. AP
2. AP bracket
3. Hex bolts
4. Lock washer
5. Flat washer

2. Use four 0.5-inch x 0.250-28 hex bolts with split lock and flat washer sets to mount the AP bracket to the AP. Tighten the bolts to 2.5-3.0 N.m (22-27 in-lbs).

CAUTION! Make sure that the screws are no longer than 0.5 inch. If a screw is longer than 0.5 inch, it can damage the AP chassis.

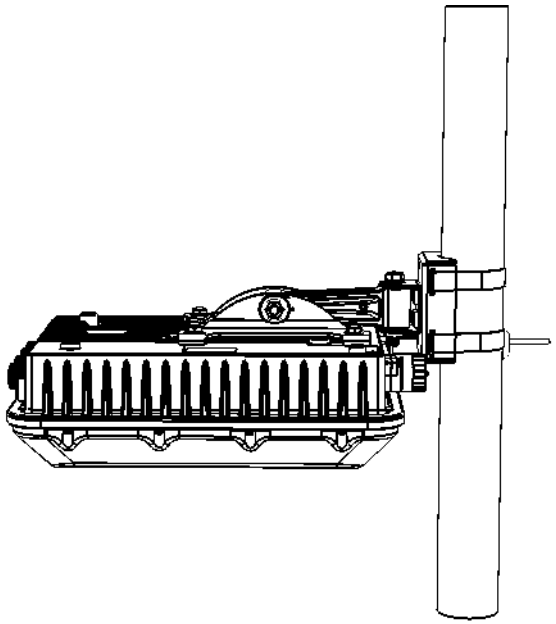
NOTE: This kit may include extra screws, nuts and washers. You may use the extras where required.

3. Continue with Set the Elevation and Tighten the Elevation Bolt *on page 4*.

Set the Elevation and Tighten the Elevation Bolt

1. Set the elevation required by the AP.

FIGURE 11 Mounting AP to a Pole - Option 1



2. Tighten the M8 bolt to 13.6 N.m (120 in-lbs).
3. Continue with Powering the AP with AC *on page 7*.

External Antenna and Cabling Need to be Purchased Separately

If the External Antenna option is chosen over the internal sector antenna, the External Antenna and Antenna Cable must be purchased separately.

NOTE: Beamflex is not available with external antennas.

T750SE (Sector/External) Antenna Coverage

The T750SE 120-Degree Sector AP is best deployed where internal antenna directional beamwidths can provide extended reach and throughput to a 120-degree coverage area. See the illustrations below for the azimuth and elevation coverage patterns. EIRP at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm)."

FIGURE 12 Typical AP sector azimuth plane coverage, top view

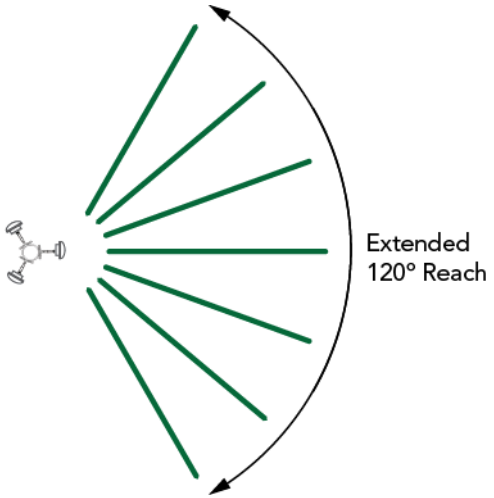
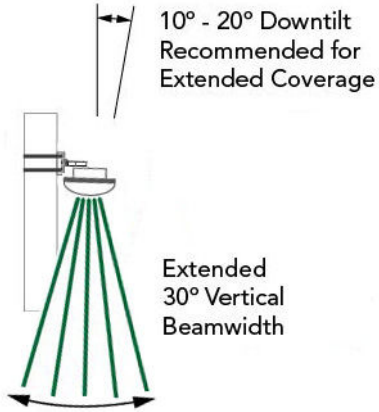


FIGURE 13 Typical AP sector elevation plane coverage, side view



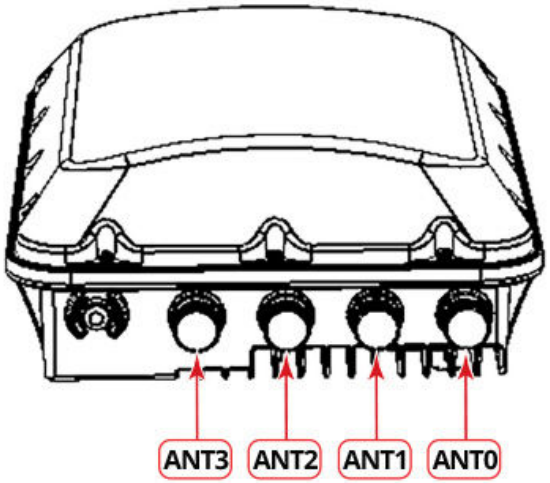
Mounting and Connecting 5 GHZ and 2.5 GHZ External Antennas

NOTE: Mount the external antenna per manufacturer's instructions.

1. Disconnect the AP from all power sources.
2. Unscrew the metal caps that protect the antenna connectors.
3. Connect external antennas to the N-type female antenna connectors on the AP. Use a torque wrench to tighten the connectors to 1.58 N.m (14 in-lb).
4. If the antennas come with RF coaxial cables (for example, a patch antenna), physically mount the antennas at your desired location, preferably on the same mounting structure as the AP.

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FIGURE 14 T750SE Rear View



T750SE Connections	External Antenna Connection	
	Vertical	Horizontal
ANT0	X	
ANT1		X
ANT2		X
ANT3	X	

5. Apply weatherproofing tape to the antenna connectors as described in Connector Sealing Instructions on page 5.

CAUTION! If you are not connecting external antennas to the AP, make sure that the metal caps remain installed and securely fastened to protect the interfaces from elements, such as water and dirt.

Connector Sealing Instructions

NOTE: N-Type connectors shown are representative examples.

NOTE: Applying sealing tape to both ends of the cable is recommended.

Step 1: Cleaning the Connectors and Your Hands

1. Clean all traces of dust, grease, and oil from your hands
2. Clean off any traces of dust, grease, and oil from the N-type bulkhead connector external threads
3. Make sure that the connectors are dry before continuing.

Step 2: Connecting the Cable with the Connector

1. If the AP is powered on, disconnect the AP from the power source.

CAUTION! Make sure that you disconnect the AP from the power source to avoid electrocution or equipment damage.

FIGURE 15 Connecting the Cable with the Connector



2. Unscrew the metal cap that protects the antenna connector. Place the metal cap in a safe place, in case you need it later.
3. Connect the cable to the connector. Use a torque wrench to tighten the cable coupling nut to 1.58 N.m (14 in-lb). If you do not have a torque wrench or if you are tightening a knurled coupling nut (as shown), hand-tighten the cable coupling nut until the internal gaskets are compressed, but do not overtighten.

Step 3: Wrapping the Exposed Connector Threads

1. Depending on the width of the sealing tape, either fold the tape in half or cut it to fit the exposed connector threads
2. Stretch the tape per the manufacturer's instructions
3. Working clockwise, gently stretch the sealing tape as you install it so that it covers the connector thread between the cable coupling nut and the base of the connector.

   Make sure that the final wrap is approximately flush with the cable coupling nut, and then cut the sealing tape.

FIGURE 16 Wrapping the Exposed Connector Threads



NOTE: Cut, do not tear, the sealing tape. If the sealing tape is overstretched, it loses its self-amalgamating properties.

Step 4: Wrapping the Internal Layer of the Electrical Tape

1. Using scissors, cut the end of the electrical tape at an angle. This will allow the electrical tape to be applied with minimal bulk.

FIGURE 17 Cutting the End of the Electrical Tape



2. Wrap the electrical tape clockwise from the beginning of the cable coupling nut to just past the heat shrink tube on the cable. Do not cover the sealing tape installed in Step 3: Wrapping the Exposed Connector Threads on page 5.

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FIGURE 18 Wrapping the Electrical Tape



Step 5: Wrapping the Main Sealing Tape

1. Using scissors, cut the end of the sealing tape at an angle. This will allow the sealing tape to be applied with minimal bulk.

FIGURE 19 Cutting the Sealing Tape at an Angle



2. Working clockwise, gently stretch the sealing tape from the beginning of the sealing tape installed in Step 3: Wrapping the Exposed Connector Threads on page 5 and continue wrapping to 12 mm (0.5 in.) past the electrical tape installed in Step 4: Wrapping the Internal Layer of the Electrical Tape on page 5.

> **NOTE:** Cut, do not tear, the sealing tape. If the sealing tape is overstretched, it loses its self-amalgamating properties.

FIGURE 20 Wrapping the Sealing Tape



3. Gently knead the sealing tape from top to bottom to make sure there are no gaps and to amalgamate the sealing tape.

Step 6: Wrapping the Outer Layer of Electrical Tape

1. Using scissors, cut the end of the electrical tape at an angle. This will allow the electrical tape to be applied with minimal bulk.

FIGURE 21 Cutting the Electrical Tape at an Angle



2. Wrap the electrical tape clockwise to completely cover the sealing tape and continue wrapping to 12 mm (0.5 in.) past the sealing tape installed in Step 5: Wrapping the Main Sealing Tape on page 6.

FIGURE 22 Wrapping the Electrical Tape



Step 7: Repeating for the Other Cables

Repeat the connector sealing instructions for the three antenna connectors, as shown in Figure 20.

FIGURE 23 Repeating for Other Cables



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Step 8: Creating Cable Drip Loops

Physically mount the AP and antennas at your desired location, preferably on the same mounting structure.

Form 80-mm to 130-mm (3-in. to 5-in.) drip loops with the cables.

FIGURE 24 Creating Cable Drip Loops



Earth Grounding the AP

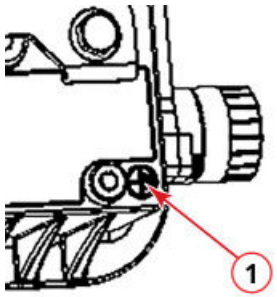
CAUTION! Make sure that earth grounding is available and that it meets local and national electrical codes. For additional lightning protection, use lightning rods and lightning arrestors.

NOTE: 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.

CAUTION! The T750SE 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 25 Connect good earth ground to AP



1. Earth ground screw

Congratulations! You have mounted your T750SE access point.

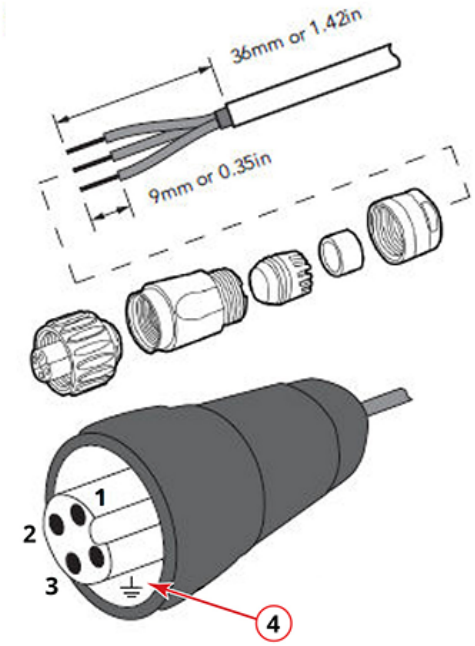
Powering the AP with AC

1. Separate the AC cable connector parts by unscrewing the boot from the cable gland and the cable gland from the connector housing..
2. Feed the end of the AC cable through the boot and cable gland.
3. Strip the AC cable as shown.
4. Insert the stripped part of the conductors into the appropriate terminals on the connector housing. The conductors are color coded and must be connected to the appropriate terminals as shown in figure below.

NOTE: The color coding of wire conductors varies by region. Before completing this step, check your local wiring standards for guidance.

FIGURE 26 Assembling the AC power connector

Wire Stripping (Not Actual Size)



1. (Neutral/Return): White or Gray (US), Blue (EU)
2. (Line/Hot): Black (US), Brown (EU)
3. (not used)
4. (Earth Ground): Green (US), Green/Yellow (EU)

5. Using a small screwdriver, tighten the small screws around the connector housing to fix the connector pins into the terminals.
6. Mate the cable gland with the connector housing, and then hand-tighten.

NOTE: Two different-sized grommets are supplied in the AC connector assembly kit. Use the grommet that is appropriate to the diameter of the AC cable that you are using.

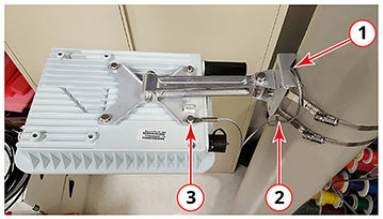
7. Mate the boot with the cable gland, and then hand-tighten to seal.
8. Connect the AC cord connector that you have assembled to the AC power socket on the AP.
9. Connect the AC cord to an AC power source.

Installing the Security Cable

1. Thread the security cable through the mounting bracket and through the eye on the cable itself.
2. Attach the safety cable to the AP.

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FIGURE 27 Attaching the security cable



1. Mounting bracket
2. Eye of the cable
3. Safety cable

Troubleshooting

CAUTION! 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 3mm flat blade screwdriver to press the reset button. Press and hold the reset button for 4+ seconds to restore to factory defaults. DO NOT RESET THE AP TO FACTORY DEFAULT SETTINGS UNLESS SO INSTRUCTED. (Doing this resets the AP IP address to 192.168.0.1.)

NOTE: 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. Refer to the *Outdoor Access Point User Guide* for information on configuring and operating the AP. This document is available at https://support.ruckuswireless.com.

For More Information

For information on how to configure and manage the AP, refer to the *RUCKUS Access Point User Guide*, available from *https://support.ruckuswireless.com*.

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