E510 Access Point AP Module Quick Setup Guide

The E510 is a modular outdoor Access Point designed for deployment scenarios where the antenna structure and onboard AP intelligence must be physically separated.

In addition to this *E510 AP Module Quick Setup Guide*, the E510 AP also includes the following documents (please refer to the relevant documents for detailed information on other E510 modules):

E510 Component	Document
E510 Antenna Module (PN#: 902-2101-0000)	*E510 Access Point Antenna Module Quick Setup Guide*
E510 USB Cable (PN#: 902-2003-0000)	*E510 Access Point USB Cable Quick Setup Guide*

NOTE: The minimum software revision for the E510 is ZoneDirector (ZD) 10.1 or later, or SmartZone (SZ) 3.6 or later, or standalone AP firmware 108.0 or later.

This Quick Setup Guide provides step-by-step instructions on how to field-install the RUCKUS E510 access point (AP). For detailed information on planning the installation, performing a site survey and operating the E510, 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 AP.

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

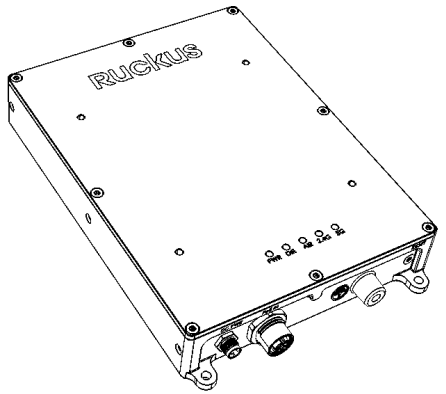
- Torque wrench or torque screwdriver with sockets, or SMA torque wrench, for cable connections
- T10 Security Torx screwdriver/bit for reset button access
- Mounting bracket (purchased separately) for pole mounting
- Customer-supplied mounting bracket for DIN rail mounting
- Electric drill with drill bits and customer-supplied wall anchors, flat washers, and hex nuts for flat-surface mounting

AP Module Package Contents

The E510 AP Module installation package includes all of the following:

- E510 Embedded Access Point Module
- Service Level Agreement/Limited Warranty Statement
- Declaration of Conformity
- Regulatory Statement
- RUCKUS AP Getting Started Guide
- This Quick Setup Guide

FIGURE 1 E510 AP Module



Purchased Separately

The E510 requires an Antenna Cable Kit and Antenna Module (RUCKUS or third-party RF cables) to be purchased separately.

NOTE: BeamFlex is not supported when using third-party RF cables.

Antenna Module

The E510 Antenna Module (RUCKUS PN# 902-2101-0000) consists of one vertically-polarized and one horizontally-polarized antenna per band. Refer to the *E510 Antenna Module Quick Setup Guide* for more information.

Antenna Cable Kit

Ruckus provides three different cable kits with different length cables. Each kit contains two RF coaxial cables and one Control cable. The RF cables are used to connect the AP Module to the Antenna Module using two RP-SMA connectors (each dual-band/single chain).

- 902-2000-0000 E510 Antenna Cable (60 cm length)

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- 902-2001-0000 E510 Antenna Cable (150 cm length)
- 902-2002-0000 E510 Antenna Cable (300 cm length)

CAUTION! If third-party RF cables are used, the customer is responsible for entering the correct signal loss profile / antenna gain in the SmartZone GUI.

Mounting Bracket

The E510 AP Module Mounting Bracket (RUCKUS PN# 902-2004-0000) must be purchased separately for mounting the AP Module to a pole. The pole mounting bracket kit includes the following:

- Pole mount bracket
- 3 M4x8mm bracket screws with built-in lock washers and flat washers
- 4 metal pole clamps

M8 and M12 Connectors

If third-party Ethernet or DC power cables are used, the installer must ensure the proper cable connectors are used. The following are examples of third-party cable connectors that can be used with the E510:

- M12 X-coded 8 position PoE connector: https://www.te.com/usa-en/product-2120952-1.html
- M8 A-coded 3 position connector: https://www.te.com/usa-en/product-T4010008031-000.html

Mounting Instructions

Mounting Scenarios

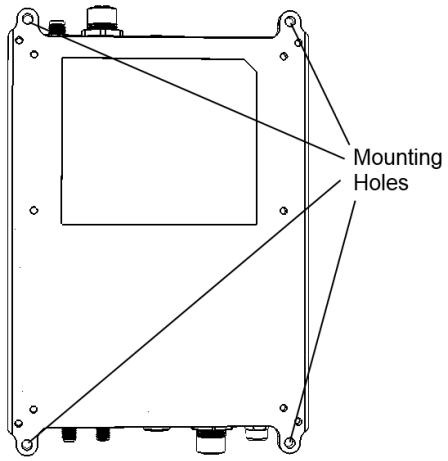
The E510 is designed for embedded mounting into third-party structures such as light poles, light fixtures, street furniture, railway carriages and track side installations.

Surface Mounting

The AP Module supports mounting on a flat surface into which holes can be drilled.

Use customer-supplied hardware to mount the AP Module to a flat surface.

FIGURE 2 E510 AP Module flat surface mounting flanges



Pole Mounting

The E510 AP Module can be mounted on a pole with the E510 AP Module Mounting Bracket (PN# 902-2004-0000).

NOTE: The included hose clamps can support a pole diameter up to 120mm, when daisy-chained together.

1. Attach the mounting bracket to the AP Module using the three M4 bracket screws with built-in flat washers and lock washers included in the bracket kit. Torque screws to 20 in-lbs (2.26 Nm).

   NOTE: The AP Module can be mounted either flat to the pole or side-mounted. The bracket provides holes to accommodate both scenarios. Side mounting uses three screws and flat mounting uses two screws.

FIGURE 3 Attaching the bracket to the side of the AP

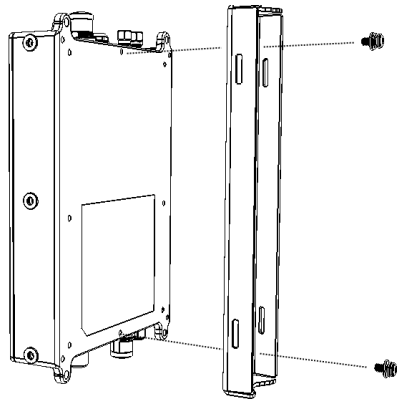
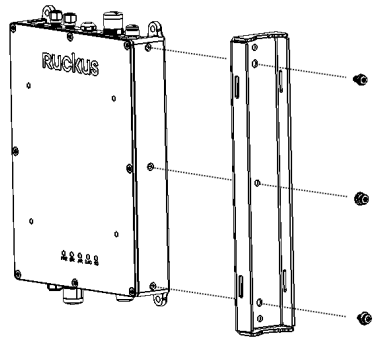


FIGURE 4 Attaching the bracket to the back of the AP



2. Use the two metal pole clamps to attach the bracket to the pole. Tighten pole clamp screws to 27 in-lbs. (3.05 Nm).

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FIGURE 5 AP Module pole mounting - side

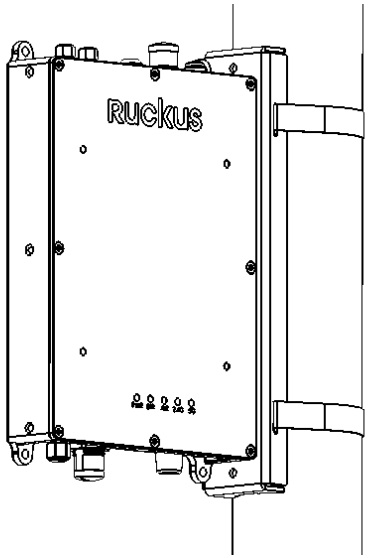
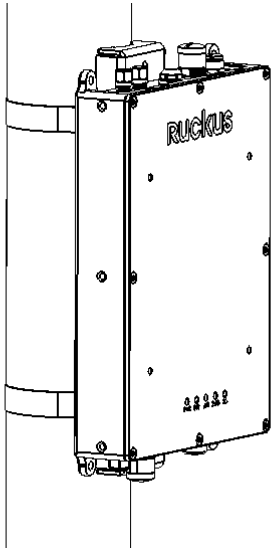


FIGURE 6 AP Module pole mounting - flat



DIN Rail Mounting

The AP Module supports mounting onto DIN Rail brackets via a separate third-party bracket accessory.

Connecting the AP Module to the Antenna Module

When a RUCKUS Beamflex antenna, such as 902-2101-0000, is used, the E510 AP Module must be connected to the Antenna Module using two RF cables and one Control Cable.

NOTE: For Antenna Mounting and Orientation, please refer to the *E510 Antenna Module Quick Setup Guide*.

The E510 AP module has two RP-SMA connectors for antenna RF cables to connect with the external antenna module. The 2.4 GHz and 5 GHz Wi-Fi RF signals are carried between the AP Module and Antenna Module using the two SMA cables.

The length of the cables depends on the needs of the installation, and cables are therefore purchased separately to suit the particular deployment.

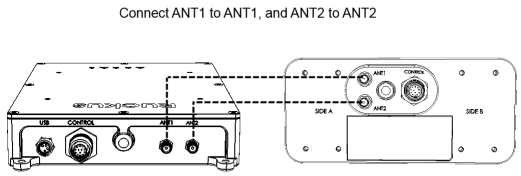
TABLE 1 Antenna loss by cable length

Cable	Length [m]	2.4 GHz Loss [dB]	5 GHz Loss [dB]
902-2000-0000	0.6	0.5	1
902-2001-0000	1.5	1	1.5
902-2002-0000	3	2	3

Please refer to the *E510 Antenna Module Quick Setup Guide* for antenna cable details.

1. Connect the antenna cables to the **ANT1** and **ANT2** connectors on the AP Module and the Antenna Module respectively.

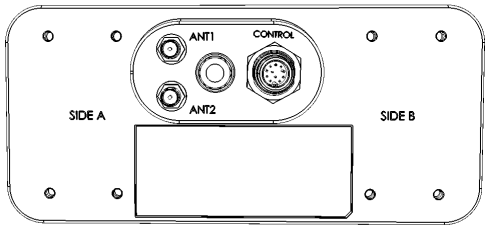
FIGURE 7 Connect the AP Module to the Antenna Module



WARNING! Be sure that you connect the correct antenna cable to the correct port (ANT1 to ANT1, ANT2 to ANT2). Do NOT connect ANT1 to ANT2.

2. Using a torque wrench/screwdriver with an SMA (5/16) adapter, tighten the antenna cable connectors to 4 in-lbs. (0.45 N.m).
3. Connect the M12 antenna Control Cable to the M12 connector (female) on the AP module.
4. Connect the other end of the M12 antenna Control Cable to the M12 connector (male) on the Antenna module.

FIGURE 8 E510 Antenna Module connectors



NOTE: The Control Cable has one male and one female connector to prevent installing the cable incorrectly.

Power Input

The E510 can accommodate two sources of power, 802.3af PoE power or 12V-48V DC.

The E510 can be powered by 802.3af PoE switch or Ruckus-supplied PoE injector.

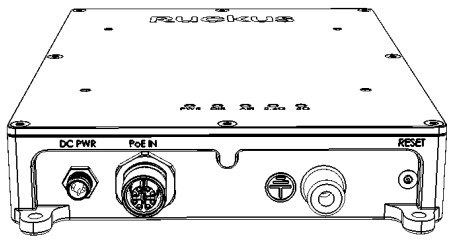
Alternately, power can be supplied from a DC power source using the M8 connector.

When both power sources exist, 12-48V DC takes priority over PoE Power.

NOTE: For information on the recommended M8 cable connectors for the E510, refer to the *M8 and M12 Connectors* section in *Purchased Separately*, above.

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FIGURE 9 E510 DC power and PoE In ports



Connecting the Ethernet Cable

The E510 has one 10/100/1000 PoE Ethernet port with M12 weatherproof connector.

Connect the Ethernet cable to a 802.3af-compliant PoE switch or injector to provide both power and network connectivity.

NOTE: For information on the recommended M12 cable connectors for the E510, refer to the *M8 and M12 Connectors* section in *Purchased Separately*, above.

Factory Reset Button

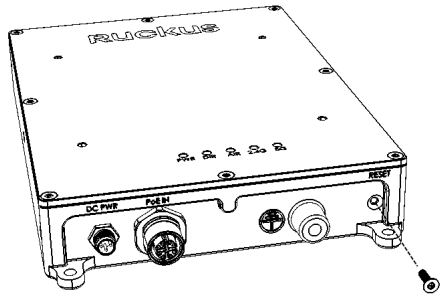
The Reset button can be accessed by removing the Torx screw labeled RESET.

Use a T10 Security Torx screwdriver or bit to remove the Torx screw covering the Reset button.

Insert a pin or similar object less than 2.5 mm in diameter into the reset hole to reboot or factory reset the device.

Press and release the reset button to reboot the AP. Press and hold the reset button for 4+ seconds to restore to factory defaults.

FIGURE 10 Remove Torx screw to access Reset button



CAUTION! Remember to replace the Torx screw covering the Reset button after use. Insert the screw and torque to 4 in-lbs. (0.45 Nm).

USB Port

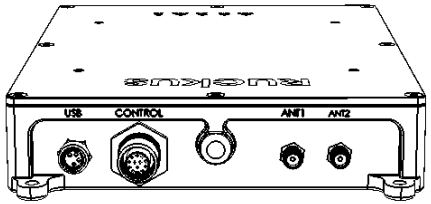
E510 has one USB 2.0 port as an M8 IP67 connector (Female). This port provides both a data connection and power output for an IoT device such as a BLE Smart Beacon or ZigBee dongle.

A USB cable with an M8 connector at one end and a USB 2.0 Type-A connector at the other end can be attached to the female M8 connector on the E510 AP module.

A USB Module Accessory can be purchased separately, and comes with a 3m USB cable (RUCKUS PN# 902-2003-0000).

NOTE: Please refer to the *E510 USB Cable Quick Setup Guide* for more information.

FIGURE 11 E510 USB port, Control cable and Antenna cable connectors



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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