



Installation Guide
Version 1.0

**Altai A3c and A3w
Dual-band 3x3 802.11ac
Wi-Fi Access Point**

Copyright © 2015 Altai Technologies Limited

ALL RIGHTS RESERVED.

Altai Technologies Limited

Unit 209, 2/F, Lakeside 2,
10 Science Park West Avenue,
Hong Kong Science Park,
Shatin, New Territories,
Hong Kong

Telephone: +852 3758 6000

Fax: +852 2607 4021

Web: www.altatechnologies.com

Customer Support Centre:

Email: support@altatechnologies.com

Radio Frequency Interference Requirements

A3c and A3w comply with Part 15 of FCC Rules.

Operation is subject to the following conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.
3. This device should not be co-located or operating in conjunction with any other antenna or transmitter.

Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules; these limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance, (example – use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Warning

The user is advised to keep apart from the base-station and antenna with at least 45cm when the base-station is in operation.

A3c and A3w require professional installation.

The user is advised to keep apart from the base-station and antenna with at least 45cm when the base-station is in operation.

Please install a lightning arrestor to protect the access point for lightning dissipation during rainstorms. Lightning arrestors are mounted outside the structure and must be grounded by means of a ground wire to the nearest ground rod or item that is grounded.

Disclaimer

All specifications are subject to change without prior notice. Altai Technologies assumes no responsibilities for any inaccuracies in this document or for any obligation to update information in this document. This document is provided for information purposes only. Altai Technologies reserves the right to change, modify, transfer, or otherwise revise this publication without notice.

Table of contents

1. INTRODUCTION	1
2. FIELD INSTALLATION	2
2.1. CHECK A3C/A3W DUAL-BAND 3X3 802.11AC WI-FI ACCESS POINT PACKAGE	2
2.2. INTRODUCTION OF A3C / A3W DUAL-BAND 3X3 802.11AC WI-FI ACCESS POINT	3
2.3. PREPARATION OF A3C / A3W INSTALLATION	4
2.4. A3C / A3W INSTALLATION PROCEDURE	5
2.4.1. Ceiling Mount (for A3c only)	5
2.4.2. Wall Mount (for A3w only)	7
2.5. ETHERNET CABLE WIRING	9
2.6. POWER OVER ETHERNET (POE)	10
3. REVIEWING INSTALLATION PROCEDURES	11
4. LED COLORS AND WHAT THEY MEAN	12
5. ACCESSING A3C / A3W WEB ADMINISTRATION WEB INTERFACE (WEB UI)	13
5.1. PREPARING THE ADMINISTRATIVE COMPUTER	13
5.2. LOGIN WEB UI	14
5.3. SECONDARY IP ADDRESS OF A3C / A3W	15
6. RESTORING FACTORY DEFAULT SETTING	15

1. Introduction

This document is written to provide the necessary information for installing Altai A3c Dual-band 3x3 802.11ac Wi-Fi Access Point (A3c) and Altai A3w Dual-band 3x3 802.11ac Wi-Fi Access Point (A3w) on field location.

This document is applicable for the following models:

Product name: A3c / A3w Dual-band 3x3 802.11ac Wi-Fi Access Point

Model number: WA3311NAC-C / WA3311NAC-W

It is assumed that site survey has been performed. Appropriate antenna pole and AP locations have been selected. It is highly recommended that cable lengths of various cables are confirmed. Good site installation plan should consist of site map, drawing illustrating AP and poles locations, antenna bearing/down-tilt, antenna height, and network topology.

User may refer the following documents during A3c / A3w installation and configuration.

[1] A3 Series Dual-band 3x3 802.11ac Wi-Fi Access Point
Configuration Guide

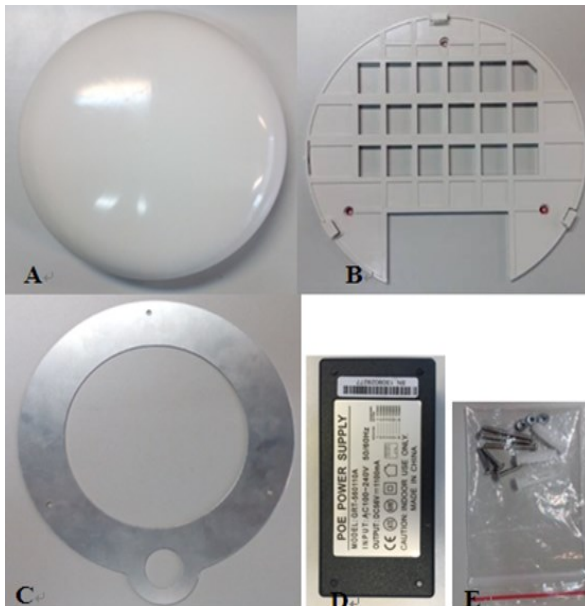
[2] A3c/A3w Dual-band 3x3 802.11ac Wi-Fi Access Point Data Sheet

2. Field Installation

2.1. Check A3c/A3w Dual-band 3x3 802.11ac Wi-Fi Access Point Package

Check the package against the packing list to ensure the device and necessary parts are included. Typical shipment consists of the device and parts as shown below. Please contact our sales representative if there is any difference from the packing list.

Moreover, verifying if the device has any physical defect. If so, please contact our sales representative for repair or replacement.



- A. A3c / A3w Dual-band 3x3 802.11ac Wi-Fi Access Point
- B. Mounting Bracket
- C. Ceiling Mount Plate
- D. PoE Injector
- E. Screws, Nuts, and Plastic Anchors

Figure 1 – A3c / A3w Standard Package

A3c/A3w standard package contents:

Main Unit

- A3c / A3w Dual-band 3x3 802.11ac Wi-Fi Access Point x 1

Accessories

- Mounting Kit: x 1 set
 - Mounting Bracket x 1
 - Ceiling Mount Plate x 1
 - M3 Screw x 3
 - M3 Nuts x 3
 - Anchor screw x 3
 - Plastic anchor x 3
- PoE Power Injector x 1
- Installation Guide x 1

2.2. Introduction of A3c / A3w Dual-band 3x3 802.11ac Wi-Fi Access Point

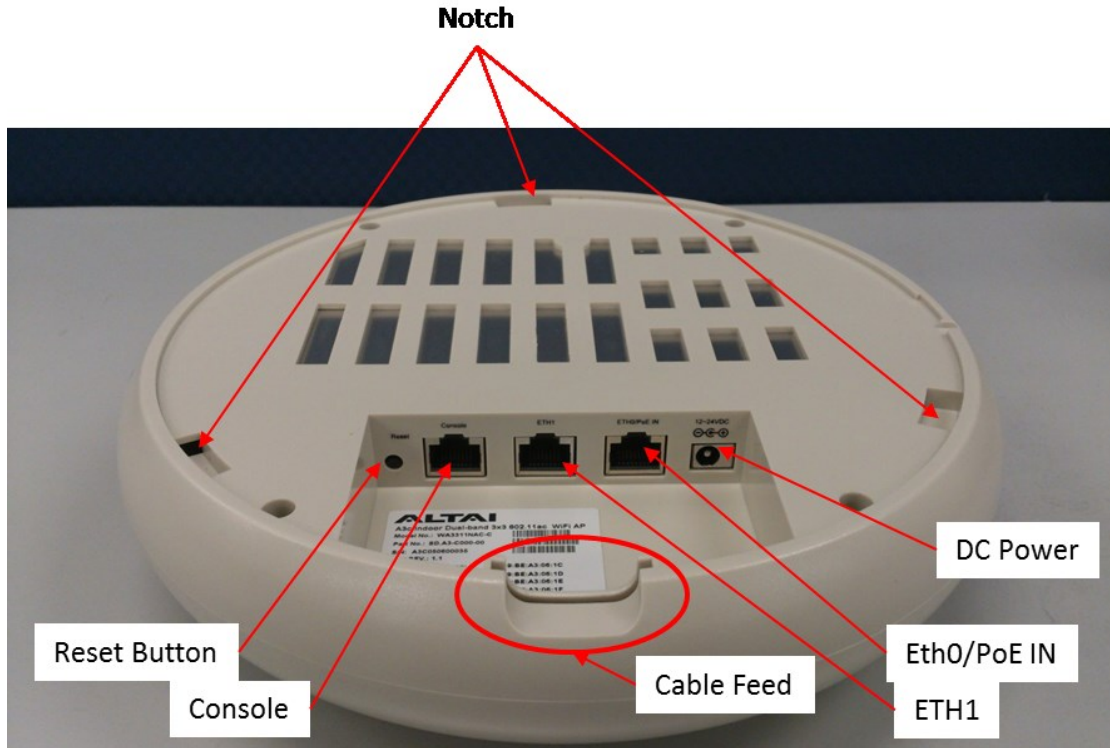


Figure 2 - A3c / A3w Back View

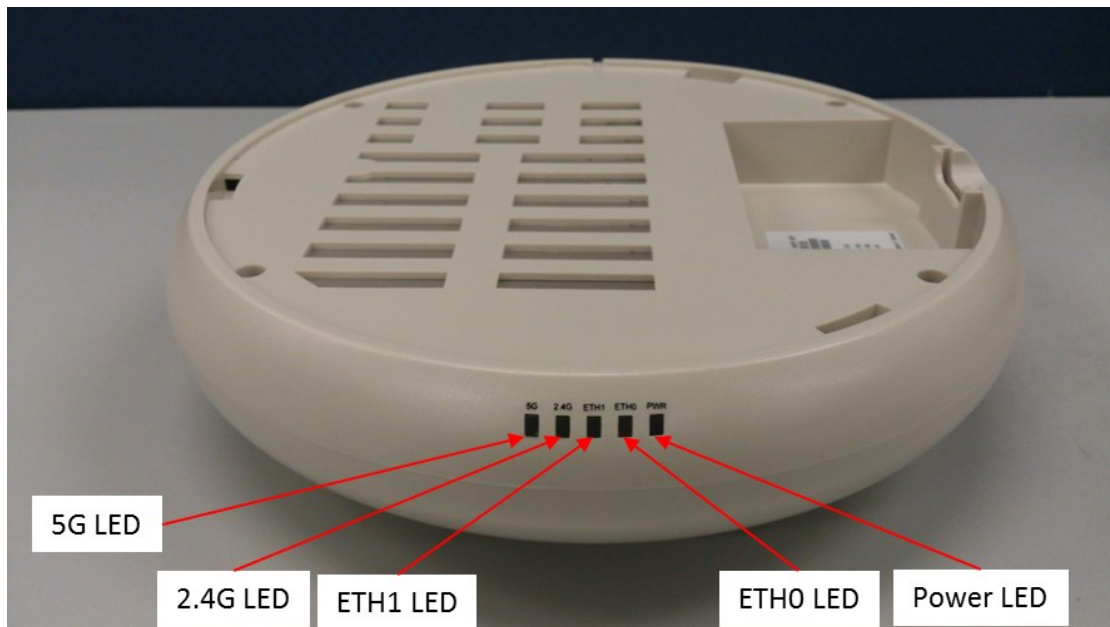


Figure 3 – A3c / A3w Side View



Note: AP configuration should be done before installation.

2.3. Preparation of A3c / A3w Installation

Before installation, please prepare the following tools and accessories:

Tools:

- Drill with M3, and M6 drill bits
- Cross Screw Driver
- Adjustable Wrench
- Hammer (for wall mount only)
- Wire Stripping Tool and Crimping Tool

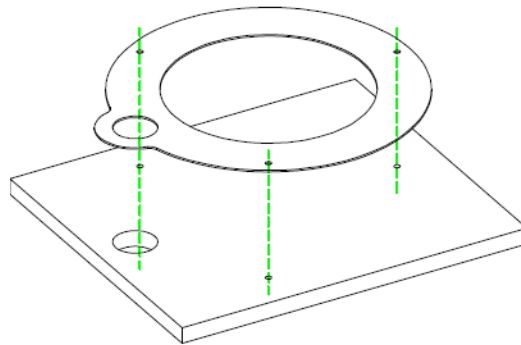
Accessories

- Ethernet cable x 2 - 3

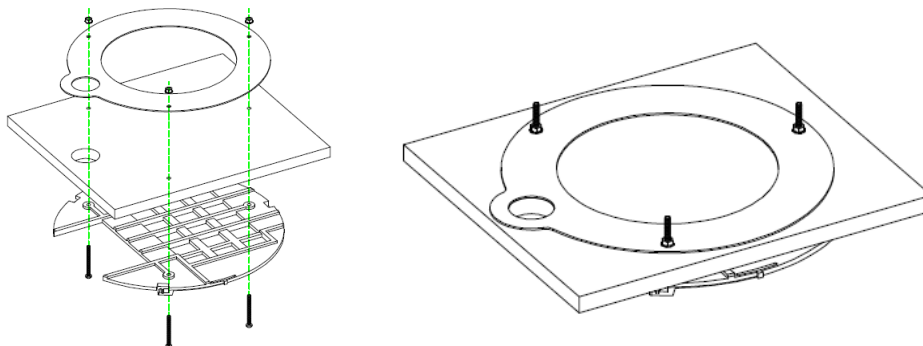
2.4. A3c / A3w Installation Procedures

2.4.1. Ceiling Mount (for A3c)

1. Remove the ceiling tile.
2. Position the Mounting Bracket at the desired location on the ceiling tile. Mark and cut the three mounting screw holes and a hole with 25 mm (1 in) diameter for the Ethernet cable.



- Figure 4 - Mark and cut screw holes and hole for the Ethernet cable on the ceiling tile
3. Secure the Mounting Bracket to the ceiling tile using the Ceiling Mount Plate, M3 Screws, and Nuts. Then feed the Ethernet cable through the 25 mm (1 in) hole.



- Figure 5 - Secure the Mounting Bracket to the ceiling tile using the Ceiling Mount Plate, M3 Screws, and M3 Nuts.
4. Set the ceiling tile back into place. Then connect the Ethernet cable to the **Eth0/PoE IN** Ethernet port.

5. Align the notches on the A3c with the tabs on the Mounting Bracket.

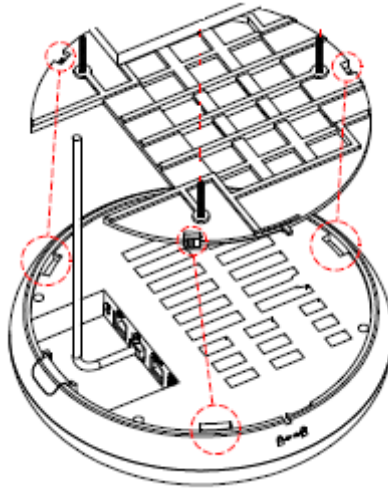


Figure 6 - Align A3c with Mounting Bracket

6. Rotate the A3c **clockwise** until it locks into place.

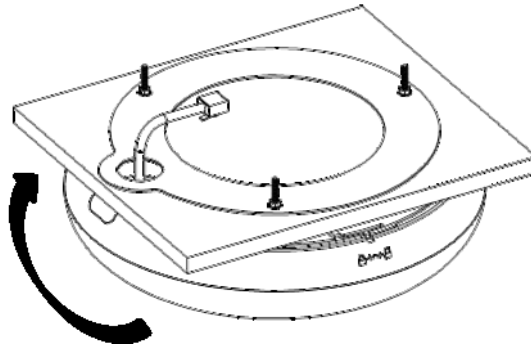


Figure 7 - Rotate A3c clockwise

2.4.2. Wall Mount (for A3w)

1. Position the Mounting Bracket at the desired location on the wall with the cable feed slot pointed towards the floor. Mark the three mounting screw holes on the wall
2. Drill the holes (diameter: 6mm; depth: 25 – 30mm) on the wall.
3. If **feeding Ethernet cable through the wall**, cut or drill a circle approximately 25 mm in diameter, just below the bottom center of the Mounting Bracket (see Figure 8). Then feed the CAT 5e/6 cable through the hole.

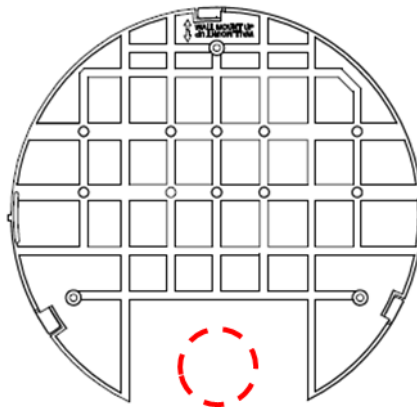


Figure 8 - Cut or drill a circle on the wall for Ethernet cable feeding

4. If **feeding Ethernet cable along the mounting Surface**, remove the Cable Feed Plug from A3w.
5. Insert the Screw Anchors into the 6 mm holes.
6. Secure the Mounting Bracket to the wall by inserting the screws into the anchors.

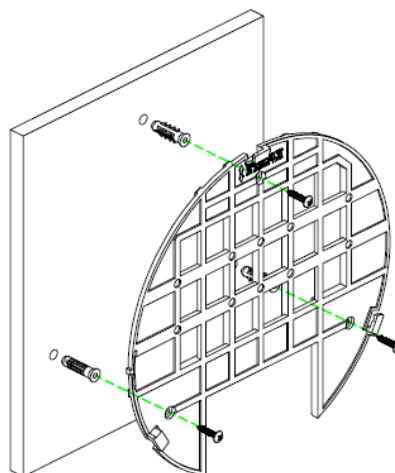


Figure 9 – Secure the Mounting Bracket on the wall

7. Connect the Ethernet cable to the **Eth0/PoE IN** Ethernet port. If the feed is along the mounting surface, feed the cable through the Cable Feed of the A3w.

- Align the notches on the A3w with the tabs on the Mounting Bracket.
Then, rotate the A3w **clockwise** until it locks into place.

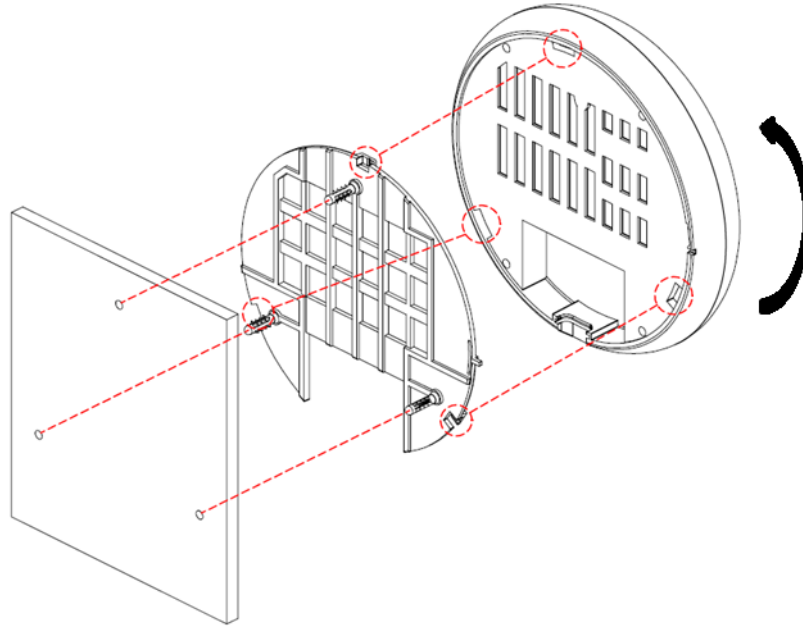


Figure 10 – Rotate A3w clockwise

2.5. Ethernet Cable Wiring

Pins on RJ-45 connector are shown in Figure 11.

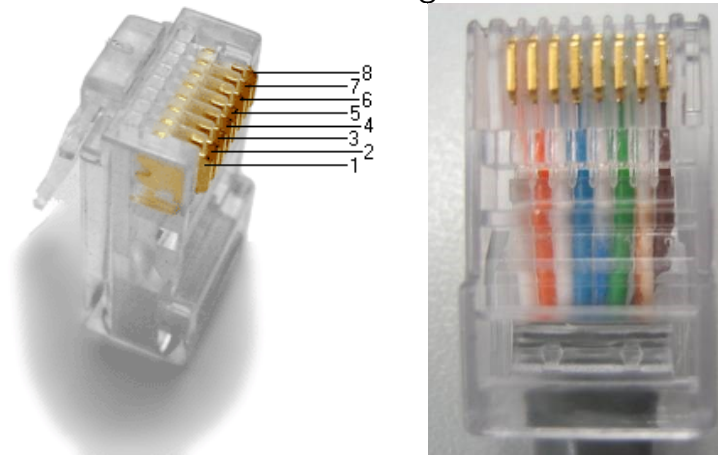


Figure 11 - Pins on RJ-45 connector

Assign the untwisted wire of Ethernet cable into the order which is shown in Table 1.



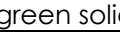

Pins	Pair	Wire Color
1	2	 white/orange strip
2	2	 orange solid
3	3	 white/green strip
4	1	 blue solid
5	1	 white/blue strip
6	3	 green solid
7	4	 white/brown strip
8	4	 brown solid

Table 1 - Assignment of wire pair of Ethernet cable and pins of RJ-45 connector

2.6. Power over Ethernet (PoE)

Refer to the following diagram when using PoE to power the A3c / A3w.

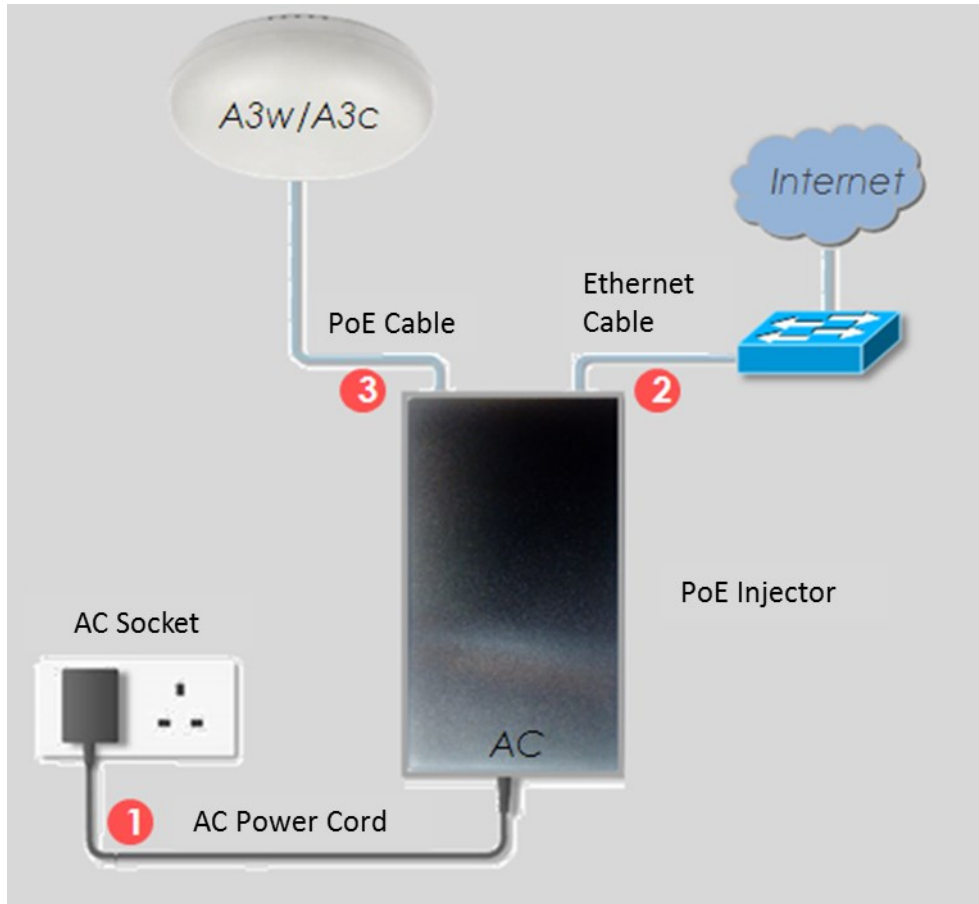


Figure 12 – A3c / A3w PoE installation

Note:

- AC power cord, Ethernet cable, and PoE cable are not included in the package
- Ethernet cable and PoE cable should be CAT 5e or above
- Maximum length of Ethernet cable and PoE cable must be less than (<) 100m

PoE Injector Connection:

Port on PoE Injector	Connect to
Data In	Backhaul link, computer or peripherals
Data & Power Out	A3c / A3w Eth0/PoE IN Port



Caution: Make sure cables are connect to correct ports of the PoE to avoid electrical damage to peripheral Ethernet port!

3. Reviewing Installation Procedures

Make sure that all cables are connected properly with the following procedures after completing the A3c / A3w installation and aligning the antenna:

- Check all cables are connected to PoE injector correctly and properly.
 - Make sure the Ethernet cable from PC or backhaul network equipment is connected to “Data In” port of PoE injector.
 - Make sure the Ethernet cable from A3c / A3w is connected to “Data & Power Out” port of PoE injector.
 - Make sure that Ethernet cable from PoE Injector is connected to Eth0/PoE IN port on A3c / A3w
- Make sure the PoE injector's light is on.
- Make sure the right cables are used during the installation

4. LED Colors and What They Mean

LED	Mode	LED Status (Color)	Meaning
PWR	Standalone AP	Off	Power off
		Blinking slowly (Orange)	Booting
		Solid (Orange)	Operating
	Thin AP	Off	Power off
		Blinking slowly (Orange)	Booting
		Blinking slowly (Green)	Discover / Connect to Access Controller
		Solid (Green)	Connect to Access Controller successfully and operating
Eth0/PoE IN	--	Off	Link Down
	100Mbps	Solid (Green)	Link Up
		Blinking (Green)	Activity
	1000Mbps	Solid (Blue)	Link Up
		Blinking (Blue)	Activity
	Eth1	--	Off
100Mbps		Solid (Green)	Link Up
		Blinking (Green)	Activity
1000Mbps		Solid (Blue)	Link Up
		Blinking (Blue)	Activity
2.4G		AP	Off
	Solid (Green)		Radio On; No client associated
	Blinking (Green)		Radio On; At least one client associated
	Station / Repeater	Off	Radio Off
		Solid (Green)	Radio On; Not associate with remote AP
		Blinking (Green)	Radio On; Associate with remote AP
	Bridge	Off	Radio Off
		Solid (Green)	Radio On; Disconnect with remote peer
		Blinking (Green)	Radio On; Connect with remote peer

Table 2 - A3c / A3w operation LED indicators

LED	Mode	LED Status (Color)	Meaning
5G	AP	Off	Radio Off
		Solid (Green)	Radio On; No client associated
		Blinking (Green)	Radio On; At least one client associated
	Station / Repeater	Off	Radio Off
		Solid (Green)	Radio On; Not associate with remote AP
		Blinking (Green)	Radio On; Associate with remote AP
	Bridge	Off	Radio Off
		Solid (Green)	Radio On; Disconnect with remote peer
		Blinking (Green)	Radio On; Connect with remote peer

Table 3 - A3c / A3w operation LED indicators (continue)

5. Accessing A3c / A3w Web UI

5.1. Preparing the Administrative Computer

1. On your Windows XP or Windows 7 computer, open the Network Connections (or Change adapter settings) control panel according to how the Start menu is set up:

On **Windows XP**, click **Start > Control Panel > Network Connections**.

On **Windows 7**, click **Start > Control Panel > Network and Internet > Network and Sharing Center > Change adapter settings**.

2. Right-click the icon for Local Area Connection, and then click Properties.
3. When the Local Area Connection Properties dialog box appears, select Internet Protocol (TCP/IP) (or Internet Protocol Version 4 (TCP/IPv4)) from the scrolling list, and then click Properties. The Internet Protocol (TCP/IP) Properties dialog box appears.
4. Write down all of the currently active network settings. You will need this information later when you restore your computer to its current network configuration.

5. Configure the IP address settings with the values listed in Table 4.

IP Address	Any address in the 192.168.1.x, except 192.168.1.222 and 192.168.1.255 Example: 192.168.1.2
Subnet Mask	255.255.255.0
Default Gateway	Blank
DNS	Blank

Table 4 - Configure administrative computer's IP address settings

- Click **OK** to save the changes and close the TCP/IP Properties dialog box.
- Click **OK** again to close the Local Area Connection Properties dialog box.

5.2. Login Web UI

- Power on A3c / A3w
- Open a Web browser from the computer.
- Type <http://192.168.1.222> in the address bar or location bar.
- A3c / A3w login page appear (see Figure 13).
- Type "admin" in **Username**
- Type "admin" in **Password**
- Click **Login**

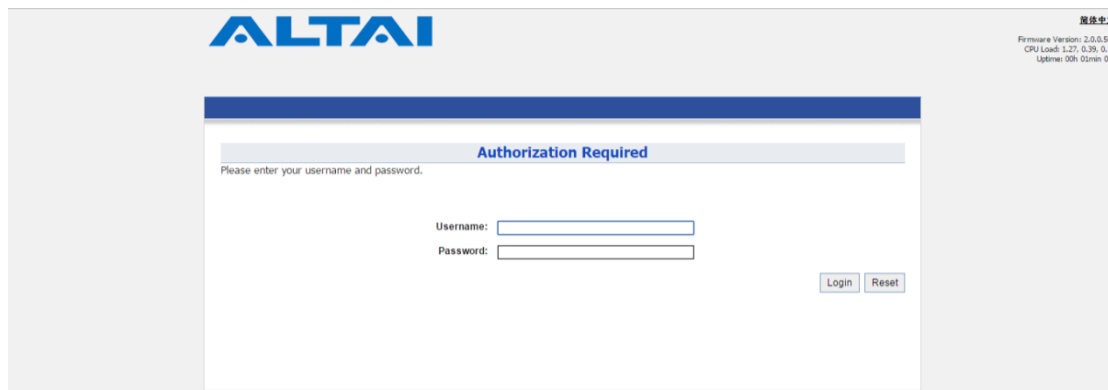


Figure 13 - A3c / A3w login page

5.3. Secondary IP Address of A3c / A3w

The default IP address of A3 series access point is 192.168.1.222/24. Also, A3 products support a fixed IP address on the Ethernet port called Secondary IP Address. This secondary IP address is 192.168.99.x/24 where x denotes as the decimal value of the last byte of the Ethernet MAC address on the access point.

Example 1:

Device Ethernet MAC address: 00:19:BE:20:03:**8C**

Secondary IP Address of this device: 192.168.99.**140** (**8C** (HEX) → **140** (DEC))

The secondary IP shall use IP address from 192.168.99.5 to 192.168.99.254. The rest of IP addresses are reserved. If the last byte of the MAC address matches any of the reserved IP addresses, the supported device shall follow the MAC to IP address mapping shown in Table 5:

Ethernet MAC address	Reserved Purpose	Replaced MAC byte	Secondary IP address
XX:XX:XX:XX:XX:00	Invalid IP	A0	192.168.99.160
XX:XX:XX:XX:XX:01	For gateway	A1	192.168.99.161
XX:XX:XX:XX:XX:02	For operator computer	A2	192.168.99.162
XX:XX:XX:XX:XX:03	For operator computer	A3	192.168.99.163
XX:XX:XX:XX:XX:04	For operator computer	A4	192.168.99.164
XX:XX:XX:XX:XX:FF	Invalid IP	AF	192.168.99.175

Table 5 - A3 Series secondary IP address

Example 2

Device Ethernet MAC address: 00:19:BE:20:03:**FF**

Secondary IP Address of this device: 192.168.99.**175** (**FF** (HEX) → **AF** (HEX) → **175** (DEC))

6. Restoring Factory Default Setting

Press and hold the reset button until *Power LED blinks twice consecutively* to restore factory default setting.



Caution: Restoring the device to factory default settings removes all configuration changes that were made. These include IP address, password, access control list, and wireless settings. Returning the configuration of these settings to factory default may result in loss of network connectivity.