



ALTAI C1N SUPER WIFI CPE

# INSTALLATION GUIDE

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**Radio Frequency Interference Requirements**

This device complies 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. If it is not installed and used in accordance with the instructions, harmful interference to radio communications may be caused.

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 away from the base-station and antenna with at least 45cm when the base-station is in operation.

Please install a lightning arrester to protect the base station from 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 changes 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.

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## 1. Introduction

This guide is designed to provide the information needed to mount Altai C1n Super WiFi CPE at the site location.

The document is applicable for hardware platform **C1n** and the following models.

Product name : **Altai C1n Super WiFi CPE**

It is assumed in this document that a site survey has been performed before the site installation. The appropriate antenna pole and AP locations have been selected. It is a good practice to have a document consists of a map and drawing illustrating the AP and poles locations. A planning on IP network is also an important issue for network planning.

The user may need to refer the following document during C1n installation and Configuration.

- [1] C1n Configuration Manual
- [2] C1n Super WiFi CPE Data Sheet

## 2. Field Installation

### 2.1. System Configuration Requirements

Check the equipments and the installation kits against the packing list to ensure that the equipment part numbers, parts, and the ancillary equipments included in the shipment match what is specified on the packing list. The shipment consists of a C1n Super WiFi Pico Access Point and an installation kit in the container. If there is any difference from the packing list, you will need to contact the sales representative. Please, inspect the equipment to see if there is any shipping damage. If it does have any damage, you could contact the sales representative for repair or replacement.



Figure 2-1 C1n Package (UK Adapter)

**Product:**

- ◆ C1n Super WiFi CPE x 1

**Accessories:**

- ◆ AC Adapter x 1
- ◆ DC Injector x 1
- ◆ Table Stand x 1
- ◆ Cable Tie x 2
- ◆ Anchor and Screw x 2
- ◆ Quick Installation Guide

## 2.2. Introduction C1n Super WiFi CPE

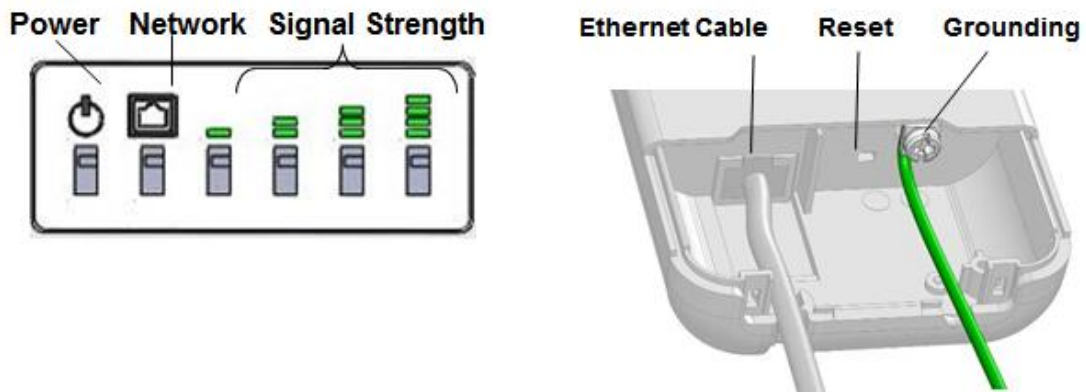


Figure 2-2 C1n Label

*Remark: Grounding is recommended for outdoor installation*

## 2.3. Installing C1n Super WiFi CPE

Before installation, please prepare the following tools:

- 1) Screw Driver (for wall mount)
- 2) RJ45 Shielded Connector Crimper
- 3) STP CAT5 Straight Cable x 2
- 4) Waterproof Sealing Tapes
- 5) Grounding Cable

## 2.4. Cable Connection

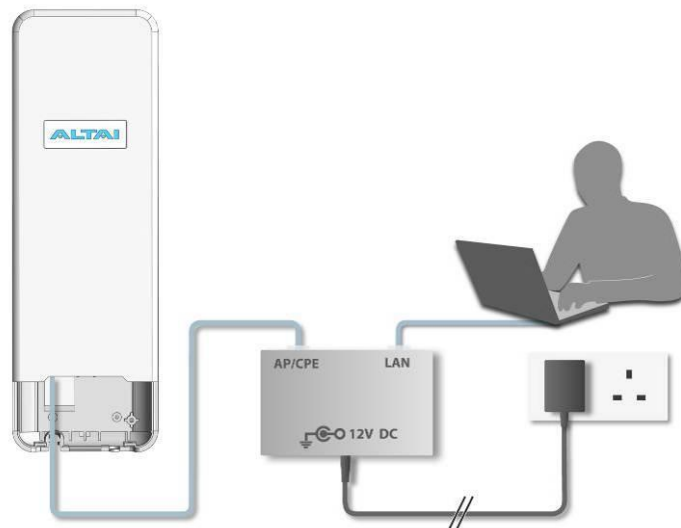


Figure 2-3 C1n Cable Connection Diagram

1. Connect C1n and DC injector with an Ethernet Cable

2. Connect another network cable between DC injector "LAN" port and a computer Ethernet port
3. Connect the AC power adapter to the DC injector and plug it into a power socket
4. Make sure both the Power LED and the Network LED light green

## 2.5. Desktop C1n Super WiFi CPE

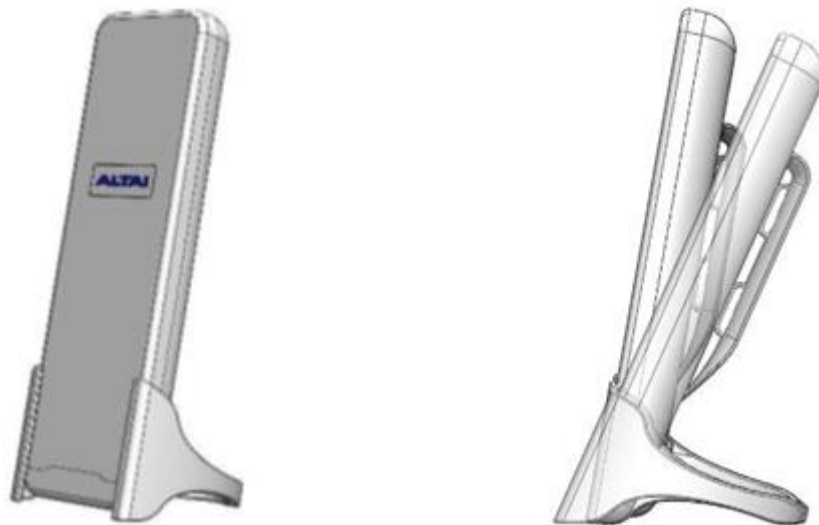


Figure 2-4 C1n Desktop mount

1. Select the appropriated tilting angles: 8° and 23°
2. Change the C1n orientation to face the wireless target (base station or wireless client)
3. Connect the LAN cable under the cable stand to the DC injector

## 2.6. Pole Mount C1n Super WiFi CPE



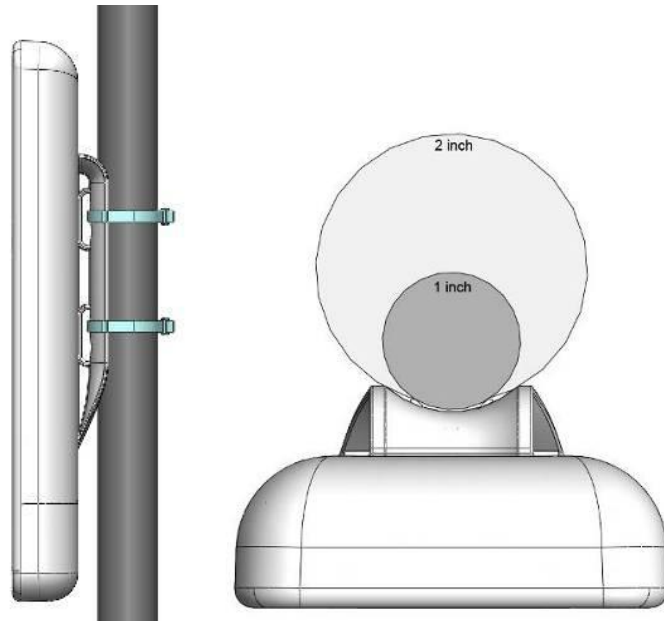


Figure 2-5 C1n Pole Mount

1. Use 2 wire clamps to mount on the pole with diameter about 25mm (1 inch).
2. Change the C1n orientation to face the wireless target

## 2.7. Wall Mount C1n Super WiFi CPE

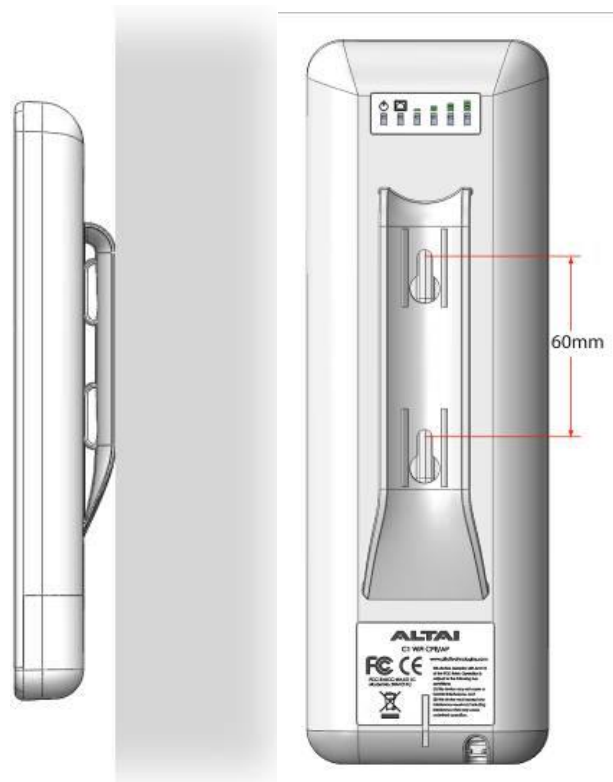


Figure 2-6 C1n Wall Mount

1. Drill two holes with separation by 60mm (2.3 inches)
2. Install the anchors on the holes and screw into the wall with 10mm (0.4 inch) extension.
3. Put the C1n onto the screw.

## 2.8. C1n Waterproof Protection

Especially for outdoor installation, waterproof protection can enhance the protection from water leakage. Both the LAN cable and the unit should be wrapped.



Figure 2-7 Cable Wrapping

1. Wrap the cable with a layer of rubber tape. Start from 5cm below the connector. Wrap a loop and overlap a half. Continue until it reaches under the connector.



Figure 2-8 First Layer-Rubber Tape

2. Wrap the C1n unit with a layer of rubber tape. Start from 1cm above of the lid. Wrap a loop and overlap a half. Continue until it reaches the bottom. The bottom should be completely shielded by the rubber tape.



Figure 2-9 Second Layer-Electrical Tape

3. Wrap the C1n unit with a layer of electrical tape. Start from 1cm above the rubber tape wrapping. Wrap a loop and overlap a half. Continue until it reaches the bottom.

## 3. Electrical Protection

### 3.1. Grounding

It is essential for the equipments being grounded properly in order to prevent the C1n from the electrical damage, and also to prevent the possible electric hazer due to non-proper power grounding. Secure the grounding screw tight and the strip connects to the ground.

The proper grounding design is required for all outdoor equipments. The poor grounding design could cause the potential electrical damage.

We recommend that the Altai C1n Super WiFi should be installed with lightning rod to avoid any potential electrical damage and to be connected with the ground node to the existing ground. Proper grounding will always be the safety consideration for the Altai C1n WiFi.

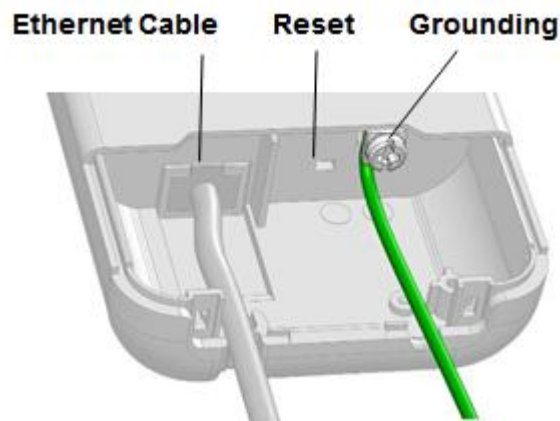


Figure 3-1 Grounding



**Caution:** Ground wires and hardware are not provided in the installation kit.

## 3.2. LAN Cable for Outdoor Installation

STP cable with shielded connectors is required to protect the C1n against ESD. Follow the instruction to crimp the cable:

1. Cut about 4cm of the wire coating.
2. Untwist eight wires with the order from left to right: Orange White, Orange, White Green, Blue, White Blue, Green, White Brown, and Brown. The order will be the same on both sides.
3. Straighten eight wires and cut the wire with only 2cm extension
4. Insert the wires into an RJ45 modular jack. The hook should face down. All eight wires should touch the top of the jack.
5. The foil and the shield of RJ45 connector should have direct contact
6. Insert the modular jack into the crimping tool. Press down on the tool firmly.

## 3.3. ESD Protection

The ESD (electrostatic discharge) can damage the electronic components. The ESD can cause latent damage that results in premature failure even if components remain function. The equipments must be properly grounded. The technical people always need to wear the proper ESD grounding straps and make sure the ESD grounding strap connecting to the ESD connector during equipment installation, maintenance and repairs.

### 3.4. Review the Installation

When you finish installing the bridges and aligning the Antennas, you need to secure all cable connection properly.

- ◆ Make sure the grounding strip is properly connected to the Ground.
- ◆ Check the cable to POE adapter is connected correctly.
- ◆ Make sure the cable from the PC or the notebook to the POE adapter is connected appropriately.
- ◆ Make sure the POE adapter's light is on.
- ◆ Make sure you use the right cables during the installation.
- ◆ Make sure all connectors are sealed with the waterproof seal.
- ◆ Configure the Altai A3 Smart WiFi with the setting you want before the field installation.
- ◆ Check if the both side bridges having the same radio settings.
- ◆ Make sure you set up the both MAC address on each side

After taking all of these checks, you need to use the Web-admin to test the link quality and to see if the RSSI value is in the right value range. You might need to do the Antenna alignment again if the performance is not good enough.

## 4. Deployment Scenarios

A typical site setup is shown below. The C1n can be mounted in indoor or outdoor environment.



Figure 4-1 C1n Desktop Mount



Figure 4-2 C1n Pole Mount