



Smart Installation Tool (CTL-2000)

User Guide

Equipment in this kit

The Smart Installation Tool kit includes the following:

- 1 x Smart Installation Tool
- 2 x Battery Packs
- 1 x AC Battery Charger
- 1 x Ethernet Passthrough Adapter
- 1 x US Charging cable
- 1 x EU Charging cable
- 1 x AU Charging cable
- 1 x UK Charging cable
- 1 x Carabiner strap
- 1 x Carry Case
- 1 x Welcome Card



1 x Installation Assistant (CTL-2000)



1 x Welcome Card



2 x Battery packs (Li-ion, 2Ah, removable)



1 x AC Battery Charger



1 x Ethernet Passthrough Adaptor



AC charging cables: NA, EU, AU, UK



1 x Carry Case



1 x Carabiner strap



1 x Safety/Compliance Leaflet

Figure 1- Not final images - to be replaced by line drawings/or better images and final case design

Product Overview

The Smart Installation Tool is a battery-powered tool which connects to the Power over Ethernet port on the back of a Casa Systems Outdoor Unit, providing power and a wireless access point. The installer can then use a portable wireless device, such as a laptop or tablet, to connect to the Outdoor Unit to read signal strength data and align it in the optimal position.



1	Ethernet cable with weather seals	Connects to the Ethernet port on the back of a Fixed Wireless Outdoor Unit to power it up and allow alignment.
2	Removeable battery pack	The battery pack slides into the Smart Installation Tool in only one orientation.
3	LED Indicators	Display various statuses. Refer to the LED Indicator table on page X for details.
4	Carabiner hook	Attach a carabiner here to free up your hands when climbing a ladder or when the device is not in use.
5	Power Button	Turns the Smart Installation Tool on or off.
6	Mounting Rail Clip	Slides on to the rail on the Outdoor Unit via this clip. Can only slide on to the rail in one direction.

Inserting, removing, and charging the battery

The Smart Installation Tool is equipped with a removable lithium-ion rechargeable battery.



Inserting the battery

Insert the battery into the Smart Installation tool by gripping the larger end of the battery and sliding it into the battery slot, ensuring the orientation is correct. A click sound can be heard once the battery locks into place.

Removing the battery

Remove the battery by gripping the device in one hand and the bottom of the battery in the other, then push in the two locking tabs and pull.

Charging the battery

Connect the included battery charger to a wall outlet, and ensure it is switched on. Insert the battery into battery charger, ensuring the orientation is correct. The light on the battery charger blinks green to indicate charging. The light turns solid green once the battery is charged.



Important – Do not leave the battery charging for extended periods. Once the light is solid green disconnect the charger from the outlet and remove the battery.

LED Indicators

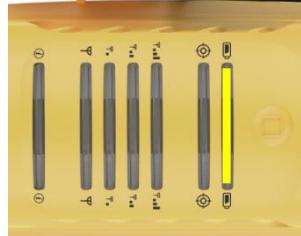
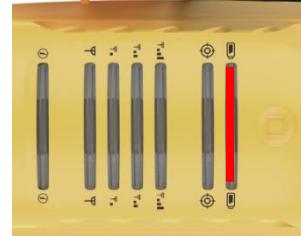
The LED Indicators display information to assist with the positioning of the antenna the device is attached to, and to indicate information about the tool itself, such as battery levels.



Warning – The LED indicators are designed to be bright so that they are visible outdoors. Do not view the LED indicators from close proximity or for long periods.

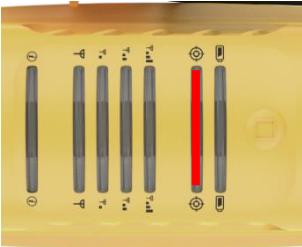
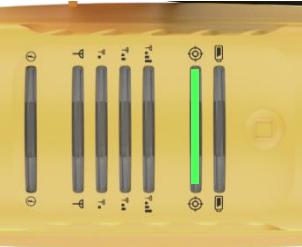
Battery Level

The battery level is indicated by the battery level LED.

		
Battery 50% – 100%	Battery 20% - 50%	Battery less than 20%

Calibration Status

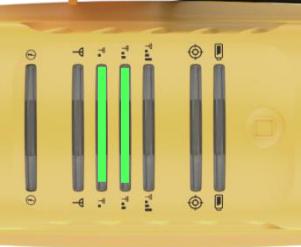
The Smart Installation Tool requires calibration each time it is powered on. The Calibration LED blinks red when the device needs to be calibrated. Follow the calibration steps on page x to calibrate the device.

	
Calibration Required	Calibrated

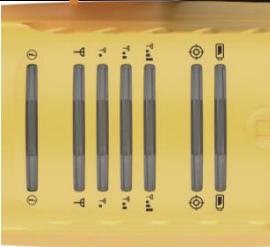
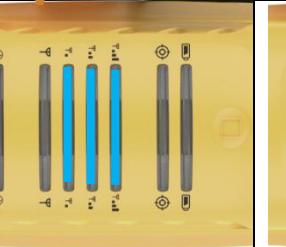
Signal Strength

The signal strength indicators are used to show both the signal strength and the type of service the Smart Installation Tool is receiving.

Signal Strength

		
< -98dBm (RSRP)	≥ -98dBm - < -75dBm (RSRP)	≥ -75dBm (RSRP)

Service Type

			
No Service	White LED - LTE	Blue LED - 5G mmWave	Green LED - 5G Sub-6

5G Stand Alone Network

Alongside the signal strength indicators, the device will indicate when it is connected to a 5G Stand Alone Network.

	
5G Stand Alone Network (Signal Strength Indicators also lit)	No 5G Stand Alone Network (Signal Strength Indicators lit but 5G Stand Alone Network LED is off)

Information

The information LED is not currently used.

Calibration

The Smart Installation tool may require calibration if the compass function is in use. If the compass function is in use, the device will require calibration every time it is switched on. The Calibration LED blinks red when the device needs to be calibrated.

To calibrate the device, hold the device with two hands and isolate it from any magnetic field or metal structures (for example, vehicles, the antenna pole, power lines, etc). Slowly and steadily rotate the unit fully through all three axes. See the diagrams below:



Internal Note – These to be replaced in final document



Note – Ensure the rotation of the device is done at a slow pace, with each movement taking three to five seconds. Moving too quickly will cause the calibration to take longer.

The Calibration LED turns green when calibration has been performed successfully.

Initial setup with the AuroraPro app

This section will be completed in a later document release.

Using the Smart Installation Tool to align an Outdoor Unit

To align an Outdoor Unit:

1. Prepare the Outdoor Unit as per the Installation Guide.
2. Power on the Smart Installation Tool using the power button. The device is ready to use as soon as the LEDs are visible on the device.

3. If the Calibration LED is blinking red, calibrate the device using the calibration instructions on page x.
4. Locate the mounting rail on the Outdoor Unit, then slide the Smart Installation Tool onto the rail. The Smart Installation Tool can only be slid onto the rail in one direction.

**Warning –**

When the Smart Installation Tool is connected to the Outdoor Unit, do not point the front panel of the Outdoor Unit directly at other people or yourself. Always maintain a separation distance greater than the recommended exposure distance of the connected Outdoor Unit between any part of your body and the front of the Outdoor Unit. We recommend that you disconnect the PoE cable

5. Connect the Ethernet cable of the Smart Installation Tool to the Power over Ethernet (PoE) port of the Outdoor Unit. The protruding yellow tab can be used to identify the top of the Ethernet cable for alignment. A click sound can be heard when the plug is inserted correctly.



6. Wait at least five minutes for the Outdoor Unit to complete its boot process, then on your smartphone, open the AuroraPro app, and follow the instructions to complete the Outdoor Unit installation.

**Note –**

If the Outdoor Unit is not discovered in the app, ensure that you have waited long enough for the antenna to have completed its boot up process. If the antenna has been powered on for more than 15 minutes, it will no longer be discoverable. In this case, power cycle the antenna by disconnecting then reconnecting the Ethernet cable and try again.

7. When you have completed the installation using the smartphone, disconnect the Ethernet cable of the Smart Installation Tool from the PoE port by pushing forward on the yellow tab and then pulling the plug.
8. Remove the Smart Installation Tool from the Outdoor Unit by holding the Outdoor Unit in one hand and sliding the Smart Installation tool off of the rail with the other.

Maintenance and Storage

Replacing the Ethernet cable

The Ethernet cable on the Smart Installation Tool is user replaceable.

The black fitting connected to the Smart Antenna tool contains the following components:



Body

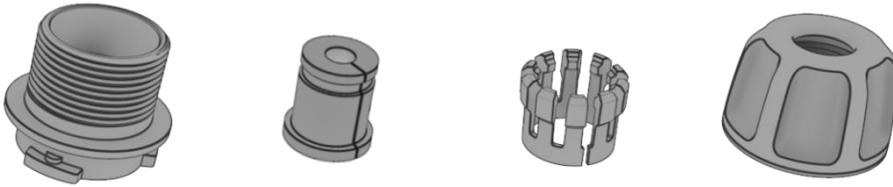
Sealing washer

Cable seal

Collar

Clamp

The yellow fitting that connects to Outdoor Units contains the following components:



Body (Internal Note:

Cable seal

Collar

Clamp

To be updated to
render that includes
clip)

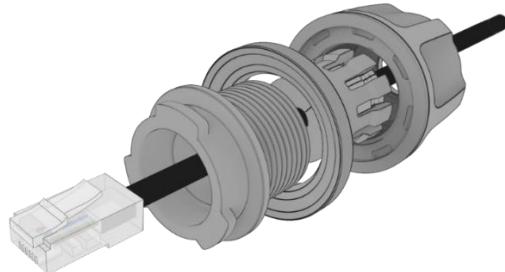
To replace the ethernet cable:

Removing the fittings from the existing cable:

1. Obtain or prepare a replacement Ethernet cable. The recommended replacement is a 50cm straight through Cat5e Ethernet cable.
2. On the black end of the Ethernet cable:
 - a. Unscrew the clamp surrounding the Ethernet cable on the Smart Antenna tool in a counterclockwise direction.
 - b. Pull back the cable seal surrounding the Ethernet cable, then disconnect the Ethernet cable from the Smart Antenna tool.
 - c. Remove the body, cable seal, sealing washer, collar and clamp.
3. On the yellow end of the cable:
 - a. Whilst gripping the clip section in one hand, unscrew the clamp surrounding the Ethernet cable in a counterclockwise direction.

- b. Pull the yellow clip housing off the Ethernet cable, removing the Ethernet clip through the larger hole at the rear of the housing.
- c. Pull back the clip and cable seal surrounding the Ethernet cable.

4. On the black end of the cable, reinstall the cable seal on the replacement Ethernet cable, installing as shown below:



5. On the yellow end of the cable, reinstall the cable seal and yellow clip housing, installing as shown in the diagram below. Ensure the Ethernet cable is installed through the clip body correctly.

Internal Note – Diagram to be created of yellow end of cable

6. Reconnect the black end of the Ethernet cable to the Smart Antenna tool Ethernet port, ensuring the Ethernet connector is aligned with the port on the Smart Antenna tool, then twist and click the black housing into place.

Tool storage

The Smart Installation Tool and associated components should be stored in the carry case when not in use. The case should be stored in a cool, dry environment.

Updating the Firmware

This section will be completed in a later document release.

Battery information

Battery Temperature

The temperature of the battery can influence both its performance and life span. To get the best performance out of your battery, ensure that it is used within the following temperature ranges:

Operating temperature range: -15°C to +40°C (ambient)

Battery charging temperature range: 0°C to +40°C (ambient)



Warning – Do not operate the Smart Installation Tool in direct sunlight for longer than 45 minutes.

Battery Storage

Batteries should be stored in the case when not in use to ensure they remain undamaged and in good condition.



Important – Batteries should not be stored in excessive heat or cold. Ensure that the case is not stored where there may be extreme temperature fluctuations, such as the rear of vans and trucks.



Replacing the batteries

Batteries degrade over time and may require replacement. The batteries in the Smart Installation Tool can be replaced and is compatible with 48-11-2430 and 48-11-2460 batteries available from local online resellers.



Important – Warranty is only applicable whilst using the Casa Systems supplied batteries or certified 48-11-2430 and 48-11-2460 branded replacement batteries. The use of generic compatible batteries from other vendors is at the user's risk.

Firmware management and updates

The Smart Antenna tool can be used to update firmware and configuration on Outdoor Units.



Note – The software of the Smart Installation Tool has not been finalised, and the below stages may not be complete, or may change depending on the final version of the software.

Outdoor unit firmware update management

This section will be completed in a later document release.

Outdoor unit configuration management

This section will be completed in a later document release.



Safety and Regulatory Information

FCC (USA)

RF Exposure

The CTL-2000 contains a transmitter and a receiver. When it is on, it receives and transmits RF energy. When you communicate with your device, the system handling your connection controls the power level at which your device transmits. The CTL-2000 meets the government's requirements for exposure to radio waves. It is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

When the CTL-2000 is connected to the Outdoor Unit during the installation process, this equipment should be operated with a minimum distance greater than the recommended exposure distance of the connected Outdoor Unit between the radiator and your body.

The exposure standard for wireless transmitter employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the government FCC is 1.6 W/kg when averaged over 1g of tissue.

The highest SAR value for the EUT as reported to the FCC when averaged over 1g of tissue is 0.34W/kg and when worn on the body.

FCC compliance

Federal Communications Commission Notice (United States): Before a wireless device model is available for sale to the public, it must be tested and certified to the FCC that it does not exceed the limit established by the government-adopted requirement for safe exposure.

FCC regulations

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device must not cause harmful interference, and (2) this device must accept any interference received, including interference that will cause undesired operation.

This device 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 or more 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



COMPANY DETAILS

Casa Systems, Inc. 100 Old River Road, Andover, Massachusetts 01810 USA

<https://www.casa-systems.com/contact-us/>

PRODUCT DETAILS

Product: Smart Installation Tool; Model No: CTL-2000

Canada (IC)

This Class B digital apparatus complies with Canadian ICES-003. This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: 1. This device may not cause interference, and 2. This device must accept any interference, including interference that may cause undesired operation of the device.

RF RADIATION EXPOSURE STATEMENT:

This device has been tested and meets applicable limits for Radio Frequency (RF) exposure.

The exposure standard for wireless transmitter employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the government ISED is 1.6 W/kg when averaged over 1g of tissue.

The highest SAR value for the EUT as reported to the ISED when averaged over 1g of tissue is 0.34W/kg and when worn on the body.