

Wireless Keypad Provisioning Guide

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This guide contains information on how to provision Savant Wireless Keypads to the local network using the SmartConnect app, Studio app, or the keypad's embedded web interface. Details on relevant keypad LED sequencing are also provided. Products covered by this guide include:

ECHO Style

WPB-xxA106	Configurable Adaptive Dimmer
WPB-xxT106	Configurable MLV Dimmer
WPB-xxS106	Configurable Switch
WPK-xxA105	Dial Keypad Adaptive Dimmer
WPK-xxT105	Dial Keypad MLV Dimmer
WPK-xxS105	Dial Keypad Switch
WPD-xxA102	Two Button Adaptive Dimmer
WPD-xxT102	Two Button MLV Dimmer
WPS-xxS102	Two Button Switch

Metropolitan Style

WIB-xxA106	Configurable Adaptive Dimmer
WIB-xxT106	Configurable MLV Dimmer
WIB-xxS106	Configurable Keypad Switch
WIK-xxA105	Dial Keypad Adaptive Dimmer
WIK-xxT105	Dial Keypad MLV Dimmer
WIK-xxS105	Dial Keypad Switch
WID-xxA102	Two Button Adaptive Dimmer
WID-xxT102	Two Button MLV Dimmer
WIS-xxS102	Two Button Switch

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Important Safety Information - Read First

Before installing, configuring, or operating any equipment and other, Savant recommends that each dealer, integrator, or installer, access and read all the relevant technical documentation. Savant technical documentation can be located by visiting the [Savant Community](#). Vendor documentation is supplied with the equipment.


Read and understand all safety instructions, cautions, and warnings in this document and the labels on the equipment.

Safety Classifications In this Document


NOTE:	Provides specific information for installing, configuring, and operating the equipment.
 IMPORTANT!	Provides specific information that is critical to installing, configuring, and operating the equipment.
 CAUTION!	Provides specific information for avoiding situations that may cause damage to equipment.
 WARNING!	Provides specific information for avoiding situations that may cause physical danger to the installer, end-user, etc.

Electric Shock Prevention

 **ELECTRIC SHOCK!** The source power poses an electric shock hazard that has the potential to cause serious injury to installers and end users.

 **ELECTRICAL DISCONNECT:** The source power outlet and power supply input power sockets should be easily accessible to disconnect power in the event of an electrical hazard or malfunction.

Weight Injury Prevention

 **WEIGHT INJURY!** Installing some of the Savant equipment requires two people to ensure safe handling during installation. Failure to use two installers may result in injury.

Safety Statements

All safety instructions below should be read, understood, and applied under all relevant circumstances when working with this equipment.

1. Follow all input power ratings marked on product near power input.
2. If fuse replacement is required, replacement fuse should match fuse rating marked on the product.
3. Do not use equipment near water.
4. Clean only with dry cloth.
5. Do not block any ventilation openings or install near any heat sources such as heat registers, stoves, radiators, amplifiers, etc.
6. Refer all servicing to qualified service personnel. Servicing is required when any part of the apparatus has been damaged in any way, or fails to operate normally for any reason.
7. Use only attachments/accessories specified by the manufacturer, following all relevant safety precautions for any such attachments/accessories.
8. For applicable equipment, use the included power cord with the grounding prong intact to insure proper grounding of the device.
9. If the provided plug does not fit the desired outlet, contact a licensed electrician to replace the obsolete outlet.
10. Protect any power cord from being walked on, pinched, strained, or otherwise potentially damaged, especially at the outlet or device connections.
11. Disconnect any outlet powered apparatus from its power source during lightning storms or when unused for long periods of time.
12. To completely disconnect equipment from AC mains power, disconnect the power supply cord plug from the AC receptacle on the device.
13. For any hardwired or fixed in-wall apparatus, carefully follow all wiring diagrams and instructions. All electrical wiring and servicing should be performed by a properly licensed electrician.

1. Before You Begin - Helpful Information

- All keypads must be mounted and wired before provisioning. For wiring instructions, refer to the documentation for the specific product in use.
- A local Wi-Fi network must be available, and the network SSID and password must be known.
- **SmartConnect App Requirements** - iOS only, Bluetooth v4.0 or higher. SmartConnect is available for download from the Apple App Store for iPad and iPhone devices.
- **Studio App Requirements** - iPad (64 bit) running iOS 10.3 or higher, Bluetooth v4.0 or higher. Savant Studio is available for download from the Apple App Store.
- To provision keypads via the embedded web UI, the Safari, Firefox, and Google Chrome browsers have been tested and verified as supported by Savant. Other browsers may also function, but should problems be encountered, the process should be retried using one of the recommended browsers above.
- Auxiliary Control Keypads (WP3-xx0002-xx, WI3-xx0002-xx) function using a direct wired connection to the main keypad, and cannot be provisioned to the local Wi-Fi network.

2. SSID Guidelines

All wireless keypads can connect to a Wi-Fi network that meets the following guidelines.

Maximum SSID Length	32 characters
Maximum Passphrase Length	WPA/WPA2: 8-50 characters WEP: 10-26 characters
Wireless Standard	802.11 b/g/n (2.4 GHz)

In addition to A-Z, a-z, and 0-9, the special characters below are also supported.

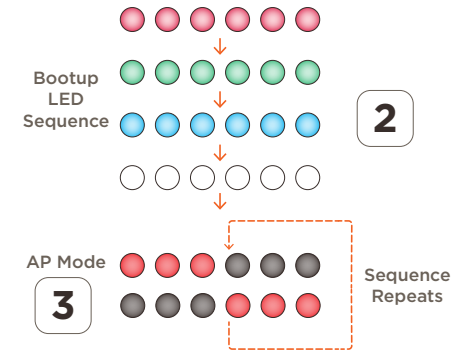
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3. Provision Keypad Using SmartConnect


The process for provisioning a Savant wireless keypad using the SmartConnect App is described below. The steps assume the keypad is in its default state as shipped from the factory with firmware running and no configuration loaded. The keypad should be installed in its final location and wired to a 120V AC circuit.


Apply Power

1. Remove the front faceplate to access the service switch (only if required).
2. Toggle the service switch to apply power. Once powered, the keypad will boot-up, run a short diagnostic, and flash the sequence shown in the diagram to the right (Red, Green, Blue, White).
3. With the boot-up complete, the keypad enters Access Point mode (AP Mode). In this state the keypad broadcasts its own SSID, and is ready for provisioning.

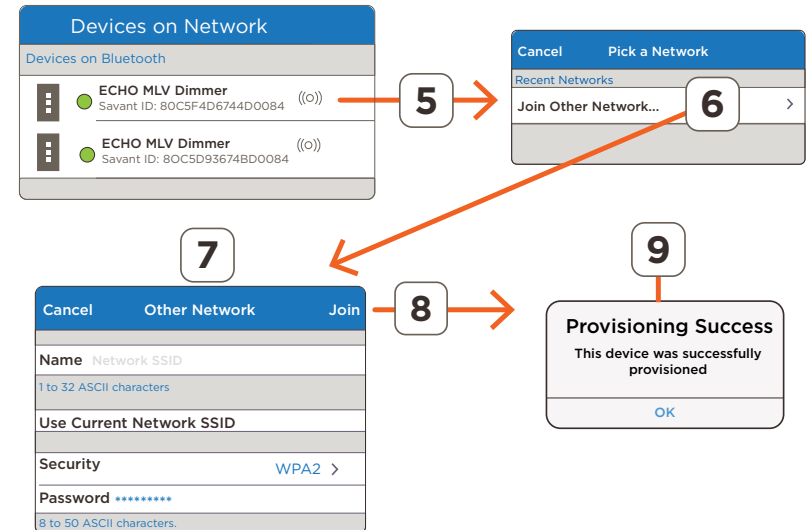



Open SmartConnect and Provision

4. Open SmartConnect by selecting its icon .
5. Locate and select the keypad listed under the **Devices on Bluetooth** section.
6. Select the **Join Other Network...** field.

 **TIP!** Follow steps 7-9 to provision the first keypad. After provisioning the first keypad, SmartConnect saves the credentials for the network used. To provision the remaining keypads, select any unprovisioned keypad, and in the **Pick a Network** window that opens, select the saved network. This shortcut allows steps 7-9 to be skipped on all remaining unprovisioned keypads.

7. Fill in the appropriate fields using the descriptions below as a reference.
 - **Name** - Enter the Name/SSID of the network.
 - **Select Use Current Network SSID (Optional)** - Select to use the network SSID that the iPhone/iPad is connected to rather than entering the name manually.
 - **Security** - Select the type of security applied to the network (e.g., WPA / WPA2 / WEP).
 - **Password** - Enter the passphrase required to join the network.
8. Select **Join** to connect the keypad to the network.
9. A **Provisioning Success** message is displayed once the keypad has connected and received an IP address. The LEDs will blink in sequence as the keypad attempts to connect to the Host. See the [LED Sequences](#) section.



 **TIP!** Verify that the keypad is provisioned by swiping down on the SmartConnect screen. After the refresh, the keypad should be listed under the **Devices on Network** section.

4. Provision Keypad Using the Embedded Web UI

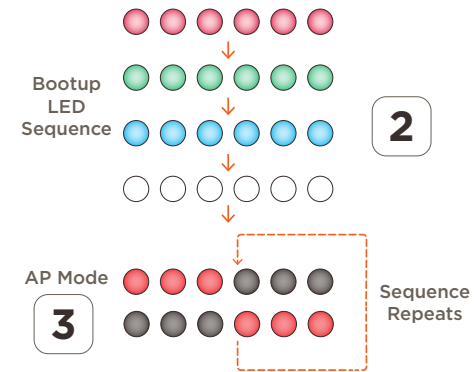
Section 3 above describes how to provision a keypad using the SmartConnect App. When the SmartConnect App is not available, provisioning can be completed using the Web UI embedded in the firmware of the keypad. Ensure that the following items are available before starting the process:

- SSID and passphrase of the local Wi-Fi network.
- Device such as a computer, mobile phone (iOS/Android), or tablet (iOS or Android) with wireless networking enabled. The images in the instructions below describe using a MacBook. The process is the same for other devices but the images may differ slightly.
- The keypads are mounted and wired to 120V AC.

NOTE: All the SSID guidelines mentioned in the previous section also apply here.

Apply Power

1. Remove the front faceplate to access the service switch (only if required).
2. Toggle the service switch to apply power. Once powered, the keypad will boot-up, run a short diagnostic, and flash the sequence shown in the diagram to the right (Red, Green, Blue, White).
3. With the boot-up complete, the keypad enters Access Point mode (AP Mode). In this state the keypad broadcasts its own SSID, and is ready for provisioning.

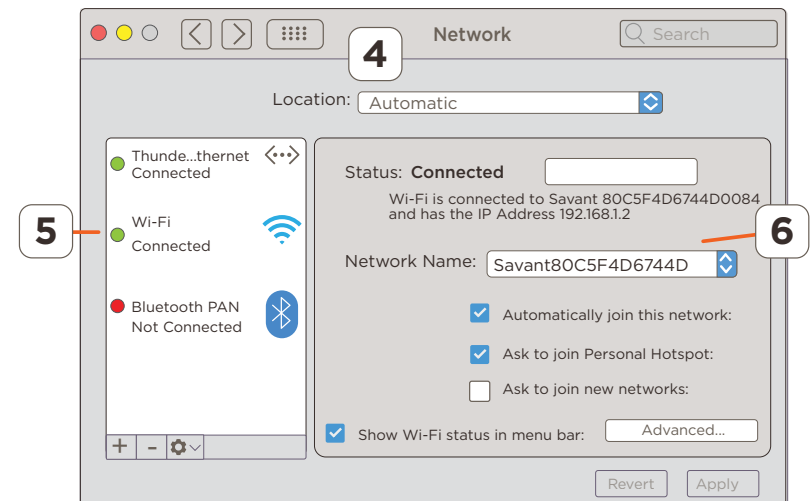


Connect Keypad to Wi-Fi

4. Open the network settings menu on any Wi-Fi enabled device that can access the local Wi-Fi network. The example image to the right shows the networking dialogue from a MacBook.
5. Select the **Wi-Fi** tab or similar.
6. Select the keypad from the list of networks available and verify the device's Wi-Fi connects to the keypad.

Note: The keypad is listed as **Savant<first twelve characters of UID>**.

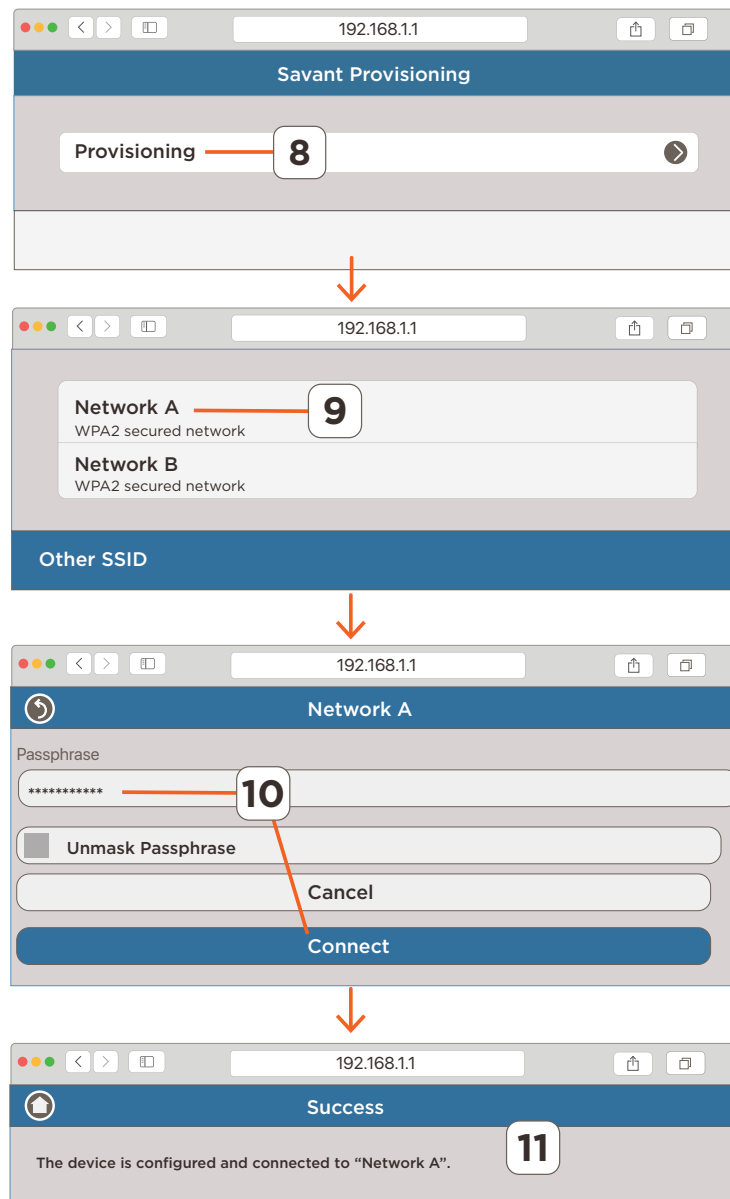
HELPFUL! The steps above refer to an Apple MacBook running an Apple OS X / MacOS. It is up to the user to know how to open the Networking window when using other operating systems such as Windows®.



7. Open a browser, enter the IP address **192.168.1.1** into the Address bar, and select the <Enter/Return> key. Chrome, Firefox, and Safari were tested and are known to function with the embedded Web UI; other browsers may work but are not verified.
8. Select the **Provisioning** field from the web page that opens.
9. From the list of networks presented, select the network the keypad will be joining.
10. Enter the **Passphrase** of the network and select **Connect**.
11. A **Provisioning Success** message is displayed once the keypad has connected and received an IP address. The LEDs will blink in sequence as the keypad attempts to connect to the Host. See the [LED Sequences](#) section.

***i* IF NETWORK IS NOT DISCOVERED!**

- Refresh the browser. Once updated, select the **Provisioning** button again.
- If the network is still not found after refreshing the browser, enter the network and its credentials manually:
 1. Select the **Other SSID** button (See second image to the right).
 2. In the window that opens, enter the network SSID, select the security format, and enter the network passphrase.
 3. Select **Connect** when complete.

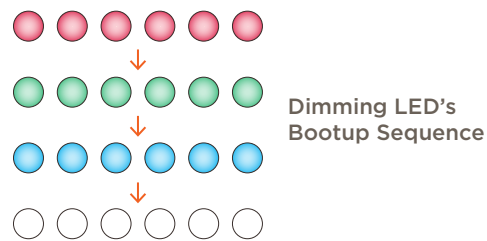


5. LED States

The dimming LEDs on each of the various keypads can indicate the state of the keypad. Understanding the current state of the keypad is essential when troubleshooting any issues that may arise during and after adding it to a Savant system. The various states for the wireless keypads are shown below.

Boot-up

A boot-up sequence happens each time a keypad is powered on using the service switch, or reset by pressing the reset button. One of the functions that occur during boot-up is the keypad calibrates itself to work with the type of load connected. The sequence shown below is the boot-up sequence.



ADDITIONAL INFORMATION:

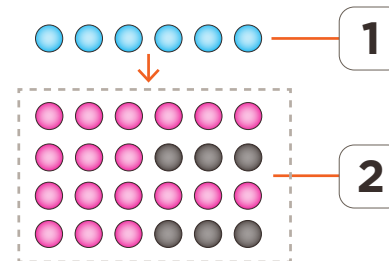
- Pressing and releasing the reset button resets the keypad and runs it through the boot-up diagnostics shown above. Also, when a load is connected to the output, the keypad calibrates itself to that load. Calibration is indicated by the load switching on and off and increasing and decreasing in intensity. The calibration only occurs when resetting through the reset button. Simply toggling power doesn't start the calibration process. Pressing the reset button after the keypad is provisioned is recommended.
- After boot-up, the dimming LEDs start blinking a pattern that corresponds to the state of the keypad. This blinking will last for about about 60 seconds and then stop. The **LED Sequences** section below presents the various sequences that could be offered.

Finding the State of a Keypad

When the LEDs on the front panel are not blinking, the state of the keypad is unknown. To find the keypad's state, press one of the keypad buttons. Once pressed, the dimming LEDs start blinking a sequence that corresponds to the state of the keypad. Unlike during Boot-up described in the previous section where the LEDs blink for 60 seconds, pressing a keypad button causes the keypad to blink for only 20-25 seconds. The steps below describe this process.

Press a button on the keypad:

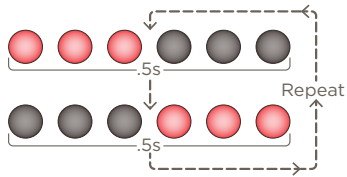
1. First, the dimming LEDs illuminate and indicate the power applied to the load.
2. After a second or two, the dimming LEDs will start blinking a sequence corresponding to the state of the keypad. In the image below, the sequence indicates the keypad is provisioned and trying to connect to a Savant Host.



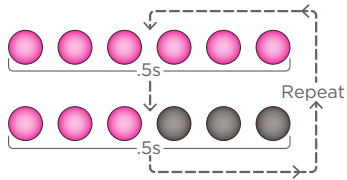
! IMPORTANT! In the example, the keypad isn't communicating with the Savant Host, and no configuration is running on the keypad. As shown in the diagram above, with **no configuration loaded**, the dimming LEDs will first illuminate blue and then blink the LED Sequence corresponding to the state of the keypad. However, once a Blueprint configuration is active, the dimming LEDs first illuminate to the **color set in the configuration** and then blink the sequence that corresponds to the state of the keypad..

LED Sequences

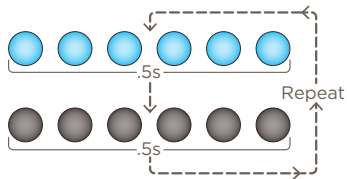
As described in the previous sections, the dimming LEDs indicate the state of the keypad. The diagrams below show the state of a keypad for the various sequences.



The first three and then the last three LEDs illuminate red in an alternating pattern. This indicates the keypad is not provisioned and not communicating with the local Wi-Fi network.

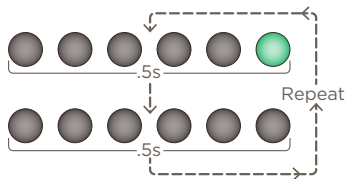


The first three LEDs stay solid magenta, and the last three LEDs blink on and off every half a second. This pattern indicates the keypad is provisioned, communicating with the local network, but not communicating with the Savant Host.



All dimming LEDs blink on and off every half second. This pattern indicates the load connected may not be supported. When this occurs, try resetting the switch by either toggling the service switch or pressing and releasing the reset button. Resetting the keypad using the reset button forces the keypad to recalibrate itself to the load connected.

⚠ Important! If after resetting the keypad, the LEDs continue to blink, this is an indicator that the load type is not supported (forward/reverse phase). To resolve, either the load or keypad type needs to be changed. Failure to correct this state could result in a damaged keypad.



The rightmost dimming LED blinks green. This pattern indicates that the keypad is in bootloader mode and is either ready for or already receiving a firmware update. The firmware version loaded on the keypad is displayed in the Savant Lighting tab in System Monitor.

6. Frequently Asked Questions (FAQs)

1. **Do the wireless keypads support connecting to a network running on 2.4 GHz, 5 GHz, or both?**

2.4 GHz only

2. **What happens when I press and release the reset button on the front panel of the keypads?**

The keypad will reboot and then calibrate itself to the type of load connected to the output wire. Savant recommends pressing and releasing the reset button any time the load is replaced or if a load is flickering or not performing optimally.

3. **What happens when I press, hold, then release the reset button (hold for 5 seconds)?**

The keypad resets and all network configuration assigned in the keypad is wiped out. After the reset, the keypad will be forced into the AP Mode state where it can no longer communicate with the Wi-Fi network.

4. **Why does the load wired to the keypads switch on and off and sometimes flicker during the boot-up process?**

During boot-up, the keypad determines the type of load connected to the output wire and if needed, calibrates itself for that load. During this process, the load may flicker and then shut off.

Appendix A: Provision Keypad Using the Savant Studio App

The Savant Wireless Keypads can be provisioned using the Savant Studio App. For information about this, refer to the Studio App documentation available on the [Savant Community](#).

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