SAVANT

# Savant® Power Director (HST-DIRECTOR)

## Quick Reference Guide

## Box Contents

(1) Savant Power Director (HST-DIRECTOR)
(1) 5V DC (15 W) power supply (025-0250)
(2) 3-pin screw down connector (028-0665)
(3) 2.4 - 5.0 GHz dual band antenna (045-0902)
(1) Side mount chassis bracket (071-1215)
(2) M3 x 6mm flat head bracket mounting screws (039-0001)
(1) Product Regulatory Statement (009-1950)

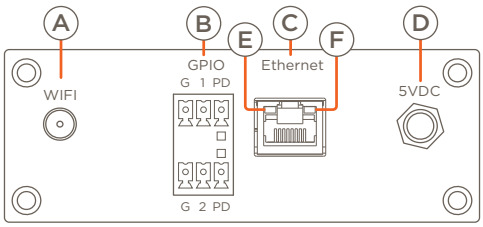
## Specifications

| Environmental | | | | |
|---|---|---|---|---|
| Temperature | -4° to 122° F (-20° to 50° C) | | | |
| Humidity | Up to 90% Relative Humidity (non condensing) | | | |
| Location | Indoor use unless installed in an IP65 rated plastic enclosure. | | | |
| **Dimensions and Weights** | | | | |
| | Height | Width | Depth | Weight |
| HST-Director | 4.3 inch (10.9 cm) | 7.5 inch (19.1 cm) | 1.6 inch (4.1 cm) | 1.5 lbs (.68 kg) |
| Shipping | 3.0 inch (7.6 cm) | 9.0 inch (22.9 cm) | 9.0 inch (22.9 cm) | 3.1 lbs (1.41 kg) |
| **Power** | | | | |
| Power Supply | 120V AC to 5V DC (3A) external supply | | | |
| Maximum Power | 15 Watts | | | |
| **Standards** | | | | |
| Bluetooth | Bluetooth Low Energy 5.1 (BLE) | | | |
| Wi-Fi | 2.4/5.0 GHz IEEE 802.11 a/b/g/n/ac | | | |
| Ethernet | IEEE 802.3af | | | |
| **Regulatory** | | | | |
| Safety and Emissions | FCC Part 15 | | IC | |
| RoHs | Compliant | | | |
| FCC ID: | ASU-DIRECTOR | | | |
| IC: | 10052A-DIRECTOR | | | |
| Contains FCC ID: | VPYLB1ZM | | | |
| Contains IC: | 772C-LB1ZM | | | |
| **Minimum Supported Release** | | | | |
| Software Release | da Vinci 10.2 | | | |

## Additional Information

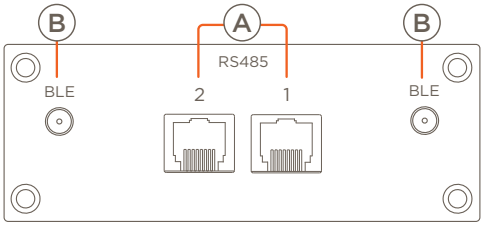
- The Director can communicate with up to 40 power and lighting modules.
- During installation, limit the distance between the Director and the power/lighting modules to 6 ½ feet (2 meters) or less.
- Wi-Fi is available when a wired Ethernet connection is not accessible.

## Left Side Panel




| | | |
|---|---|---|
| A | | **Wi-Fi** - Screw the supplied dual-band antenna onto the SMA connector. When Ethernet access is unavailable, use Wi-Fi to connect to the Home Network. |
| B | | **GPIO Input** - When configured as an input port, the processor looks for one of the following:<br>Low state = <0.8V DC.<br>High state = >2.4V DC.<br>Minimum = 0V DC / Maximum = 12V DC |
| | | **GPIO Output** - When configured as an output, the port will provide a binary output of either 0 or 12V DC (150mA max) |
| C | | **Ethernet Port**<br>– 8-Pin RJ-45 Port<br>– 10/100/1000 Base-T auto negotiating port with link/activity LEDs |
| D | | **Input Power** - Connect the supplied power supply between the 5V DC port on the side panel and a surge protected 120-240V AC 50/60 Hz source. |
| E | **Link LED** | **Solid Yellow** - Network Speed = 100/1000 Mbps |
| | | **Off** - Network Speed < 100 Mbps |
| F | **Activity LED** | **Green Blinking** - Tx/Rx activity |
| | | **Off** - No activity. Verify the Ethernet cable is plugged securely into the local Ethernet switch. |

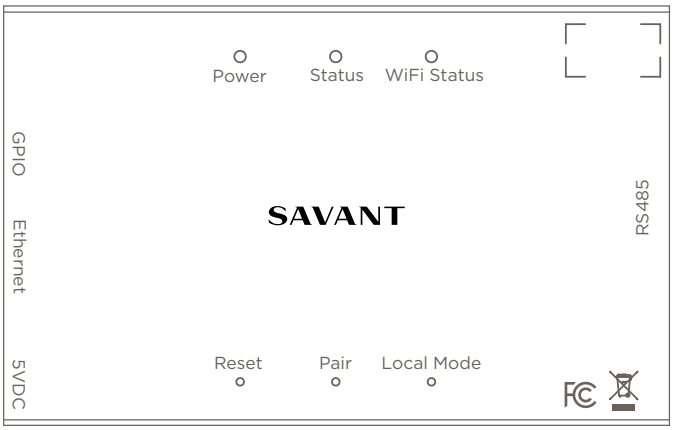
## Right Side Panel




| | |
|---|---|
| A | **RS-485** - Used to control devices with RS-485 input ports.<br>Pin 4 - Data (B-)<br>Pin 5 - Data (A+)<br>Pin 7/8 - Gnd<br>⚠ **IMPORTANT!** Termination resistors are pre-populated on each RS-485 port. Because of this, the Director must be placed at the end of the RS-485 chain. |
| B | **BLE** - Screw the supplied antennas onto both SMA connectors. With the antennas installed, the Director can communicate with the power and lighting modules over Bluetooth Low Energy. |

⚠ **IMPORTANT!** In the descriptions below, **Home Network** refers to the local Wi-Fi or wired network.

## Top Panel

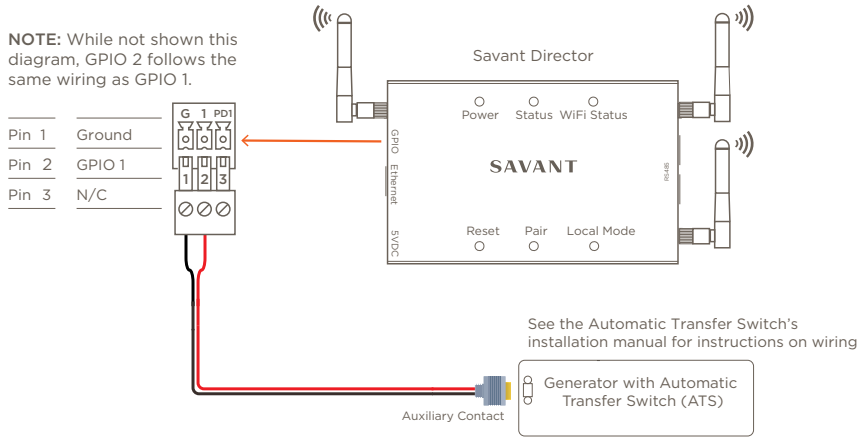



| | |
|---|---|
| **Power (LED)** | **Solid Green** - Power is applied.<br><br>**Off** - No power. Verify the power source is supplying the proper voltage. |
| **Status (LED)** | **Amber** - The Director is booting/rebooting.<br><br>**Amber Blinking** - The Director is ready to be added to a Home Network or be set up to function in Access Point (Local) Mode. In this state, no IP Address is assigned.<br><br>**Green Blinking** - The Director completed startup but doesn't have an IP Address.<br><br>**Green** - Normal operation mode. The Director is assigned an IP Address and connected to the Home Network. If the Director is not configured, On-Device Pairing can be started.<br><br>**Amber/Green Blinking** - The Director's Host software is updating.<br><br>**Green/Red Blinking** - The Director is updating its configuration. This state can occur if the Pair button is pressed or the Savant Power & Light App syncs to the Director. This state can also occur after the Director boots/reboots and it is waiting for software to become ready or if a firmware upgrade begins. The Director returns to normal operation once complete.<br><br>**Red Blinking (fast blink)** - The reset button is pressed and held for 5 seconds. See the description in the **Reset (Button)** fields below. |
| **WiFi Status (LED)** | **Off** - The Director is not provisioned to Wi-Fi and Access Point (Local) Mode is Off.<br><br>**Amber** - Access Point (Local) Mode is enabled.<br><br>**Green** - The Director is provisioned, and communicating with Wi-Fi. **NOTE:** The Savant Power & Light App configures the wireless interface.<br><br>**Red** - The Director is provisioned to Wi-Fi but unable to communicate with that network.<br><br>**Red Blinking (fast blink)** - The reset button was pressed and held for 10 seconds. See the description in the **Reset (Button)** fields below. |
| **Reset (Button)** | **Press and Release** - Reboots the Director, and all settings are left intact.<br><br>**Press and hold (5 secs)** - Press and hold for 5 seconds until the Status LED blinks red, then release. The Director reboots, all the network settings are cleared, and the Director returns to provisioning mode.<br><br>**Press and hold (10 secs)** - Factory Reset. Press and hold for 10 seconds until the Status and Wi-Fi LEDs blink red, then release. After the reboot, the network settings, configuration, logs, and passwords are cleared.<br><br>**NOTE:** The Director will continue to be associated with a Home in the Savant Cloud. A call to Savant Support may be necessary to redeploy to a different Home. |
| **Pair (Button)** | **Press and Release** - Launches On-Device Pairing. In this mode, the Director locates any power or lighting modules that are also in pairing mode, and connects with them.<br><br>**Press and Hold** - Press and hold for 5 seconds, then release to clear the configuration running on the Director and then initiate a reboot.<br><br>**NOTE:** A gear icon displayed on a power or lighting module's LCD screen indicates the module is in pairing mode. |
| **Local Mode (Button)** | **Press and Release** - Press and release to put the Director into Access Point (Local) Mode. Press and release again to take it out of this mode. Local Mode times out after 30 minutes of no activity.<br>– In Local Mode the Director functions as an Access Point and can communicate directly with the Savant Power & Light App over Wi-Fi.<br>– Local Mode is disabled when the Director is provisioned to Wi-Fi. |

## GPIO Wiring

### Automatic Transfer Switch (ATS)

General Purpose  Inputs/Outputs (GPIO) are binary I/O ports used on the Savant Director and monitors the state of whether a home is using On-Grid or Generator power. A signal of less than 0.8V DC indicates a low state and a signal of greater than 2.4V DC indicates a high state. When configuring a generator power source in the Savant Power & Light App there is a setting, **ATS is Low On-Grid**, which can be either enabled or disabled. When enabled, a signal of less than 0.8 volts indicates the ATS is in a state where On-Grid power is feeding the electrical panel and a signal of greater than 2.4V DC indicates the ATS is in a state where Generator power is feeding the electrical panel. A wiring diagram is shown below. Refer to the installation manual for wiring diagrams on how to connect to the ATS.

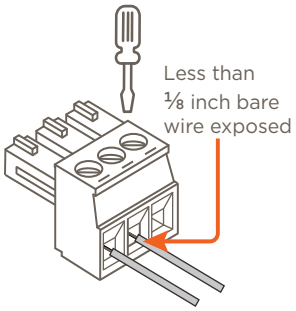



### Microgrid Interconnect Device (MID)

In addition to monitoring an ATS switch, the GPIO can monitor and inform the Director the state of an inverter's Microgrid Interconnect Device (MID). As described in the previous section, a signal of less than 0.8V DC is considered a low state and a signal of greater than 2.4V DC is considered a high state. Refer to the installation manual of the inverter when making connections.

## Making Connections

1. Remove power if power is applied
2. Pull to remove the terminal block from the Director's side panel.
3. With a small flat-bladed screwdriver, turn the screws on the top of the connector counterclockwise until the silver crimps on the front open enough to slide a wire into the square slot.
4. Strip back ¼ inch of insulation from each wire. Insert the stripped wire into the proper port. Do not allow more than ⅛ inch of the bare wire exposed. See image.
5. Turn the screws clockwise until the silver crimps tighten around the wire. Tug on the wire a bit to verify the wire is securely  installed.
6. Continue until all wires are connected.
7. Plug the terminal block into the appropriate port.
8. Repeat steps 2-7 for any additional GPIO ports.
9. Reapply power.




## Installation

The Director can be placed on a solid flat surface such as a table, cabinet, rack, or shelf or mounted onto a wall or similar structure using the supplied mounting bracket. Install the chassis in a dry, well-ventilated place that is out of direct sunlight. Both rack and wall mounting instructions are offered below. When installing, place the Director within 6 ½ feet and in direct line of sight of the power and lighting modules.

### Rack Mount

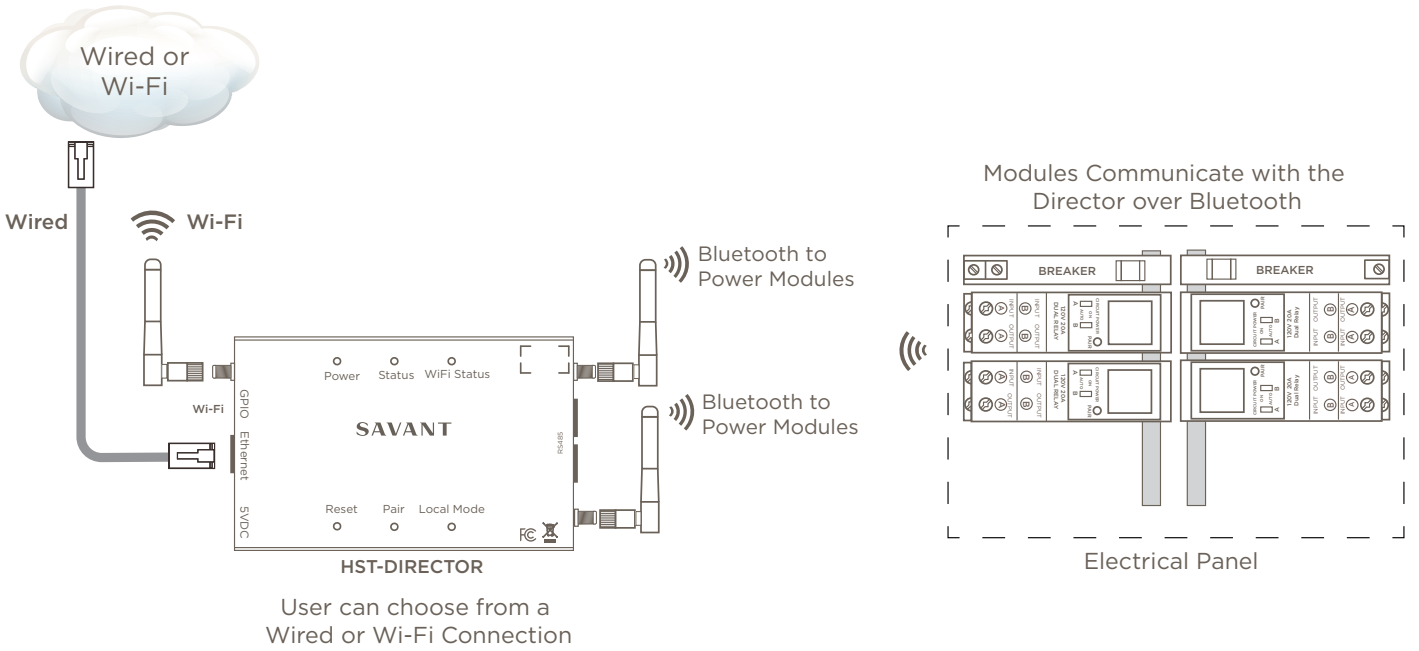
The optional RCK-3000 provides a ventilated shelf for mounting. This rack is compatible with all standard 19-inch National Manufacturers Association (NEMA) rack mounts.

### Wall Mount

Screw the Director to the mounting plate using the two supplied M3 x 6 mm screws. The mounting plate attaches to a wall or similar surface using the four mounting holes at each corner of the mount.

## System Overview

Use the diagrams below as a guide for when designing a system.




## Network Requirements

**IMPORTANT!** Savant recommends that users open and thoroughly read the **Savant Device Networking Guidelines** document on the Savant Customer Community before deploying any network-connected Savant products.

## Documentation

**Savant Power System Deployment Guide - Savant Power & Light App** - This guide includes wiring diagrams, power/lighting module configuration information, Savant Power & Light App setup, and other information regarding the installation and configuration of a Savant Power system.

All documentation is available on the Savant Customer Community.