sensi Lite Zigbee Smart Thermostat

sensi Lite Zigbee Smart Thermostat Installation Guide

Contents

sensi

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Specifications

- Designed for professional-grade HVAC systems
- Compatible with conventional heating and cooling systems, heat pumps, but not with communicating proprietary systems or line voltage systems
- Supports smart home connectivity via Zigbee or Zwave smart home hubs

Designed by the pros for the pros

There are a lot of choices when it comes to buying a thermostat, but only one combines 100 years of HVAC experience and the latest connected home technology to empower your customers to take control of their comfort from anywhere. We proudly connect you to a professional-grade thermostat that you can offer your customers with confidence and that will keep you connected with them even after the initial install.

Need help?
Visit **sensihelp.com** for around-the-clock access to support articles, instructional downloads and comprehensive support videos. Our highly trained Sensi Support Team is available seven days a week.

- 1.888.605.7131

Easy to install and connect
Sensi is designed to install like a standard thermostat. It gives you the flexibility to connect to your Zigbee or Zwave smart home hub.

SMARTHOME PLATFORM COMPATIBILITY
For the latest smarthome compatibility, check **sensihelp.com/smarthome**.

update smart home compatibility site

HVAC SYSTEM COMPATIBILITY

SYSTEM TYPE	COMPATIBILITY	MODIFICATIONS
Conventional heating and cooling - Gas furnace - Air conditioner - Electric furnace - Boiler	Yes	
Heat only - Gas furnace - Electric furnace - Boiler	Yes	Common wire required
Cool only - Air conditioner	Yes	Common wire required
Heat pump	Yes	Common wire required
Communicating proprietary systems	No	Needs standard HVAC wiring
Line voltage	No	Requires low voltage (20–30VAC)
Millivolt systems	No	Requires 20–30VAC

What's in the box?

- Sensi Lite smart thermostat – Zigbee + Zwave
- Screws and anchors
- Welcome guide
- Wire labels
- (2) AAA batteries

Things you'll need:

- The homeowner's compatible iOS or Android device with the smart hub app
- Your smart hub network name and password
- Medium Phillips screwdriver
- Installation QR code (on back of welcome guide and thermostat)
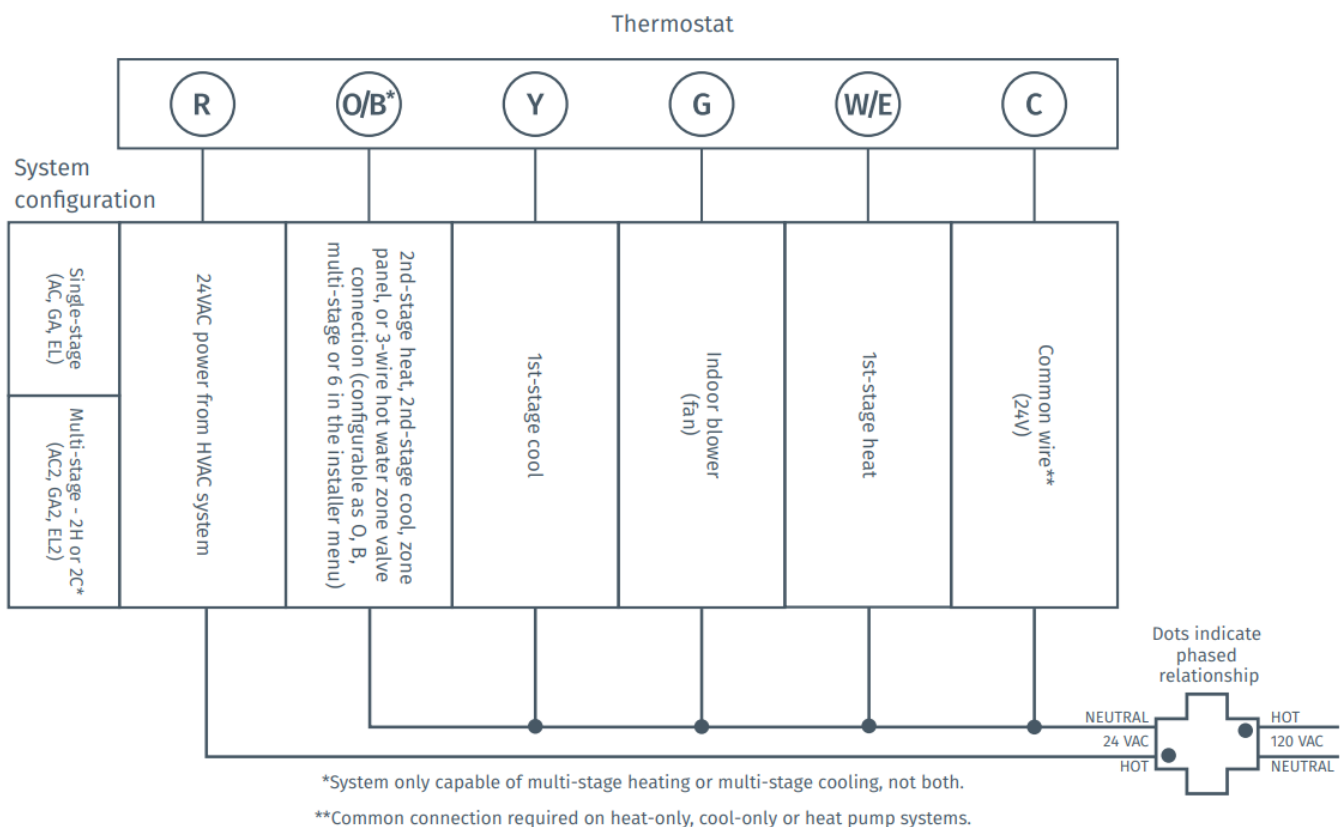
Installation

Install the Sensi Lite smart thermostat – Zigbee + Zwave by referring to these terminal definitions, cross references and wiring diagrams as needed:
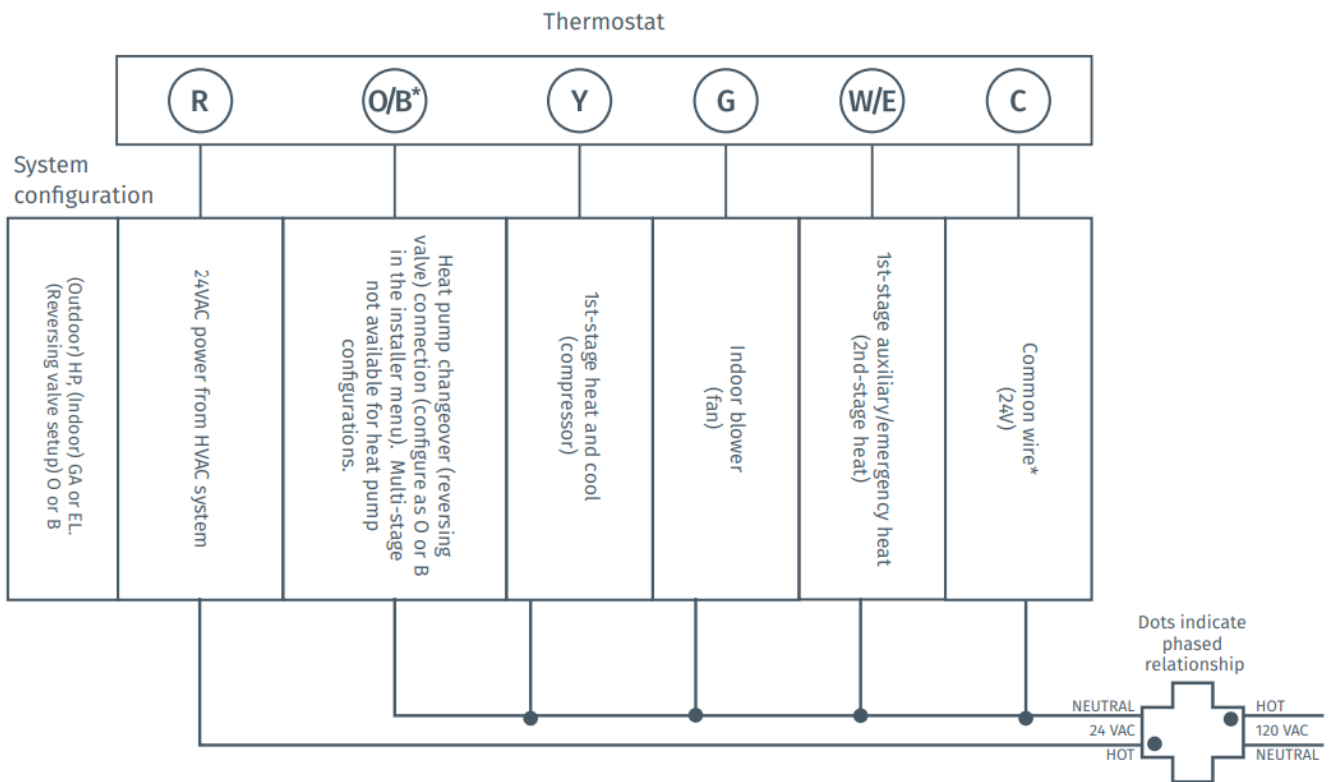
SENSI THERMOSTAT	CONVENTIONAL SYSTEM CONNECTION	HEAT PUMPSYSTEM CONNECTION
R	24VAC power from HVAC system	
O/B/*	2nd-stage heating or 2nd-stage cooling, zone panel or3-wire zone valve connection (configurable as O, B, Multi-stage or 6 in the installer menu)	Heat pump changeover (reversing valve) connection (configure asO or B in the installer menu)
Y	1st-stage cool	1st-stage heat and cool(compressor)
G	Indoor blower (fan)	Indoor blower (fan)
W/E	1st-stage heat	1st-stage auxiliary/emergency heat (2nd-stage heat)
C	Common wire, 24V	Common wire, 24V

Two transformer systems (separate RC and RH wires) are not compatible

CONVENTIONAL SINGLE-STAGE OR MULTISTAGE SYSTEMS NO HEAT PUMP

*System only capable of multi-stage heating or multi-stage cooling, not both.

**Common connection required on heat-only, cool-only or heat pump systems.

HEAT PUMP SYSTEMS

Thermostat

R   O/B*   Y   G   W/E   C

System configuration

| (Outdoor) HP, (Indoor) GA or EL. (Reversing valve setup) O or B | 24VAC power from HVAC system | Heat pump changeover (reversing valve) connection (configure as O or B in the installer menu). Multi-stage not available for heat pump configurations. | 1st-stage heat and cool (compressor) | Indoor blower (fan) | 1st-stage auxiliary/emergency heat (2nd-stage heat) | Common wire* (24V) |

Dots indicate phased relationship

NEUTRAL   HOT
24 VAC   120 VAC
HOT   NEUTRAL

*Common connection required on heat-only, cool-only or heat pump systems.

Configuration

Configure the thermostat to the appropriate system type. To get into the configuration menu, press and hold the three dots on the thermostat for 8 seconds. Navigate options within a step by tapping the up/down arrows. Confirm selection and move to the next step by tapping the three dots.

Step 1: Select your outdoor equipment

- AC (Air condition) DEFAULT
- HP (Heat pump)
- – (None)

Step 2: Select your indoor equipment

- EL (Electric) DEFAULT
- GA (Gas)
- Fn (Fan)

Step 3: Select additional configuration for O/B* terminal

- 2H (2-stage heating) DEFAULT
- 6 (3-zone valve)
- 2C (2-stage cooling)
- O (Reverse Valve Position – Cool)
- B (Reverse Valve Position – Heat)
- – (None)

Step 4: Select fan settings

- AU (Auto)
- ON (Fan runs continuously)
- 10–95 (% of run time per hour)

Step 5: Select temperature unit

- °F (Fahrenheit)
- °C (Celsius)

Step 6: Press and hold the three dots for four seconds to exit the menu.
Refer to these menu options as needed:

CONFIGURATION MENU ITEMS REFERENCE		
Menu item	**Description**	Options
Outdoor Equipment	Select AC or Heat Pump equipment	AC/HP/–
Indoor Equipment	Select whether the equipment is an electric or gas furnace, or fan-only. Set this to EL for single-stage electric for GA single-stage gas systems or FN for fan only systems	GA/FN/EL
Reversing Valve or Multi stage Position	When configured for O, the reversing valve is energized in Cooling. This will cover most applications. Some manufacturers, such as Rheem or Rhudd, use the B terminal, which would energize in Heating. For three-wire zone hydronic systems set this to 6.	O/B/2H/2C/6/–
Multistage Equipment	When configured for 2C, second-stage cooling is energized. When configured for 2H, second-stage heating is energized.	2H/2C/6/–

System testing

Once the thermostat is installed and properly configured, you can test the equipment using the following steps.

Cooling system

- Tap the 3 dots on the thermostat until you select the cool mode (shown as ❄).
- Tap ∨ and adjust the setting to 1° below the current room temperature. The blower should come on immediately on high speed, followed by cold air circulation. The word ON will also appear below the icons on the thermostat display. Note that there can be up to a 5-minute delay for this process.
- Tap ∧ and adjust the setting to 1° above the current room temperature. The cooling system should stop operating.

- If you encounter any issues while testing the equipment, refer to the troubleshooting actions on page 16.

Heating system

- Tap the 3 dots on the thermostat until you select the Heat mode (shown as 🔥).
- Tap ∧ on the thermostat and adjust the setting to 1° above the current room temperature. The heating system should begin to operate.
- For heat pumps with auxiliary, tap ∧ and adjust the setting to 3°above the current room temperature. The auxiliary heat should begin to operate and the thermostat will indicate **AUX** on the screen.
- Press ∨ and adjust the setting to 1° below the current room temperature. The heating system should stop operating and the word ON will disappear from the thermostat display.

Auxiliary system (only for heat pumps with auxiliary)

- Tap the 3 dots on the thermostat until you select the AUX mode (shown as **AUX**). This bypasses the heat pump and runs auxiliary-only heat.
- Tap ∧ and adjust the setting to 1° above the current room temperature. The auxiliary heating system should begin to operate. The word ON will also appear below the icons on the thermostat display.
- Tap ∨ and adjust the setting to 1° below the current room temperature. The auxiliary heating system should stop operating and the word ON will disappear from the thermostat display.

Troubleshooting

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
No Heat/ No Cool/ No Fan (common problem)	1. Blown fuse or tripped circuit breaker 2. Furnace power switch to OFF 3. Furnace blower compartment door panel loose 4. Loose connection to thermostat or system	1. Replace fuse or reset breaker. 2. Turn switch to ON. 3. Replace door panel in proper position to engage safety interlock or door switch. 4. Tighten connections.

No Heat	1. Thermostat not set to Heat 2. Loose connection to thermostat or system 3. Heating system requires service or thermostat requires replacement	1. Set thermostat to Heat. 2. Verify thermostat and system wires are securely attached. 3. Diagnostic: Set system mode to Heat and raise the setpoint above room temperature. Within five minutes the thermostat should make a soft click sound and the temperature display should turn on. This sound indicates that the thermostat is operating properly. If the thermostat does not click, try resetting it. If the thermostat does not click after being reset, contact your heating and cooling service person or place of purchase for a replacement. If the thermostat clicks, verify the heating system is operating correctly.
No Cool	1. Thermostat not set to Cool 2. Loose connection to thermostat or system 3. Cooling system requires service or thermostat requires replacement	1. Set thermostat to Cool. 2. Verify thermostat and system wires are securely attached. 3. **Diagnostic:** Set system mode to Cool and lower setpoint below room temperature. Same procedures as diagnostic for "No Heat" condition except set the thermostat to Cool and lower the setpoint below the room temperature. There may be up to a five minute delay before the thermostat clicks in Cooling if the AC Protection feature is on.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Heat, Cool or Fan Runs Constantly	Possible short in wiring, thermostat, heat, cool or fan system	Check each wire connection to verify they are not shorted or touching other wires. Try resetting the thermostat by pressing and holding all three buttons on the thermostat (up/down arrows + three dots).
Thermostat Display & Thermometer Disagree	Thermostat display requires adjustment	Display can be adjusted +/-5° using the Temperature Offset in Sensi app.

Humidity Display & Hygrometer Disagree	Humidity display requires adjustment	Display can be adjusted in 5% increments +/- 25% using the Humidity Offset in the Sensi app.
Display is Blank	The AAA batteries might need to be replaced or you may need a common wire (c-wire)	Replace the AAA batteries on the back of thermostat or attach a common wire (c-wire).
Furnace (Air Conditioner) Cycles Too Fast or Slow	The location of the thermostat and/or the size of the heating system may be influencing the cycle rate	Digital thermostats provide precise control and cycle faster than older mechanical models. The system turns on and off more frequently, but runs for a shorter time. If you would like to increase cycle time, choose Slow for the Cycle Rate in the Sensi app.
"Call for Service" Appears on the screen	1. Heating or cooling system is not able to heat/cool the space to within 5 degrees of the setpoint within 2 hours 2. If "−" is displayed for the Room Temperature, a replacement thermostat is needed 3. None of the buttons operate on the thermostat	1. See corrective action for "No Heat" or "No Cool." 2. Replace thermostat. 3. Make sure keypad lockout is not turned on. If it's OFF, try resetting the thermostat. Reset: Turn the power to your system off, wait 5 seconds and turn it back on.
Fan turns on randomly	The fan has been set to run occasionally in the configuration menu	Enter the configuration menu and make sure the fan run time percentage is OFF.

Warnings
INSTALLER INFORMATION
FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLING OR OPERATING
THIS CONTROL COULD CAUSE PERSONAL INJURY AND/OR PROPERTY DAMAGE

Warning
FOR CALIFORNIA RESIDENTS: WARNING: This product contains a chemical known to the state of California to cause cancer and birth defects and other reproductive harm.

Warning
VOLTAGE REQUIREMENTS
Do not use on circuits exceeding specified voltage. Higher voltage will damage control and could cause shock or fire hazard.
Thermostat installation and all components of the control system shall conform to Class II circuits per the NEC code.

ATTENTION: MERCURY NOTICE

This product does not contain mercury. However, this product may replace a product that contains mercury. Mercury and products containing mercury must not be discarded in household trash. Refer to thermostat-recycle.org for a location to send products containing mercury.

FCC Regulations

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and

2. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.
The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
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 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.

RF Exposure
This device complies with FCC RF radiation exposure limits set forth for an uncontrolled environment.
The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter and must be installed to provide a separation distance of at least 20cm from all persons.
The FCC grant can be found under the Display Grant section of **http://www.fcc.gov/oet/fccid** after searching on FCC ID: 2A4JN-1F76U22Z.

IC Notice
This device complies with Innovation, Science and Economic Development Canada license-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.

This Class B digital apparatus complies with Canadian ICES-003.
IC: 28229-1F76U22Z

IC Radiation Exposure Statement

This device complies with IC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the IC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm during normal operation.

FAQ

- **Q: What do I do if my system type is not listed under HVAC System Compatibility?**
  A: If your system type is not listed as compatible, it is recommended to consult a professional HVAC technician for further assistance and compatibility verification.
- **Q: Can I use this thermostat with a line voltage system?**
  A: No, this thermostat is not compatible with line voltage systems. It is designed for low-voltage HVAC systems only.

Documents / Resources

sensi Lite Zigbee Smart Thermostat [pdf] Installation Guide
Lite Zigbee Smart Thermostat, Zigbee Smart Thermostat, Smart Thermostat, Thermostat

References

- **Home - Thermostat Recycling Corporation (TRC)**
- **FCC ID Search | Federal Communications Commission**
- **User Manual**