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Sensi™

Wi-Fi Thermostat

1F87U-42WF Installation Training



# Sensi Wi-Fi Thermostat



## Key Features

- Universal application (single-stage, multi-stage and heat pump)
- Compatible with popular smart home platforms
- Contractor-On-Call feature
- Geofencing, flexible scheduling and remote access can save homeowner's on energy costs.
- Smart alerts
- Keypad lockout
- Multi thermostat control

# Compatibility and common wire (c-wire) requirement

## No common wire required

- Conventional heating and cooling systems

## Common wire required

- Apple HomeKit
- Heat only or Cool only (2 wire)
- Heat pumps

## Not compatible

- Millivolt systems

\*External 24 VAC Transformer is an option

- Communicating systems
- Line voltage systems
- Accessory control

SYSTEM TYPE	COMPATIBILITY	MODIFICATIONS
Conventional heating and cooling • Gas furnace • Air conditioner • Electric furnace • Boiler	Yes	None
Heat only • Gas furnace • Electric furnace • Boiler	Yes	Requires a common wire (c-wire)
Cool only • Air conditioner	Yes	Requires a common wire (c-wire)
Heat pump	Yes	Requires a common wire (c-wire)
Communicating proprietary systems	No	Needs standard HVAC wiring
Line voltage	No	Requires low voltage (20-30VAC)
Millivolt systems	No	Requires 20-30VAC

# Terminal outputs

OLD THERMOSTAT	SENSI THERMOSTAT	CONVENTIONAL SYSTEM	HEAT PUMP SYSTEM
RH	RH*	Power for heating, 24V	
RC, R	RC*	Power for cooling, 24V	
C, X, B**	C	Common wire, 24V	
Y, Y1	Y	1st stage cool	1st outdoor stage heat
Y2	Y2	2nd stage cool	2nd outdoor stage heat and cool
W, W1, W/E, Aux/E, E	W/E	1st indoor stage heat	1st stage axillary/emergency heat
W2***	W2	2nd indoor stage heat	2nd stage axillary/emergency heat
G	G	Indoor blower (fan)	
O,B,** O/B	O/B	Changeover (reversing valve) connection for heat pump or zone panel systems	
L	L	no function	"L" terminal connection

The common wire could be labeled "C", "B" or "X" on the old thermostat. Please refer to the owner's manual of the old thermostat.

# What if I don't have a common wire and need one?

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There are a few options if the application does not have or will not allow the pulling of a common wire (c-wire) through the wall.

1. Look for an unused wire in the thermostat cable bundle
  - [Video: Using an extra, unused wire as a common wire](#)
2. Use the “G” (Fan wire)
  - [Video: Using a g-wire \(fan wire\) as a common wire](#)
3. Install an Emerson Thermostat Common Wire Kit
  - [Video: Using an Emerson Thermostat Common Wire Kit](#)

# Do I need a RC/RH jumper?

## No jumpers required

- Sensi Wi-Fi Thermostat has a built in RC/RH jumper, no need to field install a jumper
- If you have separate wires to RC and RH terminals (two transformer systems)
  - Label the wires RC and RH separately and then clip the jumper wire on the back of the Sensi face plate.

## RC/RH jumper location

- Sensi Wi-Fi Thermostat has a jumper built in on the back of the thermostat



No jumpers are required when installing the Sensi Wi-Fi Thermostat

# Heat pump jumper wires

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- Some thermostats will may have additional jumpers installed
- Remove the jumper and label as shown below

JUMPER WIRE LABELING		
Old thermostat jumper terminals		Label wire from wall
Y	W	Y
Y2	W2	Y2
W2	E	W/E

# Heat pump wiring exceptions

## Separate W2 and E Wires

- Both wires will be labeled W/E and attached to the same terminal.

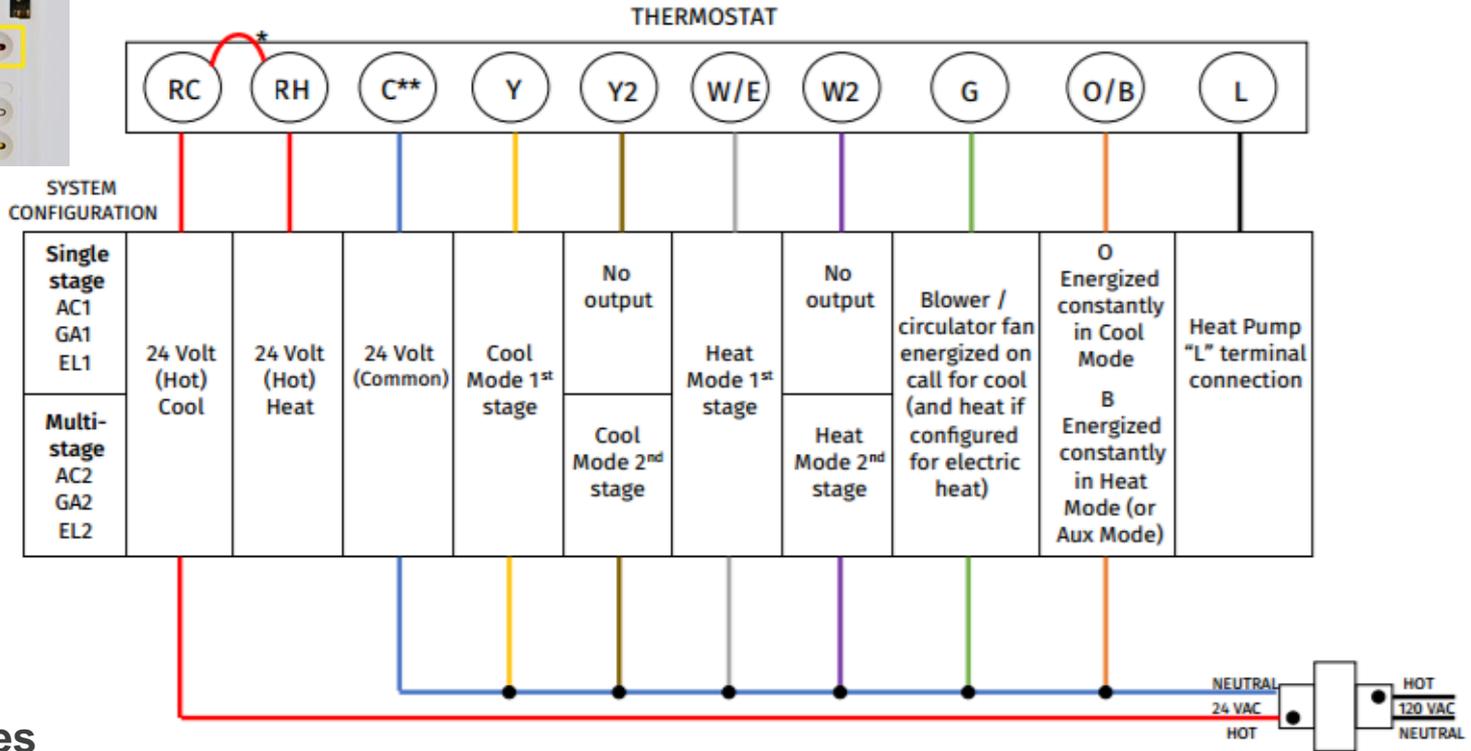
HEAT PUMPS WITH SEPARATE WIRES ON W2 AND E			
Old thermostat		Label wire from wall	
W2	Separate wire	W/E	Both wires will be attached to the W/E terminal
E	Separate wire	W/E	

## B Terminal Wires

- “B” terminal can be used for more than one. Here is the solution to cross.
  - If there is a wire on the “O” terminal, label the B wire C
  - If there is no wire on the “O” terminal, label the B wire O/B

B TERMINAL LABELING		
Old thermostat		Label wire from wall
B	Wire on “O” terminal	C
B	No wire on “O” terminal	O/B

# Wiring - single transformer – conventional single stage or two stage systems



## Special notes

\*Internal jumper between RC and RH, located on back of thermostat above the battery compartment

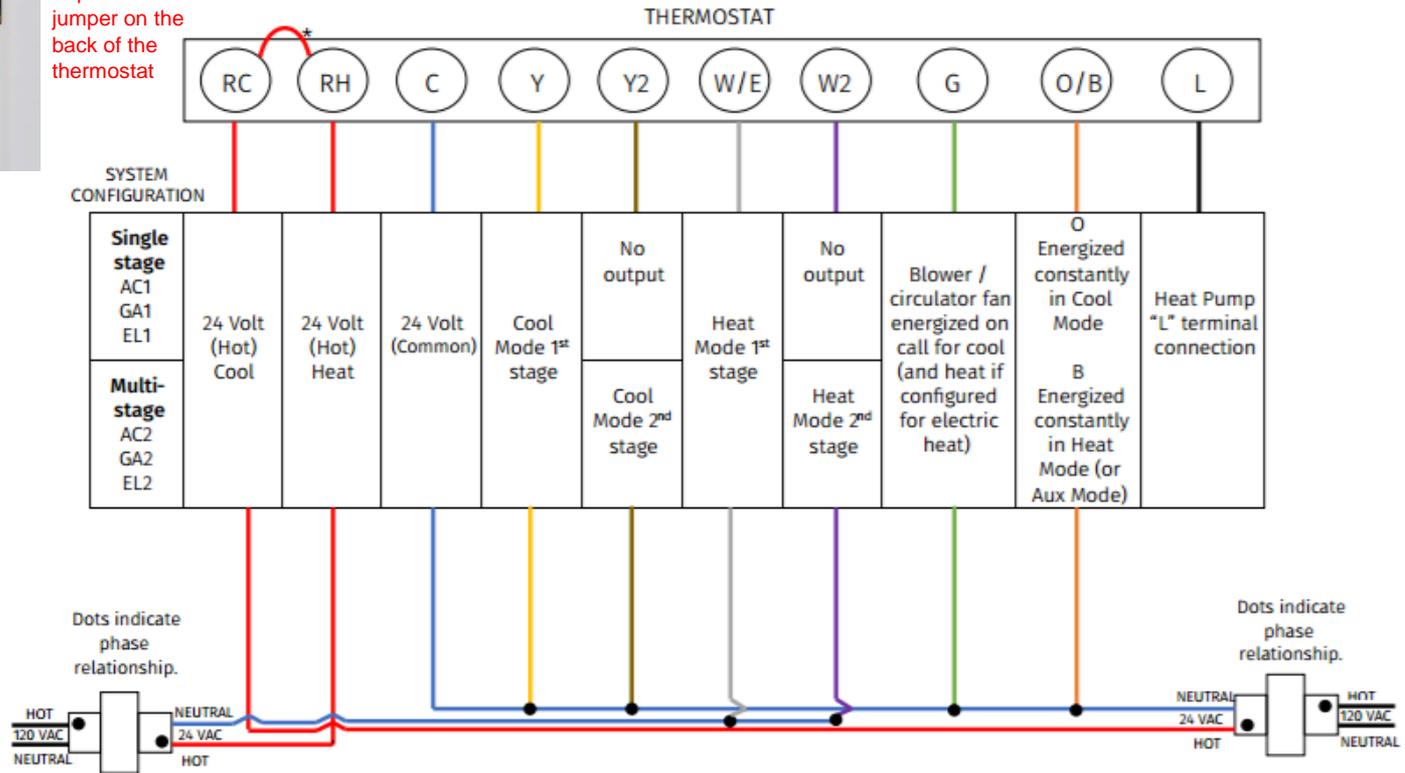
\*Common connection required for Heat only or Cool only systems

Quick tip: Thermostat wiring does not follow a standardized color code. Take a picture with your smart phone and label thermostat wires before removing old thermostat from the wall.

# Wiring - two transformer - conventional single stage or two stage systems



Clip the jumper on the back of the thermostat

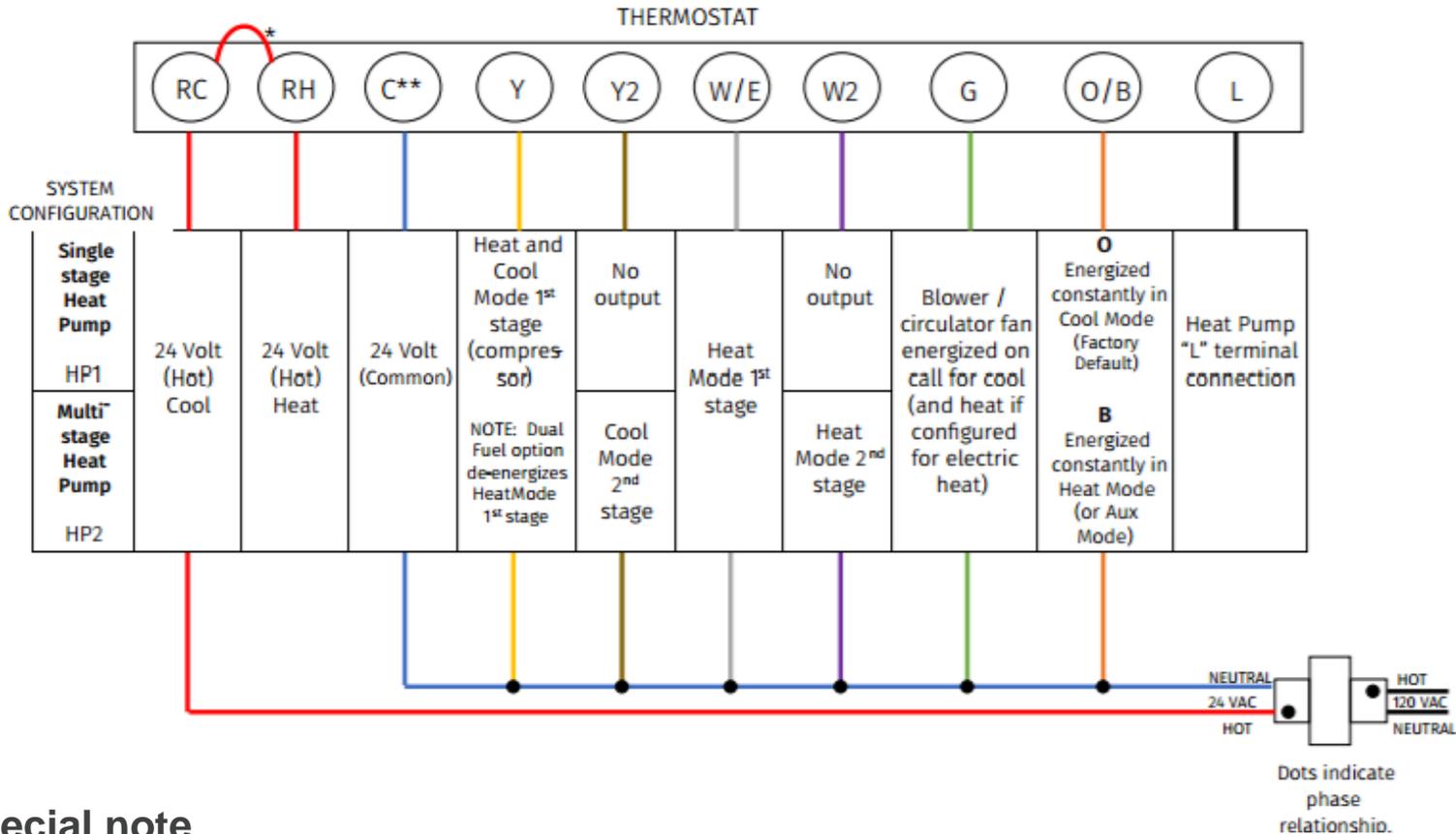


## Special notes

\*Two transformer systems (separate RC and RH Transformers, clip the internal RC/RH jumper located on back of thermostat above the battery compartment

Quick tip: Thermostat wiring does not follow a standardized color code. Take a picture with your smart phone and label thermostat wires before removing old thermostat from the wall.

# Wiring – heat pumps single stage or multi-stage systems



## Special note

\*Common connection required on heat pump systems

Quick tip: Thermostat wiring does not follow a standardized color code. Take a picture with your smart phone and label thermostat wires before removing old thermostat from the wall.

# System configuration

1. Wireless setup
2. Select temperature scale
  - °F or °C
3. Select outdoor system type
  - **Conventional A/C** or heat pump
4. Select indoor system type
  - Gas or **Electric Heat**
5. For heat pumps only, select reversing valve position
  - “O” or “B”
6. Wireless radio **On** or Off

*Once configured, Sensi Wi-Fi Thermostat operates like a traditional thermostat until it is connected to Wi-Fi via a smartphone*

\***Bold indicates default**

## CONFIGURATION MENU ITEMS REFERENCE

No.	Menu item	Default	Options
1	Wireless Setup Connects Thermostat to Wi-Fi network	—	Connect
2	Fahrenheit or Celsius	F	F C
3	Outdoor Equipment Configuration Cooling or heat pumps	AC2	AC1 – Conventional Cooling 1 (Single Stage) HP1 – Heat Pump 1 (Single Stage) AC2 – Conventional Cooling 2 (Two-Stage) HP2 – Heat Pump 2 (Two-Stage) ACO1 – No Cooling
4	Indoor Equipment Configuration For Gas or Electric Heat	EL2	GA 1 (Single Stage) EL1 – Electric 1 (Single Stage) GA2 (Two-Stage) EL2 – Electric 2 (Two-Stage)
5	Reversing Valve Position Selects “O” or “B” Setting For Heat Pumps Only	O	O B
6	Wireless Radio Turns Wi-Fi Radio On/Off	ON	On Off

# Connecting to Wi-Fi

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- Before you install, ask the homeowner to download the Sensi app on their smartphone and gather their Wi-Fi Network (SSID) and password.
  - After installation, work together with your homeowner to connect the thermostat to Wi-Fi.
  - On the thermostat, press the “Menu” button, then press the “Mode” button.
  - Go to the Sensi app using an iOS\* or Android device and follow the prompts to connect to Wi-Fi
    - You will need to scan or enter the 8-digit setup code located on the back of the Welcome Guide
    - Sensi app will pair the Sensi thermostat to Wi-Fi
- \*If your homeowner has an iOS device & c-wire, the Sensi thermostat will automatically connect using Apple HomeKit in which Apple Home Data and Bluetooth must be turned ON to connect.
- Once the thermostat is connected to Wi-Fi, enter and save your registered phone number by selecting “Contractor Info” in “Settings” on the bottom bar of the Sensi app.

Quick Tip: Register your company at [SensiRegistration.com](https://SensiRegistration.com) to store your contact information in the Sensi app.

# Contractor branding in the Sensi app

- Register your company at [www.SensiRegistration.com](http://www.SensiRegistration.com)
  - Upload your logo which will be displayed in your customer's phone
- During installation, enter your registered phone number in the Sensi app
  - The Sensi app stores your contact information in your customer's phone.
- When your customer needs service, you're just a tap away.
  - If your customer receives a smart alert, your contact information will be included.



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Learn more at [emerson.com/sensipro](https://emerson.com/sensipro)

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