sen|si.

Connect
to Comfort

SENSI™ SMART THERMOSTAT

Humidity control guide

Models: 1F87U-42WF, ST55, NH-AWIFI, OH-AWIFI
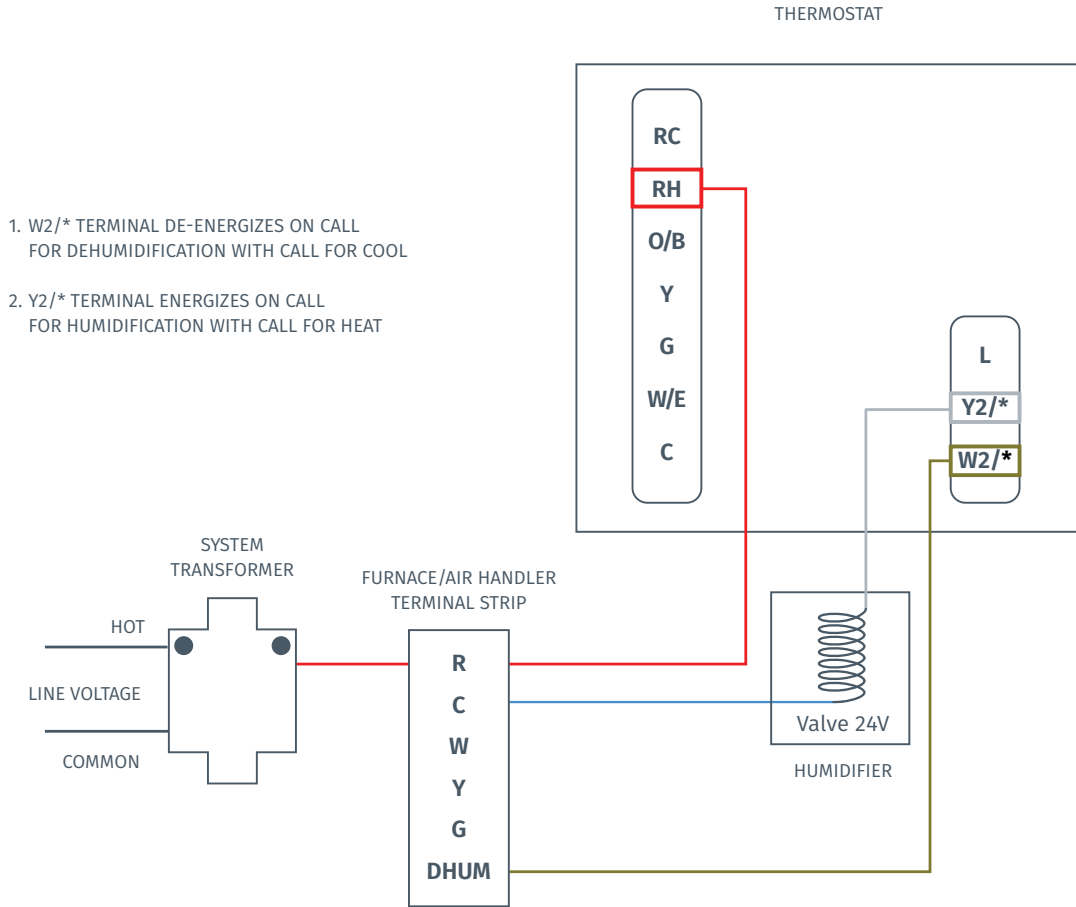Version: April 2023

1. CONTRACTOR FIRMWARE UPDATE PROCESS

Connect the thermostat to Wi-Fi, register to the customer's account to make sure the thermostat has the latest firmware release.
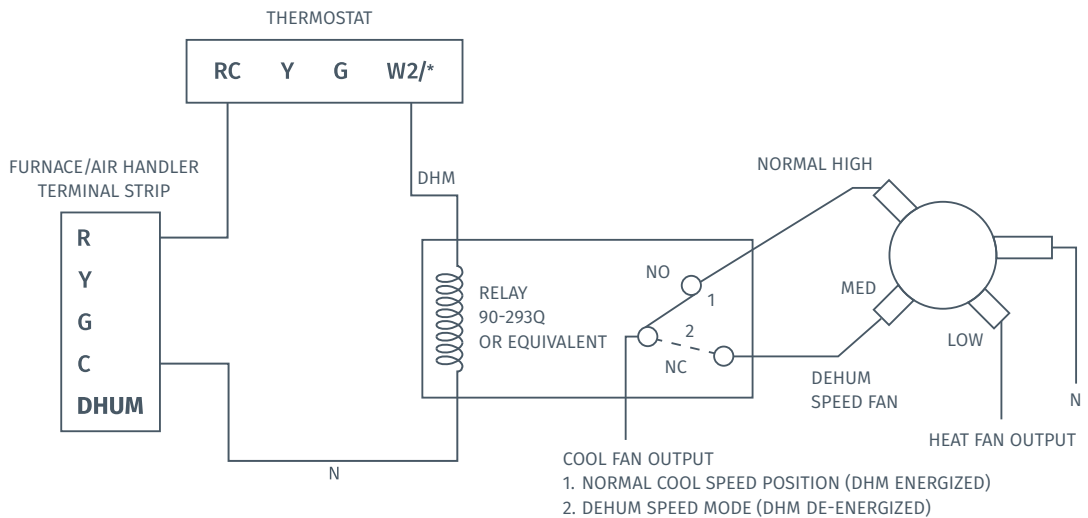
2. INSTALLATION – COMPATIBILITY AND WIRING

SENSI THERMOSTAT	CONVENTIONAL SYSTEM CONNECTION	HEAT PUMP SYSTEM CONNECTION
RC[†]	Power for cooling, 24V	Power for cooling, 24V
RH[†]	Power for heating, 24V	Power for heating, 24V
C	Common wire, 24V	Common wire, 24V
Y	1st stage cool	1st stage heat and cool (compressor)
Y2/*	2nd stage cool (or humidifier)	2nd stage heat and cool (or humidifier)
W/E	1st stage heat	1st stage auxiliary/emergency heat (2nd stage heat)
W2/*	2nd stage heat (or dehumidifier)	2nd stage auxiliary/emergency heat (3rd stage heat or dehumidifier)
G	Indoor blower (fan)	Indoor blower (fan)
O/B	Heat pump changeover, zone panel or 3-wire hot water zone valve connection. (configurable as O, B or 2 in the installer menu)	Heat pump changeover (reversing valve) connection (configure as O or B in the installer menu)
L	no function	"L" terminal connection

1-WIRE HUMIDIFICATION & DEHUMIDIFICATION

THERMOSTAT

1. W2/* TERMINAL DE-ENERGIZES ON CALL
   FOR DEHUMIDIFICATION WITH CALL FOR COOL

2. Y2/* TERMINAL ENERGIZES ON CALL
   FOR HUMIDIFICATION WITH CALL FOR HEAT

RC
RH
O/B
Y
G
W/E
C

L
Y2/*
W2/*

SYSTEM
TRANSFORMER

FURNACE/AIR HANDLER
TERMINAL STRIP

HOT

LINE VOLTAGE

COMMON

R
C
W
Y
G
DHUM

Valve 24V

HUMIDIFIER

DEHUMIDIFICATION WITH RELAY INSTALLED

THERMOSTAT

RC   Y   G   W2/*

FURNACE/AIR HANDLER
TERMINAL STRIP

R
Y
G
C
DHUM

DHM

RELAY
90-293Q
OR EQUIVALENT

NORMAL HIGH

NO
1
2
NC

MED

LOW

DEHUM
SPEED FAN

HEAT FAN OUTPUT

N

N

COOL FAN OUTPUT
1. NORMAL COOL SPEED POSITION (DHM ENERGIZED)
2. DEHUM SPEED MODE (DHM DE-ENERGIZED)

3. CONFIGURATION – SETTING HUMIDIFICATION/DEHUMIDIFICATION CONTROL CAPABILITY ON/OFF

CONFIGURATION MENU ITEMS REFERENCE			
Display Code	**Menu item**	**Default**	**Options**
	Wireless setup *Connects thermostat to wi-fi network*	—	Connect
	Fahrenheit or celsius	F	F C
	Outdoor equipment configuration *Cooling or heat pumps*	AC2	AC1 – Conventional cooling 1 *(single-stage)* AC2– Conventional cooling 2 *(two-stage)* HP1 – Heat pump 1 *(single-stage)* HP2 – Heat pump 2 *(two-stage)* AC0 – No cooling
	Indoor equipment configuration *For gas or electric heat*	EL2	EL1– Electric 1 *(single-stage)* EL2– Electric 2 *(two-stage)* FAn GA1 – Gas 1 *(single-stage)* GA2 – Gas 2 *(two-stage)*
	Reversing valve position *Selects "O" or "B" setting* For heat pumps only	O	O B 2
Fn	Circulating fan	OFF	Off/10% – 100% *(5% increments)*
H AA	Humidification *Add accessory*	OFF	Off/On
H SP	Humidification *Set point*	OFF	Off/5% – 50% *(5% increments)*
dH AA	Dehumidification *Add accessory*	Od	Od/Oc Od – Optimal dehumidification *(overcool to dehumidify)* Oc – Optimal comfort *(wired dehumidification)*
dH SP	Dehumidification *Set point*	OFF	Off/40% – 95% *(5% increments)*
	Wireless radio *Turns wi-fi radio on/off*	ON	Off/On

Ensure HVAC settings are single stage

To set up a wired humidifier accessory on this model, you will need to ensure that you have configured the HVAC settings for single stage first. (Single stage cooling to use a humidifier or single stage heating to use a dehumidifier.)

If you have the thermostat configured for multi-stage, the humidity control options won't be in the menu.

Setting up wired humidification
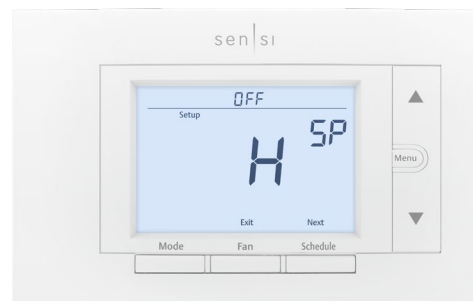
With the thermostat showing the room temperature, press **Menu**.

Press **Next** 7 times.

Use the **Up Arrow** button to toggle Humidity On.

Press **Next**.

Use the **Up Arrow** button to change the set percentage (SP) to your desired percentage to maintain.

Press **Exit**.

Setting up wired dehumidification

With the thermostat showing the room temperature, press **Menu**.

Press **Next** 8 times. - This may be different depending on what other settings you have. Look for the "dH AA" menu.
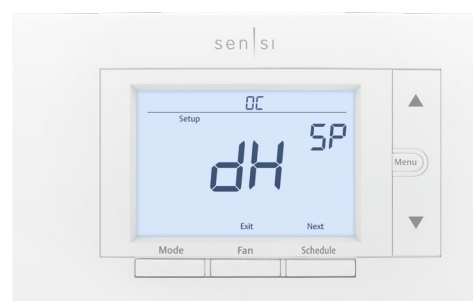
Use the **Up Arrow** button to toggle Dehumidity "On."

Press **Next**.

Use the **Up Arrow** button to change the set percentage (SP) to your desired percentage to maintain.
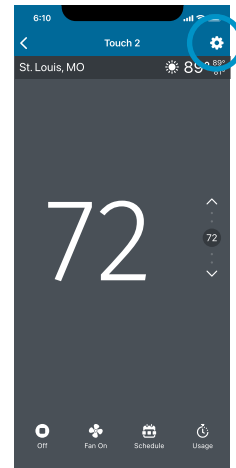
Press **Exit**.

Adjusting the humidity features from the Sensi app

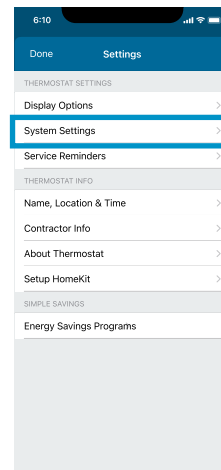After initially turning the feature on in the thermostat menu, you can edit them from the Sensi app.

Open the Sensi app.

Tap your **Thermostat Name**.
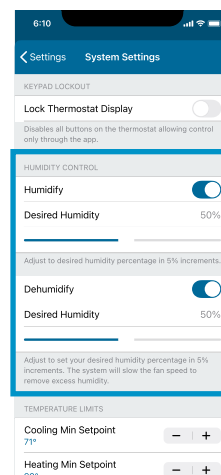
Tap the **Settings Gear**.

Tap **System Settings**.

Scroll to the **Humidity Control** section.

You can toggle the humidification features on/off here, as well as adjust the set percentage.

If you don't have wired dehumidification configured, you will have a different dehumidification option here that you can utilize. It will use your cooling system to remove moisture from the air by overcooling your space up to 3 degrees.

Frequently asked questions

FAQ	ANSWER
When can I get the firmware OTA update for humidity control?	OTA updates are pushed via Wi-Fi after being registered to the customer's account on the Sensi app.
Which versions of Sensi thermostats are compatible with humidity control?	Sensi Touch (1F95U) and Sensi (1F87U) smart thermostats are all backward compatible. 1F86U and UP500W models are currently not compatible.
What terminals should I use to enable humidity control?	Use Y2/* for humidification and W2/* for dehumidification.
What types of humidifiers and dehumidifiers are supported?	Humidifiers: Any 24VAC humidifier. Currently, Sensi does not support independent (call for heat) humidification. Dehumidifiers: HVAC systems with dehumidify mode (slowing of the system's fan speed) or 24VAC dehumidifiers. Currently Sensi does not support independent (call for cool) dehumidification.
What is an appropriate humidity setpoint?	Depending on the outdoor temperature, the ideal indoor humidity level is between 30-50% RH. In cold weather, if condensation appears on your windows, lower the humidity setpoint.
What is overcooling to dehumidify?	On air conditioning systems without a dehumidifier, the dehumidification feature allows Sensi to overcool to a maximum of 3º below the AC setpoint to help control the humidity. Overcooling is an option to dehumidify without having to wire additional accessories.
Why is my system unable to reach my humidity setpoint?	During extremely cold and dry or hot and humid climates, your humidifier or dehumidifier may not be able to increase or decrease humidity enough to reach your setpoint depending on the size of your equipment.