

Installation Manual

STN855W

The WiFi digital programmable thermostat allows you to control the temperature anytime and anywhere. It features a large backlight display and LCD Touch Screen for ease of programming.

Compatible with any Smartphone-iOS and Android.

Thermostat Application Guide

Description	
Gas or Oil Heat	Yes
Electric Furnace	Yes
Heat Pump (No Aux. or Emergency Heat)	Yes
Heat Pump (With Aux. or Emergency Heat)	Yes
Multi-Stage Systems	Yes
Heat Only Systems	Yes
Cool Only Systems	Yes
Millivolt	Yes

Power Type

Battery Power

Hardwire (Common Wire)

Hardwire (Common Wire) with
Battery Backup

A trained, experienced technician must install this product.

Carefully read these instructions. You could damage this product or cause a hazardous condition if you fail to follow these instructions.

Table of Contents	Page
Installation Tips	2-4
Thermostat Quick Reference	5
Wiring	6-8
Wiring Diagrams	9-11
Technician Setup	12-17
Programming	18 -22

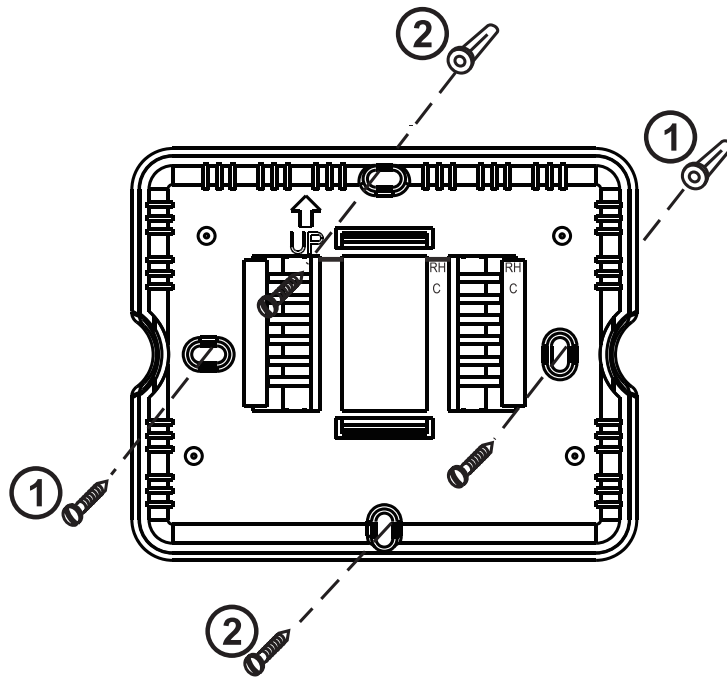
Una version en español de este manual se puede descargar en la pagina web de la compañía.

Specifications

The display range of temperature	32°F to 99°F (0°C to 40°C)
The control range of temperature.....	41°F to 90°F (5°C to 32°C)
Load rating.....	1 amp per terminal, 1.5 amp maximum all terminals combined
Swing (cycle rate or differential)	Heating is adjustable from 0.2° to 2.0° Cooling is adjustable from 0.2° to 2.0°
Power source	18 to 30 VAC, NEC Class II, 50/60 Hz for hardwire - Battery power from 2 AAA Alkaline batteries
Operating ambient	32°F to +105°F (0°C to +41°C)
Operating humidity	90% non-condensing maximum
Dimensions of thermostat	4.7"W x 4.4"H x 1"D

Subbase Installation

- ① Horizontal Mount
- ② Vertical Mount



For vertical mount put one screw on the top and one screw on the bottom.
For horizontal mount put one screw on the left and one screw on the right.



Installation Tip: Electrical Hazard

Failure to disconnect the power before beginning to install this product can cause electrical shock or equipment damage.



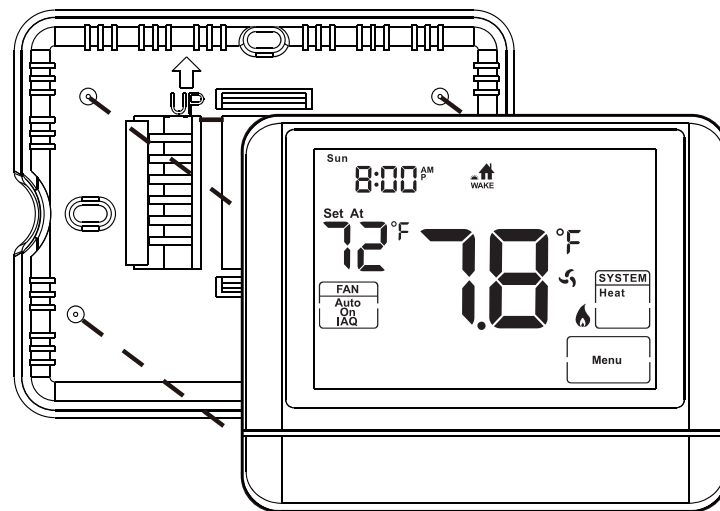
Mercury Notice

All of our products are mercury free. However, if the product you are replacing contains mercury, dispose of it properly. Your local waste management authority can give you instructions on recycling and proper disposal.

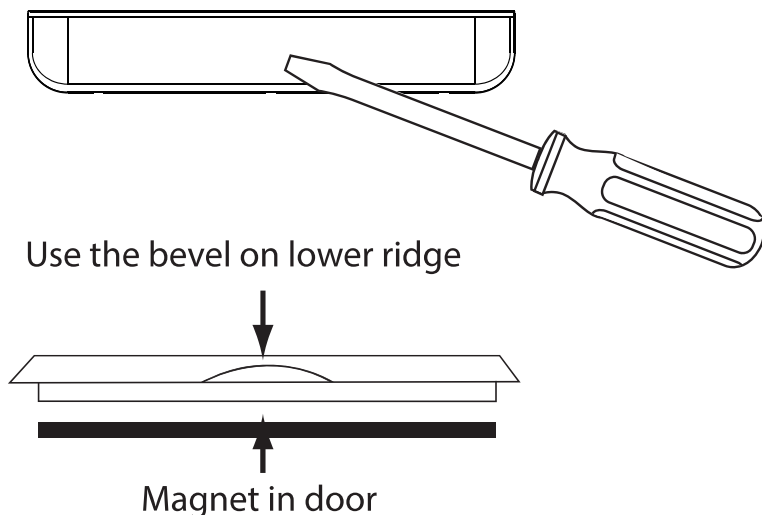
Installation Tips

Mount Thermostat

Align the 4 tabs on the subbase with corresponding slots on the back of the thermostat, then push gently until the thermostat snaps in place.



About The Badge

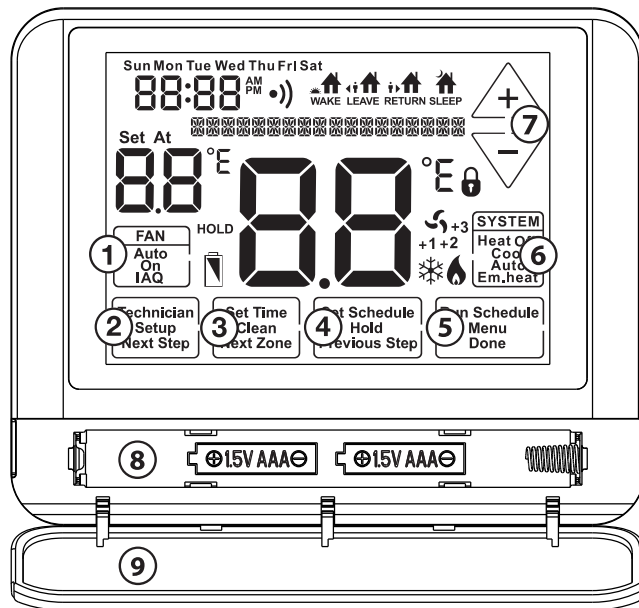


All of our thermostats use the same universal magnetic badge. Visit the company website to learn more about our free private label program.

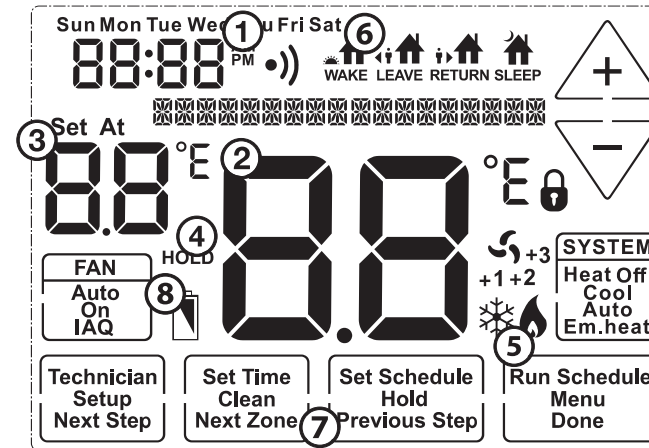
Gently slide a screwdriver into the bottom edge of the badge. Gently turn the screwdriver counter clockwise. The badge is held on by a magnet in the well of the battery door. The badge should pry off easily. **DO NOT USE FORCE.**

Thermostat Quick Reference

Getting to know your thermostat



- ① Fan Buttons
- ② Next step Buttons
- ③ Set time Buttons
- ④ Program Buttons
- ⑤ Menu Buttons
- ⑥ System Buttons
- ⑦ Setpoint Buttons
- ⑧ Battery Cover
- ⑨ Button/Battery Access Door



- ① Days of the week and time
- ② Indicates the current room temperature
- ③ Displays the user selectable setpoint temperature
- ④ Hold is displayed when thermostat program is permanently overridden.
- ⑤ **System Operation Indicators:** The compressor delay is active if these are flashing.
- ⑥ **Programmable Time Periods:** Residential uses 4 time periods - **WAKE, RETURN, LEAVE** and **SLEEP**.
- ⑦ **Program Menu Options:** Shows different options during programming.
- ⑧ **Low Battery Indicator:** Replace batteries when this indicator is shown.

Wiring



Caution: Electrical Hazard

Failure to disconnect the power before beginning to install this product can cause electrical shock or equipment damage.



Warning:

All components of the control system and the thermostat installation must conform to Class II circuits per the NEC Code.

Wiring

1. If you are replacing a thermostat, make note of the terminal connections on the thermostat that is being replaced. In some cases the wiring connections will not be color coded. For example, the green wire may not be connected to the **G** terminal.
2. Loosen the terminal block screws. Insert wires then retighten the terminal block screws.
3. Place nonflammable insulation into the wall opening to prevent drafts.



Installation Tip

Do not overtighten terminal block screws, as this can damage the terminal block. A damaged terminal block can keep the thermostat from fitting on the subbase correctly or cause system operation issues.

Max Torque = 6in-lbs.

Terminal Designations

The following terminals on the thermostat wallplate are wired according to the type of HVAC system connected to and how the thermostat is configured.

		Y1	Y2	W/E	W2	0	B
CONVENTIONAL HVAC		COOL MODE STAGE 1	COOL MODE STAGE 2	HEAT MODE STAGE 1	HEAT MODE STAGE 2	—	—
HEAT PUMP	1H / 1C	HEAT 1 COOL1				HEAT PUMP CHANGEOVER VALVE - ENERGIZED DURING COOLING	HEAT PUMP CHANGEOVER VALVE - ENERGIZED DURING HEATING
	2H / 1C			AUX 1	HEAT 2 AUX 2		
	3H / 1C			HEAT 2 AUX 1	HEAT 3 AUX 2		
	2H / 2C		HEAT 2 COOL 2				
	3H / 2C		HEAT 2 COOL 2	AUX 1	HEAT 3 AUX 2		
	4H / 2C		HEAT 2 COOL 2	HEAT 3 EMHEAT	HEAT 4 EMHEAT		



Note

Devices such as a float switch that mechanically break circuits should be installed so that they break the control wire (Y) not the power (R). Interrupting the power circuit will shut off power to the thermostat completely and not allow it to operate.

Wiring Tips

C Terminal

The C (common wire) terminal does not have to be connected when the thermostat is powered by batteries.

Wire Specifications

Use shielded or non-shielded 18-22 gauge thermostat wire.

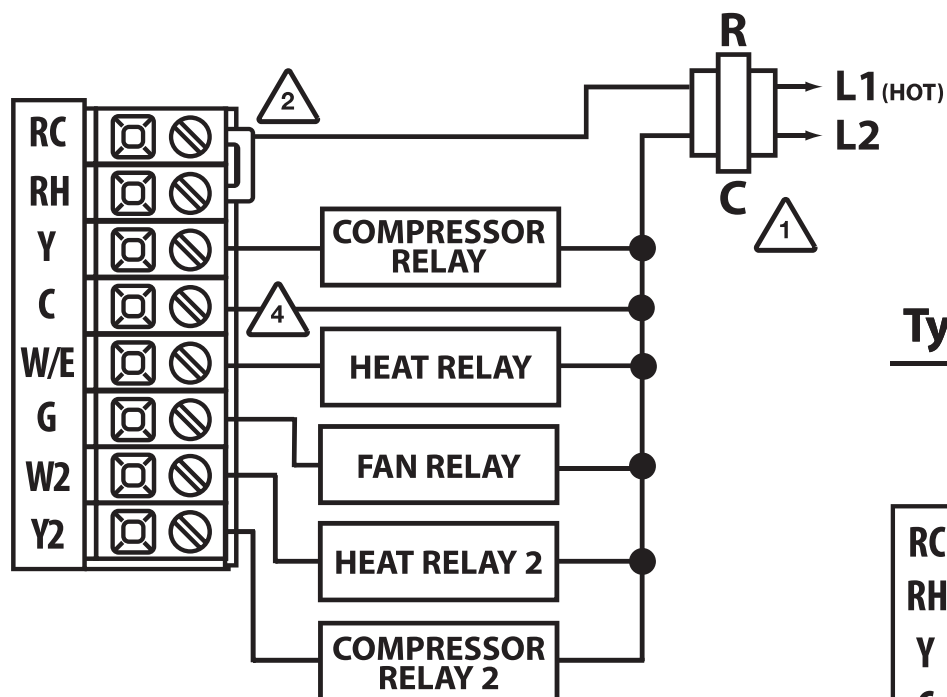
Note:

In many heat pump systems with no emergency heat relay, a jumper can be installed between **E** and **W2** to turn thermostat into a single stage control for Emergency Heat Operation.

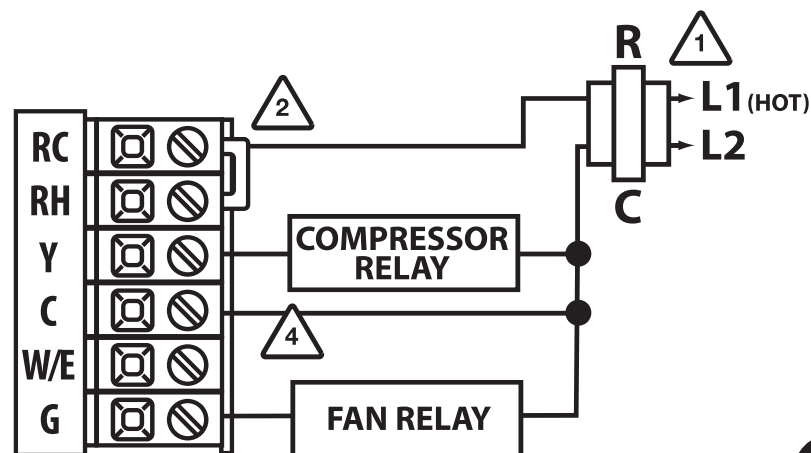
Wiring Diagrams

- 1 Power supply
- 2 Factory-installed jumper. Remove only when installing on 2-transformer systems
- 3 Use either O or B terminals for changeover valve
- 4 Optional 24 VAC common connection when thermostat is used in battery power mode

Typical 2H/2C System: 1 Transformer

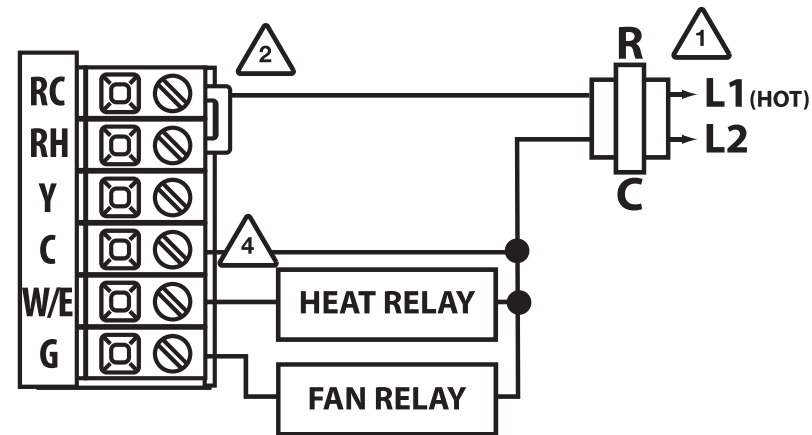


Typical Cool-Only System With Fan



Wiring Diagrams

Typical Heat Only System With Fan

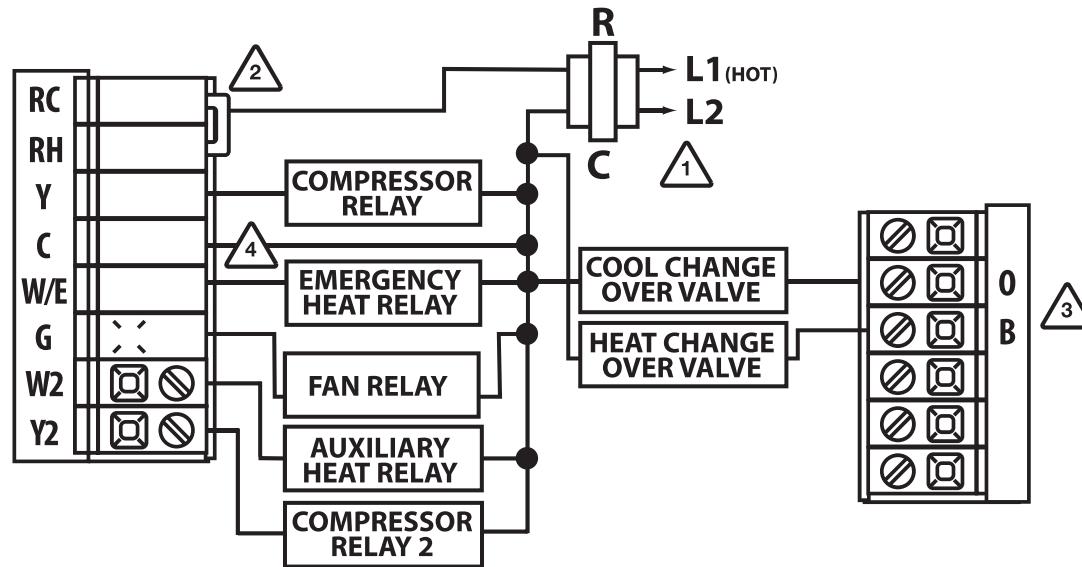


Note:

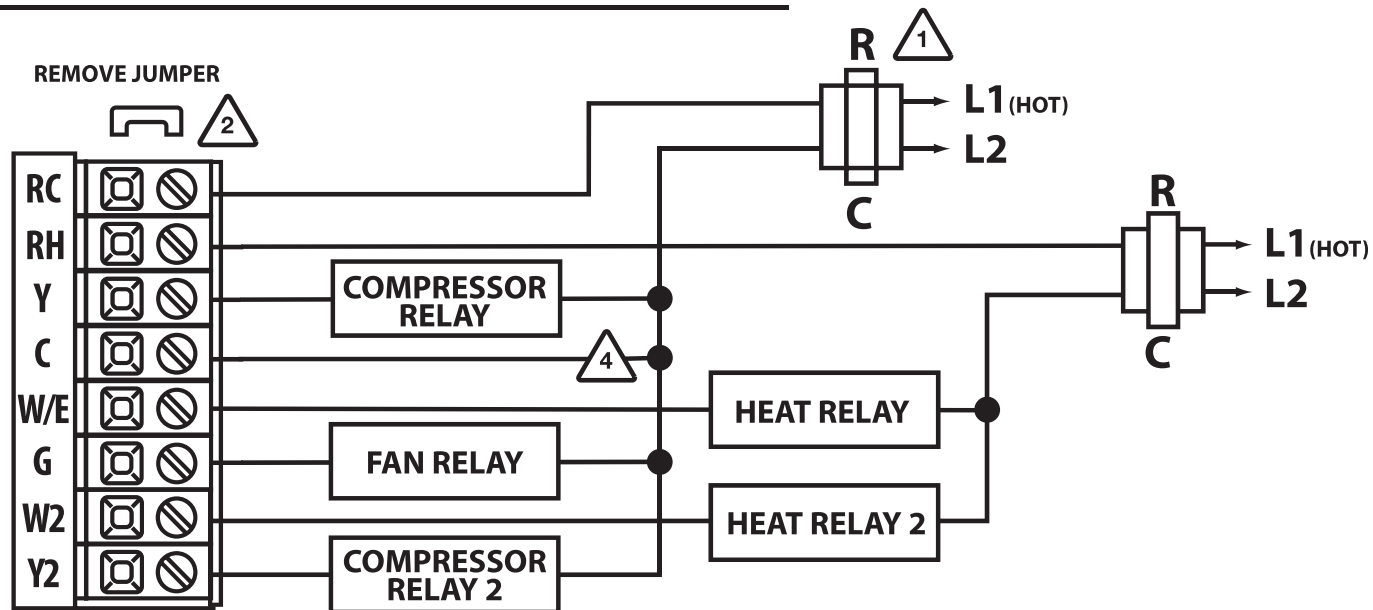
In many systems with no emergency heat relay a jumper can be installed between E and W2.

Wiring Diagrams

Typical 3H/2C or 2H/1C Heat Pump System



Typical 2H/2C System: 2 Transformer



Technician Setup

1. Press MENU button
2. Press and hold **TECHNICIAN SETUP** button for 3 seconds. This 3 second delay is designed so that homeowners do not accidentally access the installer settings.
3. Configure the installer options as desired using the table below.
4. Use the  or  keys to change settings and the NEXT STEP or PREV STEP key to move from one step to another. Note: Only press DONE key when you want to exit the Technician Setup options.

Tech Setup Steps		LCD Will Show	Adjustment Options	Default
SETUP WIFI	WIFI router parameter configuration	WIRELESS SETUP		
Filter Change Reminder	This feature will flash a reminder in the display after the elapsed run time to remind the user to change the filter. A setting of "OFF" will disable this feature.	FILTER OFF SE	You can adjust the filter change reminder from OFF to 2000 hours of runtime in 50 hour increments.	OFF
Room Temperature Calibration	This feature allows the installer to change the calibration of the room temperature display. For example, if the thermostat reads 70° degrees and you would like it to read 72° then select +2.	CALIBRATE 0°F	You can adjust the room temperature display to read 4° above or below the factory calibrated reading.	0

Technician Setup

Tech Setup Steps		LCD Will Show	Adjustment Options	Default
Minimum Compressor On Time	This feature allows the installer to select the minimum run time for the compressor. For example: a setting of 4 will force the compressor to run for at least 4 minutes every time the compressor turns on, regardless of the room temperature.	MIN COMP OF	You can select the minimum compressor run time from "off", "3", "4", or "5" minutes. If 3, 4, or 5 is selected, the compressor will run for at least the selected time before turning off.	OFF
Compressor Short Cycle Delay	The compressor short cycle delay protects the compressor from short cycling. This feature will not allow the compressor to be turned on for 5 minutes after it was last turned off.	COMP PROTECTS ON	Selecting "ON" will not allow the compressor to be turned on for 5 minutes after the last time the compressor was switched off. Select "OFF" to remove this delay.	ON
Cooling Swing	The swing setting often called "cycle rate", "differential" or "anticipation" is adjustable. A smaller swing setting will cause more frequent cycles and a larger swing setting will cause fewer cycles.	COOL SWING 0.5°F	The cooling swing setting is adjustable from 0.2° to 2°. For example: A swing setting of 0.5° will turn the cooling on at approximately 0.5° above the setpoint and turn the cooling off at approximately 0.5° below the setpoint.	0.5

Technician Setup

Tech Setup Steps		LCD Will Show	Adjustment Options	Default
Heating Swing	The swing setting often called "cycle rate", "differential" or "anticipation" is adjustable. A smaller swing setting will cause more frequent cycles and a larger swing setting will cause fewer cycles.	HEAT SWING 04°F	The heating swing setting is adjustable from 0.2° to 2°. For example: A swing setting of 0.5° will turn the heating on at approximately 0.5° below the setpoint and turn the heating off at approximately 0.5° above the setpoint.	0.4
Heat Pump	When turned on the thermostat will operate a heat pump. EM. Heat will show as an option in the system switch tech setting. Use the  and  button to adjust.	HEAT PUMP OF	OFF configures the thermostat for conventional systems. ON configures the thermostat for heat pump systems.	OFF
System Set	You can configure the system switch for the particular application. Heat - Off - Cool, Heat - Off, Cool - Off, Heat - Off - Cool – Auto. Note: Emergency Heat is available in heat pump mode only.	SYSTEM SET 	Use the  or  buttons until the desired application is flashing. AUTO = (Auto Changeover)	OFF
Stages of Heat + Cool	You can configure this thermostat to operate up to a 2H/2C conventional, or up to a 4H/2C heat pump system. This step is shown only if heat pump is set to ON.	2H2C STRGS OF HEAT + COOL	Use the  or  key to first select stages of heat, press next- then select stages of cool. 3 or 4 heat will use Y1 and Y2 as 1st and 2nd stage of heat.	2 STAGES

Technician Setup

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
Cooling Fan Delay	The cooling fan delay setting will delay the fan from coming on in cool mode and keep it running after the compressor shuts off for a short time to save energy in some systems. COOL FAN DELAY OF	You can set the cooling fan delay to OFF, 15, 30, 60 or 90 seconds. If 15, 30, 60, or 90 is selected the fan will not turn on for that many seconds when there is a call for cool and will run for that many seconds after satisfying a call for cool.	OFF
Heating Temperature Setpoint Limit	This feature allows you to set a maximum heat setpoint value. The setpoint temperature cannot be raised above this value. HEAT LIMIT 90°F	Use the - or + key to select the maximum heat setpoint. Range 44°F - 90°F	90°
Cooling Temperature Setpoint Limit	This feature allows you to set a minimum cool setpoint value. The setpoint temperature cannot be lowered below this value. COOL LIMIT 44°F	Use the - or + key to select the minimum cool setpoint. Range 44°F - 90°F	44°
F° or C°	Select F for Fahrenheit read out or select C for Celsius read out. OF F OR C SET 83°F	°F for Fahrenheit °C for Celsius	F°

Technician Setup

Tech Setup Steps		LCD Will Show	Adjustment Options	Default
12 or 24	You can select either 12 or 24 hour clock setting.	12 H	Use the  or  key to select 12 or 24 hour clock.	12 Hour Clock
Fan Operation	Select GAS for systems that control the fan during a call for heat. Select ELEC to have the thermostat control the fan during a call for heat.	GAS FAN OPERATION	Gas or Elec	GAS
Morning Recovery	This feature will start heating early to bring the building temperature to its programmed setpoint by the beginning of the WAKE time period.	MORNING RECOVERY ON	Use the  or  key to turn on or off.	ON
Display Light	The display light can be configured to operate 2 differet ways. To come on only when the light key is pressed, when any key is pressed ,or stay on ALL of the time.	AUTO dl	'AUTO' - Any key ON 'ON' - Always ON	AUTO
Contractor Call Number	Allows you to put your phone number in the display. Selecting "ON" will enable this feature. "OFF" will disable this feature.	PHONE NUM OF	If selected on, you will see the input screen after pressing next step. Use the  or  keys to select the desired number and the FAN or SYSTEM key to move from one character to another. See Note on page 12 for operation.	OFF

Technician Setup

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
Beep	When any key is pressed an audible beep will sound. There is an ON or an OFF.	BEEP OF	If ON is selected the beep will sound. If OFF is selected, there is not sound.

Swing Setting Tip

The second stage will turn on at 2x the swing setting. The second stage will turn off when 1x the swing is reached. For example, if the swing setting is .5 degrees for heating and the thermostat is set at 70°F, the first stage will turn on at approximately 69.5°F. The second stage will turn on at 69°F. The second stage will turn off at 69.5°F and the first will turn off at 70.5°F. If the third stage is used, it will turn on at 68.5°F and turn off at approximately 69°F.

A Note About Keypad Lockout:

The function of activating your lockout choice takes place after you have exited tech setup. To lock or unlock the keypad hold down the MENU for 3 seconds.

Contractor Call Number Note:

If contractor call number is selected ON, your phone number will show in the display if there has been a continuous call for heating or cooling for 24 hours or if the FAN button is held down for 3 seconds. To remove the phone number from the display, hold the fan button down for 3 seconds.

Set Time (If using programming)

1. Press the **MENU** button
2. Press **SET TIME**
3. Day of the week will be flashing. Use the  or  key to select the current day of the week.
4. Press **NEXT**
5. The current hour is flashing. Use the  or  key to select the current hour. When using 12-hour time, make sure the correct a.m. or p.m. choice is selected.
6. Press **NEXT**
7. Minutes are now flashing. Use the  or  key to select current minutes.
8. Press **DONE** when completed.

Programming

1. Select **HEAT** or **COOL** using the system key. **Note:** You have to program heat and cool each separately.
2. Press **MENU**
3. Press **SET SCHED.** **Note:** Monday is displayed and the **WAKE** icon is shown. You are now programming the **WAKE** time period for that day.
4. Time is flashing. Use the  or  key to make your time selection for that day's **WAKE** time period. **Note:** If you want the fan to run continuously during this time period, select **ON** with the **FAN** key.

Programming

5. Press **NEXT**.
6. The setpoint temperature is flashing. Use the  or  key to make your setpoint selection for that day's **WAKE** period.
7. Press **NEXT**.
8. Repeat steps 4 through 7 for that day's **LEAVE** time period, **RETURN** time period, and **SLEEP** time period.

Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday

Repeat steps 4 thru 7 for the remaining days of the week.

Programming

All of our programmable thermostats are shipped with an energy saving pre-program. Your thermostat can be programmed to have all the weekdays the same, a seperate program for Saturday, and a seperate program for Sunday. There are four time periods for each program (**WAKE, LEAVE, RETURN, SLEEP**).

Programming

Factory Default Program				
Day of the Week	Events	Time	Setpoint Temperature (HEAT)	Setpoint Temperature (COOL)
Weekday	Wake	6 AM	70°F (21°C)	75°F (24°C)
	Leave	8 AM	62°F (17°C)	83°F (28°C)
	Return	6 PM	70°F (21°C)	75°F (24°C)
	Sleep	10 PM	62°F (17°C)	78°F (26°C)
Saturday	Wake	6 AM	70°F (21°C)	75°F (24°C)
	Leave	8 AM	62°F (17°C)	83°F (28°C)
	Return	6 PM	70°F (21°C)	75°F (24°C)
	Sleep	10 PM	62°F (17°C)	78°F (26°C)
Sunday	Wake	6 AM	70°F (21°C)	75°F (24°C)
	Leave	8 AM	62°F (17°C)	83°F (28°C)
	Return	6 PM	70°F (21°C)	75°F (24°C)
	Sleep	10 PM	62°F (17°C)	78°F (26°C)



A Note About Auto Changeover:

If in Auto you have the ability to switch between Auto Heat or Auto Cool by pressing the System key. This can be done once the current mode has reached its set-point. For example: If in Auto Heat, the heat setpoint must be satisfied before the thermostat will allow you to switch to Auto Cool. You can switch out of Auto by holding down the System key. To get back into Auto, you must toggle the System key to Auto.



A Note About Programmable Fan:

The programmable fan feature will run the fan continuously during any time period it is programmed to be on. This is the best way to keep the air circulated and to eliminate hot and cold spots in your building.



Reminders Note:

Once a Reminder has been turned on and set, the elapsed time can be checked by navigating to it's tech setup step. The elapsed time will then appear in the text field. It can also be reset at that time by a press and hold of the third button from the left for 3 seconds. Resetting an expired Reminder can be done without entering tech setup, by a press and hold of the 3rd button from the left for 3 seconds.

Setting up the WiFi connection

This WiFi thermostat works with App “SmartTherm” which is available for iOS and Android system, the users could download the App from the Apple store or Google Play.



APP Operating Manual

Quickstart Guide

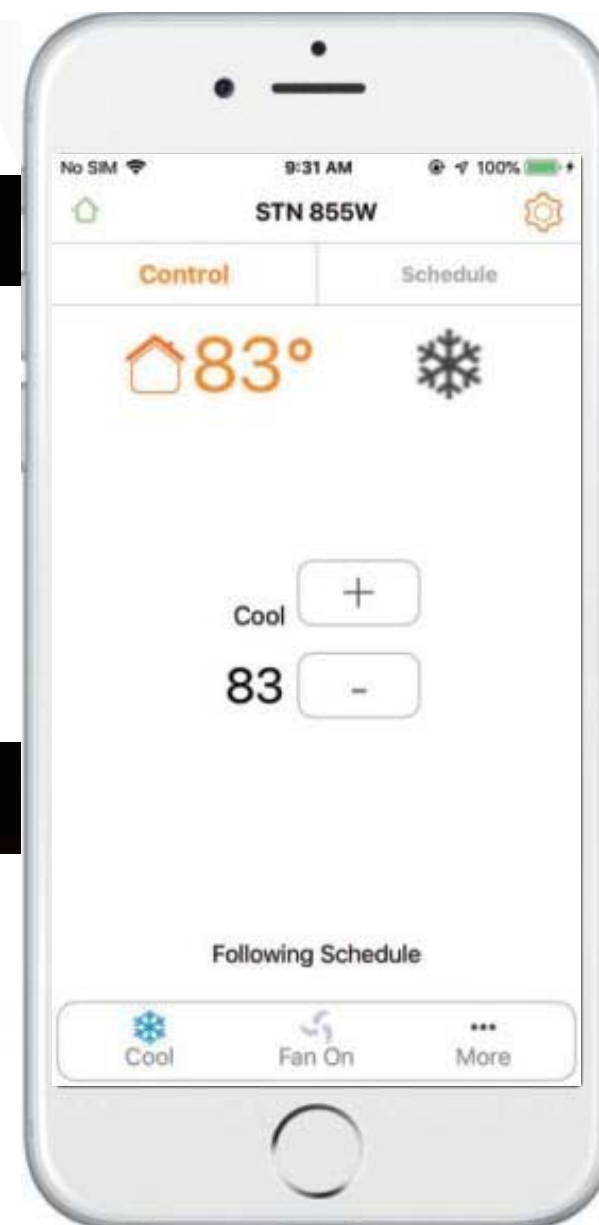


Note: Insert quick start guide behind thermostat

Table of Contents

Page

Company Information & Table of Contents	1
Creating An Account	2-3
Home Page	4
Device List	5
Add A thermostat	6-14
Thermostat Control	16
Scheduling	17-19
Thermostat Details	20-21



Creating An Account

Before You Begin

Download the **SmartTherm** App from the Apple Store or Google Play Store. You must have your WIFI network password ready.

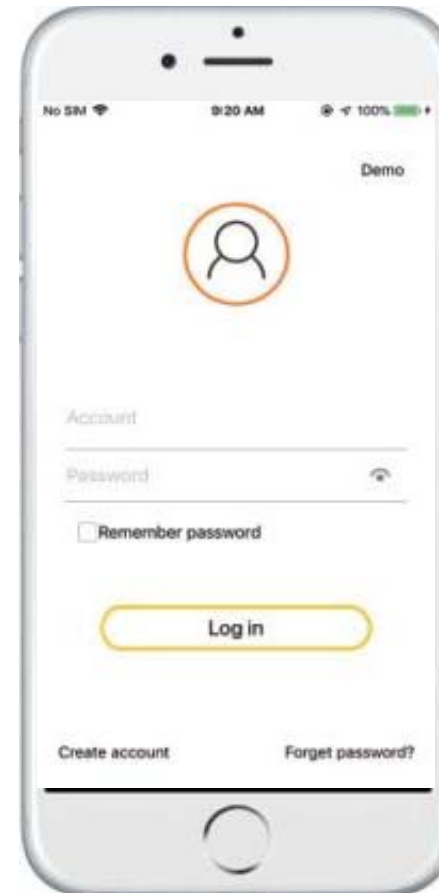


1

Step 1 - Log In or Create an Account

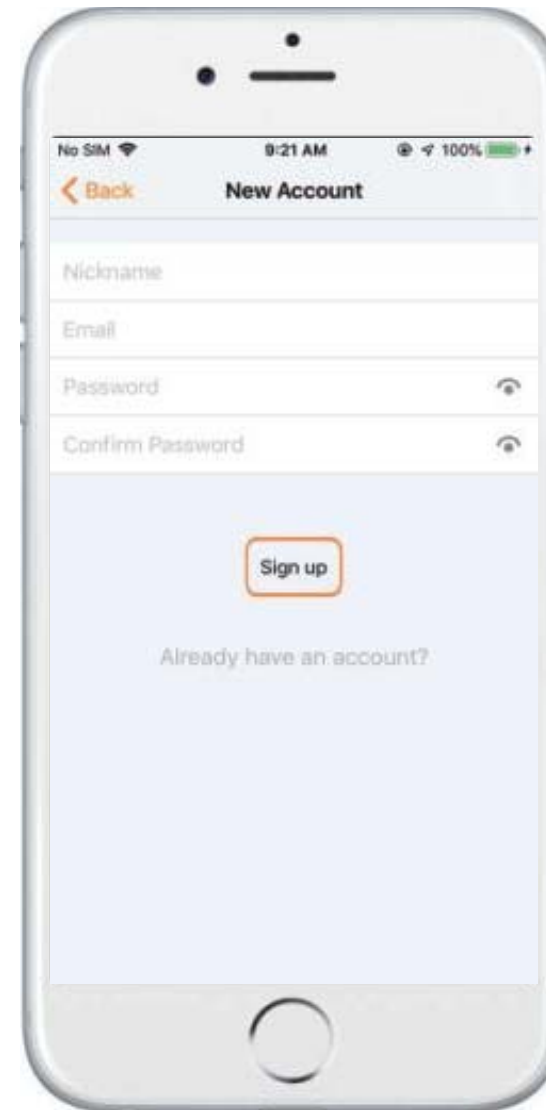
Log in or create a new account.

Note: Multiple people can use the same account by sharing the login information after setup is complete.

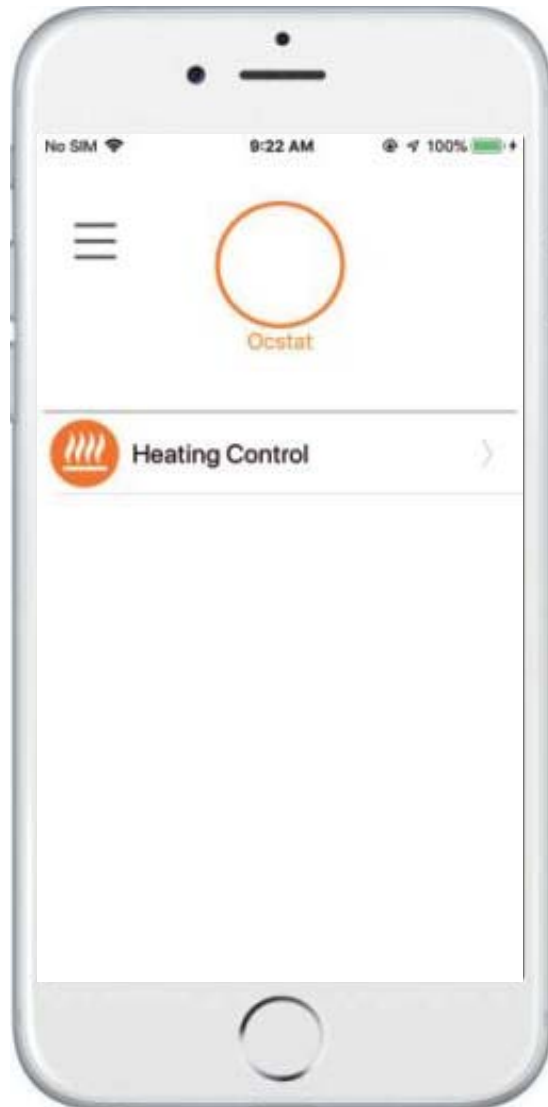


2

- 2** Step 2 - Register Account
After successful registration, return to this screen, please click "Login".



Home page

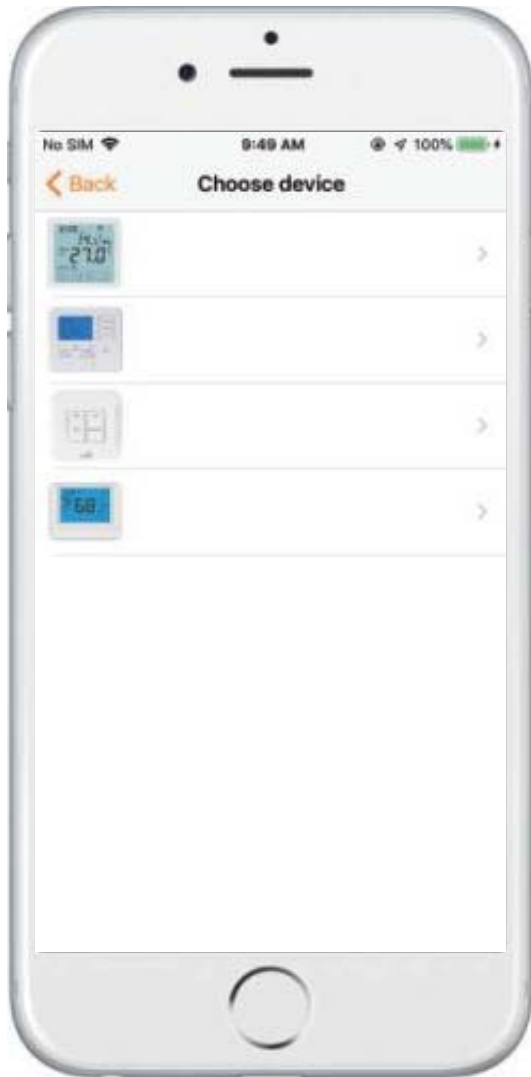


Select **Heating control** to enter the device list page

Select the ***Add New Device*** button to add a thermostat to your account.



Add A Thermostat



1 Step 1 - Select Your Thermostat

Choose the corresponding thermostat

- 2 Step 4 - Thermostat enters the binding state
Select the **YES** button

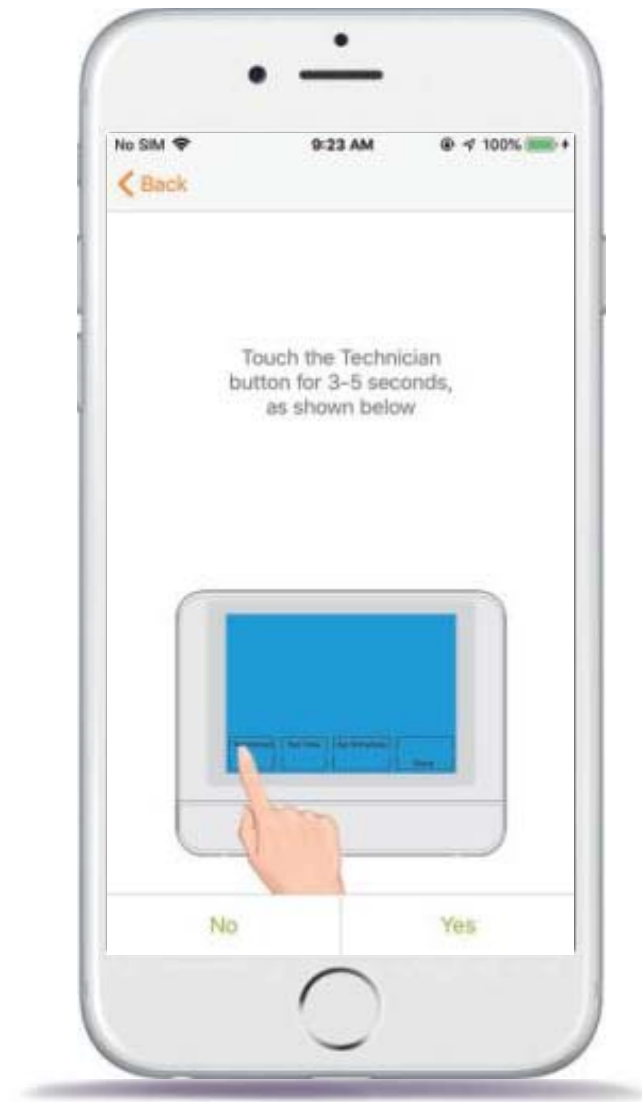


Add A Thermostat



- 3 Step 4 - Thermostat enters the binding state
- Select the **YES** button

- 4 Step 4 - Thermostat enters the binding state
Select the **YES** button



Add A Thermostats



- 5 Step 5 - Thermostat enters the binding state
Select the **YES** button

6 Step 6- Connecting To The Thermostat

After the thermostat follows the above steps, the WIFI symbol flashes at the top. Connect your WIFI and enter the correct password.



Add A Thermostat



7 Step 7- Connecting To The Thermostat

After the thermostat follows the above steps, the WIFI symbol flashes at the top. (It will begin with "sterm"). Make a note of this. Use the "W/F/ Settings" button below to go to your device settings and connect to the thermostat WIFI network. Once connected, return to this app, and press **"YES"**.

8 Step 8- Connecting To The Thermostat

It will connect to WIFI whose name starts with "stem". Once connected, return to this app, and press **"YES"** .



Add A Thermostat

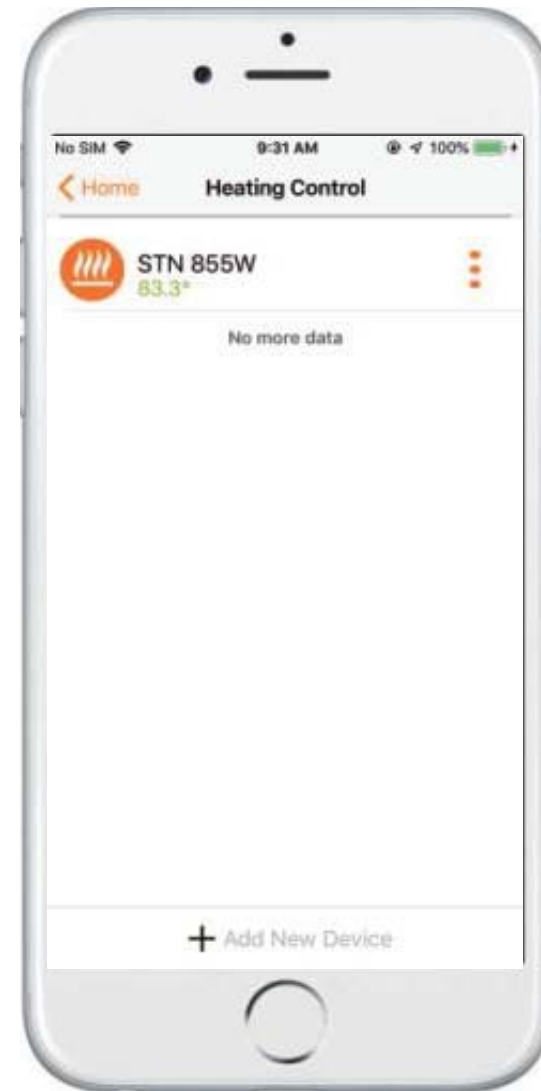


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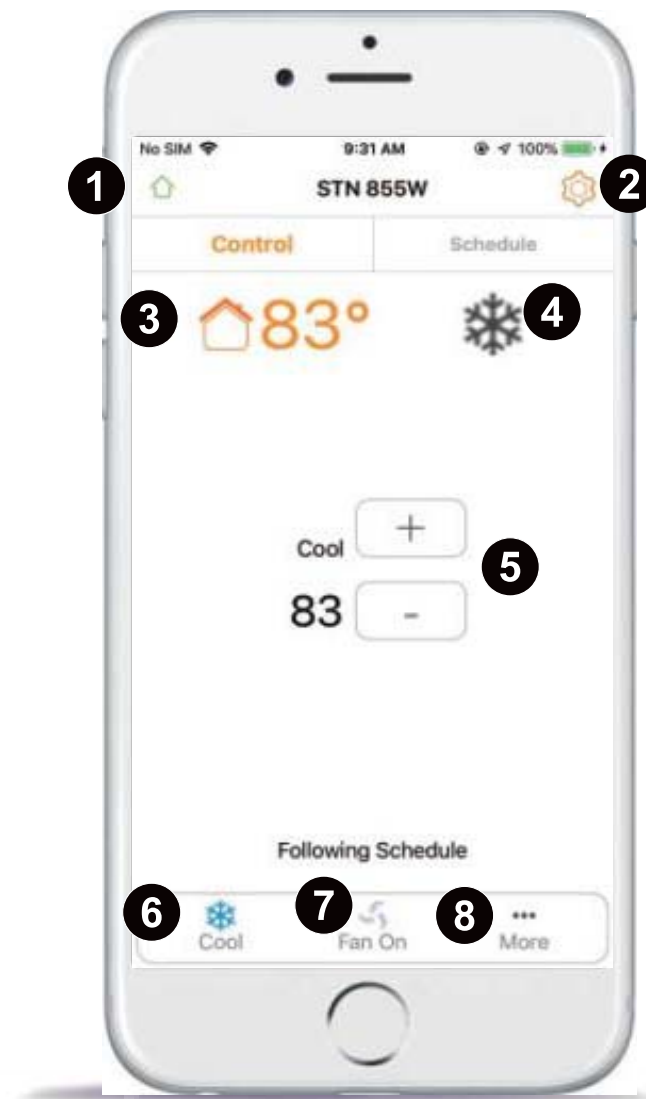
Step 9- Binding Device

Device binding is usually completed in 15-25 seconds.

Connecting Your Thermostat



Control Screen Overview



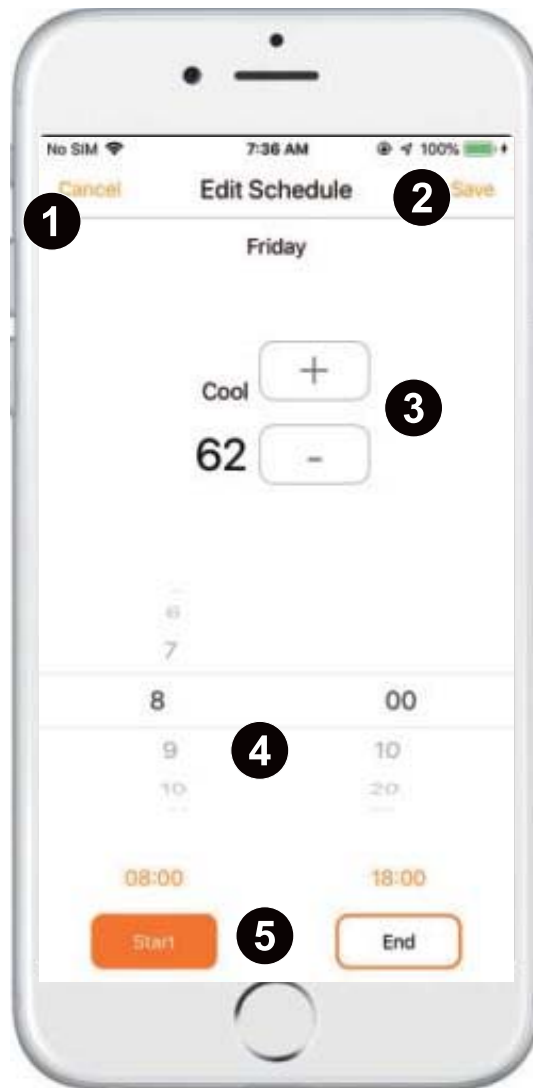
- 1** Back Button
Return back to Device List screen.
- 2** Thermostat Setting
Set the minimum and maximum temperature of the thermostat and temperature compensation.
- 3** Room Temperature
The current ambient temperature of the room.
- 4** Relay
The gray picture indicates that the relay is off.
- 5** Setpoint Temperature
Click the "-" and "+" buttons to set the desired room temperature.
- 6** System Setting
Select your System mode (Heat, Cool, Off).
- 7** Schedule Setting
Select your Fan mode (Auto, On).
- 8** More Setting
Set the time display format, the backlight is always on, and the temperature unit.

My Thermostats Schedule

- 1** Setting
Enter settings and copy Schedule .
- 2** System model schedule
Choose to view schedules for different system modes.
- 3** Schedule list
Time and temperature to be modified per each schedule
- 4** Delete and add schedule
You can delete the add schedule, support up to nine schedules.
- 5** Schedule for next week
View schedules at different times.



Modify the schedule

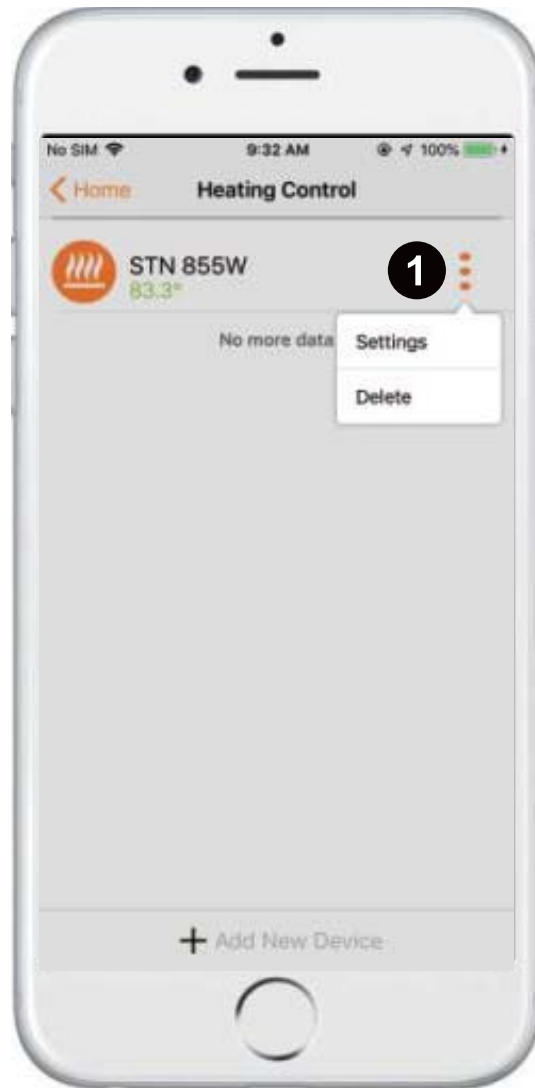


- 1** Back Button
Return back to Device Control screen.
- 2** Save Button
Save the revised schedule.
- 3** Change temperature button
Modify the temperature of the specified time period.
- 4** Change the time
Scroll up and down to select the specified time.
- 5** Start and end time buttons
Switch start or end time.

- 1** Back Button
Return back to My Thermostats control screen.
- 2** Where is the schedule
Copy from the schedule for the specified day.
- 3** To this timetable
Copy the schedule marked 2 to other selected dates.
- 4** Confirm button
You can confirm the submission by selecting the copy location.
- 5** Cancel button
Give up this operation.



Thermostats Menu



- 1 Thermostats Menu
Enter settings and
Delete thermostat .

- 1 Back Button
Return back to Device Control screen.
- 2 Thermostat name button
The name of the thermostat can be modified.
- 3 Thermostat time
The time of the thermostat can be modified.
- 4 Firmware version
The thermostat can be upgraded when the latest firmware is available.



-English: "

This device complies with Industry Canada licence-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."

-French:"

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil n' doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement."

FCC STATEMENT :

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.

Warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

- English: "

This device complies with Industry Canada licence-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."

- French:"

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil nedit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement."

This product does not support battery power.