STN855W WiFi Digital Programmable Thermostat Instruction Manual

THERMOSTAT

STN855W
WiFi Digital Programmable Thermostat
Instruction Manual

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
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.

Contents

Installation tips

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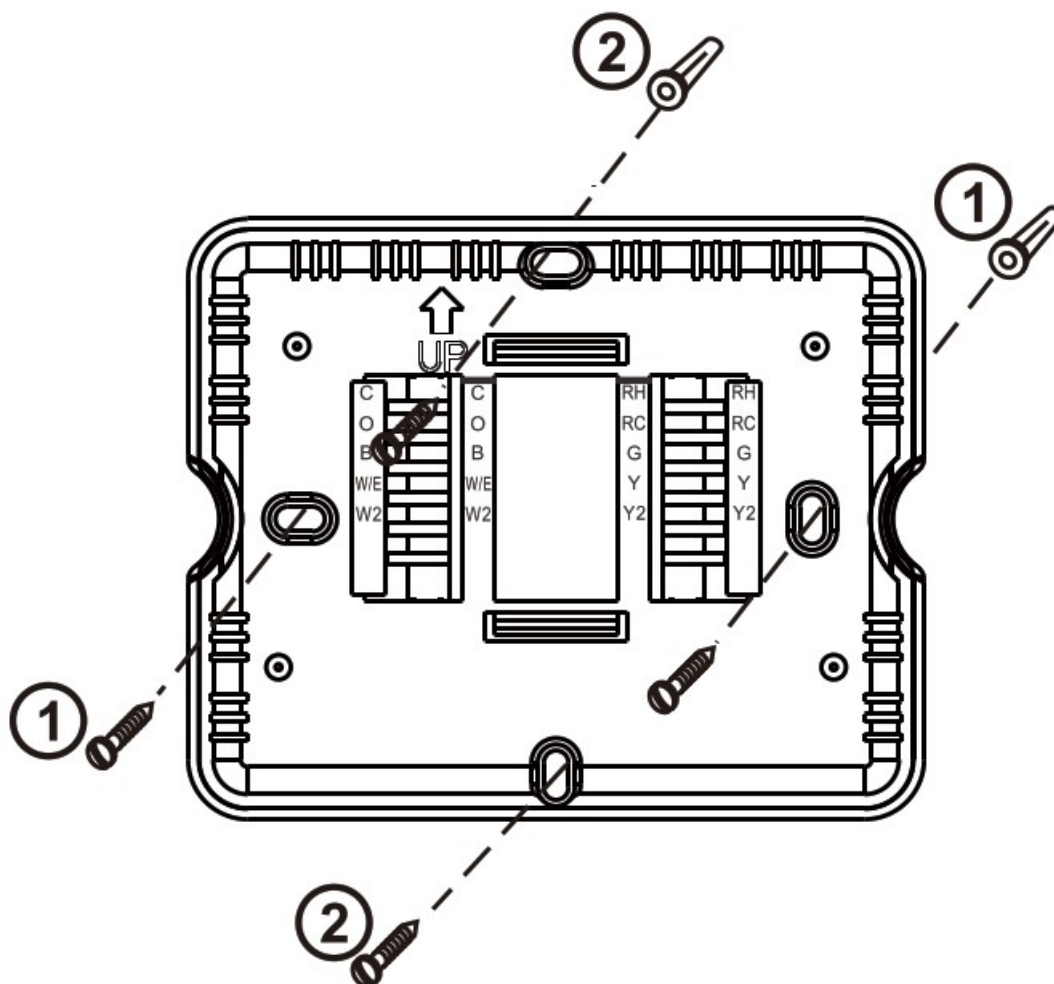
For vertical mount put one screw on the top and one screw on the bottom.
For horizontal mount put one screw on the left and one screw on the right.

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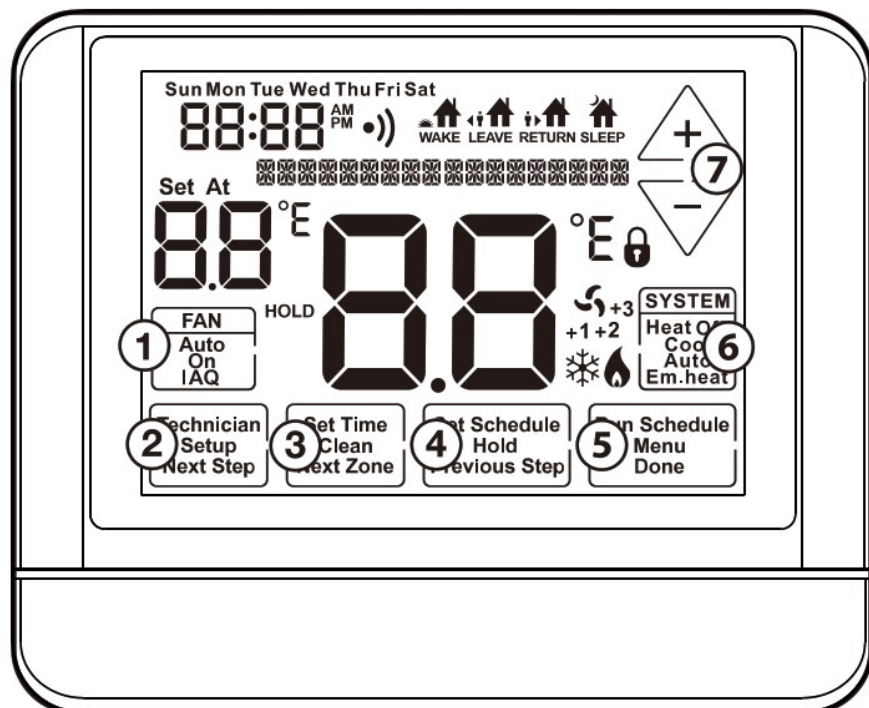
Mount Thermostat
Align the 4 tabs on the subbase with corresponding slots on the back of the thermostat, then push gently until the thermostat snaps in place.
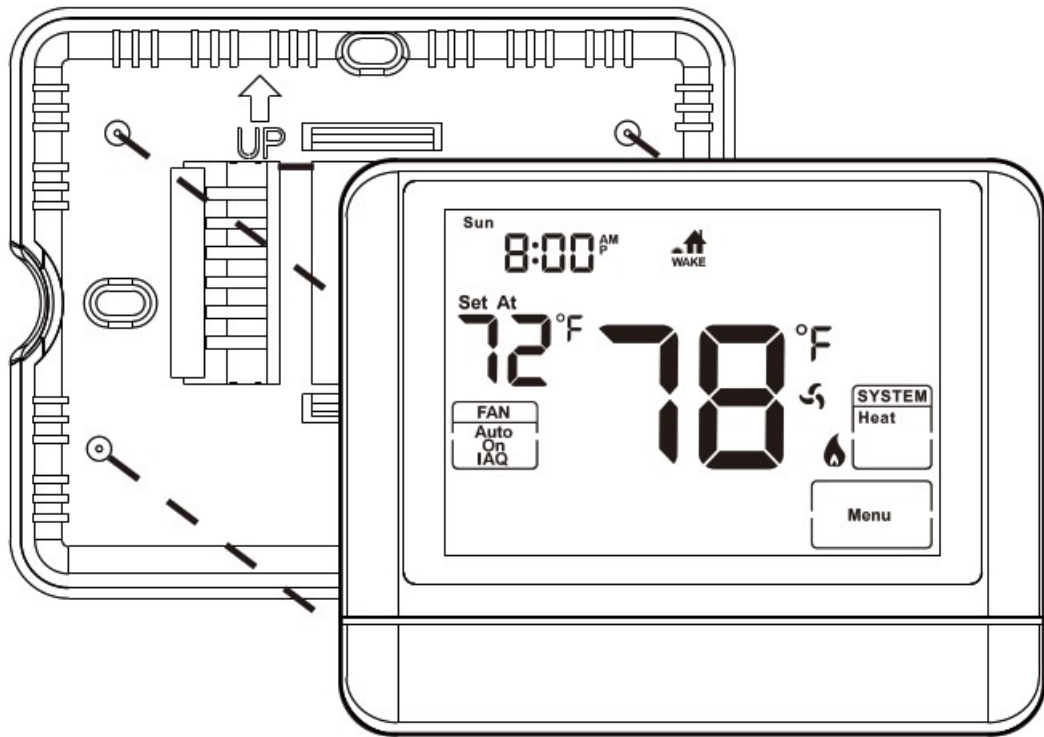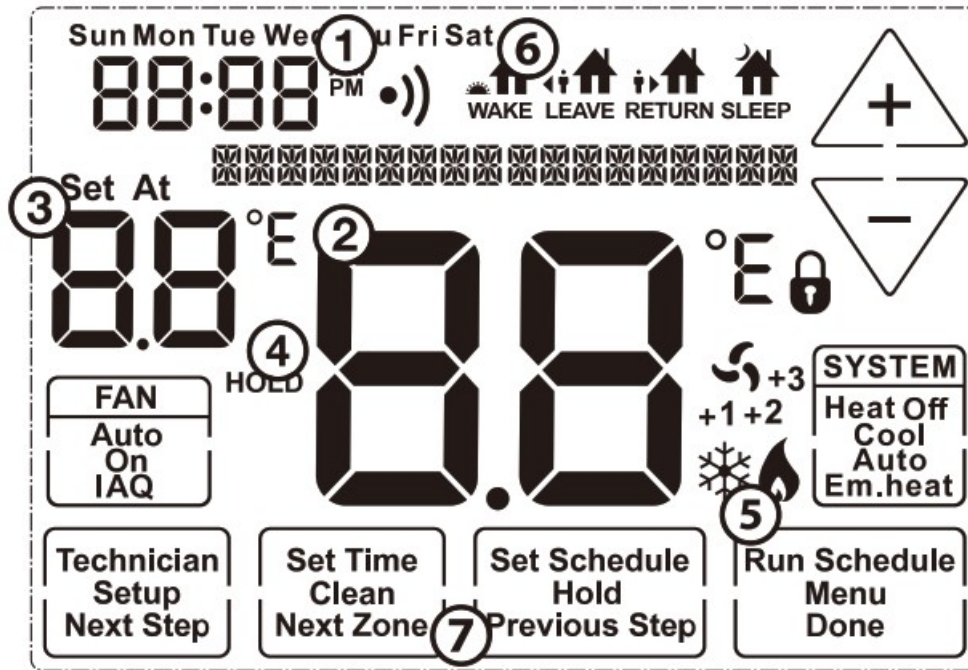
Thermostat Quick Reference

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

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.

Wiring

⚠️ **Caution:** Electrical Hazard
Failure to disconnect the power before beginning to install this product can cause electrical shock or equipment damage.

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.

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

💡 **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-Ibs.

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.

		Y	Y2	W/E	W2	0	B
CONVENTIONAL HVAC		COOL MODE STAGE 1	COOL MODE STAGE 2	HEAT MODE STAGE I	HEAT MODE STAGE 2	_	I
HEAT PUMP	1H/1C	HEAT 1 COOL1				HEAT PUMP VALVC HANGEOVER VALVE – ENERGIZED DURING COOLING	HEAT PUMP GEOVECH VALVE – RVAENERGIZED 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		COOL 2	HEAT 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.
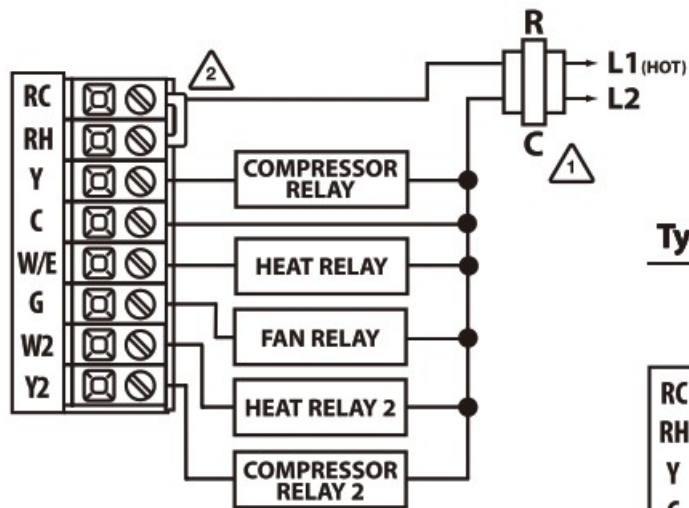
Wiring Tips

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.
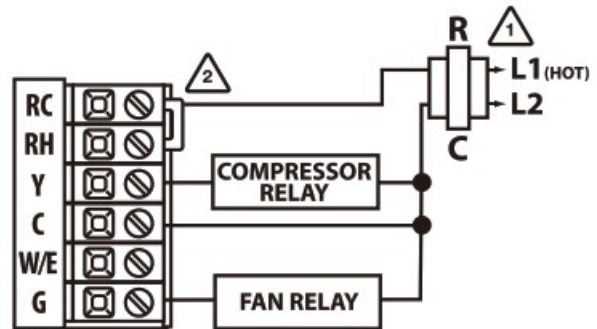
Wiring Diagrams

1. Power supply

2. Factory-installed jumper. Remove only when installing on 2-transformer systems

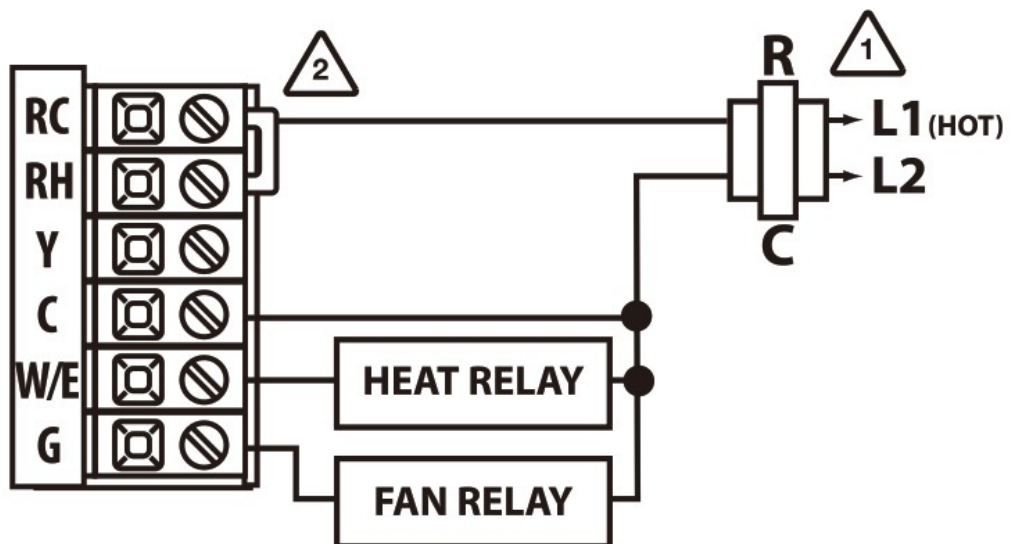3. Use either 0 or B terminals for changeover valve
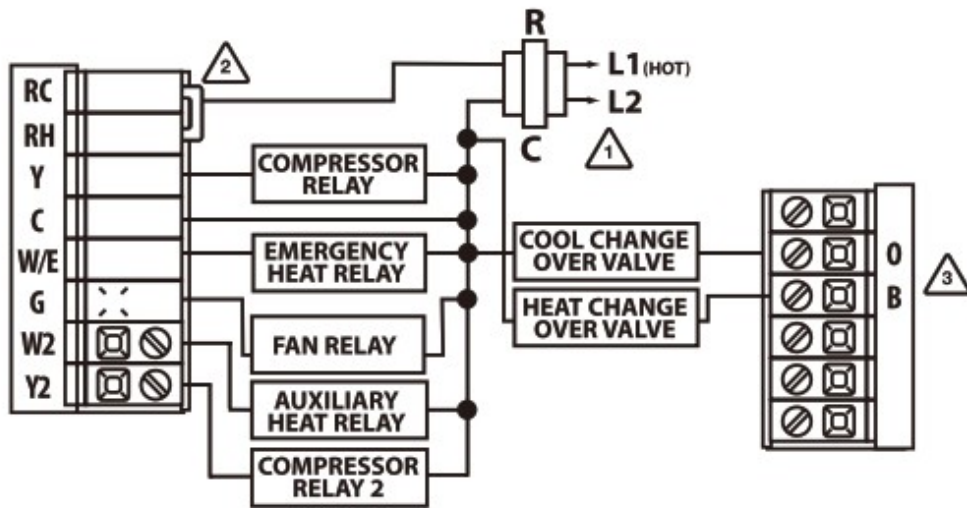
Typical 2H/2C System: 1 Transformer

R → **L1** (HOT)
→ **L2**

Terminal		
RC		⚠2
RH		
Y	COMPRESSOR RELAY	
C		**C** ⚠1
W/E	HEAT RELAY	
G	FAN RELAY	
W2	HEAT RELAY 2	
Y2	COMPRESSOR RELAY 2	

Typical Cool-Only System With Fan

R ⚠1 → **L1** (HOT)
→ **L2**
C

Terminal		
RC	⚠2	
RH		
Y	COMPRESSOR RELAY	
C		
W/E		
G	FAN RELAY	

Typical Heat Only System With Fan

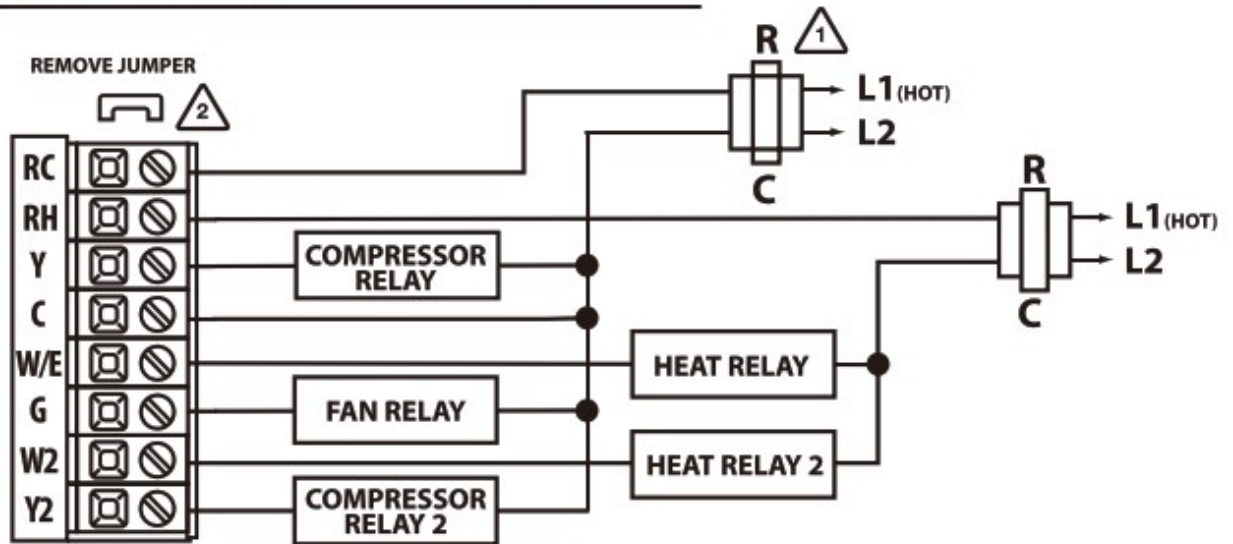| Terminal		
RC	⚠2	**R** ⚠1 → **L1** (HOT)
RH		→ **L2**
Y		**C**
C		
W/E	HEAT RELAY	
G	FAN RELAY	

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

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	
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 5E	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
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 tums 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 DELAY 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","differentiaror" 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
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 0.4°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

Syste m Set	You can configure the system switch for the particul ar application. Heat – Off – Cool, Heat – Off, Cool – Off, Heat-Off-Cool — Auto. Note: Emergency Heat is available in heat pump mo de only.	SYSTEM SET SYSTEM Heat Off Cool Auto	Use the [+] or [–] buttons until the desired application is fla shing. AUTO = (Auto Ch angeover)	OFF
Stage s of H eat + Cool	You can configure this thermostat to operate up to a 2H/2C con-ventional, or up to a 4H/2C heat pump s ystem. 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 s tage of heat	2 STAG ES
Cooli ng Fa n Del ay	The cooling fan delay setting will delay the fan from coming on in cool mode and keep it running after th e compressor shuts off for a short time to save ener gy in some systems.	COOL FAN DELAY OF	You can set the cooling f an delay to OFF, 15, 30, 60 or 90 seconds. If 15, 30, 60, or 90 is selected the fan will not turn on fo r that many seconds wh en there is a call for cool and will run for that man y seconds after satisfyin g a call for cool.	OFF
Heati ng Te mper ature Setpo int Li mit	This feature allows you to set a maximum heat setp oint value. The setpoint temperature cannot be rais ed above this valve.	HEAT LIMIT 90°F	Use the = [+] or [–] key to select the maximum heat setpoint. Range 41°F – 90°F	90°
Cooli ng Te mper ature Setpo int Li mit	This feature allows you to set a minimum cool setpo int value. The setpoint temperature cannot be lower ed below this value.	COOL LIMIT 41°F	Use the [+] or [–] key to select the minimum cool setpoint. Range 41°F – 90°F	41°
F° or C°	Select F for Fahrenheit read out or select C for Celsi us read out.	OF F OR C SET 83°F	°F for Fahrenheit °C for Celsius	°F
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 HOU R CLO CK
Fan O perati on	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.	MERNING RECOIIERY 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
Beep	When any key is pressed ab 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.	ON
MACID	This step shows the MAC address of WIFI module.	MACID 98D863079022		
Firmware Version	This step shows the version of firmware that is installed on the thermostat.	FIRMEWARE VER 0100	Press NEXT button to move to next step. Press DONE button to exit. Press and hold TECH button to enter ADVANCED TECH STEPS.	
Factory Default Reset	This step resets all WIFIsettings to factory default.	NO RESET TO DEFAULT	Press YES to reset.	

Programming

Swing Setting Tip
The second stage will turn on at 2x the swing setting. The second stage will turn off when lx the swing is reached. For example, if the swing setting is 0.5 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 the $\boxed{+}$ OR $\boxed{-}$
3. Day of the week will be flashing. Use key to select the current day of the week.
4. Press NEXT $\boxed{+}$ OR $\boxed{-}$ key
5. The current hour is flashing. Use the 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 $\boxed{+}$ OR $\boxed{-}$ 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 $\boxed{+}$ OR $\boxed{-}$ 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.
5. Press NEXT.
6. The setpoint temperature is flashing. Use the $\boxed{+}$ OR $\boxed{-}$ 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).

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

Thermostat Quick Reference

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 ther-mostat 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.
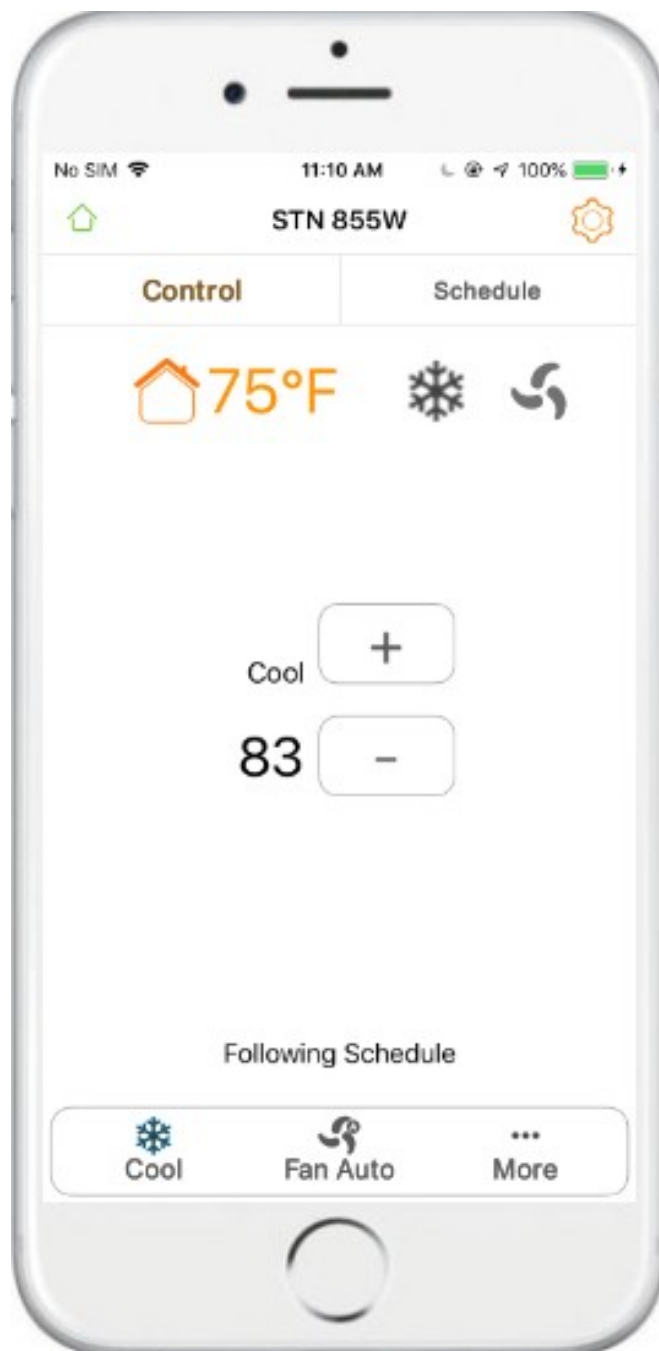
Setting up the WiFi connection

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
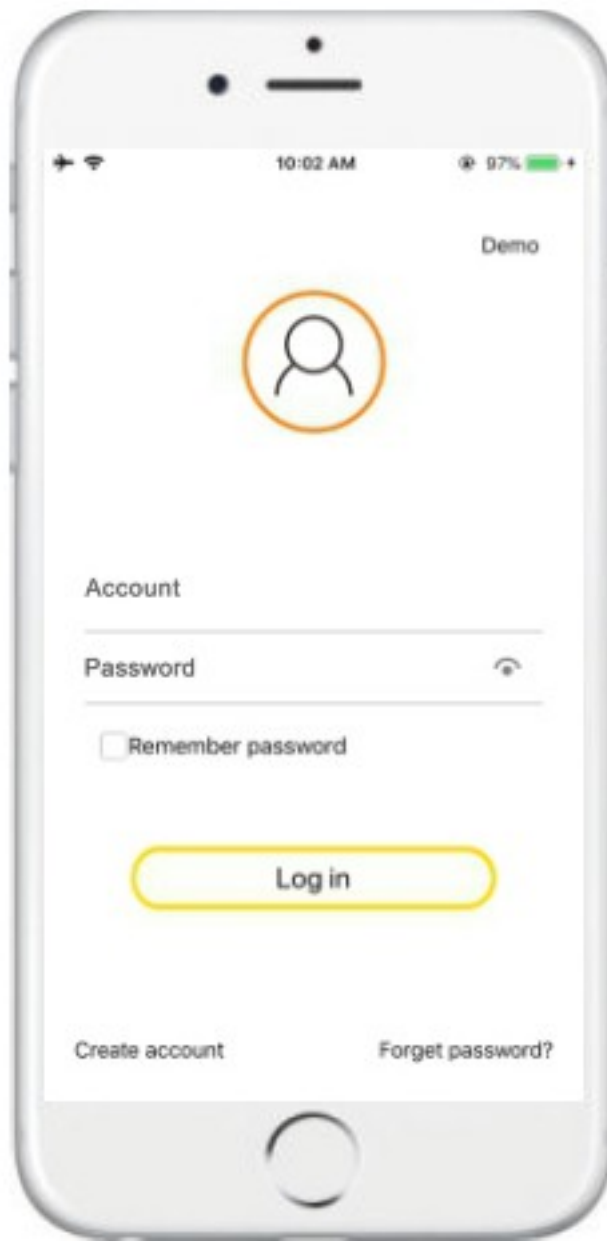
## Creating An Account

Before You Begin

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

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.
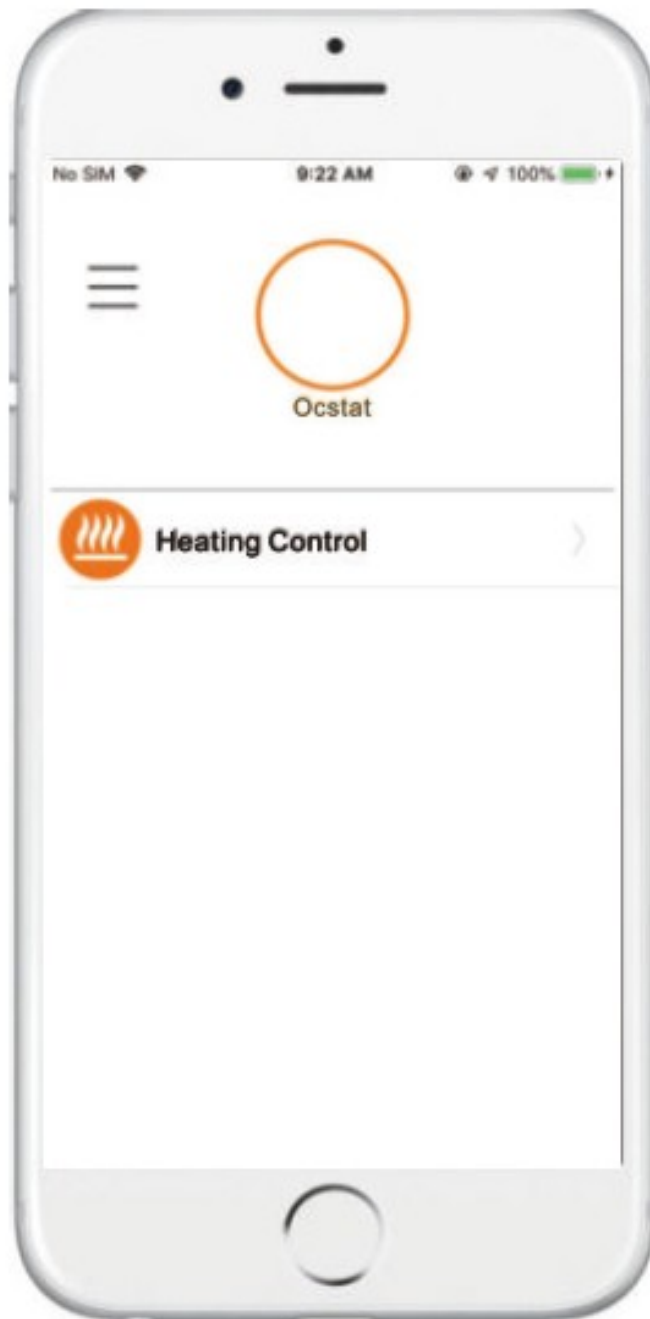
Regiser Account

Step 2 – Register Account After successful registration, return to this screen, please click "Login".
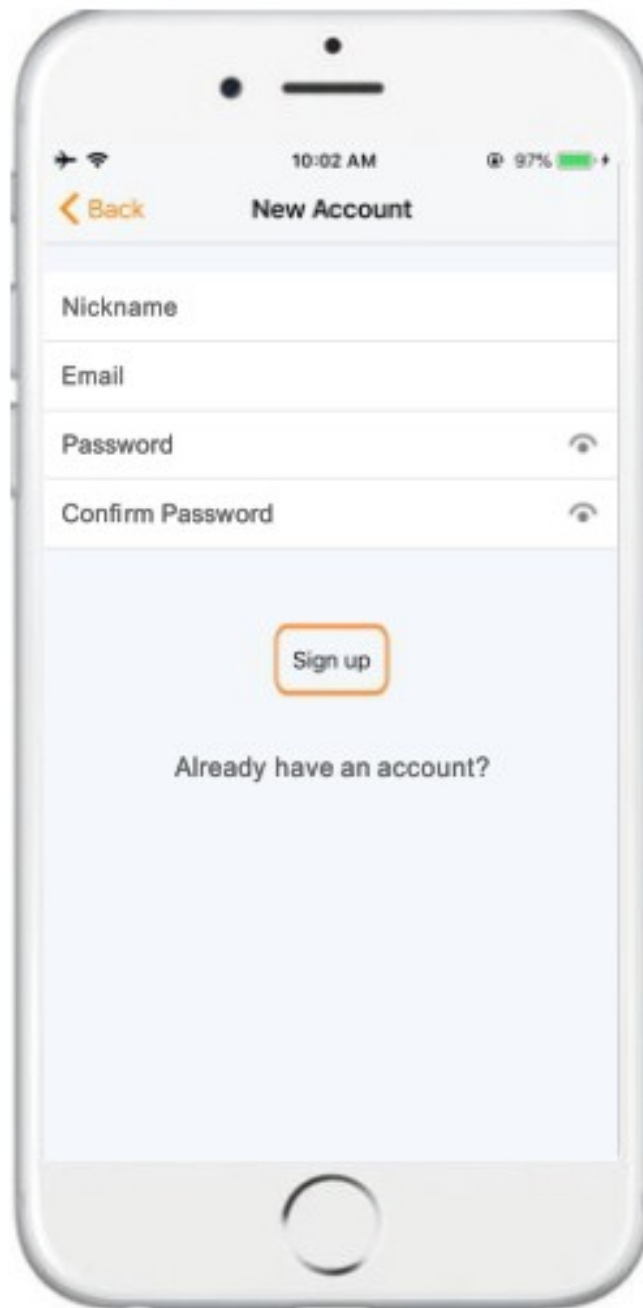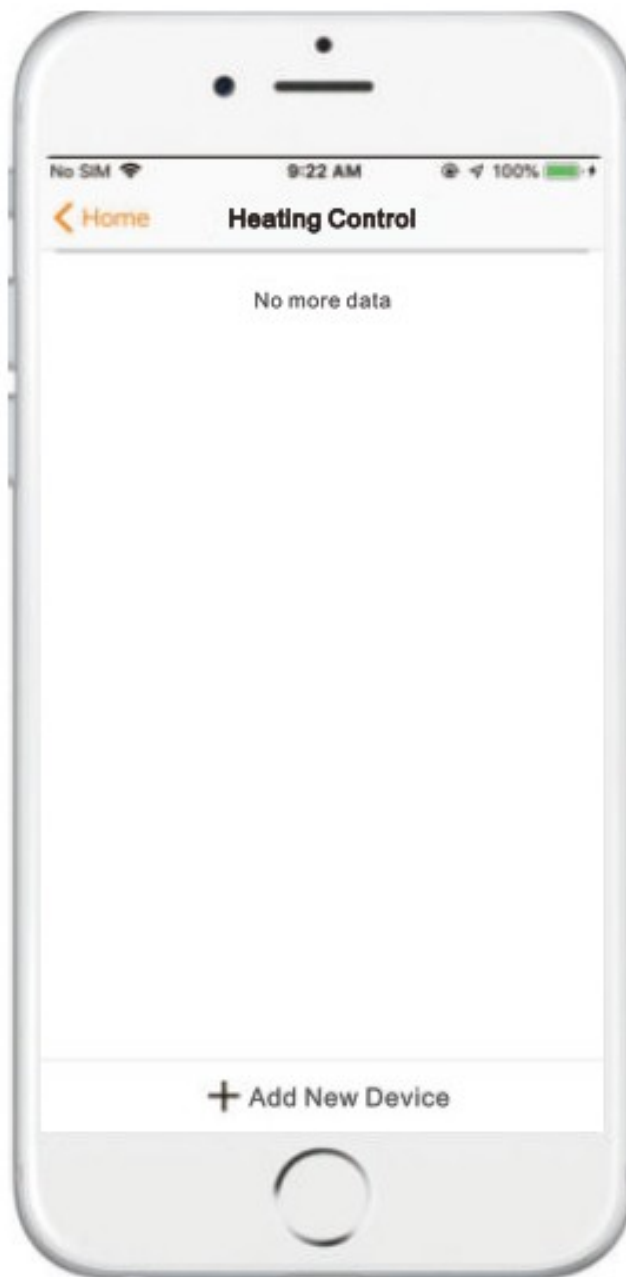
Home page

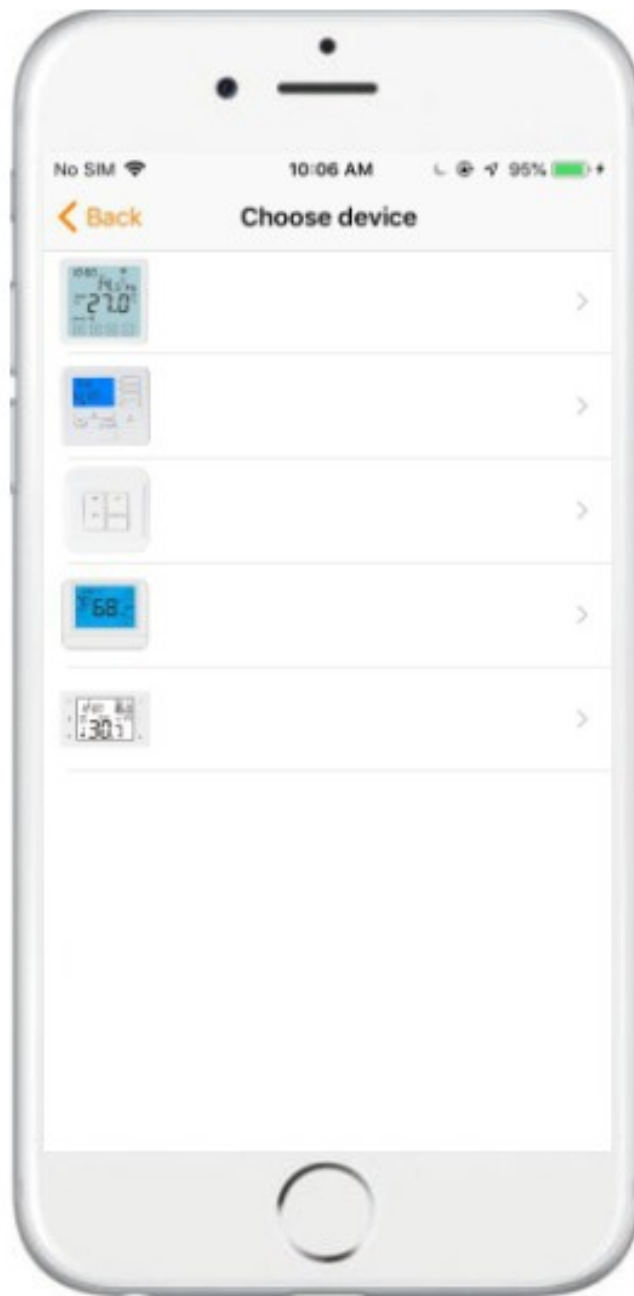Select Heating control to enter the device list page

Device List
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

3. Step 4 – Thermostat enters the binding state
   Select the YES button

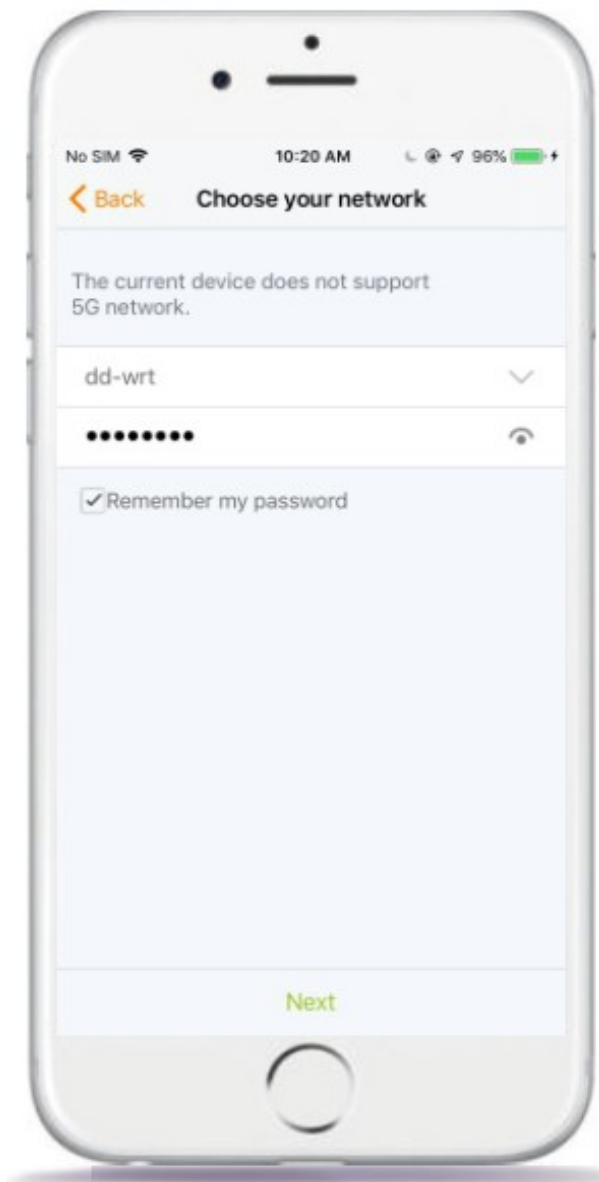4. Step 4 – Thermostat enters the binding state Select the YES button

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.

No SIM 📶   10:20 AM   ⌞ ⊕ ⍫ 96% ▬ ⌁

❮ Back   **Choose your network**

The current device does not support 5G network.

dd-wrt   ⌄

••••••••   👁

☑ Remember my password

Next

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"
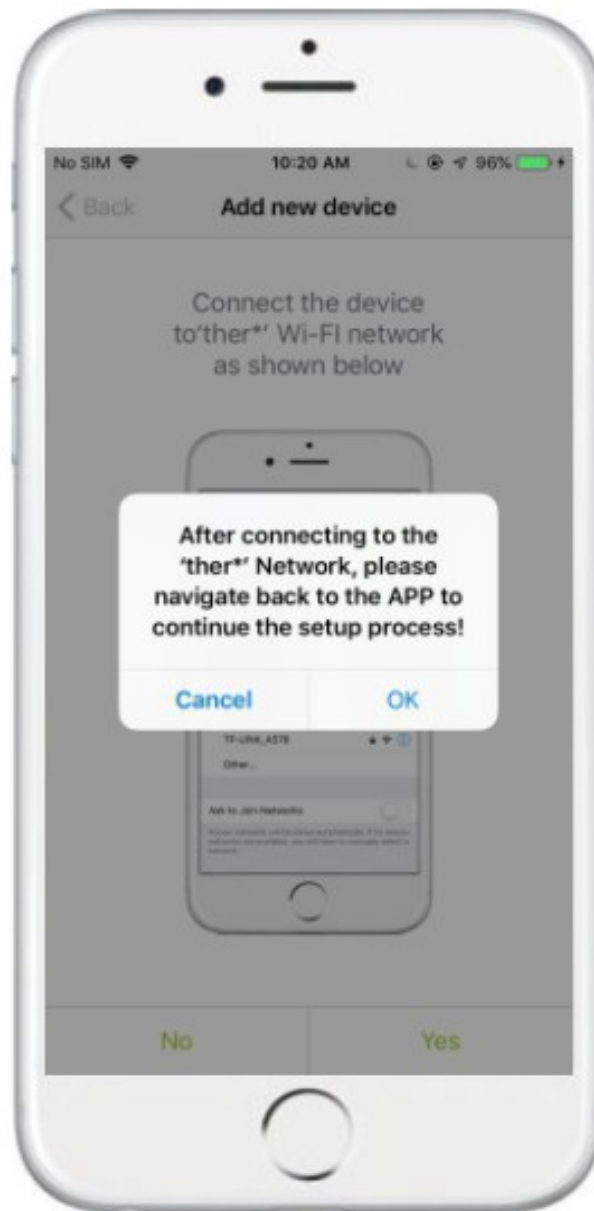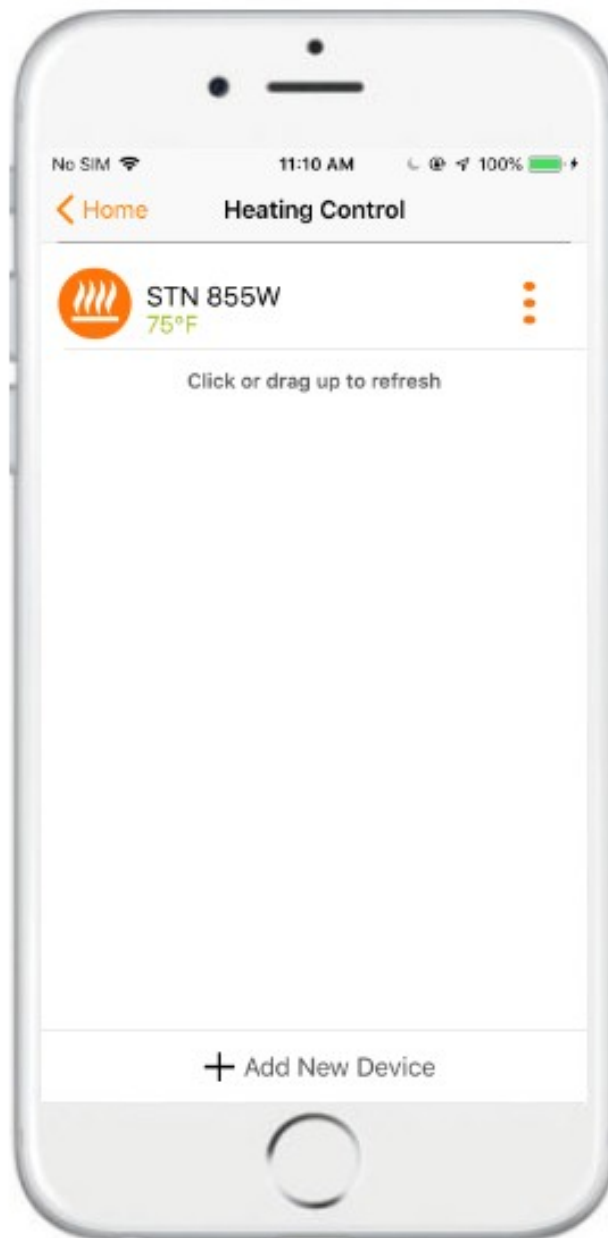
8. Step 8- Connecting To The Thermostat

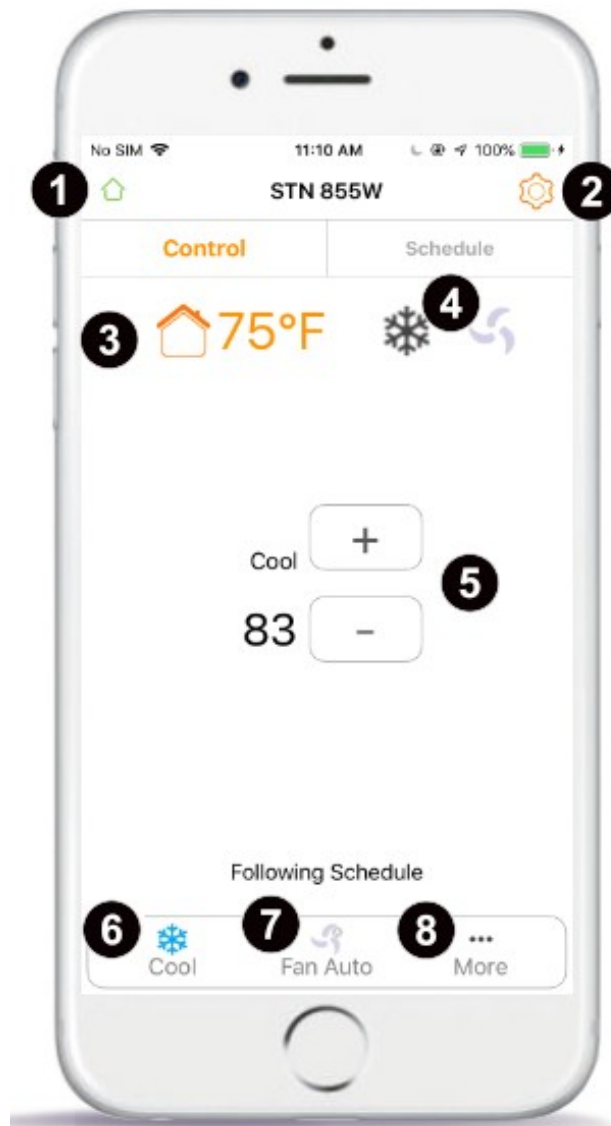It will connect to WIFI whose name starts with "stem". Once connected, return to this-app, and-press "YES"
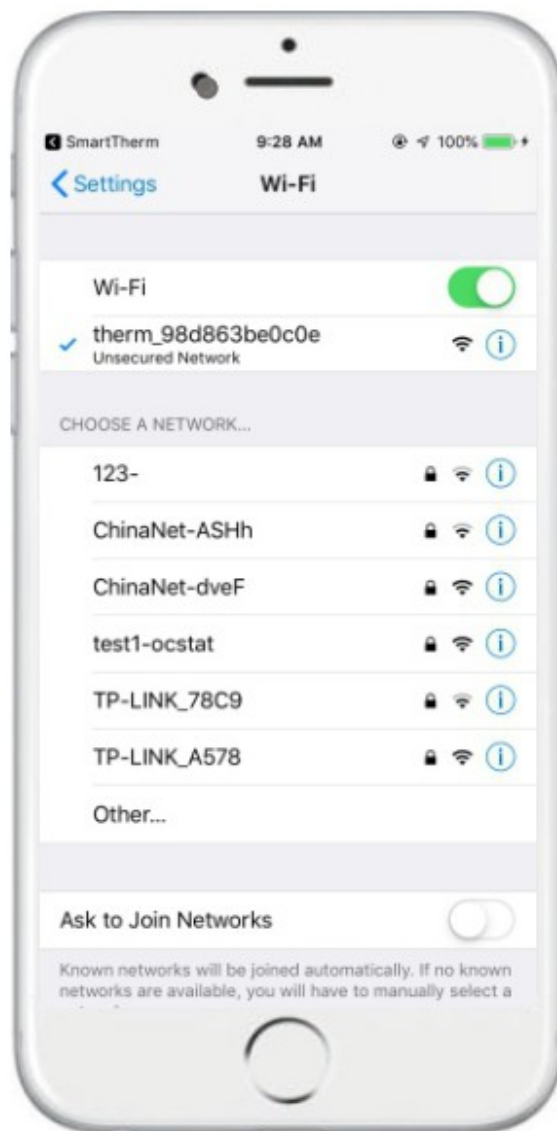
9. Step 9- Binding Device Device binding is usually completed in 15-25 seconds.

Connecting Your Thermostat

Control Screen Overview

1. Bock Button Return back to Device List screen.
2. Thermostat Setting Set the mire-num 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 Temperohse Click the and buttons to set the desired men temperature.
6. Stem Setti Selysect your Systemng mode (Heat, Coot Off).
7. Schedule Setting Select your Fan mode (Auto, On).
8. More Setting ea Set the time display format, the backlight is always on. and the temperature unit.

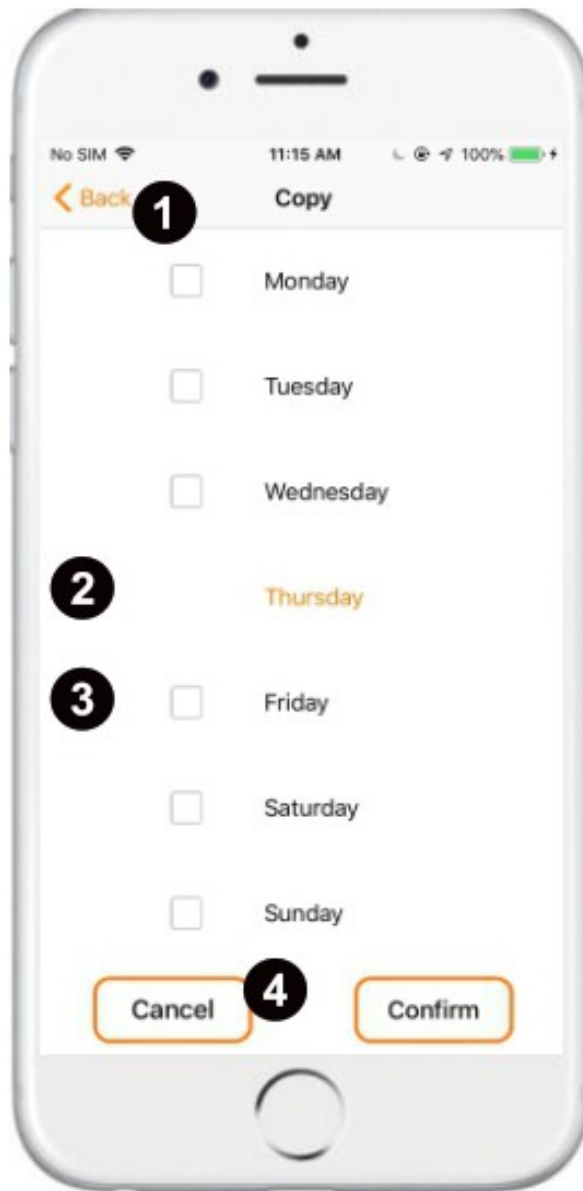**My Thermostats Schedule**
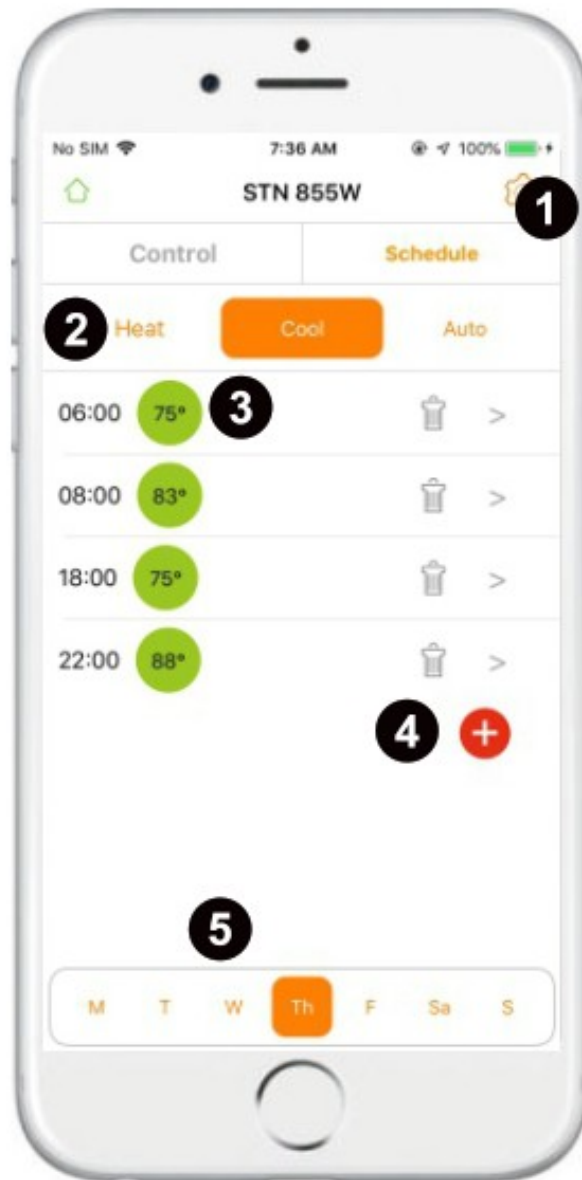
1. Setting Enter settings and copy Schedule .
2. System model schedule Choose to view schedules for different system modes.
3. Schedule list Time and temperature to be modified per each schedule at Delete and add schedule
4. You can delete the add schedule, support up to nine schedules.
5. Schedule for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

Modify the schedule
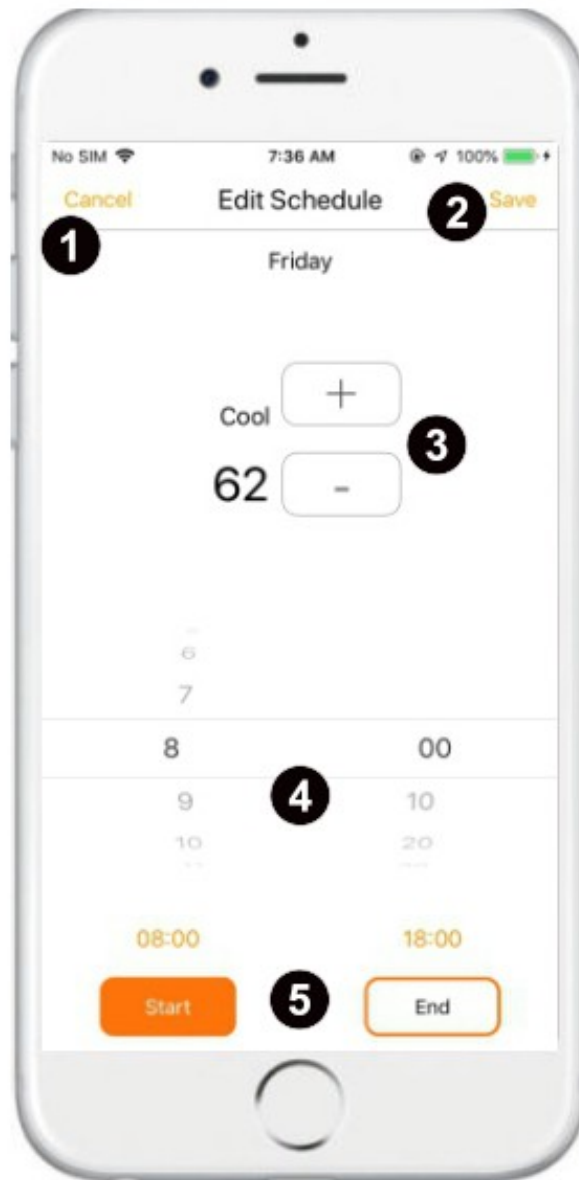
1. Back Button Return back to Device Control screen.
2. Save Button Save the revised schedule.
3. Change temperature button Modi5/ the temperature of the specified time period.
4. Change the time Scroll up and down to select the specified time.
5. Stan and end time buttons Su itch start or end time.

Copy schedule

1. Bock Button Return back to My Thermostats control screen.
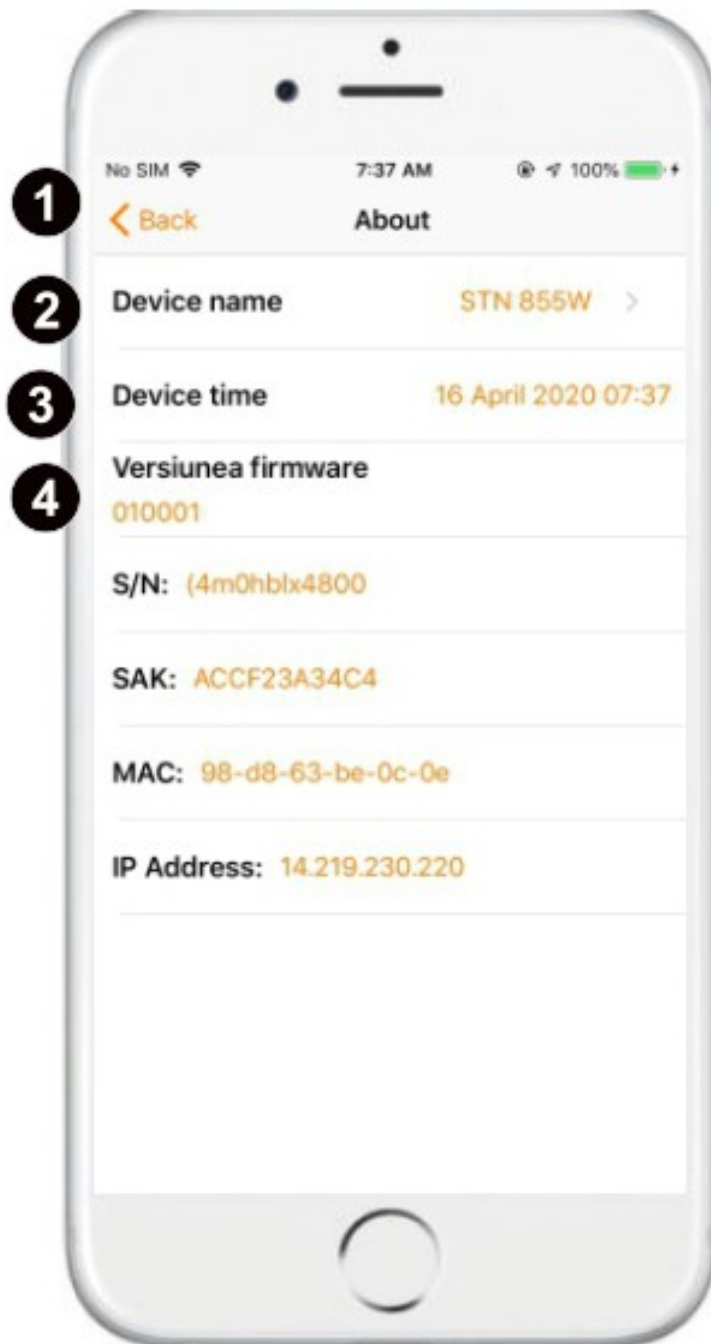
2. Where is the schedule Copy from the schedule for the specified day.

3. To this timetable Copy the schedule marked 2 to otherselected dates.

4. Confirm button You can confirm the submission by selecting the copy location.

5. Cancel button Give up this operation.

Thermostats Menu
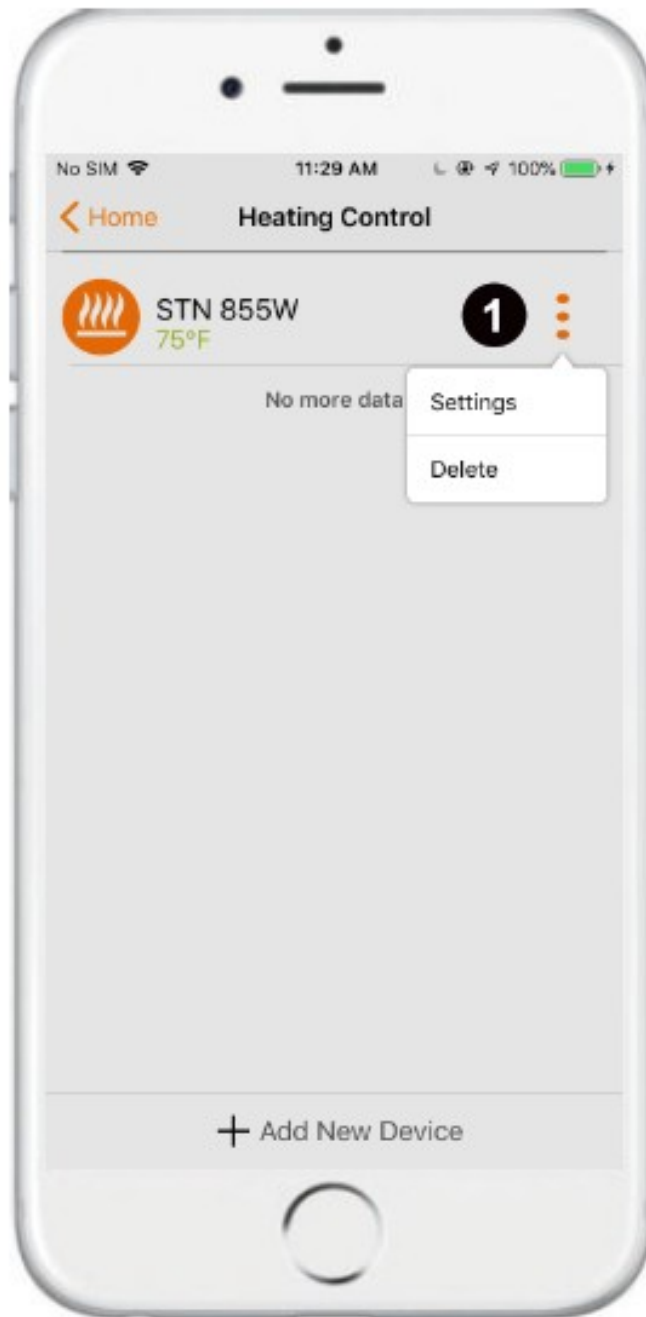
1. Thermostats Menu Enter settings and Delete thermostat .

Thermostat details

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.

" 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."

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.

Documents / Resources

Installation Manual	**thermostat STN855W WiFi Digital Programmable Thermostat** [pdf] Instruction Manual STN855W WiFi Digital Programmable Thermostat, STN855W, WiFi Digital Programmable Thermostat, Digital Programmable Thermostat, Programmable Thermostat, Thermostat