



# 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.

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

## Table of Contents

### Page

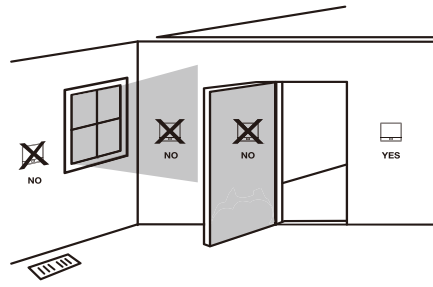
Installation Tips	2-3
Thermostat Quick Reference	4
Wiring	5
Wiring Diagrams	6-8
Technician Setup	9-12
Programming	13-16

## 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

## Wall Locations

The thermostat should be installed approximately 4 to 5 feet above the floor. Select an area with average temperature and good air circulation.



### Installation Tip

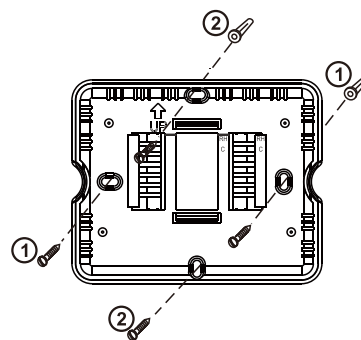
Pick an installation location that is easy for the user to access. The temperature of the location should be representative of the building.

### Do not install thermostat in locations:

- Close to hot or cold air ducts
- That are in direct sunlight
- With an outside wall behind the thermostat
- In areas that do not require conditioning
- Where there are dead spots or drafts (in corners or behind doors)
- Where there might be concealed chimneys or pipes

## 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

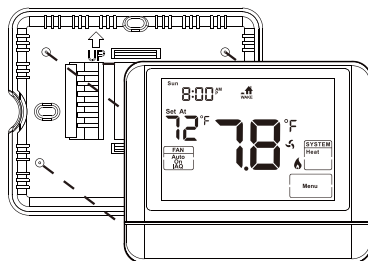
All of our products are mercury free. However, if the product you are replacing contains mercury, dispose of it properly. Your local waste management authority can give you instructions on recycling and proper disposal.

1

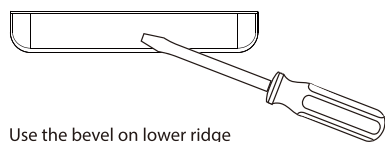
## Installation Tips

### Mount Thermostat

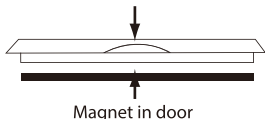
Align the 4 tabs on the subbase with corresponding slots on the back of the thermostat, then push gently until the thermostat snaps in place.



### About The Badge



Use the bevel on lower ridge



Magnet in door

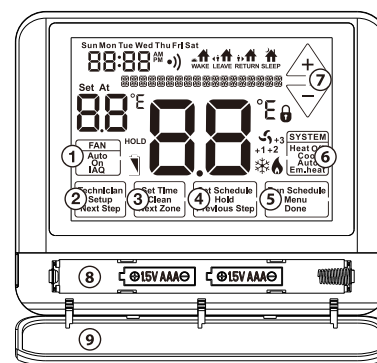
All of our thermostats use the same universal magnetic badge. Visit the company website to learn more about our free private label program.

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.**

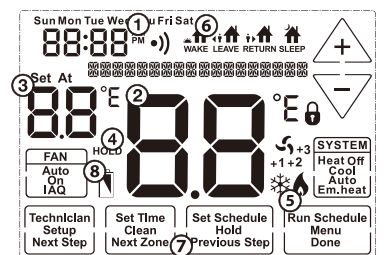
2

## 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.

3

4



**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.**

**Wiring Tips**

**C Terminal**

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

**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.

**Wire Specifications**

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

**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	O	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		



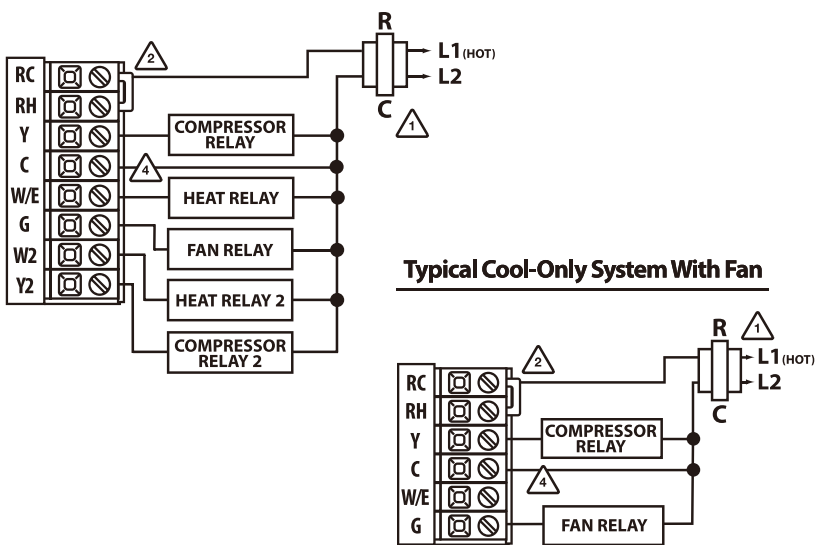
**Note**

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.

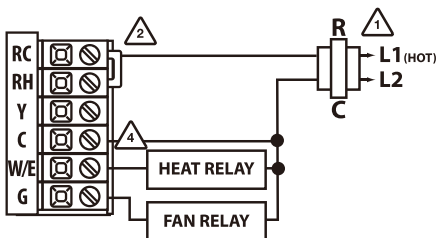
**Wiring Diagrams**

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

Typical 2H/2C System: 1 Transformer



Typical Heat Only System With Fan



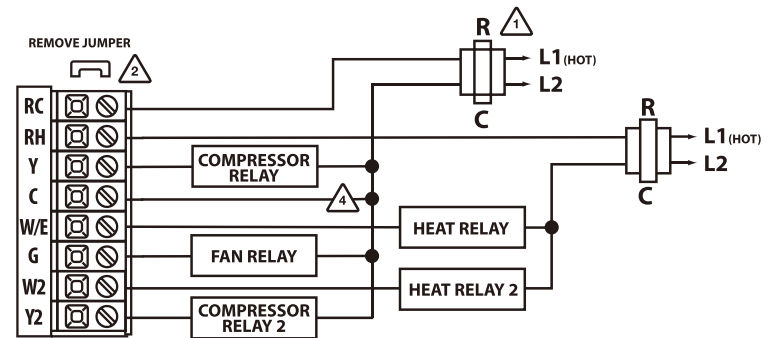
**Note:**

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

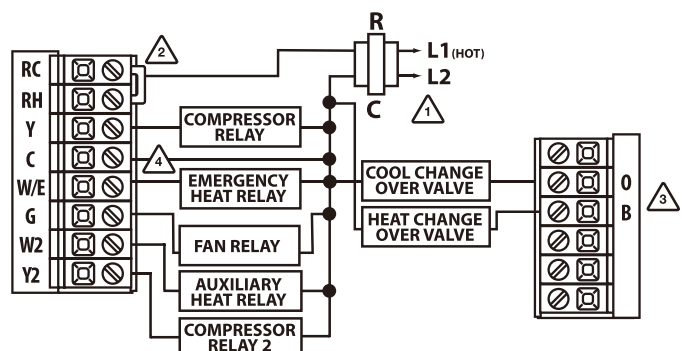
**Wiring Diagrams**

- 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: 2 Transformer



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




## 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	WIRELESS SETUP		
Filter Change Reminder	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	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	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	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

## Technician Setup

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
Cooling Swing	COOL SWING 0.5°F	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.	0.5
Heating Swing	HEAT SWING 0.4°F	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.	0.4
Heat Pump	HEAT PUMP OF	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 <b>-</b> and <b>+</b> button to adjust.	OFF
System Set	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.	OFF
Stages of Heat + Cool	2H/2C STGS 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.	2 STAGES

9

## Technician Setup

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
Cooling Fan Delay	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	HEAT LIMIT 90°F	Use the <b>-</b> or <b>+</b> key to select the maximum heat setpoint. Range 44°F - 90°F	90°
Cooling Temperature Setpoint Limit	COOL LIMIT 44°F	Use the <b>-</b> or <b>+</b> key to select the minimum cool setpoint. Range 44°F - 90°F	44°
F° or C°	OF F OR C SET 83°F	°F for Fahrenheit °C for Celsius	F°
12 or 24 Hour Clock	12 H HOUR CLOCK SETTING	Use the <b>-</b> or <b>+</b> key to select 12 or 24 hour clock.	12 Hour Clock
Fan Operation	GAS FAN OPERATION	Gas or Elec	GAS

11

10

## Technician Setup

Tech Setup Steps	LCD Will Show	Adjustment Options	Default
Morning Recovery	MORNING RECOVERY ON	Use the <b>-</b> or <b>+</b> key to turn on or off.	ON
Display Light	AUTO DL	'AUTO' - Any key ON 'ON' - Always ON	AUTO
Contractor Call Number	PHONE NUM OF	If selected on, you will see the input screen after pressing next step. Use the <b>+</b> or <b>-</b> 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

12



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.	ON
MACID	This step shows the MAC address of WIFI module.  MACID 980863079022		
Firmware Version	This step shows the version of firmware that is installed on the thermostat.  FIRMWARE 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 WIFI settings to factory default.  NO RESET TO DEFAULT	Press YES to reset.	

### 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.

13

## Programming

### Set Program Schedule

To customize your 5+1+1 program schedule, follow these steps

#### Weekday:

1. Select **HEAT** or **COOL** with the system switch. **Note:** You have to program heat and cool each separately.
2. Press the **MENU** button (If menu does not appear first press **RUN SCHED**)
3. Press **SET SCHED**. Note: Monday-Friday is displayed and the **WAKE** icon is shown. You are now programming the wake time period for the weekday setting.
4. Time is flashing. Use the  or  key to make your time selection for the weekday **WAKE** time period. 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  or  key to make your setpoint selection for the weekday wake period.
7. Press **NEXT**
8. Repeat steps 4 thru 7 for weekday **LEAVE** time period, for weekday **RETURN** time period, and for weekday **SLEEP** time period.

Continued on next page...

14

## Programming

#### Saturday:

Repeat steps 4 thru 7 for the Saturday **WAKE** time period, **LEAVE** time period, **RETURN** time period, and for the Saturday **SLEEP** time period.

#### Sunday:

Repeat steps 4 thru 7 for the Sunday **WAKE** time period, **LEAVE** time period, **RETURN** time period, and for the Sunday **SLEEP** time period.

### To customize your 7 Day Program schedule, follow these steps:

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.
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.

15

16

**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 separate program for Saturday, and a separate 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	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.

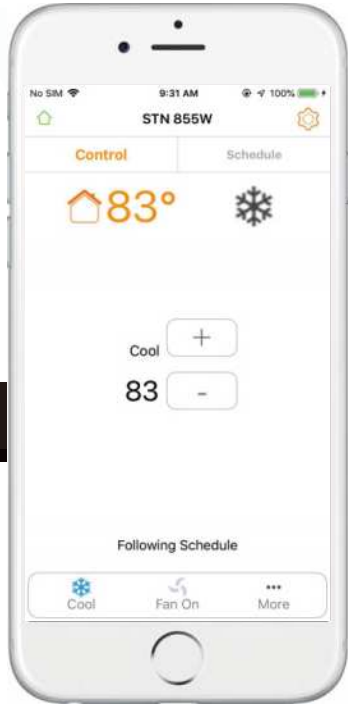
**💡 Reminders Note:**

Once a Reminder has been turned on and set, the elapsed time can be checked by navigating to its 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.

**17 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.





Quickstart Guide

Table of Contents

Page



Note: Insert quick start guide behind thermostat

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

1

Creating An Account

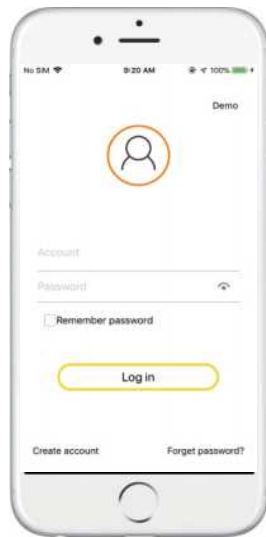
Register Account

**Before You Begin**

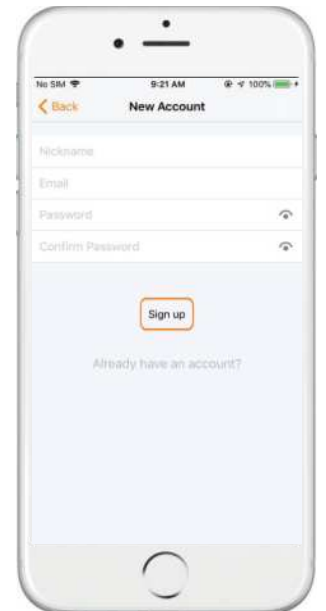
Download the **SmartTherm** App from the Apple Store or Google Play Store. You must have your WIFI network password ready.



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

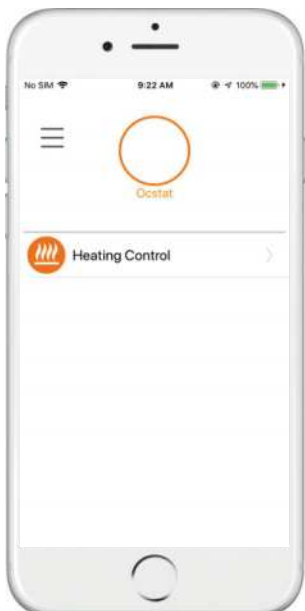


2

3

Home page

Device List



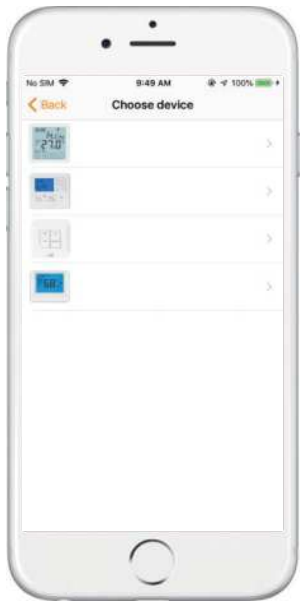
Select **Heating control** to enter the device list page

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



4

5



**1** Step 1 - Select Your Thermostat  
Choose the corresponding thermostat

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



**6**

**7**



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

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



**8**

**9**



**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.



**10**

**11**



12

**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 "stern"). 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" .



13



14

**9** Step 9- Binding Device

Device binding is usually completed in 15-25 seconds.



15



16

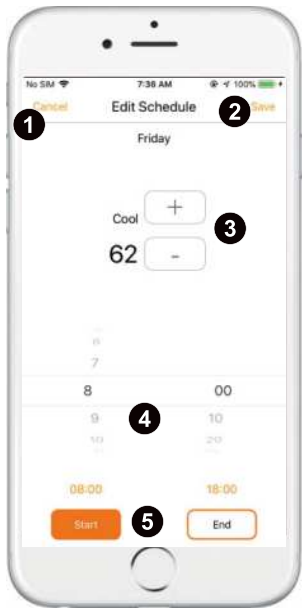
- 1** Back Button  
Return back to Device List screen.
- 2** Thermostat Setting  
Set the minimum and maximum temperature of the thermostat and temperature compensation.
- 3** Room Temperature  
The current ambient temperature of the room.
- 4** Relay  
The gray picture indicates that the relay is off.
- 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.

- 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.



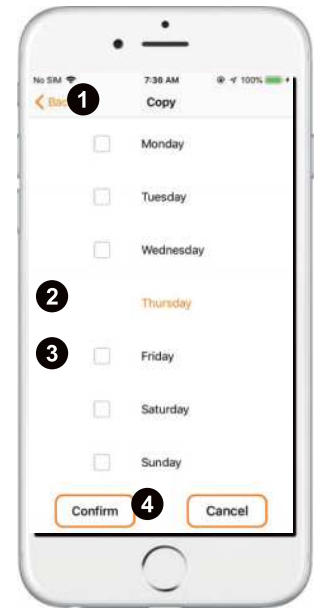
17





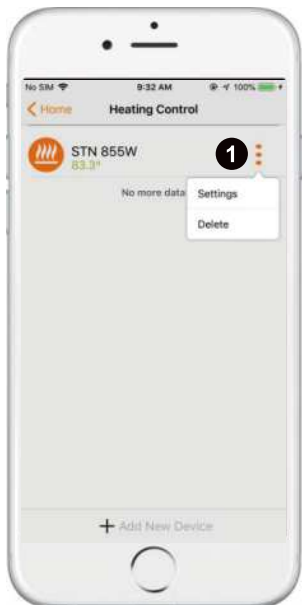
- 1 Back Button  
Return back to Device Control screen.
- 2 Save Button  
Save the revised schedule.
- 3 Change temperature button  
Modify the temperature of the specified time period.
- 4 Change the time  
Scroll up and down to select the specified time.
- 5 Start and end time buttons  
Switch start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

18



- 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.

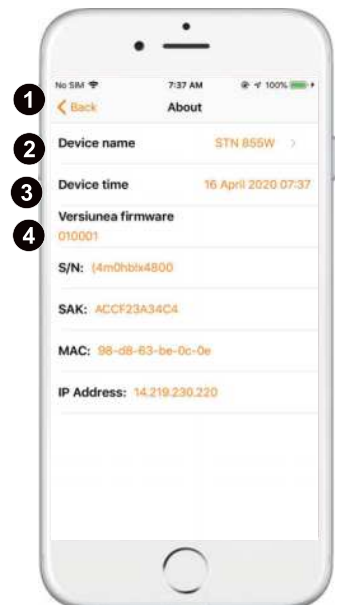
19



- 1 Thermostats Menu  
Enter settings and Delete thermostat .

20

- 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.



21