



## Installation & Operation Manual

### *SC102ZB Fan Coil Controller* *ST103 Wireless Fan Coil Remote*



# SC102ZB/ST103ZB Installation and Operation Manual

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## Why SALUS?

Salus designs and manufactures industry-leading hydronics, HVAC, and fan coil products for heating engineers and contractors who need to drive profitability and deliver customer satisfaction. Through our proven, innovative products, we enable contractors to provide homeowners and building managers with the comfort and control they need, while reducing installation times and minimizing costly call-backs. Our easy-to-install wireless hydronic controls, and patented, industry-first auto-balancing actuators are advancing the industry.

Salus also offers a broad ecosystem of smart home products, including connected thermostats, a smart home hub, smart plugs, water valve shutoff, and door and window sensors. A proven leader in the European market since 2003, Salus is currently expanding across North America.

## Using this Manual

For the latest Instructions go to: [WWW.SALUSINC.COM](http://WWW.SALUSINC.COM)

### Special Attention Boxes

This manual uses special attention icons to alert the reader of important safety concerns, information important to reliable operation of the controls or helpful installation/setup information.

**Safety:**

Indicates a condition which may cause severe personal injury, death or major property damage

**Important Information:**

**Indicates information which requires special attention for correct operation of the control**

**Your Benefit:**

Indicates helpful installation or setup information

## System Overview

SALUS connected Fan Coil control systems use Zigbee-based communications protocol to provide a universal language for smart components to work together seamlessly and securely with an internet connection.



By connecting the SG888ZB Gateway to your home network, the system is connected to the worldwide web. Monitor or adjust your Fan Coil system from anywhere via the SALUS Smart Home application from a smart device or computer. If the connection to the internet is lost, the system continues to function with the settings selected.

## SALUS Smart Home Application

Use SALUS Smart Home to to:

- Quickly view and monitor the status of your home and smart devices
- Set schedules and preferences for your connected thermostats, smart plugs and more
- Receive important real-time alerts and notifications of any changes with your system



Download the SALUS Smart Home application on your IOS or Android device for remote access to your home comfort system. After downloading the application, follow the steps in section 4.1.1 to create a user profile and set up an SG888ZB Gateway.



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Google Play and the Google Play logo are trademarks of Google LLC

## Product Safety Information



**Codes & Regulations:** Installation and setup of this product must be performed in strict compliance with country, state/province and local regulating agencies and codes that deal with Class B digital devices. In the absence of local requirements, the FCC rules, listed below, are to be followed.



**Intended Use:** The SALUS SC102ZB Wireless Fan Coil Controller and ST103ZB Wireless Fan Coil Remote are intended for interior room temperature control in conjunction with hydronic fan coil heating systems only. Other uses are not recommended or supported.



**Installer or Contractor:** Record parameters at startup and any subsequent parameter changes in the installer notes section of this manual.

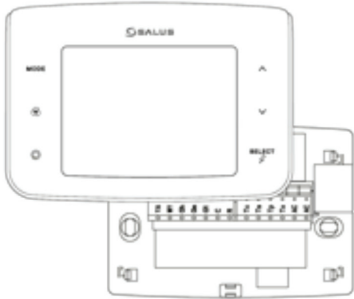
## Section 2

# SC102ZB/ST103ZB Installation and Operation Manual Included Parts/Tools

## Review Parts

Be sure that all parts listed for each device are included and available before start installation.

### SC102ZB Wireless Fan Coil Controller



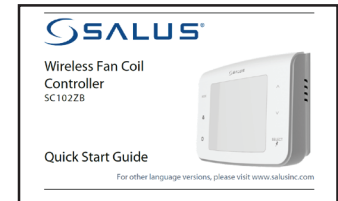
Controller with Wiring Mount

Low Voltage Fan Coil Wiring Labels	
R	R
C	C
W	W
Y	Y
A	A
Gh	Gh
Gm	Gm
Gl	Gl
Tp	Tp
Tx	Tx
Ts	Ts
Tc	Tc
Tc	Tc
Tc	Tc
Ac	Ac
Ac	Ac

Wiring Labels

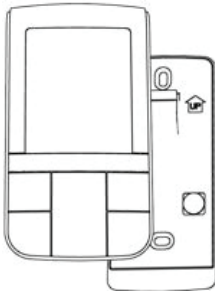


Screws and Anchors



Installation/  
Quick Start Guide

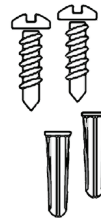
### ST103ZB Wireless Fan Coil Remote



Remote with Batteries  
and Wall Mount



Desk Stand

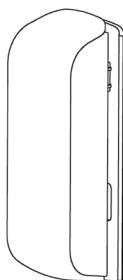


Screws and  
Anchors

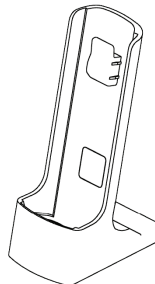


Installation/  
Quick Start Guide

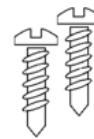
### SS909ZB Remote Temperature Sensor



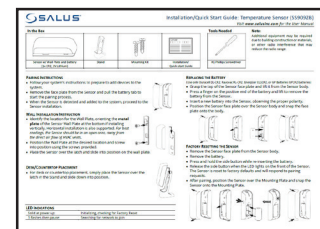
Temperature Sensor with  
Battery and Wall Plate



Stand



Mounting  
Kit



Installation/  
Quick Start Guide

## Required Tools

- #1 Phillips or flathead screwdriver
- 3/16" drill bit & drill (if anchors are required)

## Optional Tools (for SC102ZB)

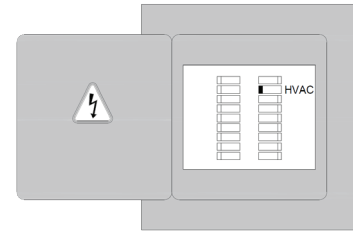
- Smartphone or digital camera for wiring reference photos
- Small screwdriver for removing wiring from old thermostat terminals
- Pencil for holding wires in place during installation

## Section 3

# SC102ZB/ST103ZB Installation and Operation Manual SC102ZB Fan Coil Controller Installation



Before beginning the installation procedure, turn off power to the fan coil system.



## Existing Wired Thermostat Removal

Use the following procedure to review and record the wiring configuration before disconnecting an existing wired thermostat.

*If replacing an existing wired thermostat, review and record the wiring configuration of the existing thermostat:*

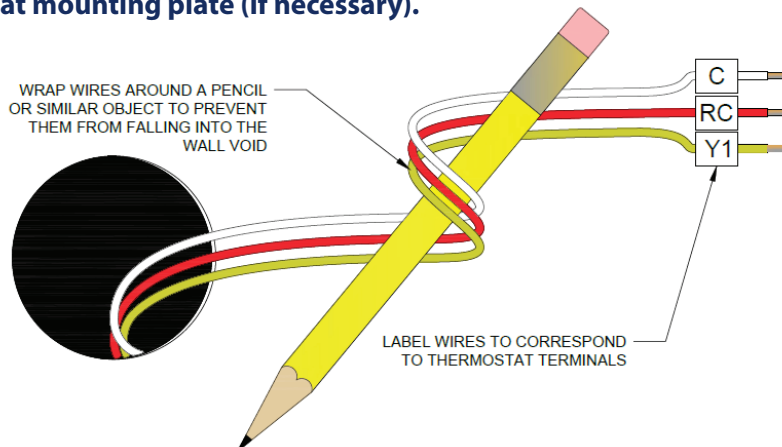
- Remove existing thermostat from the wall to expose the wiring terminals
- Take a photograph or note the wire colors and connections (see Table 3.1 below)
- Attach wire labels to each of the wires

**Table 3.1: Wire Designation Record**

Terminal	Wire Color	Function	
		4 Pipe System	2 Pipe System
R		24 VAC Input	24 VAC Input
C		24 VAC Common	24 VAC Common
Gl		Fan – Low Speed	Fan – Low Speed
Gm		Fan – Medium Speed	Fan – Medium Speed
Gh		Fan – High Speed	Fan – High Speed
WY		Heat Supply Valve Actuator	Heat/Cool Supply Valve Actuator
YA		Cooling Supply Valve Actuator	Auxiliary Heat
Ac		Accessory Contact	Accessory Contact
Ac		Accessory Contact	Accessory Contact
Tp		Supply Pipe Temp. Sensor	Supply Pipe Temp. Sensor
Tx		External Temp Sensor (wired)	External Temp Sensor (wired)
Ts		Temperature Setback	Temperature Setback
Tc		Tx/Tp/Ts Common	Tx/Tp/Ts Common



**After labeling the wires, disconnect them from the thermostat terminals and remove the thermostat mounting plate (if necessary).**

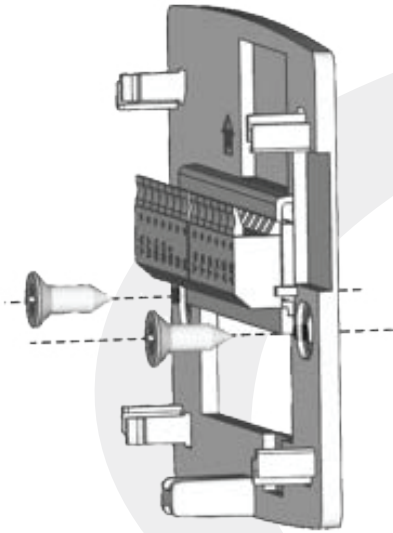


Paint the mounting surface, if desired, before mounting the new thermostat back plate to ensure complete wall coverage.

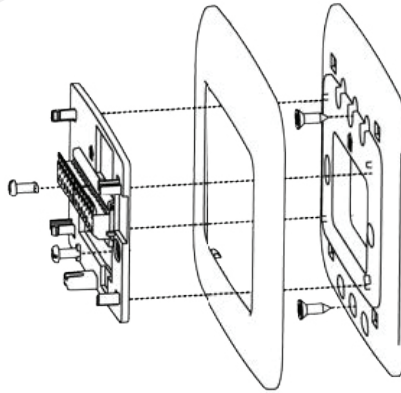


## SC102ZB Fan Coil Controller Installation

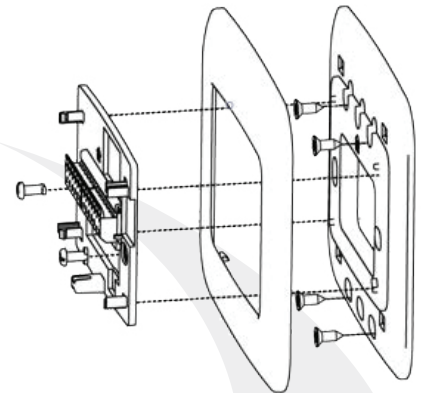
Install the Wiring Mount in the desired location using the wall screws provided, making sure the wires go through the center opening. Anchors are provided if necessary. An optional wall plate (sold separately) is available for mounting to a junction box (see below).



No Junction Box or  
Horizontal 2" x 4" Box



Vertical 2" x 4" Junction Box  
(wall plate sold separately)



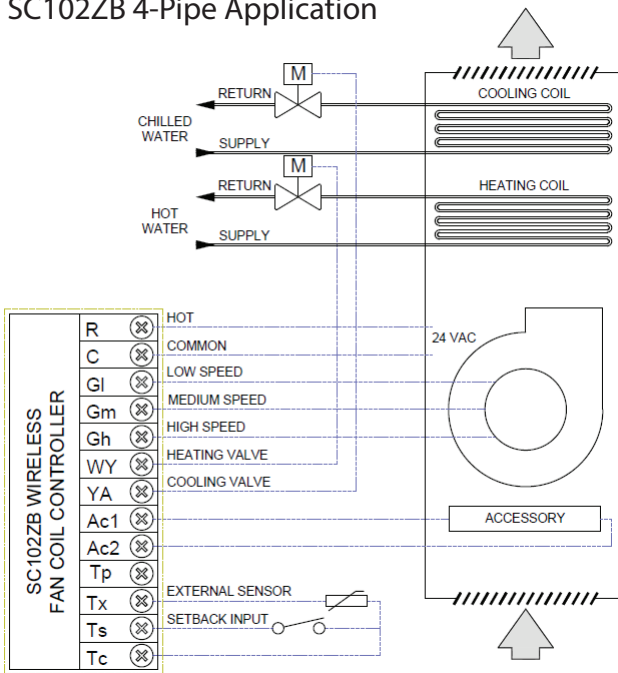
4" x 4" Junction Box  
(wall plate sold separately)

# Section 3

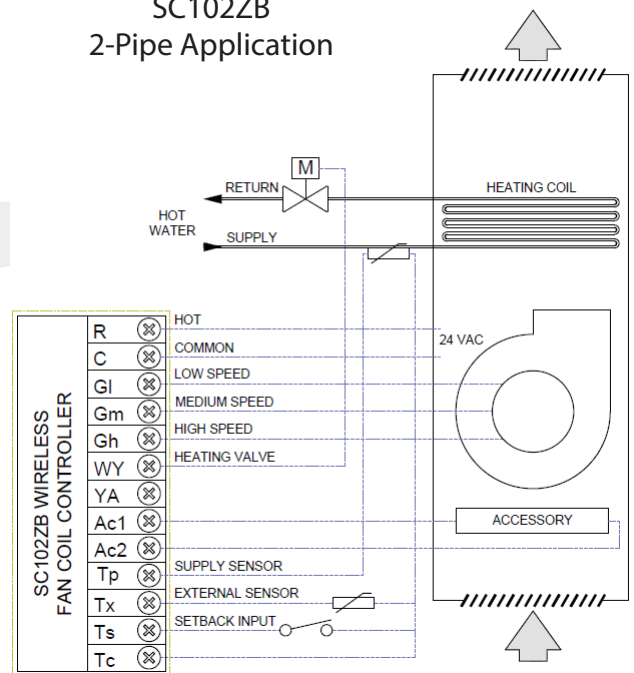
# SC102ZB/ST103ZB Installation and Operation Manual

## SC102ZB Fan Coil Controller Installation

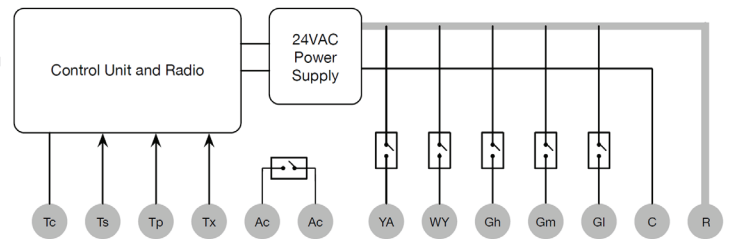
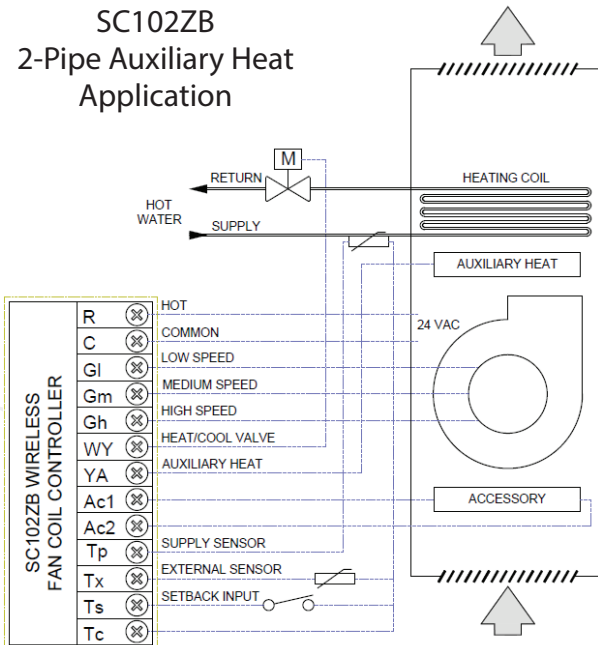
SC102ZB 4-Pipe Application



SC102ZB 2-Pipe Application



SC102ZB 2-Pipe Auxiliary Heat Application



SC102ZB Internal Block Diagram

## Section 3

# SC102ZB/ST103ZB Installation and Operation Manual SC102ZB Fan Coil Controller Installation

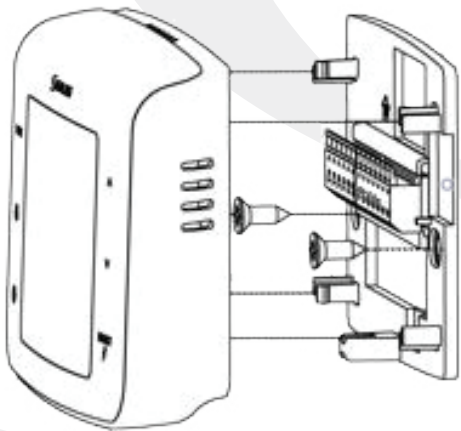
Connect Wiring to the SC102ZB Back Plate – Use table 3.2 below to identify the desired configuration

**Table 3.2: Wiring Configuration Checklist**

Configuration	R	C	Gl	Gm	Gh	WY	YA	Ac	Ac	Tp	Tx	Ts	Tc*
2-Pipe Heat Only	✓	✓	✓	✓	✓	W		o	o	o	o	o	o
2-Pipe Cool Only	✓	✓	✓	✓	✓	Y		o	o	o	o	o	o
2-Pipe Heat/Cool Manual Changeover	✓	✓	✓	✓	✓	W/Y		o	o	o	o	o	o
2-Pipe Heat/Cool Seasonal Changeover	✓	✓	✓	✓	✓	W/Y		o	o	✓	o	o	✓
2-Pipe Heat/Cool w/Auxiliary Heat	✓	✓	✓	✓	✓	W/Y	A	o	o	✓	o	o	✓
4-Pipe Heat/Cool w/Manual or Auto Changeover	✓	✓	✓	✓	✓	W	Y	o	o		o	o	o

✓=Required / o=Optional / W=Heat Valve Actuator / Y=Cool Valve Actuator / A=Auxiliary Heat

\*If using more than one (Tp/Tx/Ts) terminal, it may be necessary to splice Tc.



Attach controller to the wiring mount by aligning the connector pins.



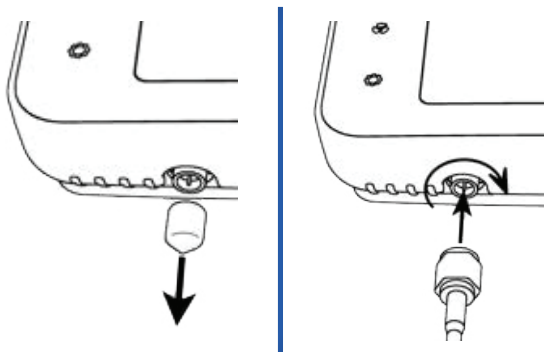
Make sure the connector pins are not bent and that the controller is fully seated on the wiring mount.



If an external antenna (sold separately) is required due to insufficient radio coverage, attach the antenna, as follows, before attaching the controller to the wiring mount

### Optional External Antenna (Sold Separately)

Use the ANT10RF External Antenna if there is insufficient radio signal at the ST103ZB Wireless Remote or SS909ZB Remote Temperature Sensor.



Remove the antenna connector cover located on the bottom of the SC102ZB Fan Coil Controller.



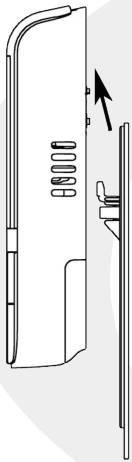
Avoid locations that place large metal enclosures, piping or dense electrical wires between the SC102ZB Fan Coil Controller and the ST103ZB Wireless Fan Coil Remote.

Attach the external antenna to the connector, making sure the nut is finger tight. DO NOT OVERTIGHTEN the nut.

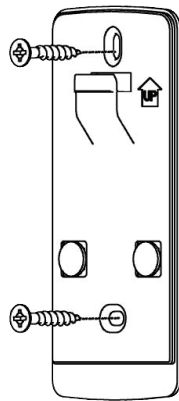
## ST103ZB Wireless Fan Coil Remote Installation

The ST103ZB Wireless Fan Coil Remote acts as a remote thermostat which can be wall mounted or placed in a stand for desk or cabinet top operation. The Wireless Remote can be paired prior to mounting (see Section 5, Pairing Instructions for details). For desk top operation, the ST103ZB can be moved to a different location at any time.

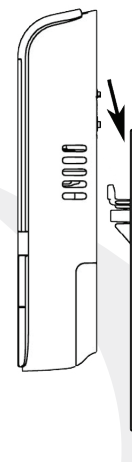
### Wall Plate Mounting



Remove the Wall Mount from the back of the ST103ZB Wireless Fan Coil Remote.

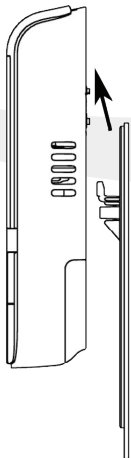


Attach the Wall Mount in the desired location using the screws and anchors provided.

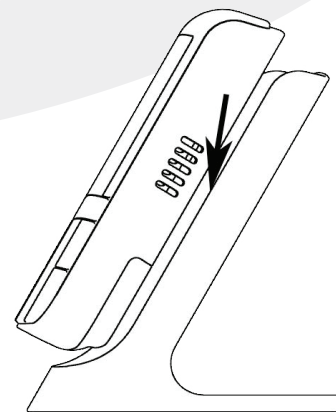


Slip the ST103ZB Wireless Fan Coil Remote onto the Wall Mount.

### Desk or Cabinet Top Mounting



Remove the Wall Mount from the back of the ST103ZB Wireless Fan Coil Remote.



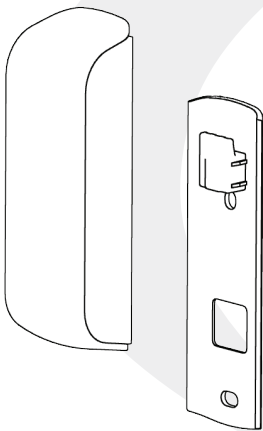
Slip the ST103ZB Wireless Fan Coil Remote onto the Desk Stand.



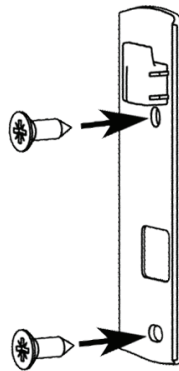
The SS909ZB Remote Temperature Sensor is **OPTIONAL** and not required for all installations.

The SS909ZB Remote Temperature Sensor provides additional temperature input for your Wireless Fan Coil System. Multiple SS909ZB Sensors can be connected to allow temperature averaging throughout the conditioned space. Remote Temperature Sensors can be permanently mounted on a wall mounted or mounted on a stand for desk or cabinet top operation. The Remote Temperature Sensor can be paired prior to mounting (see Section 7, **Device Joining & Pairing** for details). For desk top operation, the SS909ZB Sensors can be moved to different locations at any time.

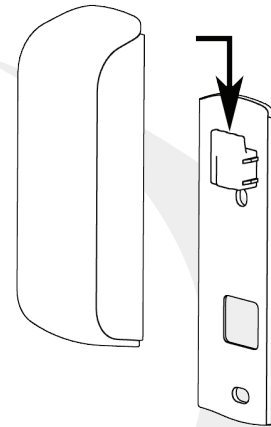
## Wall Plate Mounting



Remove the Wall Plate from the back of the SS909ZB Remote Temperature Sensor.

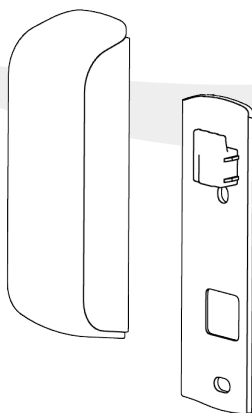


Attach the Wall Mount in the desired location using the screws and anchors provided.

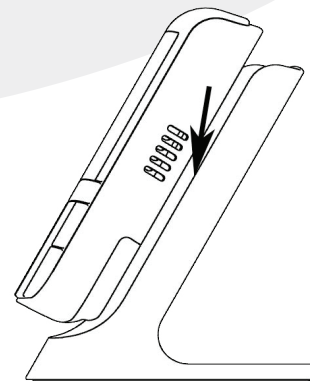


Slip the SS909ZB Remote Temperature Sensor onto the Wall Mount.

## Desk Top Mounting



Remove the Wall Plate from the back of the SS909ZB Remote Temperature Sensor.



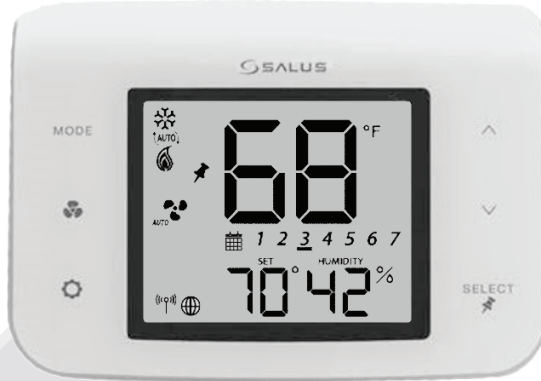
Slip the SS909ZB Remote Temperature Sensor onto the Desk Mount.

## Section 6

# SC102ZB/ST103ZB Installation and Operation Manual

## Device Controls – Keypad & Display

### Keypad



SC102ZB

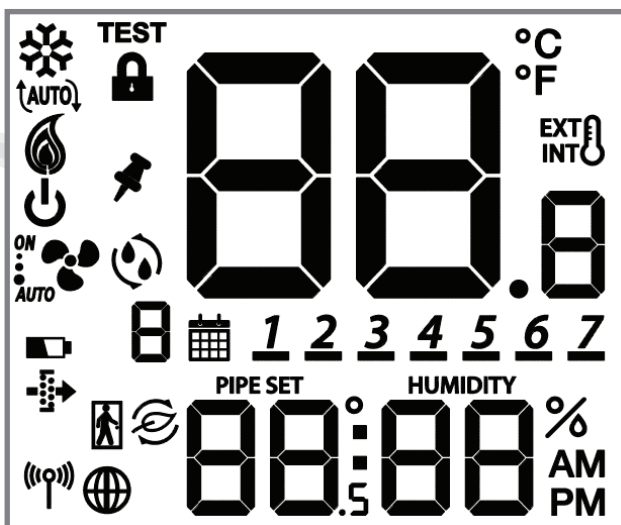


ST103ZB

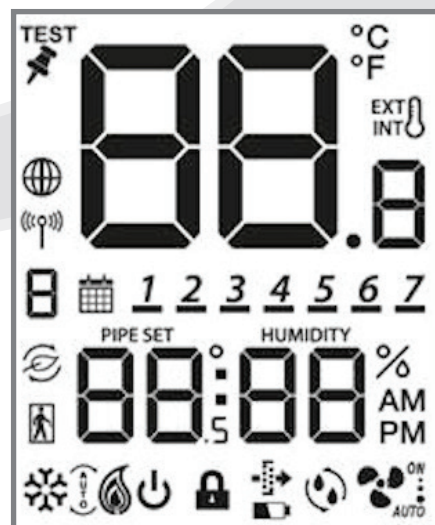
Table 6.1: Keypad Functions

<b>MODE</b>	Heat, Cool, Auto, Off selection		Increase Value
	Fan On/Auto, Low Speed, Medium Speed, or High Speed		Decrease Value
	Enter/Exit Settings mode	<b>SELECT</b> 	Confirm/Change Display Mode/Activate Permanent Hold

### Display Icons



SC102ZB
























ST103ZB

## Section 6

# SC102ZB/ST103ZB Installation and Operation Manual

## Device Controls – Keypad & Display

**Table 6.2: Display Icons**

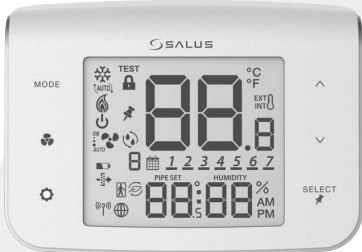
Heat/Cool/Off Modes			
	Cooling (Animated when cooling is on)		Heating (Animated when heat is on)
	Auto Heat/Cool Changeover		Off
Fan Modes			
	ON – Indicates Constant Fan Enabled 3 Dots – High Speed AUTO – Automatic Fan Speed		– Constant Fan Disabled 1 Dot – Low Speed AUTO – Automatic Fan Speed
	Fixed Fan Speed – Low		Fixed Fan Speed – Medium
	Fixed Fan Speed – High		
Wireless/Internet Indications			
	Device connected to local network		Device connected to SALUS Smart Home Service
Test/Key Lock/Battery/Filter			
<b>TEST</b>	Test Mode (Special Code 22)		Keys Locked Mode
	Battery Low (ST103 Wireless Remote Only)		Change Filter (Timer expired)
	Accessory Output On (Humidifier, Dehumidifier, ERV or HRV)		
Internal/External Temperature Sensor			
<b>EXT</b> 	External Sensor Indication (wired or wireless)	<b>INT</b> 	Internal Sensor Indication (Only visible in TEST Mode)
Schedule Indications			
<b><u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u></b> Day of the week (Mon = 1, Tue = 2, Wed = 3, Thu = 4, Fri = 5, Sat = 6, Sun = 7)			
	Schedule Interval (1-6) - Specifies time interval of scheduled temperature changes		Schedule Indicator – When shown, the Thermostat is following a schedule
	Setback Indicator – Setback input is activated		AWAY State Indicator – Displayed when the Fan Coil Thermostat is set to AWAY, using setback temperatures
Multifunction Temperature Indication			
<b>PIPE</b>	Pipe temperature reading shown	<b>SET</b>	Setpoint temperature reading shown

## SC102ZB Fan Coil Controller

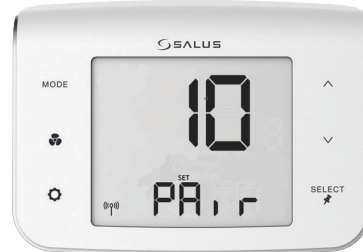
### Preparation for Joining Network



After installing the SC102ZB Fan Coil Controller, the ST103ZB Wireless Fan Coil Remote and any optional SS909ZB Remote Temperature Sensors, turn on electrical power to the fan coil system and SC102ZB Fan Coil Controller.



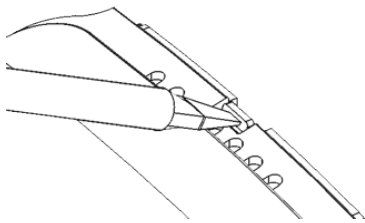
When the SC102ZB Fan Coil Controller is first powered, all fixed segments will be briefly displayed. The display will then show the firmware version.



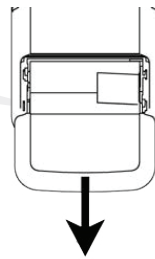
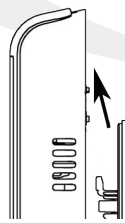
If the Fan Coil Controller is not connected to a network, the devices will display **PA,r** and a countdown timer will start.

## ST103ZB Wireless Fan Coil Remote

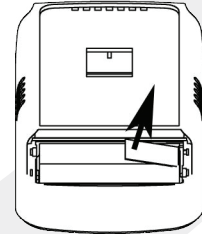
### Preparation for Joining Network



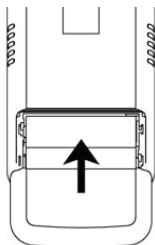
Remove the ST103ZB Wireless Fan Coil Remote from the Wall Plate or Desk Stand.



Open the battery compartment



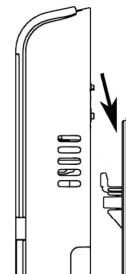
Remove the battery tab to power the Wireless Fan Coil Remote



Close the battery compartment



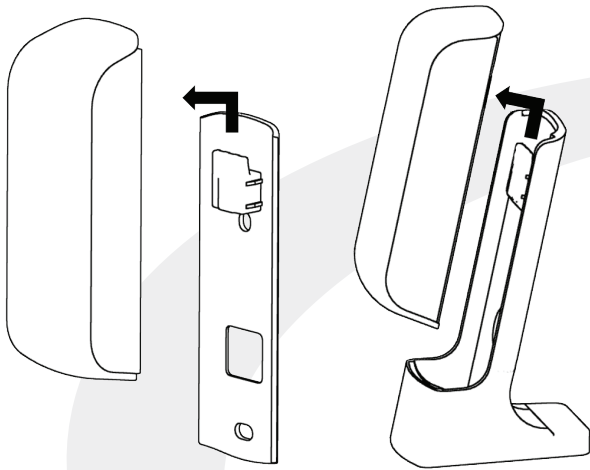
The screen will briefly display all fixed segments before showing the firmware version. If the ST103ZB Wireless Fan Coil Remote is not connected to a network, the device will display **PA,r** and a countdown timer will start.



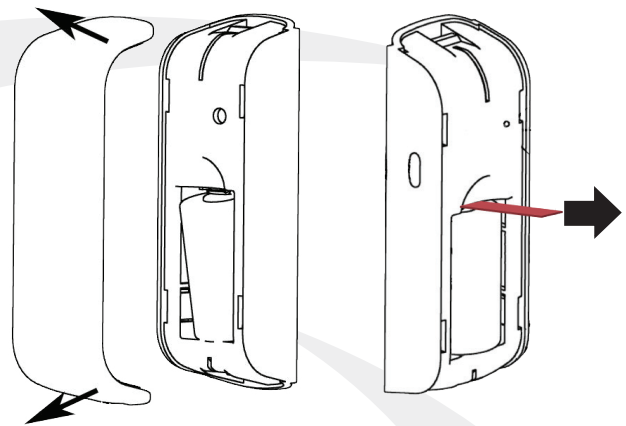
Re-attach the ST103ZB Remote to the Wall Plate or Desk Stand



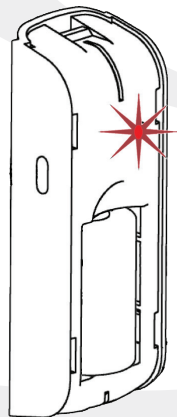
## SS909ZB Remote Temperature Sensor Preparation for Joining Network



Remove the SS909ZB Remote Temperature Sensor from the Wall Plate or Desk Stand.



Use a small screwdriver to remove the face plate from the Remote Temperature Sensor and pull the battery tab.

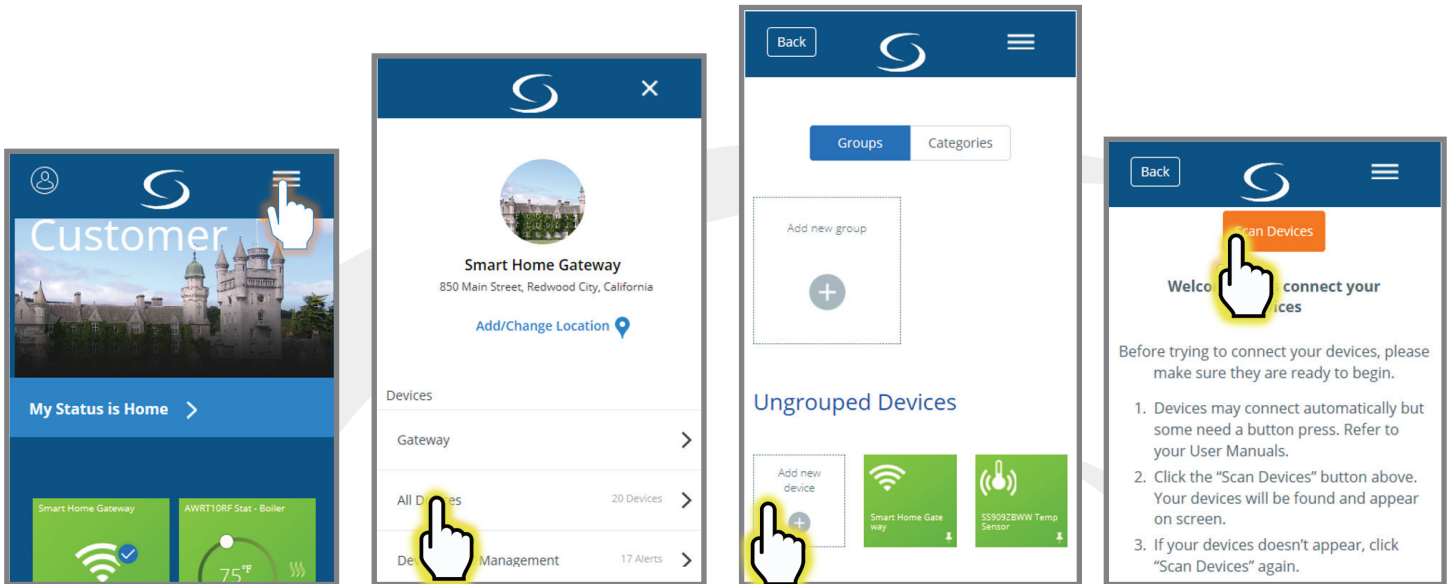


When the battery tab is removed, the red LED will begin to flash.

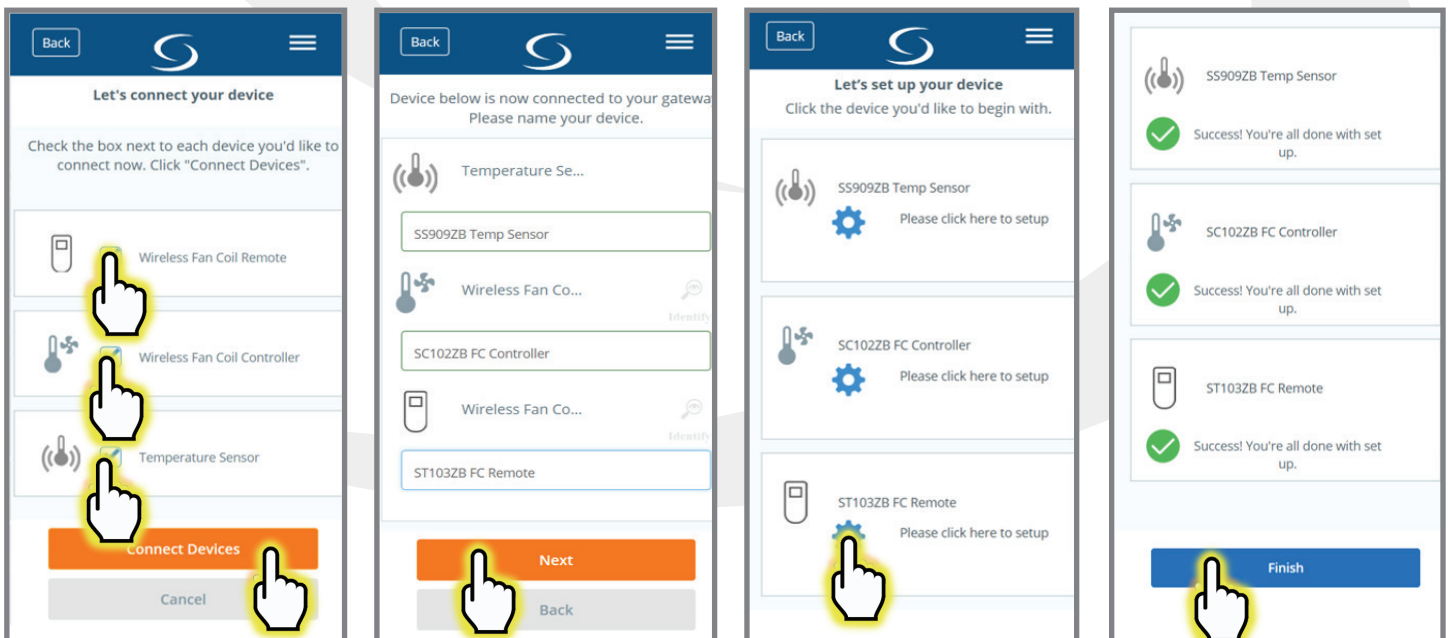
## Section 7

# SC102ZB/ST103ZB Installation and Operation Manual Device Joining & Pairing

## Pairing with SG888ZB Gateway and Internet Connection




Open the SALUS Smart Home application, select the drop-down menu from the upper right of the screen and select: **Settings** → **Devices** → **Add New Equipment** → **Scan for New Equipment**



Check all devices to be connected and press "Connect equipment".

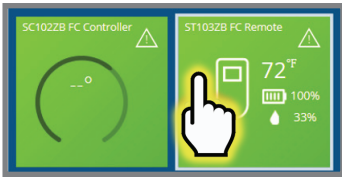
Enter a unique name for each device and press "Next"

Press  to configure the ST103ZB Fan Coil Remote.

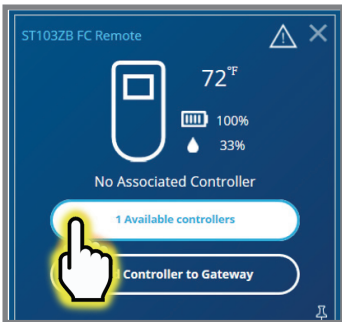
Setup Automations and Pin Settings. Once complete, press "Finish".

## Section 7

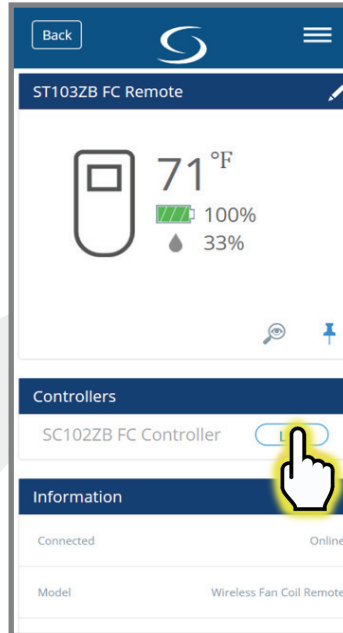
# SC102ZB/ST103ZB Installation and Operation Manual Device Joining & Pairing



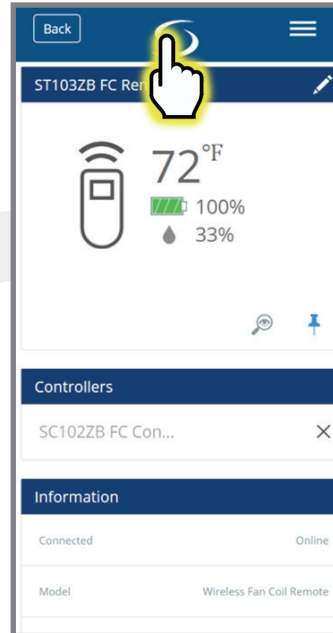
To link the ST103ZB Remote, choose the tile icon.



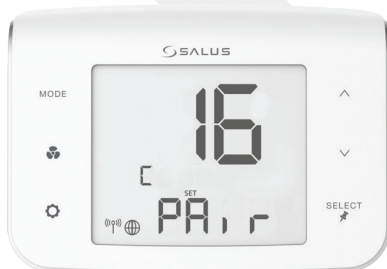
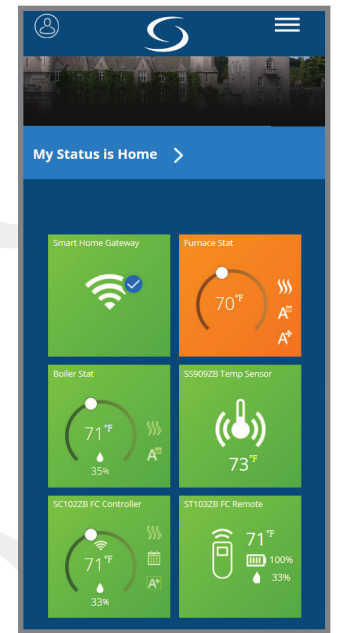
When the tile flips on the screen, choose "# available controllers".



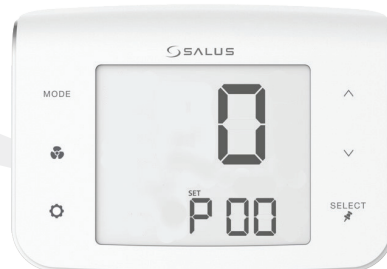
Choose the **Link** button corresponding to the desired controller



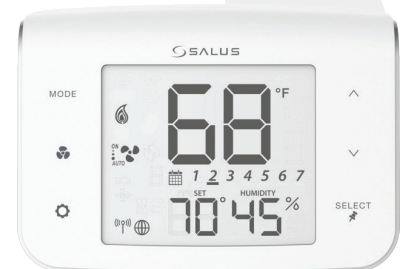
When the Controller is linked, return to the dashboard by pressing the SALUS Logo.



Once the SC102ZB Fan Coil Controller is successfully paired with a gateway, the device will briefly display the Zigbee channel.

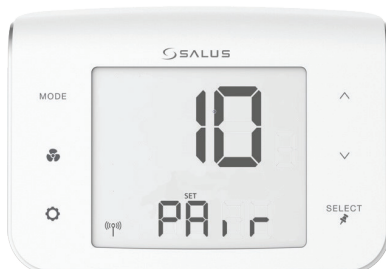



Next, the SC102ZB Fan Coil Controller enters Parameter Setup.

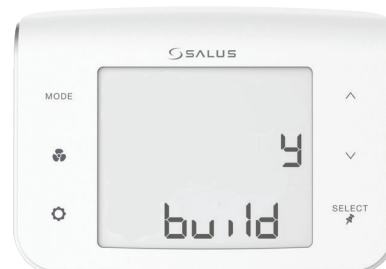


Press the  key to enter the operation screen.

## Pairing without an Internet Connection



From the pairing screen press .



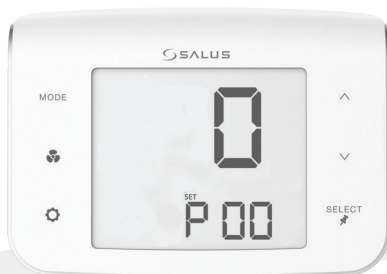
Confirm build using  $\wedge$  or  $\vee$ , and press "SELECT".

## Section 7

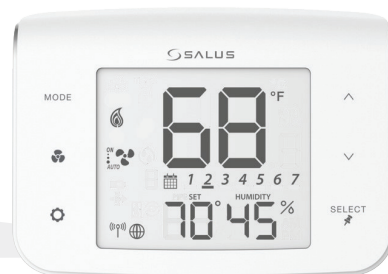
# SC102ZB/ST103ZB Installation and Operation Manual Device Joining & Pairing



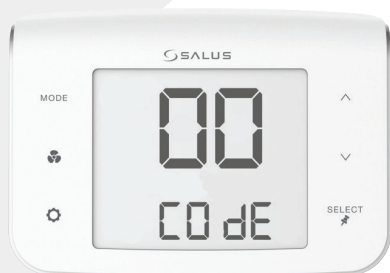
Once network building is complete, the controller will display the radio channel number being used.





Next, the SC102ZB Fan Coil Controller enters Parameter Setup.



Press the  key to enter the operation screen.




Press **MODE** +  +  keys simultaneously to enter **COdE** functions.

Use the  and  keys to set digits to "00".



After pulling the battery tab on the ST103ZB Fan Coil Remote, it will automatically pair with the SC102ZB.

**Settings  Button Operation**

Pressing the SETTINGS  button will allow adjustment of user selectable settings. Table 8.1 lists the available settings and their functions.

**Table 8.1: Thermostat Settings**

		<p><b>* Humidity:</b> This setting allows users to adjust the relative humidity setpoint.</p> <p><b>Range:</b> Humidifier – 20% to 50% Dehumidifier – 40% to 80%</p> <p>The <math>\wedge</math> and <math>\vee</math> keys adjust the flashing relative humidity setpoint. Press SELECT to choose the displayed value and move to the next setting.</p> <p>* This setting is only available if the accessory parameter (P22) is set to Humidifier (H<sub>u</sub>) or Dehumidifier (dH<sub>u</sub>).</p>
		<p><b>Temperature Units:</b> Use this setting to choose between SI Metric and US Customary temperature units.</p> <p>Use the <math>\wedge</math> and <math>\vee</math> keys to toggle between °C and °F. Press SELECT to choose the flashing value and move to the next setting.</p>
		<p><b>Sensor Location:</b> Use this setting to choose between internal (INT) and external (EXT) sensor location.</p> <p>Use the <math>\wedge</math> and <math>\vee</math> keys to toggle between INT and EXT. Press SELECT to choose the flashing value and move to the next setting (If INT is chosen, INT will not be displayed on the home screen).</p>
		<p><b>* Setback:</b> Use this setting to choose a setback temperature for heating and/or cooling.</p> <p><b>Range:</b> Heat – 50-68°F (10-20°C) Cooling – 73-90°F (23-32°C)</p> <p>Use the <math>\wedge</math> and <math>\vee</math> keys to change the setback temperature. Press SELECT to choose the flashing value and move to the next setting.</p> <p>* This setting is only available if the setback input parameter (P16) is enabled.</p>
		<p><b>Clock Format:</b> This setting is used to change the clock format between 12 hour with am/pm and 24 hour.</p> <p>Use the <math>\wedge</math> and <math>\vee</math> keys to toggle between 12 and 24 hour clock.</p> <p>Press SELECT to choose the value displayed and move on to the next setting.</p>

# Section 8

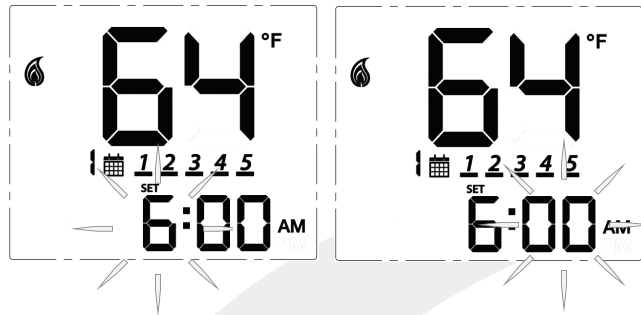
# SC102ZB/ST103ZB Installation and Operation Manual Thermostat Configuration

**Table 8.1: Thermostat Settings (continued)**

		<p><b>Time:</b> To set the time, use the <math>\wedge</math> or <math>\vee</math> keys to change the flashing hour value, then press SELECT to choose the value displayed and select minutes.</p> <p>With the minute value flashing, use the <math>\wedge</math> or <math>\vee</math> keys to change the value.</p> <p>Press SELECT to choose the value displayed and move to the next setting.</p> <p><i>Note: This setting is available in standalone or local mode only.</i></p>																										
		<p><b>Date:</b> To set the date, use the <math>\wedge</math> or <math>\vee</math> keys to change the flashing month value, then press SELECT to choose the value displayed and select date.</p> <p>With the date value flashing, use the <math>\wedge</math> or <math>\vee</math> keys to change the value.</p> <p>Press SELECT to choose the value displayed and move to the next setting.</p> <p><i>Note: This setting is available in standalone or local mode only.</i></p>																										
	<p><b>Year:</b> To set the year, use the <math>\wedge</math> or <math>\vee</math> keys to change the flashing year value.</p> <p>Press SELECT to choose the value displayed and move to the next setting.</p> <p><i>Note: This setting is available in standalone or local mode only.</i></p>																											
	<p>Note: Schedule parameters are only available in standalone or local mode. If the Fan Coil Thermostat is connected to the SALUS Smart Home application, the schedule must be programmed on your PC or smart device.</p> <p><b>Schedule:</b> While Prog is displayed, press the <math>\wedge</math> or <math>\vee</math> keys to change the day group to be edited. See the following table that describes which days are programmed based on the display.</p> <p>After selecting the day group, press SELECT to move to setting temperatures for each interval during the day.</p>																											
<table border="1"> <thead> <tr> <th>Program Mode</th> <th>Day Group Displayed</th> <th>Schedule Description</th> </tr> </thead> <tbody> <tr> <td>Weekly</td> <td> <b>1 2 3 4 5 6 7</b></td> <td>Every day of the week</td> </tr> <tr> <td rowspan="2">5+2 Weekdays/Weekend (Default)</td> <td> <b>1 2 3 4 5</b></td> <td>Monday through Friday</td> </tr> <tr> <td> <b>6 7</b></td> <td>Saturday and Sunday</td> </tr> <tr> <td rowspan="7">Daily</td> <td> <b>1</b></td> <td>Monday</td> </tr> <tr> <td> <b>2</b></td> <td>Tuesday</td> </tr> <tr> <td> <b>3</b></td> <td>Wednesday</td> </tr> <tr> <td> <b>4</b></td> <td>Thursday</td> </tr> <tr> <td> <b>5</b></td> <td>Friday</td> </tr> <tr> <td> <b>6</b></td> <td>Saturday</td> </tr> <tr> <td> <b>7</b></td> <td>Sunday</td> </tr> </tbody> </table>	Program Mode	Day Group Displayed	Schedule Description	Weekly	<b>1 2 3 4 5 6 7</b>	Every day of the week	5+2 Weekdays/Weekend (Default)	<b>1 2 3 4 5</b>	Monday through Friday	<b>6 7</b>	Saturday and Sunday	Daily	<b>1</b>	Monday	<b>2</b>	Tuesday	<b>3</b>	Wednesday	<b>4</b>	Thursday	<b>5</b>	Friday	<b>6</b>	Saturday	<b>7</b>	Sunday		
Program Mode	Day Group Displayed	Schedule Description																										
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	<b>4</b>	Thursday																										
	<b>5</b>	Friday																										
	<b>6</b>	Saturday																										
	<b>7</b>	Sunday																										

**Table 8.1: Thermostat Settings (continued)**

**Schedule (Continued)**

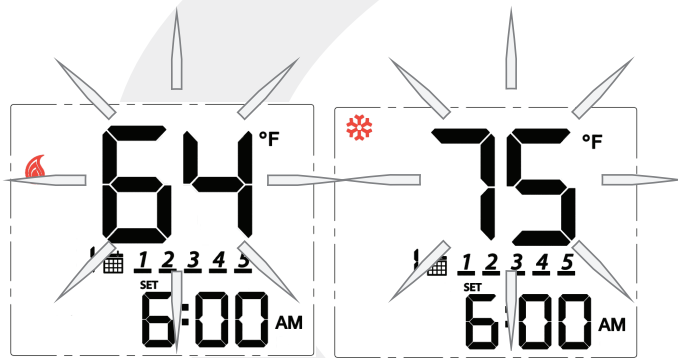


**Time Interval:** Use the  $\wedge$  or  $\vee$  keys to set the start time for each time interval, displayed next to the calendar icon.

1st: Set the hour for the time interval start

2nd: Set the minutes for time interval start

Press SELECT to move on to the heating setpoint.



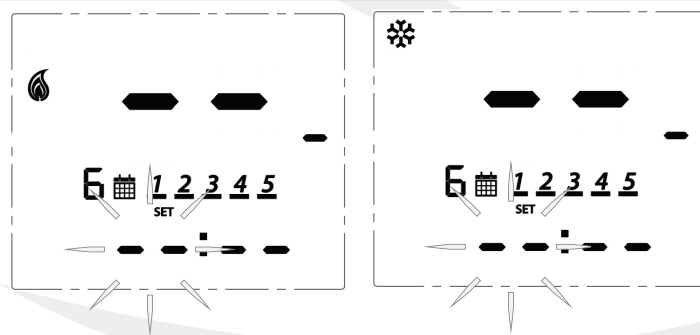
**Set Point:** Use the  $\wedge$  or  $\vee$  keys to adjust the desired heating temperature set point for the time interval displayed.

Press SELECT to accept the set point and move on to the cooling temperature set point.

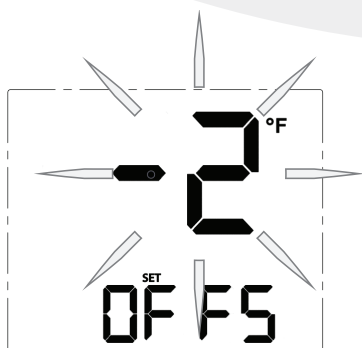
Use the  $\wedge$  or  $\vee$  keys to adjust the desired cooling temperature set point for the time interval displayed.

Press SELECT to accept the set point and move on to the next interval.

**Set points for remaining time intervals:** Set the start time and heating and/or cooling temperature for the remaining interval for a total of 6 intervals.



**Skipping a Time Interval:** To skip a time interval, press the  $\wedge$  key in the hour setting mode until each of the time and temperature digits change to a "-". When time intervals are completed, the schedule will return to the first time interval at the scheduled time.



**Temperature Offset:** Change the temperature offset value to adjust the display of the sensed temperature. This will affect the sensor selected by the INT/EXT sensor setting.


Use the  $\wedge$  and  $\vee$  keys to set the offset in 1°F (0.5°C) increments. The available range is -6 to 6°F (-3 to 3°C).

Press SELECT to accept the set point and return to the first item in the Settings Menu.

## Special Function Codes

To access special functions, press and hold the **MODE**, ,  keys simultaneously. Use the  and  keys to scroll through the available codes.

**Table 8.2: Special Function Codes**



**Identify Mode** – Press  to initiate Identify Mode


00

CODE

10

Id

A 10 minute timer begins with the screen back-light flashing. If a network is available, the  icon will flash. The internet  will be visible if a connection is established.

**Test Mode** – Press  to initiate Test Mode












22


CODE

TEST

70 °F

68 °F 48 %

Key	Function
MODE	 Heat /  Cool /  Accessory relay select
	Turn on
	Turn off
	Fan Speed  Lo /  Med /  Hi relay control
	Toggle HUMIDITY or Zigbee Channel
	Exit Test Mode




**Parameter Setup Mode** – Press  to initiate Parameter Setup Mode

49

CODE

0

SET P 00

Use the  and  keys to change the value of the parameter that is flashing. Press  to save the current parameter value and advance to the next parameter. A complete list of parameters is included in Appendix A.



**Table 8.2: Special Function Codes (continued)**





	<p><b>Join/Leave Network</b> – Press <b>SELECT</b> to join or leave a network.</p>	
	<p>If the thermostat has not joined a network, the display will enter the pairing sequence. Follow the steps under Pairing in Section 3.</p>	
	<p>If the thermostat is paired with a network, UnPAir is displayed with “n” flashing. Press the <b>∨</b> or <b>∧</b> key to change the flashing letter to “y”. Press <b>SELECT</b> to remove the thermostat from the network.</p>	
	<p><b>SC102ZB Fan Coil Controller Only</b></p>	
<p><b>Unpair from Remote</b> - Press <b>SELECT</b> Press to initiate unpairing with ST103ZB while remaining on the network.</p>		<p>UnPAir is displayed with “n” flashing. Press the <b>∨</b> or <b>∧</b> key to change the flashing letter to “y”.</p>
	<p>Press <b>SELECT</b> to disconnect from the ST103ZB Fan Coil Remote.</p>	
	<p><b>Factory Reset</b> - Press <b>SELECT</b> to initiate a factory reset.</p>	
	<p>rSEt is displayed with a flashing “n”. Use the <b>∨</b> or <b>∧</b> key to change the flashing letter to “y”. Press <b>SELECT</b> to reset the thermostat to all of the factory default settings.</p>	

## Operating Modes

Fan Coil Thermostats, Controllers and Remotes can be operated in the following operating modes:

- Standalone Mode – when SC102ZB Controller & ST103ZB Remote are paired but not connected to network
- Local Mode – when disconnected from the gateway
- Simple Mode – when connected to the gateway
- Remote: Not Connected – when remote is not on a network and/or not paired with a controller


**Table 9.1: Operating Modes**

Operation	Remote: Not Connected	Standalone Mode	Local Mode	Simple Mode
Network State	None	SC102ZB acts as a Zigbee coordinator	Thermostat is part of a network, disconnected from SG888ZB	Thermostat is connected to SG888ZB Universal Gateway
RF Icon Display	None		 (Flashing)	
SALUS Smart Home Icon	None	None	None	
SetPoint Change	Not Available	Device Only	Device Only	Device or SALUS Smart Home application
Schedule	Not Available	In Device, if enabled	In Device, if enabled	In SALUS Smart Home application
Change Fan Speed	Not Available	Device Only	Device Only	Device or SALUS Smart Home application
Mode Change	Not Available	Device Only	Device Only	Device or SALUS Smart Home application
Installation Setup	Not Available	Device Only	Device Only	Device or SALUS Smart Home application
Rule based operation	Not Available	No	No	Through SALUS Smart Home application

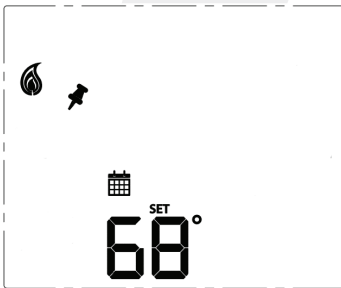
## Programmable Thermostat (Standalone or Local Mode Only)




When in Standalone or Local mode, the default operation of the Fan Coil Thermostat is as a Non-Programmable Thermostat with no scheduling capability. Changing the value of Parameter P00 (See Appendix A) to 1, changes the device to Programmable, allowing users to program a wide variety of schedule options. Instructions for setting up a schedule are covered in Section 8: Configuration.

### Set Point Override

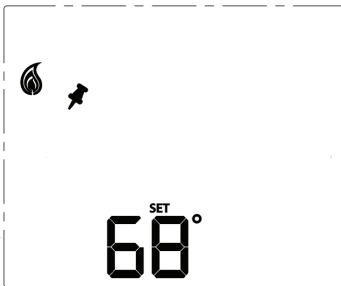
While following a temperature schedule in any mode, the Fan Coil Thermostat will display the  icon. The schedule may be overridden temporarily until the next programmed time period, or permanently until the user returns the device to the programmed schedule.


#### • Temporary Hold








To temporarily override the schedule, simply use the  $\wedge$  or  $\vee$  keys to change the setpoint. When in Temporary Hold, the LCD display on the Fan Coil Thermostat will show  in addition to the  icon. The schedule will resume when the next scheduled time interval begins. Change the temperature to the scheduled temperature and the  icon will turn off, indicating that the thermostat is following the schedule.

#### • Permanent Hold















Once in Temporary Hold, press SELECT to toggle between temporary and permanent override. When in permanent override, the LCD display on the Fan Coil Thermostat the  icon will turn off. The schedule will be suspended until the user returns it to the schedule changing the temperature to the scheduled temperature and pressing SELECT.

## Heating/Cooling Modes

Heating/Cooling mode selection works the same for both programmable and non-programmable Fan Coil Thermostats. Parameter P02 (see appendix) determines which heating and/or cooling modes are available. Pressing the MODE key, will cycle through   $\rightarrow$    $\rightarrow$    $\rightarrow$   depending on Parameter P02 (Appendix A) settings. When in  mode, the Fan Coil Thermostat will maintain a temperature between the heating and cooling setpoints.

## Fan Modes

Table 9.2: Fan Modes

Fan Mode	Speed	Display	Output Terminal
	Fan output is only activated when a thermostat call is present (On Call Fan). When a call is present the fan runs at the selected speed.		
	High		Gh
	Medium		Gm
	Low		Gl
AUTO	Fan output is only activated when a thermostat call is present (On Call Fan). When a call is present the fan speed is determined by the TPI/Span algorithm selected in Parameter 23 (See Appendix A).		
	High		Gh
	Medium		Gm
	Low		Gl
ON *	Fan output is constant at the selected speed. The fan will remain running when a thermostat call is not present.		
	High		Gh
	Medium		Gm
	Low		Gl
ON-AUTO *	Fan output is only activated when a thermostat call is present (On Call Fan). When a call is present, the fan speed is determined by the TPI/Span algorithm selected in Parameter 23 (See Appendix A).		
	High		Gh
	Medium		Gm
	Low		Gl

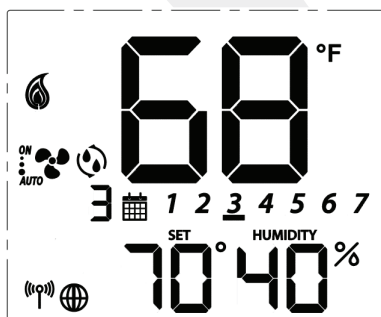
\* When in constant fan output, the fan coil will automatically switch to On Call Fan 2 or 4 hours after the initial call for heat or cool is satisfied (P35).

## P22 - Accessory Function

Terminals Ac1 and Ac2 on the Fan Coil Thermostat provide output to an accessory such as a Humidifier, Dehumidifier, Heat Recovery Ventilator (HRV) or Energy Recovery Ventilator (ERV). The built-in humidity monitor continually samples humidity at the thermostat and will operate a humidifier or dehumidifier to maintain the specified value. The Table 9.3 shows the function of the accessory output depending on which accessory is selected under parameter 22 (See Appendix A).

**Table 9.3: Parameter 22 - Accessory Function**

Parameter P22 Setting	Operation of Ac1/Ac2 dry contacts	
0 (No Function)	Open	
1 (Humidifier)	Closed when humidity is at or below the set point	Open when the humidity exceeds the set point
2 (Dehumidifier)	Closed when humidity is at or above the set point	Open when the humidity is less than the set point
3 (ERV/HRV)	Closed when fan relay is on	Open when fan relay is off



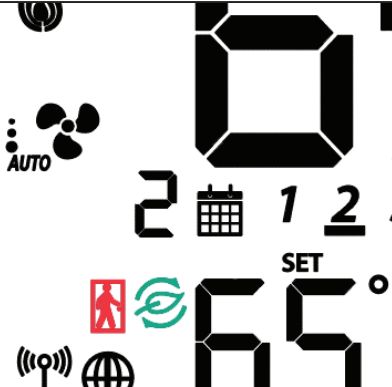
The  icon is displayed when the Ac1/Ac2 dry contacts are closed.

## P16 - AWAY Mode

Fan Coil Thermostat terminals Ts and Tc are used to initiate or terminate an Away state in the device. The Ts/Tc contact closure is configured by P16 as a Normally Open or Normally Closed contact, or as an input to be ignored.

**Table 9.4: AWAY Mode Function**

P16	Ts/Tc Status	P21	
		0 (Setback Mode)	1 (Off Mode)
0 (Disabled)	Ignored	Inactive	Inactive
1 (Normally Closed)	Open	Setback	Off
	Close	Inactive	Inactive
2 (Normally Open)	Open	Inactive	Inactive
	Close	Setback	Off



The image shows a thermostat display with several icons: a fan icon, an 'AUTO' label, a calendar icon, a 'SET' label, a person in a doorway icon, a leaf icon, and a globe icon. The display also shows a large number '0' and a temperature '65°'.

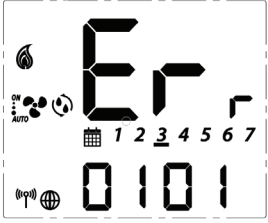


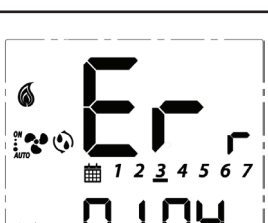

A contact state change detected between the two terminals will initiate the Away timers (P19 or P20) and once the timers expire, the device will enter or exit AWAY mode (indicated by the “person in doorway” icon). The timers are canceled if the contact input changes while the timers are active.

If Setback is selected when in AWAY mode (P21), the Setback set points (P17 and P18) will be in effect (indicated by “leaf” icon), overriding any schedules.

## Troubleshooting

The following error messages are displayed to identify issues when certain conditions occur.

**Table 10.1: Error Messages**

Error Message	Description	Corrective Action
	Error 01: Pipe supply sensor circuit is open, or pipe supply sensor is not connected. The pipe supply sensor must be used if Parameter P02 = 3 or 4 (See Parameters Appendix A).	<ul style="list-style-type: none"> <li>• Check connection of pipe supply sensor to terminals</li> <li>• Replace sensor</li> </ul>
	Error 02: Pipe supply sensor circuit is shorted, or pipe supply sensor damaged. The pipe supply sensor must be used if Parameter P02 = 3 or 4 (See Parameters Appendix A).	<ul style="list-style-type: none"> <li>• Check connection of pipe supply sensor to terminals</li> <li>• Check for shorts in pipe supply sensor leads</li> <li>• Replace sensor</li> </ul>
	Error 03: Room temperature sensor circuit is shorted, or room temperature sensor damaged.	<ul style="list-style-type: none"> <li>• If sensor is set to External (Settings), and Parameter 12 (Appendix A) is set to external sensor, check for short circuit</li> <li>• If sensor is set to Internal (default), replace thermostat or use external sensor</li> </ul>
	Error 04: Room temperature sensor circuit is open.	<ul style="list-style-type: none"> <li>• If sensor is set to Internal (Default), replace thermostat or use external sensor</li> <li>• If sensor is set to External (Settings), and Parameter 12 (Appendix A) is set to external sensor, check wiring or assure sensor is connected.</li> <li>• If sensor is set to External and Parameter 12 is set to Zigbee remote, go through the "Find &amp; Bind" sequence defined in the IOM.</li> </ul>
	Error 05: Filter is clogged	<ul style="list-style-type: none"> <li>• Change filter</li> </ul>

For Errors 01-04 the display will alternate between the message above and the Home Screen. The total number of errors (shown 01 above) will be the first two digits displayed. If more than 1 error exists, press the  $\nabla$  and  $\wedge$  keys to review each error.





**Installer Notes**






49

CODE

To change parameters, press and hold the **MODE**, ,  keys simultaneously.  
Use the  and  keys to scroll to "49" and press SELECT.

P	Name	Values	Default	Description/Comment
P00	Type of thermostat	0 = Non-Programmable 1 = Programmable	0	
P01	Fan Coil Type	0 = 2 Pipe 1 = 4 pipe	1	
P02	Heat/Cool Option	<b>For 2 Pipe</b>	3	Option #3 & #4 in the 2 pipe configuration require the pipe sensor (sold separately) to be connected
		0=Heat Only		
		1=Cool Only		
		2 = Heat or Cool Manual changeover		
		3 = Heat or Cool Seasonal changeover		
		4 = Heat or Cool with Auxiliary Heat		
		<b>For 4 Pipe:</b>		
		2 = Heat or Cool Manual changeover		
		3 = Heat, Cool or Auto changeover		
4 = Auto changeover only				
P03	Valve Type	0 = Normally Closed Valve 1 = Normally Open Valve	0	
P04	Max. heating setpoint	41 to 92°F (5 to 33.5°C)	92°F (33.5°C)	Not displayed if P02 = 1
				P05 < P04
				P04 ≤ P06-1.5°C
P05	Min. heating setpoint	41 to 92°F (5 to 33.5°C)	41°F (5°C)	Not displayed if P02 = 1
				P05 < P04
				P05 ≤ P07-1.5°C
P06	Max. cooling setpoint	44 to 95°F (6.5 to 35°C)	95°F (35°C)	Not displayed if P02 = 0
				P07 < P06
				P06 ≥ P04+1.5°C
P07	Min. cooling setpoint	44 to 95°F (6.5 to 35°C)	44°F (6.5°C)	Not displayed if P02=0
				P07 < P06
				P07 ≥ P05+1.5°C
P08	Protection heating setpoint	OFF or 41 to 92°F (OFF or 5 to 33.5°C)	41°F (5°C)	If not OFF, P05 < P08 < P04
				P08 < P09
P09	Protection cooling setpoint	OFF or 44 to 95°F (OFF or 6.5 to 35°C)	OFF	If not OFF, P07 < P09 < P06
				P08 < P09
P10	Offset of internal sensor	±6°F - 1°F increments (±3°C - 0.5°C increments)	0°F (0°C)	
P11	Offset of external sensor	±6°F - 1°F increments (±3°C - 0.5°C increments)	0°F (0°C)	
P12	External sensor	0 = External sensor 1 = Zigbee remote sensor	0	Standalone mode: P12 = 0
				Set <b>SE</b> <sub>n</sub> to EXT with  key

P	Name	Values	Default	Description/Comment
P13	Pipe sensor	0 = Analog input	0	Displayed only if P01=0 and P02=3 or 4  NOTE: PO2 option #3 & #4 in the 2-pipe configuration require the pipe sensor (sold separately) to be connected.
		1 = Normally open, default mode is Heat		
		2 = Normally open, default mode is Cool		
		3 = Normally closed, default mode is Heat		
		4 = Normally closed, default mode is Cool		
P14	Pipe sensor threshold for cooling	50 to 77°F increment 1°F (10 to 25°C increment 0.5°C)	50°F (10°C)	
P15	Pipe sensor threshold for heating	81 to 95°F increment 1°F (27 to 35°C increment 0.5°C)	86°F (30°C)	
P16	Setback input	0 = Disable	0	
		1 = Normally closed		
		2 = Normally open		
P17	Setback heating setpoint	50 to 68°F increment 1°F (10 to 20°C increment 0.5°C)	15°C (59°F)	Display only if P16=1/2
P18	Setback cooling setpoint	23 to 32°C increment 0.5°C (73 to 90°F increment 1°F)	86°F (30°C)	Display only if P16=1/2
P19	Setback Unoccupied to Occupied delay	1 to 3 seconds	1 sec	Display only if P16=1/2
P20	Setback Unoccupied to Occupied delay	2 to 30 minutes	2 mins	Display only if P16=1/2
P21	Setback mode or Off mode when unoccupied	0 = Setback mode	1	Display only if P16=1/2
		1 = Off mode		
P22	Accessory function	0 = No function	0	Normally Open
		1 = Humidifier		
		2 = Dehumidifier		
		3 = ERV/HRV		
P23	TPI or Span	0 = TPI	1	
		1 = Span control		
P24	Modulation Response Time	0 = Slow response time	1	Display only if P23=0
		1 = Fast response time		
P25	TPI heat control CPH	3 ~ 12 on/off cycle per hour	6	Display only if P23=0
P26	TPI cool control CPH	3 ~ 12 on/off cycle per hour	3	Display only if P23=0
P27	CPH for Auxiliary Electrical Heater	3 ~ 12 on/off cycle per hour	6	Display only if P23=0
P28	Set span for heating using span control	.5° to 2°F increment 0.5°F (0.25° to 1°C increment 0.25°)	0.5°F (0.25°C)	Display only if P23=1, device only display 0.2/0.5/0.7/1.0°C or 0.5/1.0/1.5/2.0°F
P29	Set span for cooling using span control	0.5° to 2°F increment 0.5°F (0.25° to 1°C increment 0.25°)	0.5°F (0.25°C)	Display only if P23=1, device only display 0.2/0.5/0.7/1.0°C or 0.5/1.0/1.5/2.0°F

P	Name	Values	Default	Description/Comment
P30	Set the minimum turn off time for heating mode respectively	10 to 300 seconds	10	Display if P02<>1
P31	Set the minimum turn off time for cooling mode respectively	10 to 300 seconds	10	Display if P02<>0
P32	Call start delay	From 0 to 15 minutes	0	Delay after determining Call for Heat/Cool before valve is opened.
P33	Fan turn on delay	0 to 600 seconds	0	Delay to allow coils to reach operating temp
P34	Fan turn off delay	0 to 180 seconds	0	Delay to circulate residual heat/cool.
P35	Resume Auto fan delay after initial Heat/Cool is satisfied.	0=2 hours	0	
		1=4 hours		
P36*	Key lock timing	0 = Manual	0	Note: In Auto mode, keys will lock after 5 minutes of keypad inactivity.
		1 = Auto (lock keys after 5 minutes)		
		2 = Unlock		
P37*	Enable/Disable User Unlock in Simple mode and Local mode	0 = user can unlock by ^ and v	0	In Standalone Mode, user can unlock by ^ and v regardless P37 setting
		1 = user cannot unlock by ^ and v		
P38	Service filter	OFF	OFF	1 to 99 x 100 operating hrs (e.g. 99 = 9,900 oper. hrs)
		1 to 99 (99 means 9900hrs = 99*100)		
P39	Status after power outage	0 = Off mode	1	Thermostat will turn <b>Off</b> or be restored to <b>Last configuration</b> .
		1 = Last configuration		
P40	DST Daylight saving time	0: Disable	1	Used for local mode and stand-alone mode
		1: Enable		
P41	Purge Function	0: Disable	1	
		1: Enable		
P42	Purge Time	1-7	3	Minutes to purge
P43	Purge Wait	6-36	24	Hours of inactivity before purge
P44*	Key lock type	1: Lock HVAC only	7	HVAC = Mode and set point Fan = fan button Settings = Settings button  Combination key pressing will not be locked at any time.
		2: Lock Fan only		
		3: Lock HVAC and Fan		
		4: Lock Settings		
		5: Lock Settings and HVAC		
		6: Lock Settings and Fan		
7: Lock All				

\* SC102ZB Controller and each ST103ZB Remote is controlled locally and can be set to different P36/P37/P44 values.