



RESIDENTIAL
model SFTHRP121WFC

Thermostat

Premier Series Digital Thermostat



Owner's Manual and Installation Instructions



CAUTION

Follow the Installation Instructions before proceeding. Set the thermostat mode to “**OFF**” prior to changing settings in setup or restoring Factory Defaults.

This thermostat has the ability to receive updates to its firmware. Periodically firmware updates are released by the manufacturer to add features and/or performance enhancements. This manual was produced reflecting the most current firmware/feature set at the time of publication, firmware rev. 12. Firmware releases after rev. 12 may not be adequately depicted in this manual. Please refer to the appropriate website or contact your place of purchase to learn about changes to the thermostat after firmware release 12.



Auto-Changeover: A mode in which the thermostat will turn on the heating or cooling based on room temperature demand.

Cool Setpoint: The warmest temperature that the space should rise to before cooling is turned on (without regard to deadband).

Deadband: The number of degrees the thermostat will wait, once a setpoint has been reached, before energizing heating or cooling.

Differential: The forced temperature difference between the heat setpoint and the cool setpoint.

Heat Setpoint: The coolest temperature that the space should drop to before heating is turned on (without regard to deadband).

Icon: The word or symbol that appears on the thermostat display.

Mode: The current operating condition of the thermostat (i.e. Off, Heat, Cool, Auto, Program On).

Non-Programmable Thermostat: A thermostat that does not have the capability of running Time Period Programming.

Programmable Thermostat: A thermostat that has the capability of running Time Period Programming.

Temperature Swing: Same as Deadband.

Time Period Programming: A program that allows the thermostat to automatically adjust the heat setpoint and/or the cool setpoint based on the time of the day.

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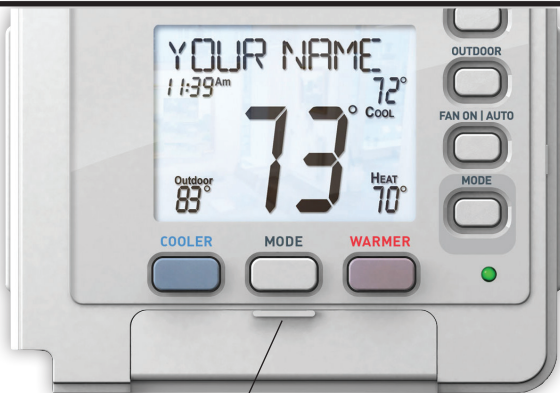
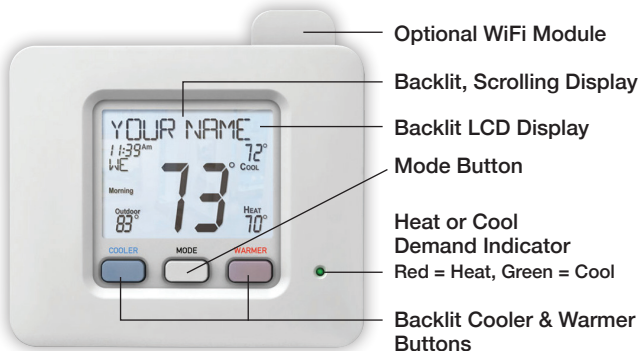
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Get To Know Your Thermostat

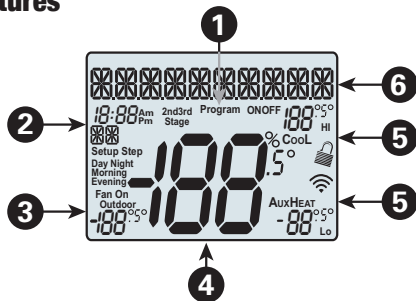


Setup Buttons Behind Door



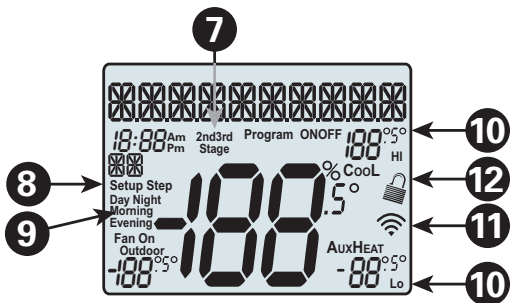
Setup Buttons

Display Features



- 1 Program icon**—Indicates that Time Period Programming is running or is enabled to be set.
- 2 Clock with Day of the Week**—Indicates the current time and day. This clock is also used to program the time period schedules.
- 3 Outdoor icon**—Indicates the temperature displayed is from the optional outdoor sensor.
- 4 Room Temperature Display**—Indicates the **current** room temperature and displays the outdoor temperature when selected.
- 5 Mode Indicators**
Selects the operational mode of the equipment.
HEAT - Indicates the heating mode.
COOL - Indicates the air conditioning mode.
HEAT & COOL - Indicates the system will automatically change-over between heat and cool modes as the temperature varies.
OFF - Indicates heating and cooling are turned off.
- 6** The scrolling display will be used to help you easily navigate the setup screens in the thermostat.

Display Features



7 2nd Stage icon

Indicates when 2nd stage heating has been engaged.

8 Setup Step icon

Indicates the step number when programming the thermostat

9 Morning, Day, Evening & Night icons

Indicates the day part of the time period program when the thermostat is in the setup mode.

10 Desired Set Temperature

Indicates **desired** room temperature(s). Also displays the highest and lowest temperatures for the day.

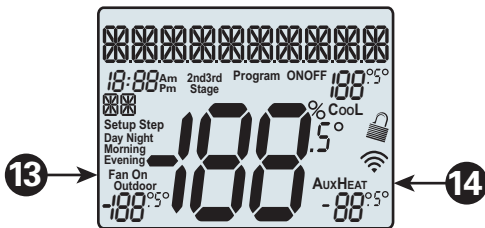
11 Wi-Fi icons

One dot indicates the thermostat recognizes the wireless module. The **full** icon indicates the thermostat is currently connected to the Local access point, via the optional Wi-Fi Module.

12 Lock icon

Indicates the keypad has been locked.

Display Features



13 Fan On icon –

Indicates constant, continuous fan operation.
When **Fan On** is not lit - indicates the fan will only operate when necessary to heat or to cool.

14 AuxHeat icon

Indicates 2nd stage electric strip heat is being used when the thermostat is programmed for Heat Pump operation.

During Setup and Programming:

Press the **WARMER** or **COOLER** buttons to modify the selection.

Press the **MODE** button to advance and confirm through the setup steps.

Setting the Clock and Day

Not available when Wi-Fi module is present

Press the SET CLOCK button. Adjust the clock using the WARMER or COOLER buttons. Press MODE to advance to the day setting. Adjust the day using the WARMER or COOLER buttons. Press the SET CLOCK button to confirm settings.

TIP: To adjust the time by hours, press and hold the FAN button while pressing the WARMER or COOLER buttons.



Selecting the Heat or Cool Mode

Select mode by pressing the **MODE** button.



Heating Only—Only the heating operation will be controlled by the thermostat in this mode.

Cooling Only—Only the cooling operation will be controlled by the thermostat in this mode.

Heating or Cooling (Auto-Changeover)—AUTO will automatically select heat or cool based on room temperature demand.

OFF—OFF indicates both heating and air conditioning systems are turned off.

Selecting your desired temperature

AUTO-CHANGEOVER MODE—Pressing the **WARMER** or **COOLER** buttons in Auto mode will adjust both the heat and cool setpoints simultaneously. To adjust heat and cool setpoints individually, choose **HEAT** mode to adjust the heat setpoint and **COOL** mode to adjust the cool setpoint, then return to **AUTO** mode.

HEAT OR COOL MODE—Pressing the **WARMER** or **COOLER** buttons in Heat or Cool mode will adjust only the heat or cool setpoints individually displayed.

Using the Fan Button

FAN ON indicates constant fan operation. You may turn the fan on even if the thermostat is in the OFF mode. Pressing the **FAN** button toggles this feature on or off. If you don't see "**Fan On**", the fan is in auto mode and will only turn on during a heat or cool demand.

FAN ON | AUTO



Viewing the Temperature Sensors

OUTDOORTEMP - Press the **OUTDOOR** button to view the current outdoor temperature.

OUTDOOR



If the thermostat is connected to Skyport; upon pressing the **OUTDOOR** button the scrolling display will read "Forecast".

The forecasted high and low temperatures for the day will be displayed.

Press the **OUTDOOR** button again to view any connected wired sensor (SUPPLY).

Note: *If no outdoor sensor is connected, and there isn't outdoor temperature via Wi-Fi, then 2 dashes [- -] will appear with the first button press.*

SUPPLYTEMP - Press the **Accessory Status** button to view linked wireless wired sensors and other accessories. Press the **Accessory Status** button to return to the main screen.

ACCESSORY
STATUS



Remove and Replace the Old Thermostat

To install the thermostat properly, please follow these step-by-step instructions. If you are unsure about any of these steps, call a qualified technician for assistance.

- Assemble tools: Flat-blade screwdriver, wire cutters, and wire strippers.
- Make sure your Heater/Air Conditioner is working properly before beginning installation of the thermostat.
- Carefully unpack the thermostat. Save the screws, any brackets, and instructions.
- Turn off the power to the Heating/Air Conditioning system at the main fuse panel. Most residential systems have a separate breaker for disconnecting power to the furnace.
- Remove the cover of the old thermostat. If it does not come off easily, check for screws.
- Loosen the screws holding the thermostat base or subbase to the wall and lift away.
- If you have a smart phone handy, take a photo of the wiring for future reference.
- Disconnect the wires from the old thermostat. Tape the ends of the wires as you disconnect them, and mark them with the letter of the terminal for easy reconnection to the new thermostat.
- Keep the old thermostat for reference purposes, until your new thermostat is functioning properly.

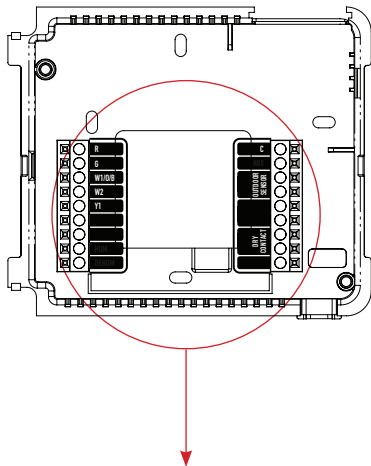
Wire Connections

If the terminal designations on your old thermostat do not match those on the new thermostat, see the chart below or the wiring diagrams that follow.

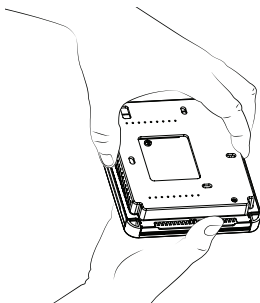
Wire from the old thermostat terminal marked	Function	Install on the new thermostat connector marked
G or F	Fan	G
Y1, Y	Cooling	Y1
W1, W	Heating	W1/O/B
Rh, R, M, Vr, A	Power	R
C	Common	C
O/B	Rev. Valve	W1/O/B*
W2	2nd Stage Heat	W2
Ck1	Dry Contact Switch	DRY CONTACT
CKGND	Dry Contact Switch	DRY CONTACT

* O/B is used if your system is a Heat Pump.

The Thermostat Backplate



To remove the thermostat backplate: Gently separate the display from the base by pulling first from one side, then the other until the two pieces unsnap.

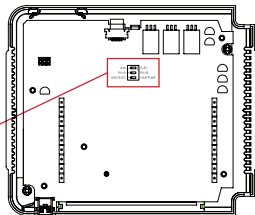
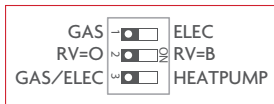


R	24 VAC return	C	24 VAC common
G	Fan relay	OUTDOOR SENSOR	Outdoor sensor connections
W1/O/B	1st stage heat circuit	DRY CONTACT	Dry Contact connections
W2	2nd stage heat circuit		
Y1	1st stage compressor relay		

IMPORTANT: This thermostat requires both **R** (24 VAC Return) and **C** (24 VAC Common) be connected to the backplate terminals.

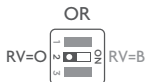
Check Dip Switches

Ensure which switch is correct for your system. Dip switches are located on the back of the thermostat.



1. When GAS/EL or HP is set for GAS/EL:
This switch (GAS or ELEC) controls how the thermostat will control the Fan (G) terminal in heating mode. When GAS is chosen, the thermostat will not energize the Fan (G) terminal in heating. When ELEC is chosen, the thermostat will energize the fan in heating.

2. When GAS/EL or HP is set for HP:
This switch (GAS or ELEC) defines the Aux Heat type. When GAS is chosen, the auxiliary heat will not be allowed to run during heat pump operation. When ELEC is chosen, up to two stages of auxiliary strip heat will be allowed to run.



For Heat Pump Only
When the GAS/EL or HP dip switch is configured for HP, this dip switch (O or B) must be set to control the appropriate reversing valve. If O is chosen, the W1/O/B terminal will energize in cooling. If B is chosen, the W1/O/B terminal will energize in heating.



This dip switch configures the thermostat to control a conventional gas/electric system or a heat pump. If your system is anything other than a heat pump, leave this switch set for GAS/EL.

Sample Wiring Diagrams

Conventional Heating and Cooling Systems

3 Wire, Heat Only

Residential & Commercial 1 Stage Heating with **no Fan**.

R 24VAC Power
C 24VAC Common
W1/O/B 1st Stage Heat



4 Wire, Cool Only

Residential & Commercial 1 Stage Cooling.

R 24VAC Power
C 24VAC Common
Y1 1st Stage Cool
G Fan



5 Wire, 1 Stage Cooling, 1 Stage Heat

Residential & Commercial 1 Stage Cooling, with 1 stage **Gas Heat**.

R 24VAC Power
C 24VAC Common
W1/O/B 1st Stage Heat
Y1 1st Stage Cool
G Fan



5 Wire, 1 Stage Cooling, 1 Stage Heat

Residential & Commercial 1 Stage Cooling, with 1 stage **Electric Heat**.

R 24VAC Power
C 24VAC Common
W1/O/B 1st Stage Heat
Y1 1st Stage Cool
G Fan



Sample Wiring Diagrams

Heat Pump Systems

5 Wire, 1 Stage Cooling, 1 Stage Heat

Residential & Commercial Heat Pump with
O Reversing Valve

R	24VAC Power
C	24VAC Common
W1/O/B	Reversing Valve
Y1	1st Stage Compressor (Cool or Heat)
G	Fan



6 Wire, 1 Stage Cooling, 2 Stage Heat

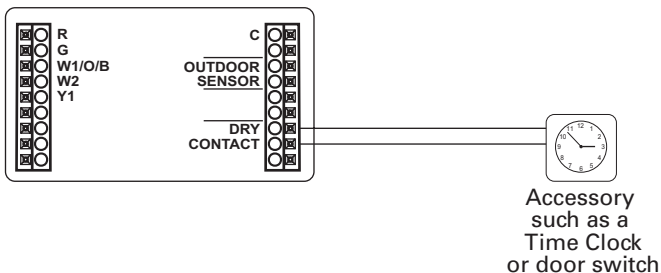
Residential & Commercial Heat Pump with
O Reversing Valve

R	24VAC Power
C	24VAC Common
W1/O/B	Reversing Valve
Y1	1st Stage Compressor (Cool or Heat)
W2	Aux Heat
G	Fan



Sample Wiring Diagrams

Dry Contact



Installation Instructions: Test Operation



The thermostat has a diagnostic feature that enables testing of all outputs. This feature is contained in the thermostat's **technician setup**.

*To enter Technician Setup, press and hold the **SETUP** button for 10 seconds until all the icons appear. Follow the next steps to view settings and test equipment.*

1. Press **MODE** to view the version numbers of the thermostat.
2. Press **MODE** again to view the jumper settings and current state of the Dry Contact terminal.
3. Press **MODE** again and the scrolling display will read **TURN ON EQUIPMENT?** Press **WARMER** for Yes or **COOLER** for No.

If Yes is chosen, press **WARMER** to turn on heat or **COOLER** to turn on Cooling. The scrolling display will read **NOTHING ON**. Next:

Press **WARMER** to turn on and cycle up through the heating stages.
Press **COOLER** to turn the heating stages off. Press **MODE** to exit.

Press **COOLER** to turn on and cycle down through the cooling stages.
Press **WARMER** to turn the cooling stages off. Press **MODE** to exit.

4. Press **MODE** until **CALIBRATE SENSORS?** appears on the scrolling display. Press **WARMER** for Yes or **COOLER** for No. Press **MODE** to select which sensor to calibrate. Use **WARMER** or **COOLER** to modify your selection.

To exit Technician Setup at any time, press the **SETUP** button. Technician Setup will automatically exit after 10 minutes if no buttons are pressed.

How to Change Settings in the Setup Screens

To enter Advanced Setup, press the **SETUP** button, then press **MODE**. Use the **WARMER** or **COOLER** buttons to adjust the value of your selection. Press **MODE** to advance to the next setup step. Press **SETUP** again to leave the setup screens.



Backlight (setup steps 3-8)

Backlight (setup step 3)

Off - Backlight turns on with any button press and turns off after 8 seconds.

On - Backlight is on continuously.

Backlight Intensity Level (setup step 4)

The backlight can be adjusted between Off and seven levels of brightness.

Night Dimmer (setup step 5) - Selecting **On** allows for automatic dimming of the display at night.

Night Dimmer Brightness (setup step 6)

OFF through seven levels of brightness.

Night Dimmer Start Time (setup step 7) - 12:00 am to 12:00 am

Night Dimmer Stop Time (setup step 8) - 12:00 am to 12:00 am

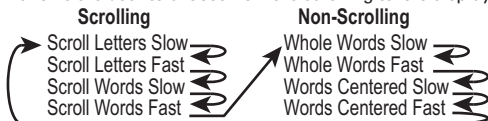
Language (setup step 15)

Setup step instructions on the scrolling display can be set for English, Spanish, or French.

Press the **SETUP** button, then press **MODE** repeatedly until the **Language** setup step appears. Use the **WARMER** or **COOLER** buttons to make selection. Press **MODE** to advance to the next step. Press **SETUP** to leave the setup screens.

Scrolling Display Method (setup step 16)

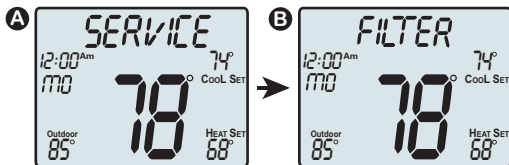
This option allows the user to choose how the scrolling text is displayed. Options are:



Press the **SETUP** button, then press **MODE** repeatedly until the Scrolling Method setup step appears. Use the **WARMER** or **COOLER** buttons to make selection. Press **MODE** to advance to the next step. Press **SETUP** to leave the setup screens.



Example of “Whole Words Centered”:



Vacation & Away Settings

The Vacation feature allows the thermostat to use temporary, energy saving setpoints without having to change regular programming.

The HOME/AWAY feature allows for a one button press to bring in your stored unoccupied vacation settings. A subsequent press of the HOME/AWAY button restores the last used comfort settings.

VACATION



HOME | AWAY



Press the VACATION button to enter Vacation/Away programming.

Use the WARMER and COOLER buttons to choose the number of days desired to run the in Vacation/Away settings.

To confirm your settings and advance to the next step, press the MODE button again. Choose the desired Vacation/Away Mode. Press the MODE again to adjust the 'unoccupied' setpoint. If you selected auto changeover mode for unoccupied/vacation settings, then pressing MODE again will allow the adjusting of the 2nd setpoint. Otherwise press MODE to confirm and return to normal operation.

Press the VACATION button again to return to the main screen. Both VACATION and AWAY use these same settings. VACATION button use specifies a duration of days for these settings, whereas Away maintains these settings until the HOME/AWAY button is pressed again.

When the VACATION button is pressed and the thermostat detects that a Wi-Fi module is installed:

During Non-Vacation Periods: the scrolling display will read:

"Use Skyport to View/Edit Settings"

During Vacation Period: the scrolling display will read:

"To cancel VACATION press MODE button"

NOTE: If the HOME/AWAY button is pressed during an active VACATION period, the scrolling display will read: "To cancel VACATION press MODE button."

The thermostat must be running in Program On for VACATION to have any effect. After you alter any settings, they will take effect until midnight on that day. The thermostat does not need to be running in Program On for the HOME/AWAY button to have effect.

Emergency Heat

The Emergency Heat function is only available if your thermostat is set to control a Heat Pump.

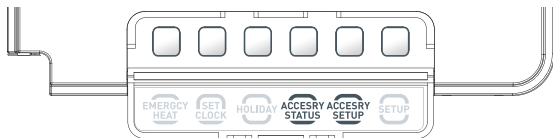
EMERGENCY
HEAT



To initiate the Emergency Heat feature, Press the EMERGENCY HEAT button.

During Emergency Heat operation the thermostat will turn on the fan and auxiliary stages of heat when there is a demand for heat. The compressor used for heating and all stages of cooling will be unavailable. To exit Emergency Heat, press the EMERGENCY HEAT button.

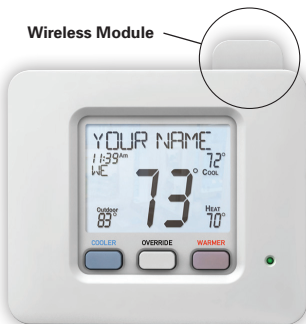
Wireless Module



The **ACCESSORY STATUS** button allows the user to view the status of wired and wireless accessories. For many of the wireless devices this status includes: Battery Level, Signal Strength, and Last Time Updated.

If there is an optional wireless module installed, the **ACCESSORY SETUP** button allows the user to link or connect wireless devices to the thermostat, or the thermostat to the network.

Wireless Module



These setup steps allow the user to monitor equipment runtimes and program service alerts. Service alerts are displayed in the scrolling marquee.

FAN ON | AUTO



Press and hold FAN to clear service alert messages from the scrolling marquee.

Runtime hours or days appear in the clock display.



Service Filter Runtime (setup steps 9-10, 12-13)

Current Service Filter Runtime Hours (Setup Step 9) - This counter keeps track of the number of hours of fan runtime in the Heating mode, Cooling mode, and in stand-alone Fan operation. Press FAN to reset.

Current Service Filter Calendar Days (Setup Step 10) - This counter displays the total number of calendar days that have elapsed since the counter was reset to help the user track Fan runtime. Press FAN to reset.

Set Service Filter Runtime Hours (Setup Step 12) - This timer allows the user to specify the number of hours the fan will run before the "Replace Filter" alert will be displayed. Press COOLER continuously until **OFF** is displayed to disable this alert.

Set Service Filter Calendar Days (Setup Step 13) - This timer allows the user to specify the number of calendar days that will elapse before the "Replace Filter" alert will be displayed. Press COOLER continuously until **OFF** is displayed to disable this feature.

Press the **SETUP** button, then press **MODE** repeatedly until the desired setup step appears. Use the **WARMER** or **COOLER** buttons to make selection. Press **MODE** to advance to the next step. Press **SETUP** to leave the setup screens.





*To view, set, or reset System Runtimes, press the **SETUP** button, then press **MODE**. Press **MODE** to advance to the desired setup step. Use the **WARMER** or **COOLER** buttons to adjust the value of your selection. Press **SETUP** again to leave the setup screens.*

UV Lamp Runtime (setup steps 11, 14)

Current UV Lamp Calendar Days (setup step 11) - This counter displays the total number of calendar days that have elapsed to help the user track UV lamp runtime. Press **FAN** to reset.

Set UV Lamp Calendar Days (setup step 14) - This timer allows the user to specify the number of calendar days the UV Lamp will operate before the "Replace UV Lamp" alert will be displayed. Press **COOLER** continuously until **OFF** appears to disable this alert.

Programming a Daily Time Period Schedule*

**not available when Wi-Fi module is present*

To enter Time Period Programming screens. Press and hold PROGRAM until the scrolling prompt appears.

OFF - Time Period Program is off.

RUN - Time Period Program is running.

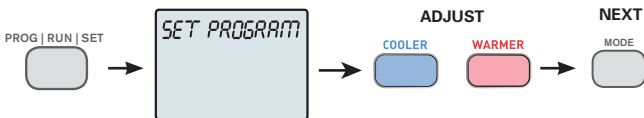
HOLD TO SET - Press and hold PROGRAM to make Time Period Programming changes.

Select Day of Week to program -

Press the WARMER or COOLER buttons to choose the day of the week.

Press MODE to advance to the next step.

Program Button



(continued next page)



Programming a Daily Schedule *(continued)*

This thermostat features four programmable time periods per 24 hour day: Morning, Day, Evening, and Night. The start time for each time period is adjustable. The stop time for each time period is the start time for the next period. Each time period, or day part may be individually disabled.

Select the Day to Program - Press the WARMER or COOLER to select the desired Day or Week Part in the case of 5-2 (weekday – weekend) programming.

Enable/Disable Morning Period - Press the WARMER or COOLER to select ON or OFF. If the default ON is selected, then the Morning period will run complete with the Mode and Set Points selected. If OFF is selected then the Morning day part will be skipped and the thermostat will use the next day part that is enabled.

Select Morning Mode - Press the WARMER or COOLER to select the desired mode, which includes OFF. You may be limited by the available modes in advanced Installer setup step#2. Press MODE to advance to the next step.

Select Morning Start Time - Press the WARMER or COOLER buttons to adjust the time of day desired. Press MODE to advance to the next step.

Select Morning Cool Setpoint - Press the WARMER or COOLER buttons to adjust the cool setpoint desired. This step will appear if Cool or Auto Mode was selected in the step where the Morning mode is specified. Press MODE to advance to the next step.

Select Morning Heat Setpoint - Press the WARMER or COOLER buttons to adjust the heat setpoint desired. This step will appear if Heat or Auto Mode was selected in the step where the Morning mode is specified. Press MODE to advance to the next step.

Repeat Enable, Mode, Start Time and Setpoint programming for Day, Evening, and Night.

“Copy Current Day to Next Day” is available - Press the UP button to Copy the current day's program to the next day. Press Mode again to continue copying the following day.

Press the PROGRAM Button to exit Time Period Programming at any time.

How to Change Settings in the Setup Screens

*To enter Advanced Setup, press the **SETUP** button, then press **MODE**. Use the **WARMER** or **COOLER** buttons to adjust the value of your selection. Press **MODE** to advance to the next setup step. Press **SETUP** again to leave the setup screens.*



Selecting Your Time Period Schedule (setup step 1)

This thermostat may be configured to be programmable or non programmable.

7 Day Program - Allows all seven days to be programmed independently.

Non Program - No advanced time period programming available.

1 Day Program - Allows one 24 hour day to be programmed. This same schedule will be repeated every day the program is set to run.

5/2 Day Program - Allows weekdays, Saturday, and Sunday to be programmed independently.

Selecting Your Available Modes (setup step 2)

Auto-Changeover - Allows the thermostat to turn on heating or cooling based on room temperature demand. Also allows the manual selection of HEAT only or COOL only and OFF.

Heat and Cool - Allows the thermostat to turn on heating or cooling depending on which one has been manually selected. Auto-Changeover is not available when this mode is selected.

Heat Only - Allows the thermostat to only turn on HEAT or OFF modes.

Cool Only - Allows the thermostat to only turn on COOL or OFF modes.

Cycles Per Hour *(setup step 17)*

The Cycles Per Hour setting may limit the number of times per hour your HVAC unit may energize. For example, at a setting of 6 cycles per hour the HVAC unit will only be allowed to energize once every 10 minutes. The Cycles Per Hour limit may be overridden and reset by pressing the WARMER or COOLER buttons on the thermostat. Settings are No Limit, 2, 3, 4, 5, or 6.

Compressor Minimum Off Minutes *(setup step 18)*

This feature allows the user to set a minimum off time for the compressor. Settings are 5 min, 3 min, or 0 min.

Minimum Heat/Cool Setpoint Difference *(setup step 19)*

This feature allows the user to set the minimum gap between Heat and Cool setpoints in **AUTO** mode. Select from 0 to 6. If setup step 2 is not set for **AUTO-CHANGEOVER**, this step will not appear.

Number of Heat Stages *(setup step 20)*

This setting assures proper stage callouts on the thermostat display for non-heat pump applications.

Number of Cool Stages *(setup step 21)*

This setting assures proper stage callouts on the thermostat display for non-heat pump applications.

Number of Aux Stages *(setup step 22)*

This feature is for heat pump application only.

This feature allows for proper Aux Heat Staging. (0-1 stages)

Deadband Settings

The Deadband is the number of degrees or minutes that the thermostat waits before it initiates the stages of heating or cooling.

1st Stage Deadband (*setup step 23*) - Specifies the minimum temperature difference between the room temperature and the desired setpoint before the first stage of heating or cooling is allowed to turn on. (1 - 6 degrees) For example, if the heat setpoint is 68° and the 1st Stage deadband is set to 2 degrees, the room temperature will need to reach **66°** before the heat turns on.

Fahrenheit or Celsius (*setup step 24*)

This feature allows the thermostat to display temperature in Fahrenheit or Celsius.

Press Fan To Clear All Messages (*setup step 37*)

This feature allows the user to clear all current error messages from the display.

Dry Contact Operation

Dry Contact Polarity (Setup step 25)

Open (Normally Open) - The dry contact is open until the connected device closes the circuit.



'Idle'



'Active'

Closed (Normally Closed) - The dry contact is closed until the connected device opens the circuit.



'Idle'



'Active'

Dry Contact Use (Setup step 26)

CONDENSATE - If selected when the dry contact is active, the thermostat will lockout the compressor terminal(s) and "CONDENSATE PAN OVERFLOW" will appear on the display.

VACATION - If VACATION is selected when the dry contact is active, the thermostat will be forced into AWAY/unoccupied settings.

FDD - If FDD is selected when the dry contact is active, the scrolling display will read "Equipment fault." This error message will disappear when the Dry Contact is idle.

Skyport (Setup step 27)

This setting enables Skyport Cloud Services when optional wireless module is installed. (Wifi accessory is required) Visit sfthermostats.com for more information.

Local API (Setup step 28)

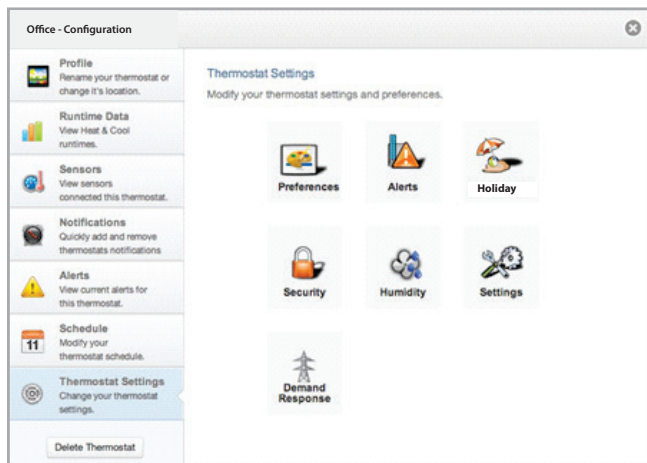
Enabling the local API allows 3rd party software to interfere with your thermostat, such as a home automation system.

Overview

SF thermostats support the handling of specific signals from the utility provider. The utility generated signals carry pricing information and/or setback actions that alter the comfort settings of the thermostat in order to reduce energy usage on demand. This is known as Automated Demand Response or ADR for short. You must register to participate in a utility sponsored program, if offered by your local utility, to take advantage of this feature.

Skyport Cloud Services


From the web application the user will select Thermostat Settings from the left column. Then the Demand Response button is selected.





The Demand Response configuration page, shown below, is where the thermostat is configured to respond to the energy provider's signals. It also sets operational parameters for the thermostat.


The left column of the ADR configuration page allows or prevents access by the utility. Here communication with the utility and your thermostat may be turned On or Off.


Office - Configuration


**Profile**
Rename your thermostat or change its location.


**Runtime Data**
View Heat & Cool runtimes.

**Sensors**
View sensors connected to this thermostat.

**Notifications**
Quickly add and remove thermostats notifications.

**Alerts**
View current alerts for this thermostat.

**Schedule**
Modify your thermostat schedule.


**Thermostat Settings**
Change your thermostat settings.

Delete Thermostat

Automated Demand Response

Configuration

Overview


Demand Response

ON

OFF

What is Demand Response?

It is a way for energy suppliers to automatically reduce load during high energy use periods. This reduces the strain on the powergrid while offering incentives to individuals who participate in demand response events.

Min & Max Settings

Event Max Cool Setpoint:
89° F

Event Min Heat Setpoint:
83° F

Static Settings

Static Cool Setpoint:
77° F

Static Heat Setpoint:
83° F

Offset Settings

Cool Setpoint Offset:
+2

Heat Setpoint Offset:
-3

Price Settings

Price Trigger
\$ 0.5

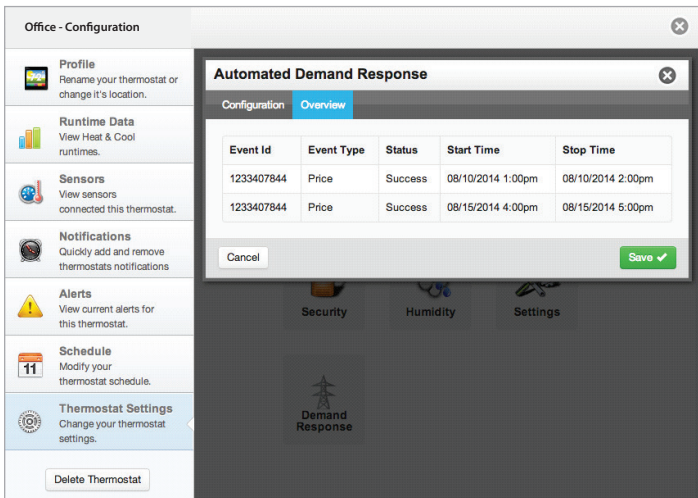
Dependent Action
Observe Setpoint Offsets

Cancel

Save

29

Selecting the Overview tab of the ADR page will cause a summary of ADR events to be displayed.



The screenshot shows the 'Office - Configuration' window with a sidebar on the left and a main content area on the right. The sidebar contains several menu items: Profile, Runtime Data, Sensors, Notifications, Alerts, Schedule, and Thermostat Settings. The 'Thermostat Settings' item is selected and highlighted in blue. Below the sidebar is a 'Delete Thermostat' button. The main content area displays the 'Automated Demand Response' window, which has two tabs: 'Configuration' and 'Overview'. The 'Overview' tab is active, showing a table of ADR events. The table has five columns: Event Id, Event Type, Status, Start Time, and Stop Time. There are two rows of data, both with Event Id 1233407844 and Event Type Price. The first row shows a Success status with a start time of 08/10/2014 1:00pm and a stop time of 08/10/2014 2:00pm. The second row shows a Success status with a start time of 08/15/2014 4:00pm and a stop time of 08/15/2014 5:00pm. Below the table are 'Cancel' and 'Save' buttons. The 'Save' button is green and has a checkmark icon. In the background, below the ADR window, there are icons for Security, Humidity, Settings, and Demand Response.

Office - Configuration

- Profile**
Rename your thermostat or change it's location.
- Runtime Data**
View Heat & Cool runtimes.
- Sensors**
View sensors connected this thermostat.
- Notifications**
Quickly add and remove thermostats notifications
- Alerts**
View current alerts for this thermostat.
- Schedule**
Modify your thermostat schedule.
- Thermostat Settings**
Change your thermostat settings.

Delete Thermostat

Automated Demand Response

Configuration Overview

Event Id	Event Type	Status	Start Time	Stop Time
1233407844	Price	Success	08/10/2014 1:00pm	08/10/2014 2:00pm
1233407844	Price	Success	08/15/2014 4:00pm	08/15/2014 5:00pm

Cancel Save ✓

Security Humidity Settings Demand Response



ADR *(Setup step 29)*

Controls whether you want the thermostat to possibly respond to signals from the utility provider. Select ON to allow this and to have steps 30-36 appear.

ADR Action *(Setup step 30)*

Allows the user to determine what action is taken when an ADR event is received.

Observe Setpoint Offsets – will offset the heat and cool setpoints by the amounts specified in setup steps 35 and 36

Observe Static Setpoints – will set the heat and cool setpoints to the values specified in setup steps 33 and 34

Event Max Cool Setpoint *(Setup step 31)*

Event Min Heat Setpoint *(Setup step 32)*

Specifies the range of allowable setpoint adjustments to be enforced when any ADR signal has been received from the utility. Since you might be paying more for energy while an event is active, you can impose tighter limits on setpoint ranges that are only enforced during the event.

Static Cool Setpoint *(Setup step 33)*

Static Heat Setpoint *(Setup step 34)*

Specifies the setpoints that will come into use during an event when the ADR ACTION is set to OBSERVE STATIC SETPOINTS.



Cool Setpoint Offset *(setup step 35)*


Heat Setpoint Offset *(setup step 36)*

Specifies how much the current setpoints in effect prior to an event will be altered during an event when the ADR ACTION is set to OBSERVE SETPOINT OFFSETS. The heat setpoint can be automatically lowered by 1 to 10 degrees while the cool setpoint can be automatically raised by 1 to 10 degrees.

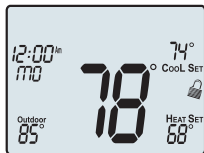
DISPLAY INDICATIONS WHEN AN ADR EVENT IS HAPPENING


After setting your desired values for use during an ADR event, the scrolling display will give a little information when an event is pending or active. For instance, when an ADR event has been sent to your thermostat, you might see ADR STARTS at 4:15 to notify you of a pending event. Once active, you might see ADR STOPS at 5:30. When an event is active, you can press any of COOLER, WARMER or MODE buttons, followed by the WARMER to opt out of the event.

Locking/Unlocking the Keypad

To prevent unauthorized use of the thermostat, the front panel buttons may be disabled. To disable, or 'lock' the keypad, press and hold the MODE button. While holding the MODE button, press the WARMER and COOLER buttons together. The  icon will appear on the display, then release the buttons.

Press all three buttons in the order outlined above for keypad lockout



To **unlock** the keypad, press and hold the MODE button. While holding the MODE button, press the WARMER and COOLER buttons together. The  icon will disappear from the display, then release the buttons.

Resetting the Thermostat to the Factory Default Settings

(for default values see page 36-37)

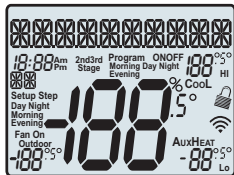
If, for any reason, you desire to return all the stored settings back to the factory default settings, follow the instructions below.

WARNING: This will reset all Time Period and Advanced Programming to the default settings. Any information entered prior to this reset will be permanently lost.

- 1** Press and hold SETUP for 10 seconds. All icons will appear on the display.

Keep pressing the SETUP button until you see this screen.

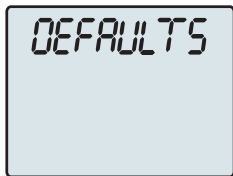
SETUP



- 2** After all the icons appear, release SETUP. Press and hold FAN for 5 seconds. DEFAULTS will appear on the display.

Keep pressing the FAN button until you see this screen.

FAN ON | AUTO



- 3** After DEFAULTS appears, release FAN. Press MODE to return to normal operation.

MODE



Technician Setup



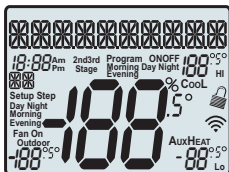
To enter Technician Setup, press and hold the *SETUP* button for 10 seconds. After all the icons appear, press *MODE*. The version number of the thermostat will appear in the scrolling text. Press *MODE* to advance to the next step. Use the *WARMER* or *COOLER* buttons to adjust the value of your selection. To leave Technician Setup, press *SETUP*.

Hold for 10 seconds

All icons appear

Press *MODE* to advance through the setup steps

SETUP



MODE



Press *WARMER* or *COOLER* to adjust the selection

COOLER



MODE



WARMER



Technician Setup is for diagnostic and testing purposes and is intended for use by a qualified technician.

Technician Setup contains the following options:

- View the version number of the thermostat.
- View the jumper setting of **J1** (Gas/Electric or Heat Pump), **J2** (Reversing Valve: RV=O or RV=B), and **J3** (Fan: Gas or Electric) jumpers located on the back of the thermostat. (Remove thermostat from backplate for access)
- View the state of the Dry Contact and Fault terminals.
- Turn on equipment outputs for testing.
- Calibrate thermostat and remote sensors.

Advanced Setup Table



Df = Factory Default Setting

Step#	Description	Pg#	Range	Df
1	Prog Mode	24	Non, 1 Day, 5/2 Day, 7 Day	7
2	Available Modes	24	Heat/Cool/Auto/Off, Heat/Cool/Off, Heat/Off, Cool/Off	Heat/Cool/ Auto/Off
3	Backlight	16	On, Off	Off
4	Backlight Level	16	Off thru 7 levels of brightness	Level 5
5	Night Dimmer	16	On/Off	Off
6	Night Dimmer Brightness	16	Off thru 7 levels of brightness	2 (20%)
7	Night Dimmer StartTime	16	12A-12A	8:00P
8	Night Dimmer StopTime	16	12A-12A	6:00A
9	Current Service Filter Runtime Hours	20	0-1999 Hours	0
10	Current Service Filter Calendar Days	20	0-720 Days	0
11	Current UV Lamp Calendar Days	21	0-720 Days	0
12	Set Service Filter Runtime Hours	20	0-1950 hours	0
13	Set Service Filter Calendar Days	20	0-720 Days	0
14	Set UV Lamp Calendar Days	21	0-720 Days	0
15	Language	16	English, Espanol, Francais	English
16	Scrolling Method	17	"L-R Slow, L-R Fast, Word L-R Slow, Word L-R Fast, Whole Word L Slow, Whole Word R Slow, Whole Word Ctr. Fast, Whole Word Ctr. Slow	Whole Word Center Fast
17	Cycles Per Hour	25	No Limit, 2, 3, 4, 5, 6	6
18	Compressor Minimum Off Minutes	25	0, 3, 5 Minutes	5
19	Min. Heat/Cool Setpoint Difference	25	0 - 6 Degrees	2
20	Number of Heat Stages	25	0 - 2	2
21	Number of Cool Stages	25	0 - 1	1
22	Number of Aux Stages	25	0, 1	0
23	1st Stage Deadband	26	1 - 6 Degrees	2
24	F/C	26	Fahrenheit (F), Celsius (C)	F
25	Dry Contact Polarity	27	Open, Closed	Open
26	Dry Contact Use	27	Condensate, Vacation, FDD	Vacation
27	Skyport	27	On, Off	On
28	Local API	27	On, Off	Off
29	ADR	31	On, Off	On

cont. next page

Advanced Setup Table



Df = Factory Default Setting

Step#	Description	Pg#	Range	Df
30	ADR Action	31	Observe Setpoint Offset, Observe Static Setpoints	Observe set- point offsets
31	Event Max Cool Setpoint	31	65 - 90	90
32	Event Min Heat Setpoint	31	50 - 85	50
33	Static Cool Setpoint	31	65 - 85	82
34	Static Heat Setpoint	31	65 - 85	60
35	Cool Setpoint Offset	32	1 to 10	4
36	Heat Setpoint Offset	32	-1 to -10	-4
37	Press Fan To Clear All Messages	26		

- **SYMPTOM:** The air conditioning does not attempt to turn on.
CAUSE: The compressor timer lockout may prevent the air conditioner from turning on for a period of time.
REMEDY: Consult the Owner's Manual in the Installer Setup section to defeat the Cycles Per Hour (*page 28*).
- **SYMPTOM:** The display is blank.
CAUSE: Lack of proper power.
REMEDY: Make sure the power is on to the furnace and that you have 24vac between **R & C**.
- **SYMPTOM:** When controlling a residential heat pump, and asking for cooling, the heat comes on.
CAUSE: The thermostat reversing valve jumper is set for **"B"**.
REMEDY: Set the reversing valve jumper for **"O"**.
- **SYMPTOM:** When calling for cooling, both the heat and cool come on.
CAUSE: The thermostat equipment jumper is configured for **"HP"** and the HVAC unit is a Gas/Electric.
REMEDY: Set the equipment jumper for **"Gas"**.
- **SYMPTOM:** When the Program button is pressed, the display reads **"DISABLED"**.
CAUSE: Program mode is set to **"NON PROGRAM"**.
REMEDY: Set Program Mode (Setup 1) to **1, 5/2, or 7 Day**.
See Selecting Your Program Mode (page 24).

Warranty



One-Year Warranty - This Product is warranted to be free from defects in material and workmanship. If it appears within one year from the date of original installation, whether or not actual use begins on that date, that the product does not meet this warranty, a new or remanufactured part, at the manufacturer's sole option to replace any defective part, will be provided without charge for the part itself provided the defective part is returned to the distributor through a qualified servicing dealer.

THIS WARRANTY DOES NOT INCLUDE LABOR OR OTHER COSTS incurred for diagnosing, repairing, removing, installing, shipping, servicing or handling of either defective parts or replacement parts. Such costs may be covered by a separate warranty provided by the installer.

THIS WARRANTY APPLIES ONLY TO PRODUCTS IN THEIR ORIGINAL INSTALLATION LOCATION AND BECOMES VOID UPON REINSTALLATION.

LIMITATIONS OF WARRANTIES – ALL IMPLIED WARRANTIES (INCLUDING IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY) ARE HEREBY LIMITED IN DURATION TO THE PERIOD FOR WHICH THE LIMITED WARRANTY IS GIVEN. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE MAY NOT APPLY TO YOU. THE EXPRESSED WARRANTIES MADE IN THIS WARRANTY ARE EXCLUSIVE AND MAY NOT BE ALTERED, ENLARGED, OR CHANGED BY ANY DISTRIBUTOR, DEALER, OR OTHER PERSON WHATSOEVER.

ALL WORK UNDER THE TERMS OF THIS WARRANTY SHALL BE PERFORMED DURING NORMAL WORKING HOURS. ALL REPLACEMENT PARTS, WHETHER NEW OR REMANUFACTURED, ASSUME AS THEIR WARRANTY PERIOD ONLY THE REMAINING TIME PERIOD OF THIS WARRANTY.

THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR:

1. Normal maintenance as outlined in the installation and servicing instructions or owner's manual, including filter cleaning and/or replacement and lubrication.
2. Damage or repairs required as a consequence of faulty installation, misapplication, abuse, improper servicing, unauthorized alteration or improper operation.
3. Failure to start due to voltage conditions, blown fuses, open circuit breakers or other damages due to the inadequacy or interruption of electrical service.
4. Damage as a result of floods, winds, fires, lightning, accidents, corrosive environments or other conditions beyond the control of the Manufacturer.
5. Parts not supplied or designated by the Manufacturer, or damages resulting from their use.
6. Manufacturer products installed outside the continental U.S.A., Alaska, Hawaii, and Canada.
7. Electricity or fuel costs or increases in electricity or fuel costs for any reason whatsoever including additional or unusual use of supplemental electric heat.
8. ANY SPECIAL INDIRECT OR CONSEQUENTIAL PROPERTY OR COMMERCIAL DAMAGE OF ANY NATURE WHATSOEVER. Some states do not allow the exclusion of incidental or consequential damages, so the above may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

SFTHRP121WFC Thermostat Controllers

Power Requirements		20 - 30 VAC 50/60 Hz, 3.0 VA @ 24V nominal.
Output Rating		W1, W2, W3 = 0.2A max, 0.01A min, 3A inrush, 20 - 30 VAC Y1, Y2, G = 0.4A max, 0.01A min, 3A inrush, 20 - 30 VAC
Local Temperature Sensor Type		Thermistor, NTC 10K @ 25°C
Remote Temperature Sensor Type		Thermistor, NTC 10K @ 25°C
Wire Size		16 AWG (100 ft max) to 24 AWG (36 ft max)
Temperature Adjustment Range		35° to 99° deg F (2° to 36° deg C)
Accuracy		35° to 65° deg F +/- 3° degF, greater than 65° to less than 80 degF +/- 2 degF, 80° to 99° deg F +/- 3° degF, greater than 99° to 104° deg F +/- 5° deg F
Deadband		Adjustable 1° to 6° deg first stage, 0° - 10° deg 2nd & 3rd stages
Ambient Conditions	Operating	35° to 104° deg F (2° to 40° deg C), 5 - 95% RH non-condensing, 86° deg F max dew point
	Storage	-22° to 122° deg F (-30° to 50° deg C), 5-95% RH non-condensing, 86° deg F max dew point
Compliance		UL/cUL listed, file E468676, NEC Class 2
Dimensions		4.4" H x 5.2" W x 1.0"D
Shipping Weight		0.34 kg

Patent Pending

88-1241 rev. 1 05/15/18

