SFTHRTSH742WFI
Residential

High Resolution Digital Thermostat

Full Color Touch Screen Display with Humidity Control

Owner’s Manual and Installation Instructions
Follow the Installation Instructions before proceeding. Set the thermostat mode to “OFF” prior to changing settings in setup or restoring Factory Defaults.

FCC Compliance Statement
This equipment has been tested and found to comply with the limits for an intentional radiator, pursuant to Part 15, subpart C of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference in radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that of the receiver.
• Consult the dealer or an experienced radio or TV technician for help.

Notice: Only peripherals complying with FCC limits may be attached to this equipment. Operation with noncompliant peripherals or peripherals not recommended by SF, is likely to result in interference to radio and TV reception. Changes or modifications to the product, not expressly approved by SF could void the user’s authority to operate the equipment.

FCC - INDOOR Mobile Radio Information:
To comply with FCC/IC RF exposure limits for general population / uncontrolled exposure, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

This Device complies with Industry Canada License-exempt RSS standard(s). Operation is subject to the following two conditions: 1) this device may not cause interference, and 2) this device must accept any interference, including interference that may cause undesired operation of the device.
Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Cet appareil est conforme avec Industrie Canada, exempts de licence standard RSS(s). Son fonctionnement est soumis aux deux conditions suivantes: 1) ce dispositif ne doit pas causer d'interférences, et 2) ce dispositif doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

En vertu des règlements d'Industrie Canada, cet émetteur de radio ne peut fonctionner en utilisant une antenne d’un type et maximale (ou moins) Gain approuvé pour l’émetteur par Industrie Canada. Pour réduire les interférences radio potentielles aux autres utilisateurs, le type d’antenne et son gain doivent être choisis afin que la puissance isotope rayonnée équivalente (PIRE) ne est pas plus de ce qui est nécessaire pour une communication réussie.

We, SF, declare under our sole responsibility that the device to which this declaration relates: Complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This color touchscreen 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. 5.10. Firmware releases after rev. 5.10 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 5.10.
Glossary of Terms

**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* in *Auto Mode*.

**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).

**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. *Same as Schedule.*
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Get To Know Your Thermostat

Home Screen

Backlit Touch Screen Display

Indoor Humidity Reading
Outdoor Temperature
(If optional accessory is used or connected to Skyport)
Connectivity Symbol
Warmer Button
SD Card Slot
Cooler Button
Menu Button

Connectivity Symbol Table

- Not connected to Wi-Fi
- Connected to local access point w/IP address without Skyport enabled
- Connected to local access point w/IP address, but not yet connected to Skyport
- Connected to Skyport

Main Menu Screen

Sub Menu Screen

Sub Menu Buttons
Indicates Options Available
Scrolling Buttons

Back Button
Menu Buttons
Scrolling Buttons

Home Button
Get To Know Your Thermostat

Dropdown Dashboard
The Dropdown Dashboard displays temperature, humidity, and other readings. It will also show the high and low readings of the day.

Drop Down Dashboard Button
Wi-Fi Connection Icon

Connectivity Symbol Table
- Not connected to Wi-Fi
- Connected to local access point w/IP address without Skyport enabled
- Connected to local access point w/IP address, but not yet connected to Skyport
- Connected to Skyport

Dropdown Dashboard
(The contents of your Dashboard may vary)

Dashboard

Today’s Heating
None

Today’s Cooling
10.1 Hours

Heating and Cooling amounts for the day
press for more info
Get To Know Your Thermostat

Dropdown Dashboard
(The contents of your Dashboard may vary)

Weather Display

Chatsworth, US
Day: 107°/76°
Humidity: 30%
Sunrise: 05:49 AM  Sunset: 08:09 PM
Wind: 2.2 mph South

Saturday
Clear
107°/73°
Hum: 21%

Sunday
Clear
97°/69°
Hum: 38%

Monday
Clear
90°/86°
Hum: 43%

This page displays sensor information. Select ‘Onboard’ to view room temperature, and if equipped, humidity sensors that are built-into the thermostat. Select ‘Wireless’ to view all wireless sensors that this thermostat has access to.
Get To Know Your Thermostat

These 3 screens are for informational purposes only. Settings may not be changed from these screens.

Thermostat Info

Equipment Configuration:
- Gas Electric
- Heat Pump
- B
- Electric

Cooling stages: 1
Heating stages: 2

Thermostat Outputs:
- G
- W1/O:B
- Y1
- W2
- Y2
- W3/AUX
Care and Use of Your Thermostat

Pencils, pens and other sharp objects should never be used on your thermostat; these may damage your touchscreen. Only use your finger tip to press the touchscreen buttons.

Use a soft, damp cloth to clean the screen.

DO NOT USE ABRASIVE CLEANERS OR CLEANERS THAT CONTAIN SOLVENTS. DO NOT SPRAY ANYTHING DIRECTLY ONTO THE THERMOSTAT.
Selecting Your Desired Temperature and Mode

Press \[ \text{WARMER} \] or \[ \text{COOLER} \] to adjust temperature.

The Heat or Cool Setpoint is the temperature the room has to reach before heating or cooling will turn on.

(Without regard to deadband)

Press [MODE] or the MODE Icon

- **HEAT** will allow only heat operation.
- **COOL** will allow only cool operation.
- **AUTO** will allow both Heat and Cool operation.
- **OFF** - heating and cooling systems are turned off.

**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.

**Using the Fan Button**

Press the FAN Icon

- **FAN ON** fan runs constantly even in OFF Mode.
- **FAN AUTO** fan only runs with a heating or cooling demand.
Quick Start - Set Time & Date

**NOTE:** When the thermostat is connected to a Skyport account, the Time & Date are automatically synchronized to the Skyport Cloud, including automatic Daylight Savings adjustments. Your time zone is selected in the Skyport web application.
Quick Start - Set Time & Date

Setting the Time

Press **MENU** then ▼ to scroll down.

Press **Set Time & Date**

Press **Set Current Time** (12:00 AM)

Press **hr +** and **min +** to set the current time.

Press **hr -** and **min -**

Press ▼ BACK when finished.

Choose

• Use AM/PM - ON

For 12 hour AM/PM clock

• Use AM/PM - OFF

For 24 hour clock

Press ▼ BACK when finished.
Quick Start - Set Time & Date

Setting the Date

- **Set Current Date**  
  6/1/2013

Press **◀** or **▶** to set the current month and year.

Press the day on the calendar:

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- **Daylight Savings Setup**

Turn Daylight Savings Time on or off.

Adjust when Daylight Savings Time begins.

Adjust when Daylight Savings Time ends.

Press **◀ BACK** after making a change to a selection.

Press **◀ BACK** or the Home button when finished.
Connect to Wi-Fi (from initial start up)

When power is connected to the thermostat and it has not been configured to connect to a Wi-Fi Access point, the following message appears:

Wi-Fi Set Up
No Wi-Fi access points are configured for your thermostat. Would you like to set up one now?

YES NO

Press YES

Select the access point you wish to connect to from the list.

Enter the password for the Wi-Fi Access Point and press NEXT.

Select automatic setup and press NEXT.

When finished, a dialog box will appear confirming the successful connection to the local Wi-Fi Access Point.

Select OK, then the Wi-Fi status page will appear. Upon closing of the Wi-Fi status page, you will be asked to join the thermostat to a Skyport account.

Select YES and follow the onscreen instructions to create a new Skyport account or to add the thermostat to an existing account.
Quick Start - Connect to Wi-Fi (from menus)

Press MENU

Press DOWN

Press Wi-Fi

Press Wi-Fi Setup

Select the access point from the list that you want to connect to.

Enter the password for the Wi-Fi Access Point and press NEXT.

Select automatic setup and press NEXT.

When finished, a dialog box will appear confirming the successful connection to the local Wi-Fi Access Point.

Select OK, then the Wi-Fi status page will appear. Upon closing of the Wi-Fi status page, you will be asked to join the thermostat to a Skyport account.

Select YES and follow the onscreen instructions to create a new Skyport account or to add the thermostat to an existing account.
Although there is more than one way to create a Skyport account, the steps below illustrate creation from a browser.

If the thermostat is connected to the local Wi-Fi Access Point, but not yet joined to a Skyport account, you may join the thermostat to an account by doing the following:

Select **MENU** from the thermostat’s home screen.

1. Scroll down
2. Select **Skyport**
3. Select **Skyport Account** and follow the onscreen instructions.

1. Open your browser to: https://SF.skyportcloud.com
2. Select “Create account now”
3. Follow on screen instructions to create an account and add a thermostat to the Skyport account.
Main Menu Buttons - Schedule

- View My Schedule
- Edit My Schedule
This thermostat features up to 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.

• **View My Schedule**

Press a day of the week to view its settings. This may be repeated for each day.

• **Edit My Schedule**

Press and select days to program

Select individual days or

Select groups of days

Then press NEXT
Press and select a Time Period (Morning, Day, Evening, or Night) to edit.

Adjust Mode, Start Time, and Heat and Cool Setpoints to desired settings. The Time Period may also be Enabled or Disabled. Un-check the Enabled box for Time Periods you don’t want to use. Press DONE when finished.

When you are finished editing the four time periods press NEXT.

Review your program. Press SAVE to keep your program. Press EDIT to make further changes.
Main Menu Buttons - Smart Fan

- Smart Fan - OFF
- Smart Fan Min Runtime
- Start/Stop Times
- Days To Run Fan
The fan may be programmed to turn on automatically for a specified period during the day.

Press to turn fan schedule on or off

- **Smart Fan - OFF**
- **Smart Fan - ON**

**Smart Fan Min Runtime**

Set the minimum number of minutes the fan will run from the top of each hour. Set runtime to 60 minutes to be on continuously from Start Time to Stop time. (5 - 60 mins.)

**Start/Stop Times**

Set when the Smart Fan schedule will start and stop. For example, you may not want Smart Fan to run during sleeping hours.

**Days To Run Fan**

Choose which days of the week Smart Fan will run.
Main Menu Buttons - Screensaver

- Screensaver - OFF
- Screensaver Setup
  - Screensaver Turn On Delay
  - Screensaver Type
    - Slideshow
    - Digital Clock
    - Analog Clock
  - Change Image After...
- Use Theme Images - OFF
- Randomize Slideshow - OFF
- Show Clock - OFF
- Home Screen Info - OFF
- Screensaver Preview
Main Menu Buttons - Screensaver

The Screensaver allows you to create custom slideshows.

- Screensaver - OFF
- Screensaver - ON

Screensaver Setup

- Screensaver Turn On Delay (5m)
  How long after a button press for the Screensaver to appear. 1, 3, 5, or 30 minutes

- Screensaver Type (Slideshow)
  Slideshow, Digital Clock, Analog Clock

- Change Image After...
  15, 30 seconds - 1, 5, or 10 minutes

- Use Theme Images - OFF
  Slideshow uses included Theme Images. Off or On

- Randomize Slideshow - OFF
  Shuffles slideshow photos in random order

- Show Clock - OFF
  Shows the time and date every 5 photos. Off or On

- Home Screen Info - OFF
  Shows the mode, setpoints, and temperature after every 10 photos. Off or On.

Press this button to preview your screensaver operation before returning to the Home Screen.
After the preview, press anywhere on the screen to return to the sub menu.
Main Menu Buttons - Alerts

- View Current Alerts
- Reset Alerts
  - Reset Air Filter Alert
  - Reset UV Lamp Alert
  - Reset Humidity Pad Alert
- Set/Edit Reminders
  - Service Call Reminder - OFF
  - Days Until Service Call (0 days)
  - Air Filter Reminder - OFF
  - Set Max Filter Runtime (300 hrs)
  - Set Max Filter Days (0 days)
  - UV Lamp Reminder - OFF
  - Max UV Lamp Runtime (360 days)
  - Humidity Pad Reminder - OFF
  - Set Max Hum Runtime (360 days)
- Service Information...
The alerts let you know when your system needs service.

• **View Current Alerts**

View and reset current service alerts here. Alerts will appear on the bottom bar of the Home Screen. Press to view and reset current alerts.

• **Reset Alerts**

Clear and reset current service alerts.

• **Set/Edit Reminders**

Set service alert runtimes and turn reminders on or off.

- **Service Call Reminder - OFF**
- **Days Until Service Call** (0 days)
- **Air Filter Reminder - OFF**
- **Set Max Filter Runtime** (500 hrs)
- **Set Max Filter Days** (300 days)
- **UV Lamp Reminder - OFF**
- **Set Max UV Lamp Runtime** (300 days)
- **Humidity Pad Reminder - OFF**
- **Set Max Hum Runtime** (300 days)
- **Service Information...**

View your service company's contact information.
Main Menu Buttons - Display

The display brightness options may be adjusted in this menu.

- **Active Brightness** (80%)
  You may select how bright the backlight is while the thermostat is active. The display is active for 3 minutes after last touch, it then goes Idle.

- **Idle Brightness** (30%)
  You may select how bright the backlight is while the thermostat is idle.

- **Night Dimmer**
  You may dim the brightness of the screen at night.

  - **Auto Night Dimmer - OFF**
    The screen can be set to dim automatically at night. Dimming the display can prolong the life of the backlight.

  - **Set Idle Brightness** (20%)
    Set the screen brightness for the Night Dimmer. When Night Dimmer is On, the display will go idle 8 seconds after last touch.

  - **Set Dimmer Schedule**
    Set the schedule for the Night Dimmer.
Main Menu Buttons - Display

• Maintenance

Maintenance allows you to clean and calibrate the touch screen.

• Screen Cleaning

Screen Cleaning Mode disables the touch feature for 15 seconds so the screen may be cleaned without altering any settings.

Use a soft cloth without solvents or abrasive cleaners

• Touch Calibration

Under normal circumstances, the touchscreen should not need to be calibrated.

Touch and hold the center of the targets as they appear on the screen for 3 seconds.

Press FINISH when done.

When calibration is complete, the thermostat will automatically restart and return to the Home Screen.
Main Menu Buttons - Preferences

Preferences

- User Interface Themes

- Custom Wallpaper

- Heat/Cool Indicator
  - Heat/Cool Indicator OFF
  - Taskbar red/white OFF
  - Room Temp red/blue OFF
  - Mode Status red/blue OFF

- Sound Options
  - Beep - OFF
  - Beep Sound
Main Menu Buttons - Preferences

You may set the type of background that appears on the thermostat Home Screen.

- **User Interface Themes** *(ocean)*

This thermostat has several high quality background themes to choose from. **NOTE:** At 7pm, the background will change to an evening scene. At 7am it will return to a daytime scene.

- **Custom Wallpaper**

You may choose your own background image by selecting a photo that you have uploaded from an SD memory card.

- **Heat/Cool Indicator**

You may choose an enhanced indicator of the current status of the HVAC equipment.

  - Heat/Cool Indicator - ON/OFF
  - Taskbar Red/White - ON/OFF
  - Room Temp Red/Blue - ON/OFF
  - Mode Status Red/Blue - ON/OFF

- **Sound Options**

  - **Beep - ON**
  - **Beep - OFF**

  Turn the beep sound on or off.

  - **Beep Sound** *(Beep 1)*

  Choose from different beep sounds.
Main Menu Buttons - Humidity

Humidity

• Humidification Settings
  • Humidify setpoint (0%)
  • Humidify with heat - OFF
  • Run fan w/humidity demand - OFF

• Dehumidification Settings
  • Dehumidity setpoint (99%)
  • Run A/C to dehumidify - OFF
  • Maximum Overcool (0°)
  • Reheat - OFF
  • Dehumidify only when cooling - ON
The Humidity feature allows the thermostat to control a humidifier or use your air conditioner to dehumidify the space.

**IMPORTANT:** Aux Output Usage must be set for Hum or Dehum for these settings to take effect.  
*See: AUX Output Settings on page 60.*

### • Humidification Settings

- **Humidify setpoint**  
  (0%)  
  Adjust Humidify setpoint. (0% - 60%)

- **Humidify with heat** - OFF  
  When this step is ON, Humidify will only run with a demand for heat.

- **Run fan when humidifying** - OFF  
  When this step is ON, the fan will run with a call for Humidification.

### • Dehumidification Settings

- **Dehumidify setpoint**  
  (99%)  
  Adjust Dehumidify setpoint. (25% - 99%)

- **Run A/C to dehumidify** - OFF  
  When this step is ON, the A/C system will be used for Dehumidification.

- **Maximum Overcool**  
  (0°)  
  This specifies how many degrees the A/C system will run past the cool setpoint to satisfy a demand for Dehumidification. (0 - 20 degrees F)

- **Reheat** - OFF  
  This turns on electric strip heat during an A/C to dehumidify demand to help maintain desired room temperatures. (Run A/C to dehumidify must be set to ON and the GAS ELEC Dip Switch must be set to ELEC - page 77 - to access this feature).

- **Dehumidify only when cooling** - ON  
  Run dehumidification only when HVAC calls for A/C.
Vacation or pressing the AWAY button, will use temporary, energy saving settings without changing the regular schedule. Pressing the HOME button will return the thermostat to normal comfort settings.

- **Clear Vacation Schedule**

Removes the stored vacation schedule.

- **Set Vacation Schedule**

Set your Vacation Schedule.

- **Start Date**  Tue Sep 07 2010

Select the day Vacation Mode will start.

Then press BACK

BACK

- **Start Time**  (9:00 AM)

Select the time Vacation Mode will start.

Then press BACK

Continued ➤
- Set Vacation Schedule

- Return Date: Tue Sep 21 2010

Select the day Vacation Mode will end.

Then press BACK

- Return Time: (3:00 PM)

Select the time Vacation Mode will end.

Then press BACK

- Settings while away

Select the desired Mode and setpoints to be used in Vacation/Away Mode.

- Mode: (Auto)

- Heat Setpoint: (50˚)

- Cool Setpoint: (85˚)
Main Menu Buttons - Security

- Auto Screenlock - OFF
  - Set Passcode
  - Lock After...
  - Allow fan/mode changes - NO
  - Allow setpoint changes - NO
  - Allow Home/Away changes - NO

- Setpoint Limits - OFF
  - Minimum Cool Setpoint
  - Maximum Heat Setpoint
Security settings may be set to limit or prevent changes to your thermostat.

**Auto Screenlock**

- **Auto Screenlock - OFF**
- **Auto Screenlock - ON**

**NOTE:** Code must be set before Auto Screenlock can be turned on.

- **Set Passcode** (code not set)

Use keypad to enter and confirm passcode.

When the thermostat is locked, the bottom bar of the display will show:

Press UNLOCK then enter passcode to access thermostat settings.

- **Lock After...** (5 m)

Set the time the screen will automatically lock after the last button press.

- **Allow fan/mode changes - NO**
- **Allow setpoint changes - NO**
- **Allow home/away changes - NO**

Choose to allow fan/mode, setpoint, and home/away changes when Auto Screenlock is on.

**Setpoint Limits**

Limits how high or low heating and cooling may be adjusted.
Main Menu Buttons - Information

- View Runtime Graphs
  - Last 7 Days - Cooling
  - Last 7 Days - Heating
  - Delete Runtime Data
- Who To Call For Service
Main Menu Buttons - Information

This button contains valuable service and system runtime information.

• View Runtime Graphs

Track your system’s runtime/energy usage.

• Last 7 Days - Cooling

Press the information icon to learn more about each graph.

• Last 7 Days - Heating

*NOTE: The runtime graphs are updated at 12:00 AM each day.

Press anywhere on the screen to return to the submenu.

• Delete Runtime Data

Press to delete your current equipment runtime information.

• Who To Call For Service

Your service company’s contact information may be displayed here.
Main Menu Buttons - Settings

- Thermostat Name
- Available Modes
  - All Modes Including Auto
  - Heat and Cool
  - Heat Only
  - Cool Only
- SD Card
  - Import Settings from SD Card
  - Export Settings to SD Card
- General Setup
  - Units
    - Fahrenheit
    - Celsius
  - Language
    - English
    - Spanish/Espanol
    - French/Francais
  - Smart Recovery - ON/OFF
  - Simple Thermostat - ON/OFF
- Automated Demand Response
- Installation Settings
  - Heat & Cool Stages
    - Heat & Cool Stages
    - Compressor Stages
    - Aux Heat Stages

Availability depends on Heat Pump dip switch settings.

(Continued next page)
Main Menu Buttons - Settings

- Installation Settings

- Timers & Deadbands
  - Cycles Per Hour
  - Min Heat/Cool Difference
  - Compressor Min Off Time
  - 1st Stage Deadband
  - 2nd Stage Deadband
    - 2nd Stage Deadband
    - 2nd Stage Timer
    - 2nd Stage Turnoff Point
      - Deadband
      - Setpoint
  - 3rd Stage Deadband
    - 3rd Stage Deadband
    - 3rd Stage Timer
    - 3rd Stage Turnoff Point
      - Deadband
      - Setpoint
  - 4th Stage Deadband
    - 4th Stage Deadband
    - 4th Stage Timer
    - 4th Stage Turnoff Point
      - Deadband
      - Setpoint

- Free Cooling
  - Free Cooling - On/Off
  - Usable Outdoor Temp
  - Mechanical Cooling? - Yes/No

(Continued next page)
Main Menu Buttons - Settings

- Installation Settings

- Heat Pump Settings
  - Heat Pump Lockout - Enabled/Disabled
  - HP Lockout Outdoor Temp
  - Aux Heat Lockout - Enabled/Disabled
  - Aux Heat Lockout Temp
  - Dual Fuel Settings
    - Dual Fuel - On/Off
    - Changeover With Outdoor - On/Off
    - Adjust Balance Point

- AUX Output Settings
  - AUX Output Usage
  - AUX Output Polarity

- Fan Off Delay

- Sensor Settings
  - Control Source
    - Thermostat Sensor Only
    - Wired Sensor Only
    - Average All Wireless Sensors
    - Average Wired/Thermostat
    - Average Wireless/Thermostat
    - Average all available Sensors
  - Wireless Sensors
    - Add New Sensor
    - Remote Sensor
  - Wireless Sensor Use
    - Use as outdoor sensor
    - Use as remote sensor
    - Use as supply sensor
    - Use as return sensor
  - Calibrate Sensors
    - Thermostat
    - Wired Sensor
    - Humidity

(Continued next page)
Main Menu Buttons - Settings

- Installation Settings
  - Test Outputs
  - Dealer Information
    - Dealer Name
    - Contact Name
    - Dealer Phone
    - Dealer Email
    - Dealer Website
  - Upgrade Firmware
  - Delete Custom Images
  - Factory Defaults
  - Restart Thermostat

(Continued)
Thermostat heating and cooling options are found in this menu.

**Thermostat Name**

Use keypad to name your thermostat. The name is displayed on the Home Screen.

(Up to 14 characters)

**Available Modes**

Choose the desired modes the thermostat will use: Heat, Cool, Heat & Cool, or Auto (All). For example, if you only have a heater, choose Heat, and only Heat & Off modes will be available. This will simplify the operation for the user.

**SD Card**

Import and export files to and from the thermostat. See the Touch Screen Assistant instructions for further details.

- Import Settings from SD Card
  - Upload files from CTA Assistant or another thermostat.

- Export Settings to SD Card
  - Export files from one thermostat and import them into others.

**General Setup**

- Units (F)
  - Fahrenheit (F)
  - Celsius (C)

*NOTE: A 2GB SD card is recommended. To import and export files, the SD card must contain the same version of the firmware as the thermostat.*
**Main Menu Buttons - Settings**

**General Setup**

- **Language** (en)
  - English
  - Spanish/Español
  - French/Français

**Smart Recovery**

- **Smart Recovery - OFF**
- **Smart Recovery - ON**
  
  Smart Recovery turns on the heat before the Morning start time to bring the room temperature to the Morning setpoint at the start of the Morning time period. Please allow 4-8 days for Smart Recovery time to adjust. When used with a heat pump, electric strip heat will be disabled while Smart Recovery is active.

**Simple Thermostat**

- **Simple Thermostat - OFF**
- **Simple Thermostat - ON**
  
  **Turn on Simple Thermostat for the most basic user interface.**

  When Simple Thermostat is on, alerts will appear in the top bar of the main screen. Press on the top yellow alert bar to view alerts.

**Note:** When using the Simple Thermostat Home Screen; the program schedule along with the HOME and AWAY features are unavailable.
Touch Screen 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.
Selecting the Overview tab of the ADR page will cause a summary of ADR events to be displayed.
Utility and Program setup must be done at the Skyport Cloud Services account. From the thermostat Home Screen, press the ‘Menu’ button, then select ‘Settings’.

From the above screen the ‘Automated Demand Response’ button is pressed.

By selecting ADR – On, the user can participate in ADR events triggered by their utility, or price dependent events.
Selecting the ‘Price Dependent Action’ button allows the user to determine what action is taken when the price rises above the set threshold.

In the above example; if the price threshold is exceeded, the thermostat will invoke the ‘Offset Setpoints’ configured for an ADR event until the event is over.

Please note that the Threshold price may only be set in the Skyport Cloud Services account.
The user may limit the maximum Cooling Setpoint.
The user may limit the minimum Heating Setpoint.
The user may adjust the ADR Cooling ‘static’ Setpoint.
The user may adjust the ADR Heating ‘static’ Setpoint.
The user may adjust the ADR Cool offset. During an ADR event the cooling setpoint will be adjusted by the amount of degrees configured in this step.
The user may adjust the ADR Heat offset. During an ADR event the heating setpoint will be adjusted by the amount of degrees configured in this step.
When an ADR event is pending, and hasn’t started yet, there will be a yellow leaf on the top bar. This will be accompanied by associated text as shown below.

During an ADR event there will be a green leaf on the top bar. This will be accompanied by associated text as shown below.
Main Menu Buttons - Settings - ADR

If a Warmer or Cooler button is pressed during an active ADR event, then the user is presented with this opt-out screen.

If a pricing triggered ADR event is enabled, there will be a green leaf on the top bar along with the actual cost of energy. This will be accompanied by associated text as shown below.
Main Menu Buttons - Settings

• Installation Settings

• Heat & Cool Stages (1h1c)

  • Heat & Cool Stages (1h1c)
  Up to 2 Stages Cooling and 4 stages Heating.

  • Compressor Stages (1h1c)
  Up to 2 compressors.

  • Aux Heat Stages (1h1c)
  0 to 2 stages of Aux Heating.

  Only available when dip switch is set for Heat Pump operation.

• Timers & Deadbands

  • Cycles Per Hour (6)
  At 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. (2, 3, 4, 5, 6, No Limit)

  • Min Heat/Cool Difference (2˚)
  The minimum gap between Heat and Cool setpoints. (0 - 6 deg. F)

  • Compressor Min OFF Time (5m)
  None, 3 minutes, or 5 minutes.
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** 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. For example, if the heat setpoint is 68° and the 1st Stage deadband is set to 2 degrees, the room temperature will need to drop to 66 degrees before the heat turns on.

**2nd Stage Deadband** Number of degrees past 1st stage before 2nd stage turns on. (0 - 10 deg. F)

**2nd Stage Timer** Number of minutes past 1st stage before 2nd stage turns on. (0 - 60 mins.) (The 2nd stage deadband must also be met)

**2nd Stage Turnoff Point** Deadband or Setpoint.

**3rd and 4th Stage Deadband** The 3rd and 4th stage deadband settings have the same adjustable steps as 2nd stage deadband.
Main Menu Buttons - Settings

• Installation Settings

• Free Cooling

Free Cooling requires additional dampers and duct work to be installed. Additionally, the thermostat is wired in a different manner for this feature to function properly. Before enabling this feature, please make sure these steps are completed.

• Free Cooling - DISABLED

• Free Cooling - ENABLED

Turns on Free Cooling.

• Usable Outdoor Temp

Free Cooling shuts off above this outdoor temperature. (40 - 80 degrees F)

• Mechanical Cooling? - NO

• Mechanical Cooling? - YES

If you don’t have a compressor, set Mechanical Cooling to “NO”, Y1 will then be used to control the Free Cooling Damper(s) and Y2 will be disabled. If set to “YES”, mechanical (compressor) cooling will be controlled by the Y2 terminal. (See page 67 for wiring diagram)

Mechanical air conditioning is turned on with a 2nd stage demand for cooling and the Free Cooling, outdoor air damper is closed.
Main Menu Buttons - Settings

• Installation Settings  ➤ (Continued)

• Heat Pump Settings  ➤

• Heat Pump Lockout - DISABLED  ➤

• Heat Pump Lockout - ENABLED

Turns on Heat Pump Lockout.

• HP Lockout Outdoor Temp  (65˚)

Heat Pump will not run below this temp. (20 - 75 deg. F)

• Aux Heat Lockout - DISABLED  ➤

• Aux Heat Lockout - ENABLED

Turns on Aux Heat Lockout.

• Aux Heat Lockout Temp  (65˚)

Aux Heat will not run above this temp. (0 - 75 deg. F) GAS/EL or HP dip switch must be set for HP and GAS or ELEC dip switch must be set for ELEC.

• Dual Fuel Settings  ➤

This feature is for heat pump applications only.
This will only appear if the GAS/EL or HP dip switch is set for HP and the GAS or ELEC dip switch is set for Gas.

When Dual Fuel is ON, an outdoor temperature or, if Change With Outdoor is set to OFF a demand for third stage heat will be used to stop running the heat pump and switch to a fossil fuel source of heat. NOTE: Once the change to fossil fuel is made, the heat demand must finish with fossil fuel. Additional heat demands within 10 minutes will also use fossil fuel, regardless of outdoor temperature or stage demand.

• Dual Fuel - ON/OFF

• Changeover With Outdoor - ON/OFF
  ON: Uses an outdoor sensor for changeover.
  OFF: Uses a third stage heat demand for changeover.

• Adjust Balance Point
  Choose the temperature for changeover to fossil fuel. (0 - 60 deg. F)
AUX Output Settings

Allows the W3/AUX output to be used for Heating, Humidification, or Dehumidification.

**AUX output usage** (W3)

**IMPORTANT:** Aux Output Usage must be set for Hum or Dehum before any settings will take effect in the Humidity Main Menu.

**AUX output polarity** (NO)

The AUX Output polarity may be set for Normally Open or Normally Closed to accommodate different types of humidification and dehumidification equipment.
Main Menu Buttons - Settings

- **Installation Settings** (Continued)

- **Fan Off Delay** (0s)
  Runs the fan for a short time after Cooling or electric strip heat turns off to increase system efficiency. (0 - 120 Secs.)

- **Sensor Settings**

  - **Control Sensor** (thermostat)
    When a remote sensor is connected to the thermostat, the user may choose which sensor source is used to measure room temperature.
    - Thermostat Sensor Only
    - Wired Sensor Only
    - Average All Wireless Sensors
    - Average Wired/Thermostat
    - Average Wireless/Thermostat
    - Average all available Sensors

  - **Wireless Sensors** (remote)
    The wireless sensor may be used as follows:
    - Add New Sensor
    - Remote Sensor

  - **Wired Sensor Use** (remote)
    The wired sensor may be used as follows:
    - Use as an Outdoor sensor
    - Use as a Remote Sensor
    - Use as a Supply Sensor
    - Use as a Return Sensor
Main Menu Buttons - Settings

- **Calibrate Sensors**

  The thermostat and wired sensor may be calibrated -7 to +7 degrees F. The integral humidity sensor may be calibrated -20% to +20% RH

  - Thermostat
  - Wired Sensor
  - Humidity

- **Test Outputs**

  The installer or service technician can use this feature to test the functions without any time delays of the thermostat.

  With a 1st stage cooling call, Y1 and G are active
Main Menu Buttons - Settings

• Dealer Information

A Dealer may enter their company contact information for the customer to use when they need service. This will appear when the “Who To Call For Service” button is pressed in the Information Menu.

Use the keyboard to enter your information.

- Dealer Name
- Contact Name
- Dealer Phone
- Dealer Email
- Dealer Website

• Upgrade Firmware

Press to upgrade the thermostat firmware. The SD Card must be in the thermostat SD Card reader and contain the valid firmware. If an error message appears, confirm with the Touch Screen Desktop APP that firmware is up to date or simply try reinserting the SD card.

If you are connected to Skyport Wi-Fi and you receive an Alert that new firmware is available, simply press the Upgrade Firmware button to upgrade wirelessly.

Note: Occasionally an update that requires a large amount of data is not possible to do wirelessly. In this case an update using an SD card will be required.

• Delete Custom Images

Press to delete the custom photos you uploaded to the thermostat.

• Factory Defaults

Press to reset the thermostat back to the factory settings.

• Restart Thermostat

If needed, press here to restart the thermostat.
Main Menu Buttons - Wi-Fi

- Wi-Fi Enabled
- Wi-Fi Status
- Wi-Fi Setup
  - Choose Network
  - Password Entry
- Local API Option
  - Local API - OFF
  - API Protocol
    - HTTP
    - HTTPS
Main Menu Buttons - Wi-Fi

• Wi-Fi Enabled

This option allows the wifi radio to be turned off or on.

• Wi-Fi Status

It is here that you will find helpful information regarding the connectivity status of your thermostat, including the thermostat’s ID.

• Wi-Fi Setup

Choose your network from the list and enter the network password.

If your network does not appear in the list, hit the refresh button.

• Local API Option

Turning on the local API allows 3rd party software to interface with your thermostat, such as a home automation system.
This is the default with the local API OFF.

- Local API - OFF
- API Protocol (http)

To turn on the HTTP Local API select **Local API**

- Local API - ON
- API Protocol (http)

Press **BACK** to return to previous screen.

If a Secure API is preferred, then select **API Protocol**

- Local API - OFF
- API Protocol (http)

Upon pressing **API Protocol**, the following screen will appear.

- HTTP
- HTTPS

Then select **HTTPS** and press **BACK**

- HTTP
- HTTPS
Upon pressing BACK, the screen will look like this.

- Local API - OFF
- API Protocol (https)
- Basic Auth User
- Basic Auth Password

Press Basic Auth User.

Select Basic Auth User, and enter the appropriate information on the screen below and press DONE to save.

Select Basic Auth Password as the next step.
Select **Basic Auth Password** and enter the appropriate information on the screen below and press **DONE** to save.

The last step is to turn the **Local API** as shown below.
Pressing this button will let you know if you are paired with a Skyport account. If not, then you may follow prompt and instructions to create an account and add the thermostat to the account.
The Emergency Heat function is only available if your thermostat is set to control a Heat Pump.

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 1st stage of heating and all stages of cooling will be unavailable. To exit Emergency Heat, press the Emergency Heat button.
The Touch Screen Assistant

Touch Screen Attendant may be downloaded at no charge at:

sfthermostats.com

Every time the user runs the Touch Screen Attendant software, it automatically connects to the SF Touch Screen Attendant website in the background and updates the software and firmware (the operating system for TSA) at no cost.

The Touch Screen Attendant allows you to use your computer to:

- Upload photos for background and slideshow images
- Program a time period schedule
- Configure installation settings
- Upload dealer and service contact information and company logo
- Update thermostat firmware
Uploading Photos and Settings to your thermostat

When you are finished adding and editing photos and settings, click on Save to SD. When prompted, remove the SD card from the SD card reader on your computer.

At the thermostat:
Insert the SD card into the SD Card Slot.

Press \[\text{MENU}\] then \[\text{▼}\]

Next, press \[\text{Settings}\]

Press \[\text{SD Card}\]

Then press \[\text{Import Settings from SD Card}\]

Select the items to import into your thermostat then press \[\text{NEXT}\]

Your thermostat will automatically save your new photos and settings.

*NOTE: A 2GB SD card is recommended.*
**Installations Instructions**

**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.

- 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. Additionally, we recommend taking a photo with your phone of the connections for future reference.

- 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, refer to the chart below or the wiring diagrams that follow.

<table>
<thead>
<tr>
<th>Wire from the old thermostat terminal marked</th>
<th>Function</th>
<th>Install on the new thermostat connector marked</th>
</tr>
</thead>
<tbody>
<tr>
<td>G or F</td>
<td>Fan</td>
<td>G</td>
</tr>
<tr>
<td>Y1, Y</td>
<td>Cooling</td>
<td>Y1</td>
</tr>
<tr>
<td>W1, W</td>
<td>Heating</td>
<td>W1/0/B</td>
</tr>
<tr>
<td>Rh, R, M, Vr, A</td>
<td>Power</td>
<td>R</td>
</tr>
<tr>
<td>C</td>
<td>Common</td>
<td>C</td>
</tr>
<tr>
<td>O/B</td>
<td>Rev. Valve</td>
<td>W1/O/B*</td>
</tr>
<tr>
<td>W2</td>
<td>2nd Stage Heat</td>
<td>W2</td>
</tr>
<tr>
<td>Y2</td>
<td>2nd Stage Cooling</td>
<td>Y2</td>
</tr>
<tr>
<td>W3</td>
<td>3rd Stage Heat</td>
<td>W3</td>
</tr>
<tr>
<td>OUT -</td>
<td>Outdoor Sensor</td>
<td>SENSOR</td>
</tr>
<tr>
<td>OUT +</td>
<td>Outdoor Sensor</td>
<td>SENSOR</td>
</tr>
</tbody>
</table>

* O/B is used if your system is a Heat Pump.
Before you go any further, determine what your existing wiring and equipment situation is.

A. If you have a **Heating only system** without Air Conditioning, the SF thermostat will require **3 wires**: R (24Vac), C (24Vac) and W (Heat). Most systems that only have Heating use very simple thermostats that require 2 wires: the R (24Vac) and W (Heat). The SF thermostat requires **3 wires** to the thermostat. In this case an Add-a-Wire accessory will not work and it will be necessary to install another wire for the C (24Vac) connection.

B. If you have a **single stage fossil fuel heater with air conditioning**, the SF model will require **5 wires** for independent fan control. They are R (24Vac), C (24Vac), W (Heat), Y (Cooling), and G (Fan). You may connect only 4 wires, as instructed in the “Making 4 Wires Work When 5 Wires Are Required” section on page 74.

If there are only 4 wires present that are connected to the existing thermostat, there are at least 3 options available to connect the SF thermostat:

1. Use the 4 wires as instructed in the “Making 4 Wires Work When 5 Wires Are Required” section on page 74, and note that the fan will only operate with a Heating or Cooling demand.
2. Pull new thermostat wire from the HVAC equipment to the thermostat so that there are at least 5 wires available.

C. If you have a **multi-stage HVAC system comprised of a fossil fuel heater with air conditioning**, the SF thermostat will require the 5 wires mentioned above (R, C, W, Y, G) plus an additional wire for each additional stage of Heating or Cooling. You may reduce the 5 wire requirement to 4 if you give up independent fan control following the instruction in the “Making 4 Wires Work When 5 Wires Are Required” section on page 53, or use the optional Add-A-Wire accessory.
D. If you have a heat pump without aux heat, the SF model will require 5 wires: R (24Vac), C (24Vac), W1/O/B (Reversing Value), Y (1st Stage Compressor), and G (Fan).

If you are short 1 wire, there are at least 3 options available to connect the SF thermostat:

1. Use the available wires as instructed in the “Making 4 Wires Work When 5 Wires Are Required” section on page 56 and note that the fan will only operate with a Heating or Cooling demand.

2. Pull new thermostat wire from the HVAC equipment to the thermostat so that there are at least 5 wires available.


E. If you have a heat pump with aux heat, the SF model will require 6 wires: R (24Vac), C (24Vac), W1/O/B (Reversing Value), Y (1st Stage Compressor), W2 (Aux Heat), and G (Fan).

If you are short 1 wire, there are at least 3 options available to connect the SF thermostat:

1. Use the available wires as instructed in the “Making 5 Wires Work When 6 Wires Are Required” section on page 57 and note that the fan will only operate with a Heating or Cooling demand.

2. Pull new thermostat wire from the HVAC equipment to the thermostat so that there are at least 6 wires available.

Making 4 Wires Work When 5 Wires Are Required

If you would like to install the SF thermostat using only 4 wires when 5 are required, follow the directions below. You will need a screwdriver along with a 3" long piece of thermostat wire to use as a jumper:

1. Make sure the power is off.

2. Label and disconnect wires at the thermostat. Please note the color and corresponding wire designator with each color. *For example: The R wire is red and the W wire is white and so on.* You will need this information handy for the next step at the HVAC equipment.

3. At the HVAC equipment end of the thermostat wires (usually at the furnace), locate the terminals that the wires are attached to.

4. Remove the “G wire” from the terminal marked G.

5. Place the “G wire” on terminal C.

6. Place one end of the 3" long jumper on terminal G.

7. Place the other end of the 3" long jumper on terminal Y. Please note that there will be more than 1 wire on terminal Y.

8. When connecting the wires to the SF thermostat, note that the wire that was previously connected to the G terminal of the old thermostat will now be required to be connected to the C terminal on the SF thermostat. **All other wires** will be connected such that the connections on **each end of the individual wires match terminal designations.** *For example: Connect the yellow wire on the thermostat end to the Y terminal on the thermostat. The yellow wire will be connected to the Y terminal on the HVAC equipment end also.*
Making 5 Wires Work When 6 Wires Are Required

If you have a system that requires 6 wires, and you would like to install the SF thermostat using only 5 wires, follow the directions below. You will need a screwdriver along with a 3" long piece of thermostat wire to use as a jumper:

1. Make sure the power is off.
2. Label and disconnect wires at the thermostat. Please note the color and corresponding wire designator with each color. For example: The R wire is red and the W wire is white and so on. You will need this information handy for the next step at the HVAC equipment.
3. At the HVAC equipment end of the thermostat wires (usually at the furnace), locate the terminals that the wires are attached to.
4. Remove the “G wire” from the terminal marked G.
5. Place the “G wire” on terminal C.
6. Place one end of the 3" long jumper on terminal G.
7. Place the other end of the 3" long jumper on terminal Y. Please note that there will be more than 1 wire on terminal Y.
8. When connecting the wires to the SF thermostat, note that the wire that was previously connected to the G terminal of the old thermostat will now be required to be connected to the C terminal on the SF thermostat. All other wires will be connected such that the connections on each end of the individual wires match terminal designations. For example: Connect the yellow wire on the thermostat end to the Y terminal on the thermostat. The yellow wire will be connected to the Y terminal on the HVAC equipment end also.
**Notice:**
The backplate does not fully cover a full size vertical junction box. The Touch Screen Wallplate (model SFTHATSWP) or a single-gang, horizontally mounted junction box would be needed for that type of installation.

---

**To remove the thermostat backplate:**
Using the Finger Pull Areas, pull the front housing away from the backplate.

---

<table>
<thead>
<tr>
<th>W3</th>
<th>3rd stage heat circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>W2</td>
<td>2nd stage heat circuit</td>
</tr>
<tr>
<td>W1/O/B</td>
<td>1st stage heat circuit</td>
</tr>
<tr>
<td>Y2</td>
<td>2nd stage compressor relay</td>
</tr>
<tr>
<td>Y1</td>
<td>1st stage compressor relay</td>
</tr>
<tr>
<td>G</td>
<td>fan relay</td>
</tr>
<tr>
<td>R</td>
<td>24 VAC return</td>
</tr>
<tr>
<td>C</td>
<td>24 VAC common</td>
</tr>
<tr>
<td>SENSOR</td>
<td>remote/outdoor/supply/return sensor connections</td>
</tr>
</tbody>
</table>

**Important:** This thermostat requires both R (24 VAC Return) and C (24 VAC Common) be connected to the backplate terminals.
Explanation of Thermostat Dip Switches

Dip switches are located on the back of the thermostat

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.*

*For some commercial heat pumps, this switch may need to be set for GAS/EL. Consult the commercial heat pump literature.

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.

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 using a Dual Fuel system, set this switch for GAS. When ELEC is chosen, up to two stages of auxiliary strip heat will be allowed to run.
## Installation Instructions

## Sample Wiring Diagrams with Dip Switch Positions

### Conventional Heating and Cooling Systems

#### 2 Wire, Heat Only
- Residential & Commercial 1 Stage Heating with no Fan.
- The thermostat will not work with 2 wires. Either pull new wire or purchase a model ACC0410 two-wire kit.

#### 3 Wire, Heat Only
- Residential & Commercial 1 Stage Heating with no Fan.

#### 4 Wire, Cool Only
- Residential & Commercial 1 Stage Cooling.

#### 5 Wire, 1 Stage Cooling, 1 Stage Heat
- Residential & Commercial 1 Stage Cooling, with 1 stage Gas Heat.

#### 5 Wire, 1 Stage Cooling, 1 Stage Heat
- Residential & Commercial 1 Stage Cooling, with 1 stage Electric Heat.

#### 8 Wire, 2 Stage Cooling, 3 Stage Heat
- Residential & Commercial 2 Stage Cooling, with 3 stage Gas Heat.

### Diagrams

- **GAS/EL**: Gas/Electric Switch
- **O**: On
- **OFF**: Off
- **HP**: Heat Pump
- **ELEC**: Electric
- **G**: Gas
- **24VAC**: 24 Volts AC

<table>
<thead>
<tr>
<th>Diagram</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Diagram" /></td>
<td>2 Wire, Heat Only</td>
</tr>
<tr>
<td><img src="image2.png" alt="Diagram" /></td>
<td>3 Wire, Heat Only</td>
</tr>
<tr>
<td><img src="image3.png" alt="Diagram" /></td>
<td>4 Wire, Cool Only</td>
</tr>
<tr>
<td><img src="image4.png" alt="Diagram" /></td>
<td>5 Wire, 1 Stage Cooling, 1 Stage Heat</td>
</tr>
<tr>
<td><img src="image5.png" alt="Diagram" /></td>
<td>5 Wire, 1 Stage Cooling, 1 Stage Heat</td>
</tr>
<tr>
<td><img src="image6.png" alt="Diagram" /></td>
<td>8 Wire, 2 Stage Cooling, 3 Stage Heat</td>
</tr>
</tbody>
</table>
Sample Wiring Diagrams with Dip Switch Positions

Heat Pump Systems

5 Wire, 1 Stage Cooling, 1 Stage Heat
Residential & Commercial Heat Pump with 'O' Reversing Valve

<table>
<thead>
<tr>
<th>R</th>
<th>24VAC Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>24VAC Common</td>
</tr>
<tr>
<td>W1/O/B</td>
<td>Reversing Valve</td>
</tr>
<tr>
<td>Y1</td>
<td>1st Stage Compressor (Cool or Heat)</td>
</tr>
<tr>
<td>G</td>
<td>Fan</td>
</tr>
</tbody>
</table>

6 Wire, 1 Stage Cooling, 2 Stage Heat
Residential & Commercial Heat Pump with 'O' Reversing Valve

<table>
<thead>
<tr>
<th>R</th>
<th>24VAC Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>24VAC Common</td>
</tr>
<tr>
<td>W1/O/B</td>
<td>Reversing Valve</td>
</tr>
<tr>
<td>Y1</td>
<td>1st Stage Compressor (Cool or Heat)</td>
</tr>
<tr>
<td>W2</td>
<td>Aux Heat</td>
</tr>
<tr>
<td>G</td>
<td>Fan</td>
</tr>
</tbody>
</table>

7 Wire, 2 Stage Cooling, 3 Stage Heat
Residential & Commercial Heat Pump with 'O' Reversing Valve

<table>
<thead>
<tr>
<th>R</th>
<th>24VAC Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>24VAC Common</td>
</tr>
<tr>
<td>W1/O/B</td>
<td>Reversing Valve</td>
</tr>
<tr>
<td>W2</td>
<td>3rd Stage Heat</td>
</tr>
<tr>
<td>Y1</td>
<td>1st Stage Compressor (Cool or Heat)</td>
</tr>
<tr>
<td>Y2</td>
<td>2nd Stage Compressor (Cool or Heat)</td>
</tr>
<tr>
<td>G</td>
<td>Fan</td>
</tr>
</tbody>
</table>

8 Wire, 2 Stage Cooling, 4 Stage Heat
Residential & Commercial Heat Pump with 'O' Reversing Valve

<table>
<thead>
<tr>
<th>R</th>
<th>24VAC Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>24VAC Common</td>
</tr>
<tr>
<td>W1/O/B</td>
<td>Reversing Valve</td>
</tr>
<tr>
<td>W2</td>
<td>3rd Stage Heat</td>
</tr>
<tr>
<td>W3</td>
<td>4th Stage Heat</td>
</tr>
<tr>
<td>Y1</td>
<td>1st Stage Compressor (Cool or Heat)</td>
</tr>
<tr>
<td>Y2</td>
<td>2nd Stage Compressor (Cool or Heat)</td>
</tr>
<tr>
<td>G</td>
<td>Fan</td>
</tr>
</tbody>
</table>

(Number of Compressor Stages set to 2)
Installation Instructions

Sample Wiring Diagrams with Dip Switch Positions
Heat Pump Systems with Dual Fuel

7 Wire, 2 Stage Cooling, 3 Stage Heat

<table>
<thead>
<tr>
<th>24VAC Power</th>
<th>24VAC Common</th>
<th>Reversing Valve</th>
<th>3rd Stage Heat (connected to furnace)</th>
<th>1st Stage Compressor (Cool or Heat)</th>
<th>2nd Stage Compressor (Cool or Heat)</th>
<th>Fan</th>
</tr>
</thead>
</table>

Use 18-22 gauge thermostat wire.

Free Cooling utilizes the Y1 terminal for the operation of 1st stage cooling. If mechanical (compressor) cooling is also present, the mechanical cooling is connected to the Y2 terminal in this instance.

Free Cooling may be used with a Gas/Electric or Heat Pump system.

Sample Wiring Diagrams


Use 18-22 gauge thermostat wire.
Sample Wiring Diagrams

**Humidification**

AUX Output Usage must be set for Hum

Use 16-24 gauge thermostat wire.

**Dehumidification**

AUX Output Usage must be set for Dehum

Use 16-24 gauge thermostat wire.
Troubleshooting

• **SYMPTOM:** The thermostat touchscreen buttons are not responsive.  
  **CAUSE:** The touchscreen is out of calibration.  
  **REMEDY:** Remove the thermostat from the backplate. Push the thermostat back onto the backplate, while keeping your finger pressed firmly against the center of the touchscreen, until the Calibration screen appears. Re-calibrate the touchscreen. *See Touch Calibration section of full user’s manual (page 22).*

• **SYMPTOM:** The display is blank.  
  **CAUSE:** Lack of proper power.  
  **REMEDY:** Make sure the power is on to the HVAC and that you have 24vac between **R & C**.

• **SYMPTOM:** The air conditioning does not attempt to turn on.  
  **CAUSE:** The cooling setpoint is set too high.  
  **REMEDY:** Lower the cooling setpoint or lower the cooling set-point limit. *See Setpoint Limits (page 31).*

• **SYMPTOM:** The heating does not attempt to turn on.  
  **CAUSE:** The heating setpoint is set too low.  
  **REMEDY:** Raise the heating setpoint or raise the heating set-point limit. *See Setpoint Limits (page 31).*

• **SYMPTOM:** When controlling a residential heat pump, and asking for cooling, the heat comes on.  
  **CAUSE:** The thermostat reversing valve dip switch 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 dip switch is configured for “HP” and the HVAC unit is a Gas/Electric.  
  **REMEDY:** Set the equipment dip switch for “Gas”.

• **SYMPTOM:** Air handler control board fuse blows when thermostat is attached to backplate with power on, but does not blow until the thermostat is placed onto the backplate.  
  **CAUSE:** The Outdoor sensor and/or sensor wiring is shorted.  
  **REMEDY:** Check/replace Outdoor sensor and/or sensor wiring.
**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.


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.