

VENSTAR®

RESIDENTIAL MODEL T7900

High Resolution, Touch Screen
Digital Thermostat
with Humidity Control



ColorTouch®

Owner's Manual & Installation Guide



CAUTION

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 Venstar, is likely to result in interference to radio and TV reception. Changes or modifications to the product, not expressly approved by Venstar 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 isotrope rayonnée équivalente (PIRE) ne est pas plus de ce qui est nécessaire pour une communication réussie.

We, Venstar, 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. 4.04. Firmware releases after rev. 4.04 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 4.04.



FCC ID: MUH-SKYPORT15
IC: 12547A-SKYPORT2



Industry
Canada

Industrie
Canada

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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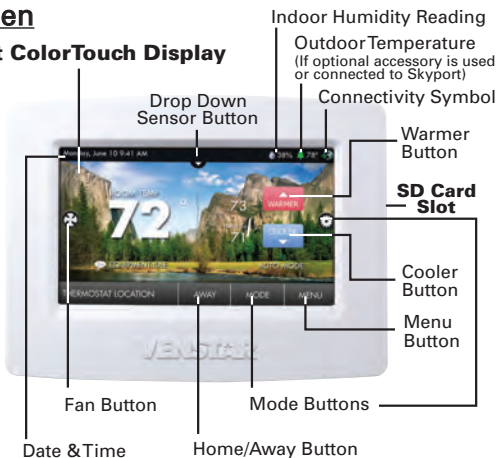
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Get To Know Your Thermostat

Home Screen

Backlit ColorTouch Display

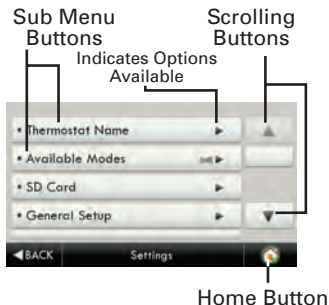
Connectivity Symbol Table	
	Not connected to Wi-Fi
	Connected to local access point w/IP address without Skyport enabled
	Connected to local access point w/IP address, but not yet connected to Skyport
	Connected to Skyport



Main Menu Screen



Sub Menu Screen



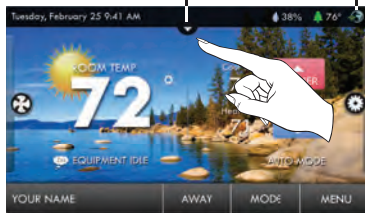
Get To Know Your Thermostat

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

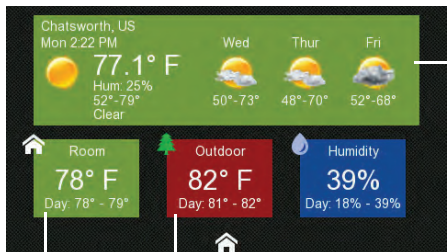


Connectivity Symbol Table

	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)



Weather Display

Chatsworth, US
Mon 2:22 PM

77.1° F
Hum: 25%
52°-79°
Clear

Wed 50°-73°
Thur 48°-70°
Fri 52°-68°

Room 78° F
Day: 78° - 79°

Outdoor 82° F
Day: 81° - 82°

Humidity 39%
Day: 18% - 39%

Press the HOME button to return to the Home Screen

Get To Know Your Thermostat

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.

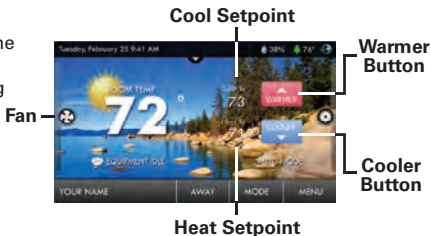
Quick Start - Temperature, Modes & Fan

Selecting Your Desired Temperature and Mode

Press  or  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  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.

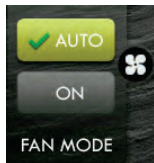


Using the Fan Button

Press the  FAN Icon

FAN ON fan runs constantly even in OFF Mode.

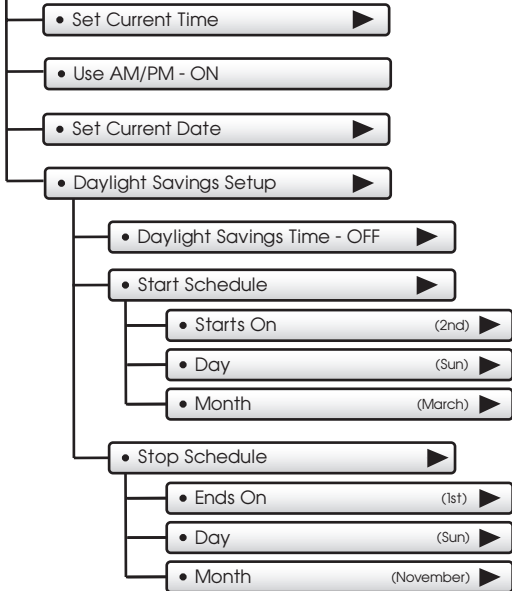
FAN AUTO fan only runs with a heating or cooling demand.



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   and   to set the current time.

Press  when finished.

Choose

• Use AM/PM - ON 

For 12 hour AM/PM clock


• Use AM/PM - OFF 

For 24 hour clock

Press  when finished.

Quick Start - Set Time & Date

Setting the Date

• Set Current Date 6/1/2013 ▶  Press

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

Press the day on the calendar

Su	Mo	Tu	We	Th	Fr	Sa
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
1	2	3	4	5	6	7

◀ ▶

Press ◀ BACK when finished.

• Daylight Savings Setup ▶

Turn Daylight Savings Time on or off.

• Daylight Savings Time - OFF

• Daylight Savings Time - ON 

Adjust when Daylight Savings Time begins.

• Start Schedule

Adjust when Daylight Savings Time ends.

• Starts On (2nd) ▶

• Day (Sun) ▶

• Month (March) ▶

Press ◀ BACK

after making a change to a selection.

• Stop Schedule ▶

• Ends On (1st) ▶

• Day (Sun) ▶

• Month (November) ▶

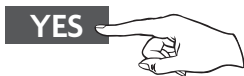
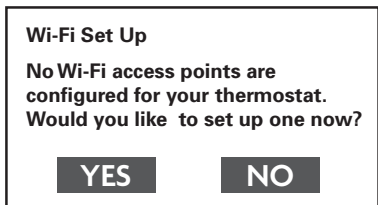
Press ◀ BACK

or the Home button when finished.

Quick Start - Connect to Wi-Fi

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:



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.

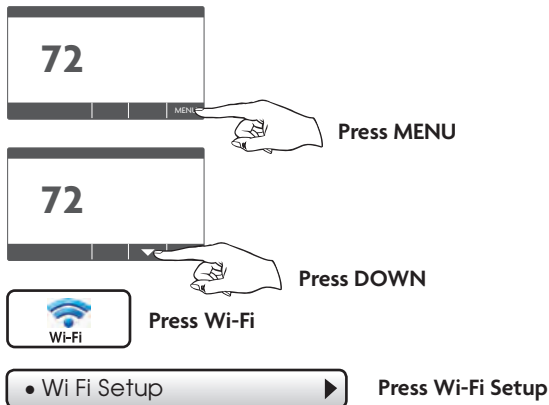


Select **OK**, then the Wi-Fi status page will appear. Upon closing of the Wi-Fi status page, you will be asked to join the thermostat to a Skyport account.



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)



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.

Quick Start - Connect to Wi-Fi (from menus)

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.



Scroll down



Select Skyport



Select Skyport Account and follow the onscreen instructions.

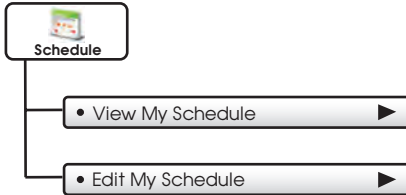


1. Open your browser to: <https://venstar.skyportcloud.com>
2. Select "Create account now"



3. Follow on screen instructions to create an account and add a thermostat to the Skyport account.

Main Menu Buttons - Schedule



Main Menu Buttons - Schedule



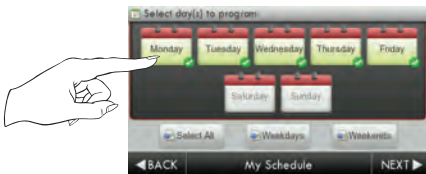
Schedule

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**



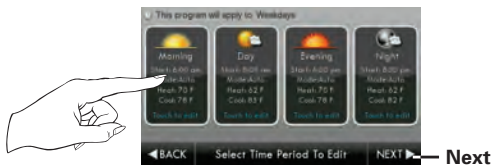
Continued

Main Menu Buttons - Schedule

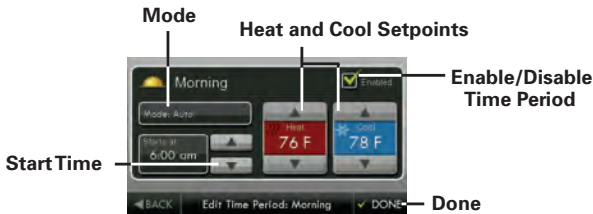
• Edit My Schedule

(Continued)

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



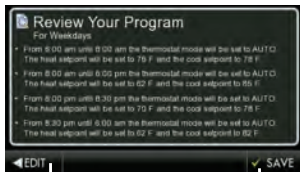
Adjust Mode, Start Time, and Heat and Cool Setpoints to desired settings. The Time Period may also be Enabled or Disabled. Un-check the Enabled box for Time Periods you don't want to use. Press **DONE** when finished.



When you are finished editing the four time periods press



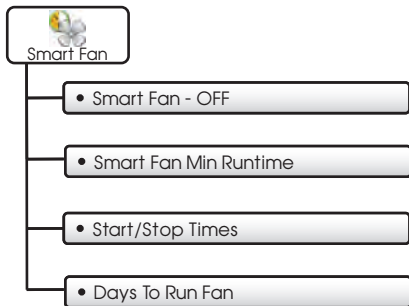
Review your program.
Press **SAVE** to keep your program.
Press **EDIT** to make further changes.



Edit

Save

Main Menu Buttons - Smart Fan



Main Menu Buttons - Smart Fan



Smart 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

(10m) ▶

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 StartTime to Stop time. (5 - 60 mins.)

• Start/Stop Times

(7:00AM - 9:00PM) ▶

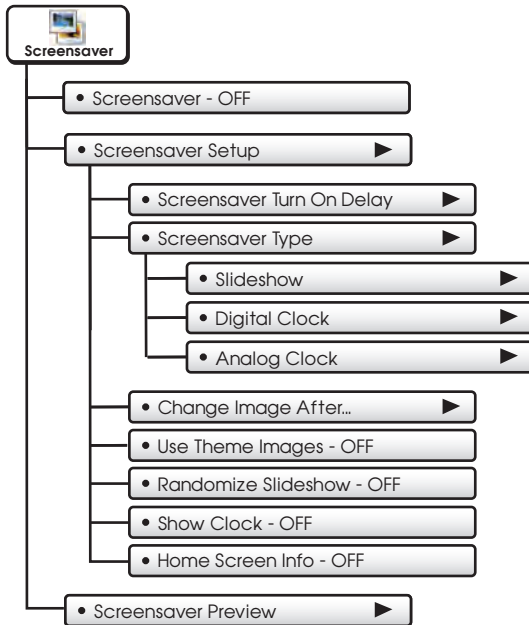
Set when the Smart Fan schedule will start and stop. For example, you may not want Smart Fan to run during sleeping hours.

• Days To Run Fan



Choose which days of the week Smart Fan will run.

Main Menu Buttons - Screensaver



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 

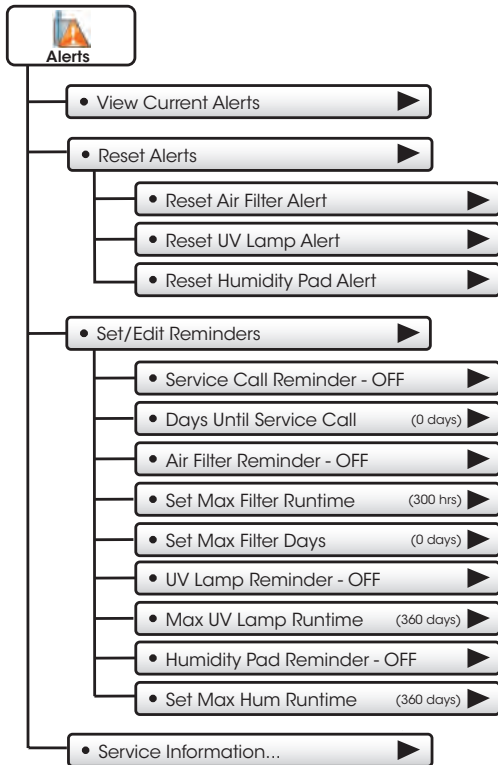
Shows the mode, setpoints, and temperature after every 10 photos. Off or On.

• Screensaver Preview 

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



Main Menu Buttons - Alerts



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)

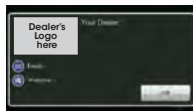
• Set Max Filter Days (300 days)

• UV Lamp Reminder - OFF

• Set Max UV Lamp Runtime (300 days)

• Humidity Pad Reminder - OFF

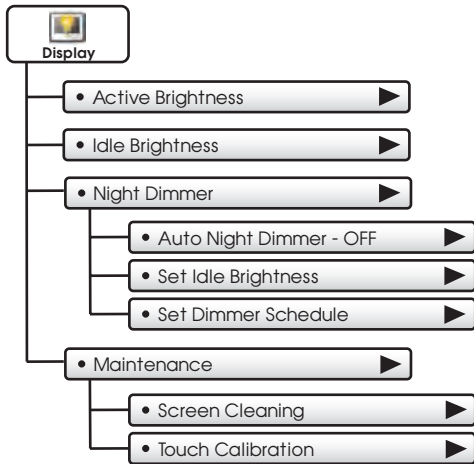
• Set Max Hum Runtime (300 days)



• Service Information...

View your service company's contact information.

Main Menu Buttons - Display



Main Menu Buttons - Display



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.

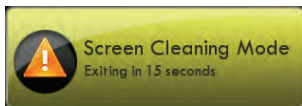
Main Menu Buttons - Display

• 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.

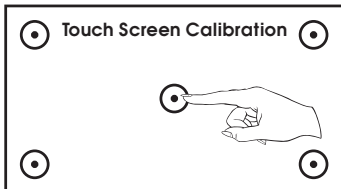


Use a soft cloth without solvents or abrasive cleaners

• Touch Calibration

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

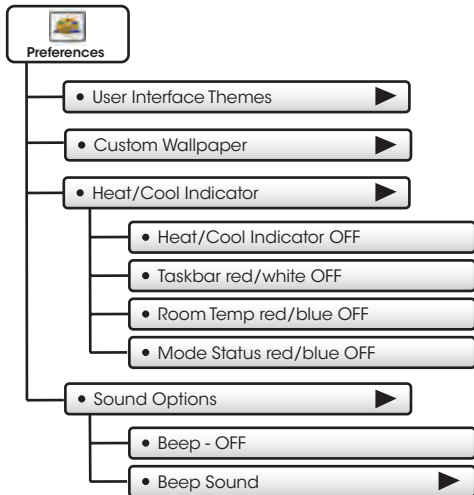
Touch and hold the center of the targets as they appear on the screen for 3 seconds.



Press **FINISH** when done.

When calibration is complete, the thermostat will automatically restart and return to the Home Screen.

Main Menu Buttons - Preferences



Main Menu Buttons - Preferences



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 and the moon will replace the sun. 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
- Room Temp Red/Blue - ON/OFF
- Taskbar Red/White - ON/OFF
- Mode Status Red/Blue - ON/OFF

• Sound Options ▶

• Beep - ON

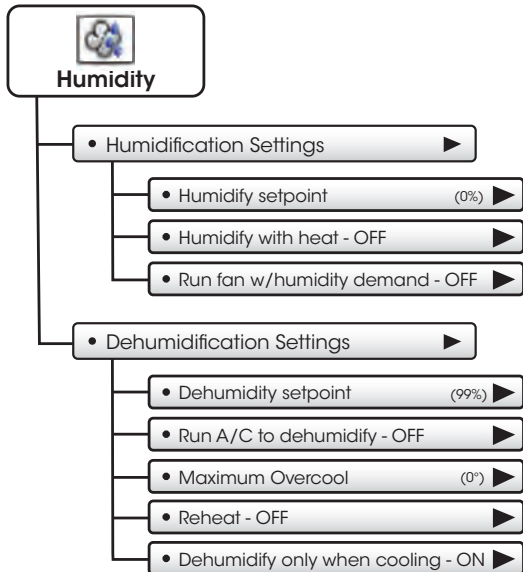
• Beep - OFF

Turn the beep sound on or off.

• Beep Sound (Beep 1) ▶

Choose from different beep sounds.

Main Menu Buttons - Humidity



Main Menu Buttons - Humidity



Humidity

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 39.*

• 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 - OFF ▶

When this step is ON, the fan will run with a call for Humidification.

• Dehumidification Settings

• Dehumidify setpoint ▶

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)

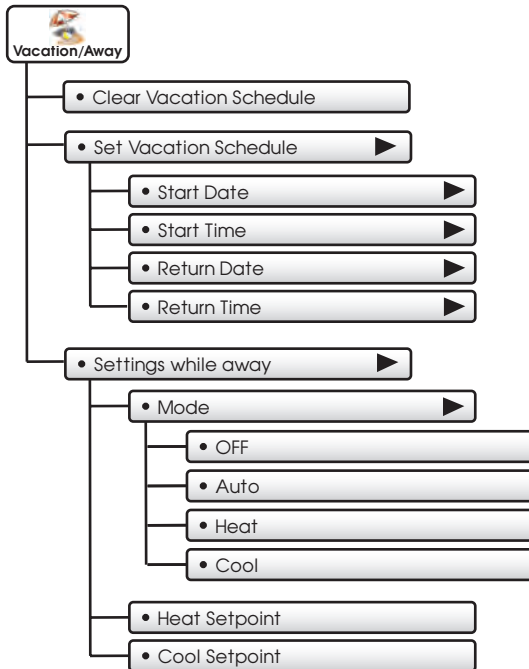
• Reheat - OFF ▶

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 52 - to access this feature.)

• Dehumidify only when cooling - ON ▶

Run dehumidification only when HVAC calls for A/C

Main Menu Buttons - Vacation/Away



Main Menu Buttons - Vacation/Away



Vacation/Away

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 **▶**

Main Menu Buttons - Vacation/Away

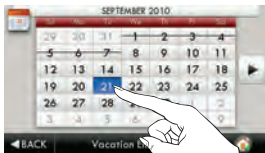
• Schedule ▶

(Continued)

• 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 ▶

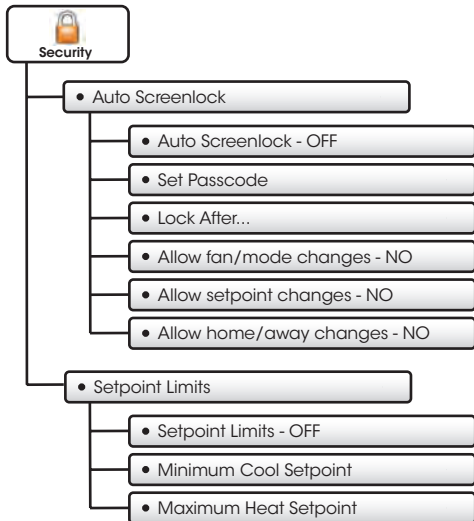
Select the desired Mode and setpoints to be used in Vacation/Away Mode.

• Mode (Auto) ▶

• Heat Setpoint (50°) ▶

• Cool Setpoint (85°) ▶

Main Menu Buttons - Security



Main Menu Buttons - Security



Security settings may be set to limit or prevent changes to your thermostat.


• Auto Screenlock

- Auto Screenlock - OFF
- Auto Screenlock - ON ✓
- Set Passcode (code not set)

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

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

Choose to allow fan/mode changes when Auto Screenlock is on.

- Allow setpoint changes - NO

Choose to allow setpoint changes when Auto Screenlock is on.

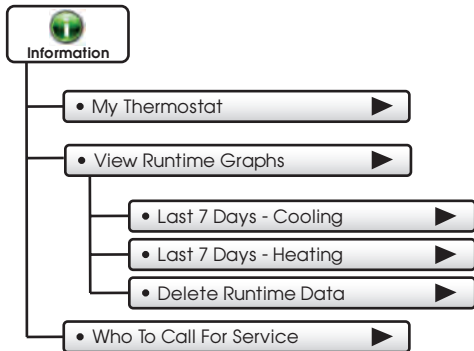
- Allow home/away changes - NO

Choose to allow use of the Home and Away button when Auto Screenlock is on.

• Setpoint Limits

Limits how high or low heating and cooling may be adjusted.

Main Menu Buttons - Information



Main Menu Buttons - Information



This button contains valuable service and system runtime information.

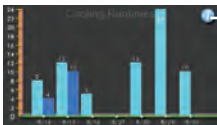
• My Thermostat ▶

View your thermostat dip switch settings, equipment status, runtimes, and other settings.

• 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.

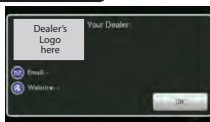
Press anywhere on the screen to return to the submenu.

• Delete Runtime Data ▶

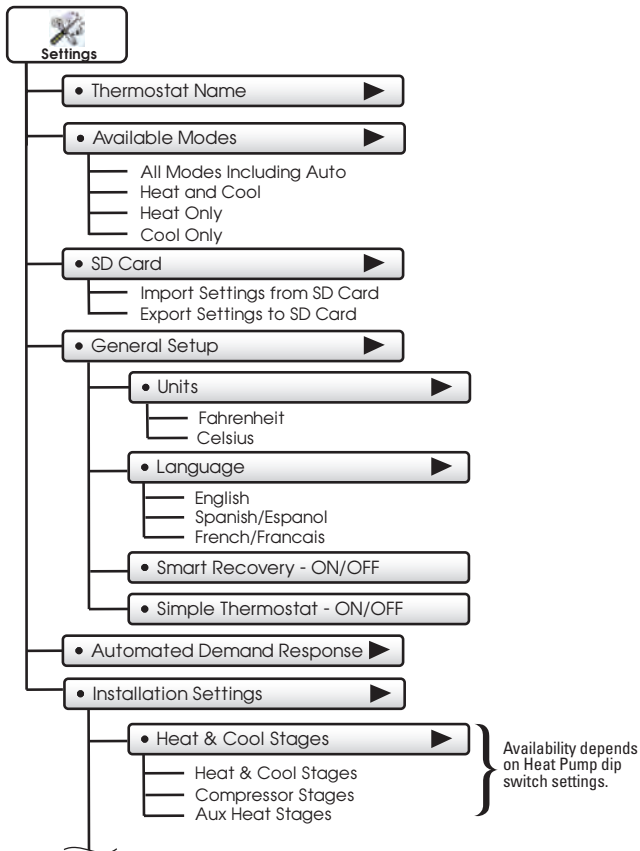
Press to delete your current equipment runtime information.

• Who To Call For Service ▶

Your service company's contact information may be displayed here.

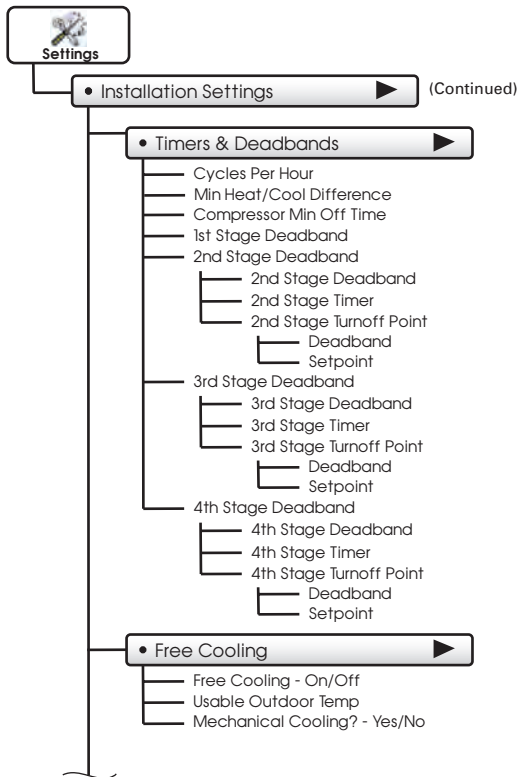


Main Menu Buttons - Settings



(Continued next page)

Main Menu Buttons - Settings



(Continued next page)

Main Menu Buttons - Settings



• Installation Settings ▶

(Continued)

• 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 Sensor

Thermostat Sensor Only

Wired Sensor Only

Average Wired/Thermostat

Wired Sensor Use

Use as Outdoor Sensor

Use as Remote Sensor

Use as Supply Sensor

Use as Return Sensor

Calibrate Sensors

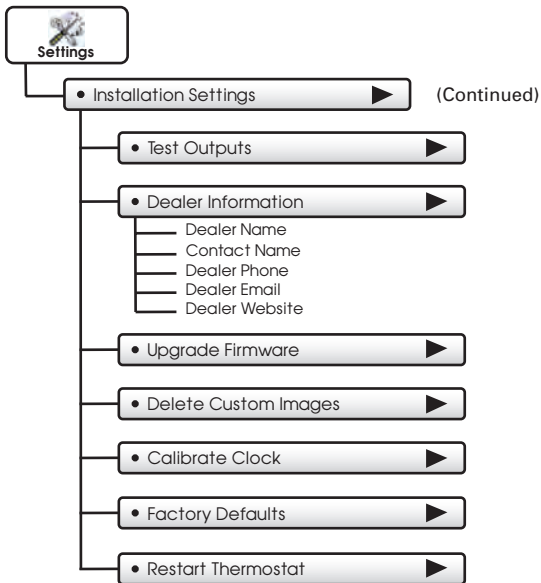
Thermostat

Wired Sensor

Humidity

(Continued next page)

Main Menu Buttons - Settings



Main Menu Buttons - Settings



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)

Name appears here



• Available Modes (all)

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 **ColorTouch Assistant** instructions for further details.

• Import Settings from SD Card

Upload files from ColorTouch Assistant or another thermostat.

• Export Settings to SD Card

Export files from one thermostat and import them into others.

***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. ColorTouch Assistant will keep the firmware current.

• General Setup

• Units (F)

- Fahrenheit (F)
- Celsius (C)

Main Menu Buttons - Settings

• General Setup

(Continued)

• Language

(en) ▶

- English
- Spanish/Español
- French/Français

• 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 - 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 SimpleThermostat Home Screen; the program schedule along with the **HOME** and **AWAY** features are unavailable.

Main Menu Buttons - Settings

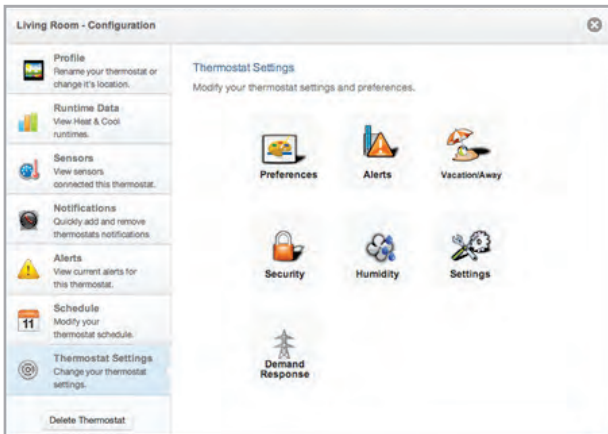
- Automated Demand Response ►

Overview

ColorTouch 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.



Main Menu Buttons - Settings

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.

The selected utility will provide a Program ID.

The Account ID would normally be the occupants utility account number.

The screenshot displays the 'Living Room - Configuration' interface. On the left is a sidebar menu with options: Profile, Runtime Data, Sensors, Notifications, Alerts, Schedule, and Thermostat Settings. The main content area is titled 'Automated Demand Response' and has two tabs: 'Configuration' (selected) and 'Overview'. The 'Configuration' tab shows a 'Demand Response' toggle set to 'ON'. Below this are fields for 'Select Utility' (LADWP), 'Program Id' (test-program), and 'Account Id' (1234). To the right, there are sections for 'Min & Max Settings', 'Static Settings', 'Offset Settings', and 'Price Settings'. The 'Min & Max Settings' section includes 'Event Max Cool Setpoint' (65°F) and 'Event Min Heat Setpoint' (65°F). The 'Static Settings' section includes 'Static Cool Setpoint' (78°F) and 'Static Heat Setpoint' (65°F). The 'Offset Settings' section includes 'Cool Setpoint Offset' (+2) and 'Heat Setpoint Offset' (-2). The 'Price Settings' section includes 'Price Trigger' (45) and 'Price Dependent Action' (Observe Setpoint Offsets). At the bottom of the configuration window are 'Cancel' and 'Save' buttons.

Main Menu Buttons - Settings

The right column of the ADR configuration page is where the occupant adjusts the operational parameters for ADR. The utility may send up to 3 types of ADR signals to Skyport. These are:

1) Pricing for the cost of energy, **2) An Offset** to the occupants' comfort setpoints, and **3) a signal** to enforce discrete or Static setpoints.

The Maximum Cooling Setpoint and Minimum Heating Setpoints for ADR events are adjusted here.

The Static Settings are applied when the utility sends a signal to allow the occupant to enforce their own discrete temperature settings during an ADR event.

The Offset Settings allow the utility to modify the Cool or Heat setpoints by the value set here during an ADR event.

A Price Trigger setting allows the occupant to set the maximum cost of energy threshold. When this threshold is exceeded the Price dependent action is enforced. This Price Trigger and Dependent action is enforced independent of an ADR event, as long as the utility sends 'real-time' pricing.

The screenshot displays the 'Living Room - Configuration' interface. On the left is a sidebar menu with options: Profile, Runtime Data, Sensors, Notifications, Alerts, Schedule, Thermostat Settings, and Delete Thermostat. The main content area is titled 'Automated Demand Response' and has two tabs: 'Configuration' (selected) and 'Overview'. The 'Demand Response' toggle is currently 'ON'. Below this, there are fields for 'Select Utility' (LADWP), 'Program Id' (test-program), and 'Account Id' (1234). To the right, there are several settings sections: 'Min & Max Settings' with 'Event Max Cool Setpoint' at 85°F and 'Event Min Heat Setpoint' at 65°F; 'Static Settings' with 'Static Cool Setpoint' at 78°F and 'Static Heat Setpoint' at 65°F; 'Offset Settings' with 'Cool Setpoint Offset' at +2 and 'Heat Setpoint Offset' at -2; and 'Price Settings' with 'Price Trigger' at 45 and 'Price Dependent Action' set to 'Observe Setpoint Offsets'. At the bottom, there are 'Cancel' and 'Save' buttons.

Main Menu Buttons - Settings

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

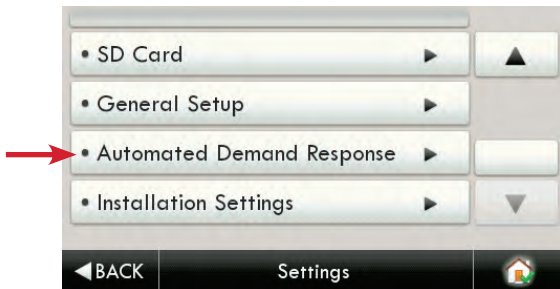
The screenshot displays the 'Living Room - Configuration' window. On the left is a sidebar menu with the following items: Profile, Runtime Data, Sensors, Notifications, Alerts, Schedule, and Thermostat Settings. The 'Thermostat Settings' item is selected. Below the menu is a 'Delete Thermostat' button. The main content area shows the 'Automated Demand Response' (ADR) window with two tabs: 'Configuration' and 'Overview'. The 'Overview' tab is active, displaying a table of ADR events. At the bottom of the ADR window are 'Cancel' and 'Save' buttons. Below the ADR window, the main menu buttons for Security, Humidity, and Settings are visible, along with a 'Demand Response' icon.

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

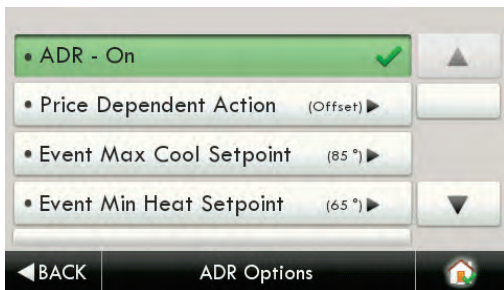
Main Menu Buttons - Settings

- Automated Demand Response ▶

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.

Main Menu Buttons - Settings



Selecting the 'Price Dependent Action' button allows the user to determine what action is taken when the price rises above the set threshold.

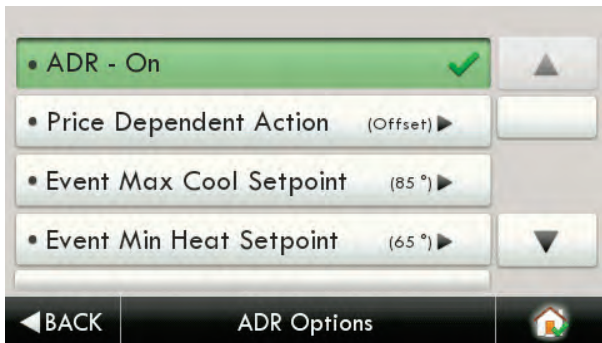


In the above example; if the price threshold is exceeded, the thermostat will invoke the 'Offset Setpoints' configured for an ADR event until the event is over.

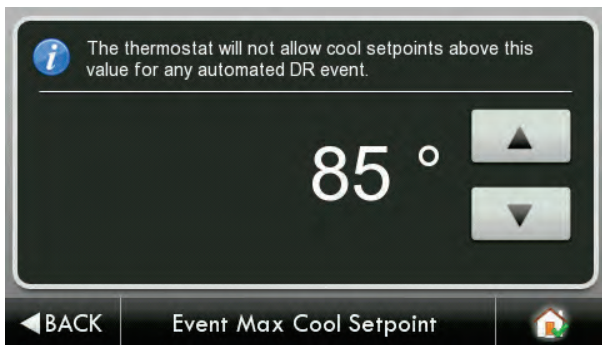
Please note that the Threshold price may only be set in the Skyport Cloud Services account.

Selecting 'Skip Event' will take no action when the set price threshold is exceeded.

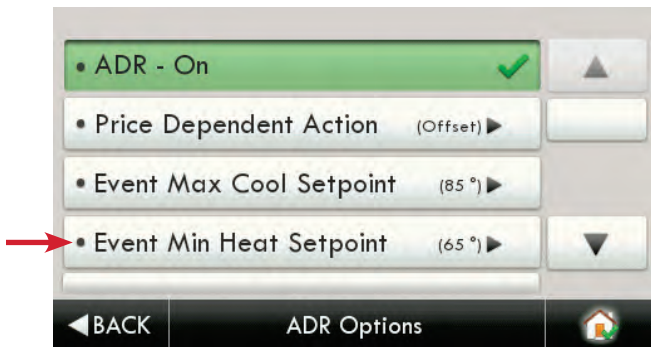
Main Menu Buttons - Settings



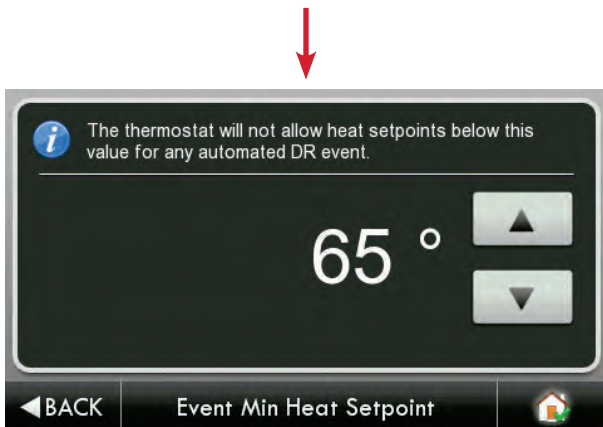
The user may limit the maximum Cooling Setpoint.



Main Menu Buttons - Settings



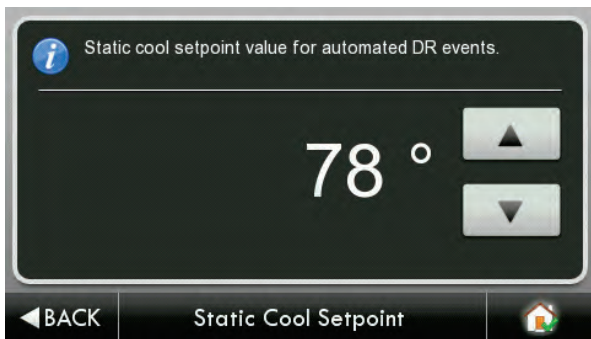
The user may limit the minimum Heating Setpoint.



Main Menu Buttons - Settings



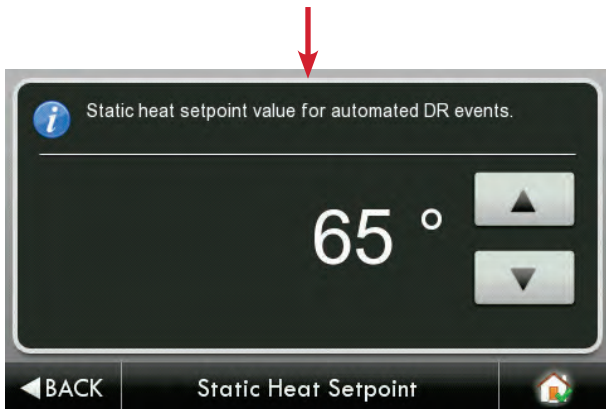
The user may adjust the ADR Cooling 'static' Setpoint.



Main Menu Buttons - Settings



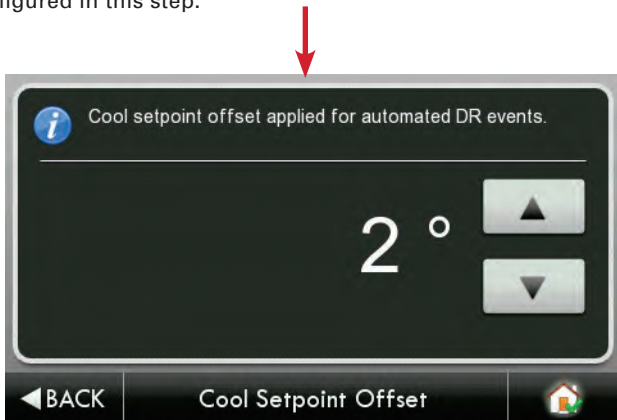
The user may adjust the ADR Heating 'static' Setpoint.



Main Menu Buttons - Settings



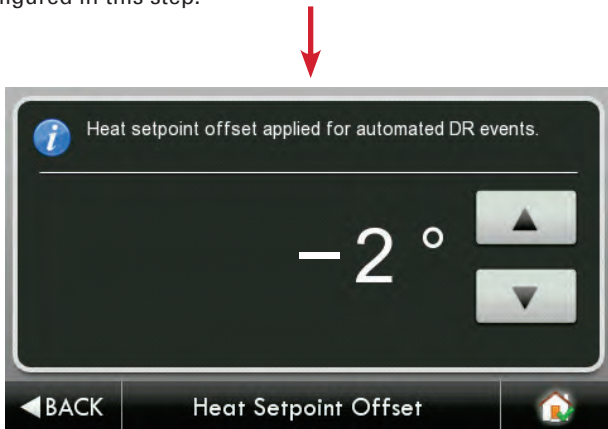
The user may adjust the ADR Cool offset. During an ADR event the cooling setpoint will be adjusted by the amount of degrees configured in this step.



Main Menu Buttons - Settings



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.



Main Menu Buttons - Settings

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.

