

TrueTouch™

Touch-Screen Thermostat



INSTRUCTION MANUAL

TSZ-1

2 HEATING + 1 COOLING

DUAL FUEL READY

**5 YEAR
LIMITED
WARRANTY***



Innovation made simple...SM

WIRELESS OUTDOOR TEMPERATURE TRANSMITTER AND RECEIVER KIT

Part No. TOS



***Accurately displays
current Outdoor Temperature
and enables Dual Fuel capability
on the TrueTouch™ Thermostat***

Wireless Outdoor Temperature
Transmitter and Receiver Kit Includes:
Transmitter
Antenna
Receiver Module
2 AA Batteries



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CYCLE RATE - Cycle rate is the frequency that heating or cooling equipment is turned on during a certain period of time. Cycle rate is often given in units of cycles per hour (CPH).

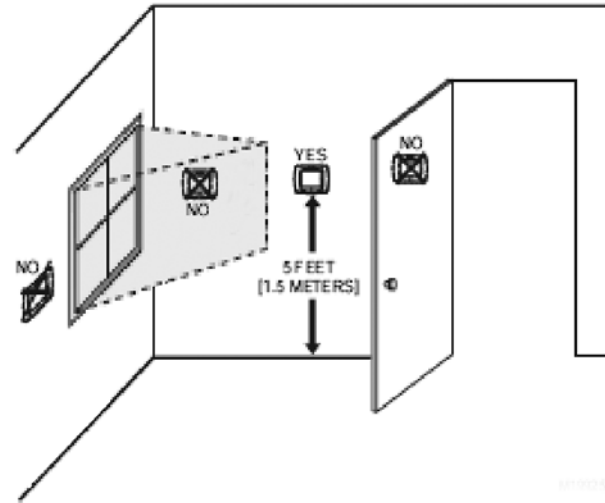
DIFFERENTIAL - Differential is defined as the difference between the cut-in and cut-out points as measured at the thermostat under specified operating conditions. For example, if the thermostat turns the heating equipment on at 70 degrees F and turns the heating equipment off at 74 degrees F, then the differential is 4 degrees F.

PROGRAMMABLE THERMOSTAT - A thermostat with the capability of automatically adjusting temperature set point to pre-selected settings at pre-selected times.

SETBACK - The automatic alteration of the thermostat control point(s) by means other than manually changing the temperature set point.

SET POINT - The desired temperature setting on an electromechanical or electronic thermostat.

Install your TrueTouch™ thermostat approximately 5 feet (1.5 meters) above the floor in an area with good air circulation.



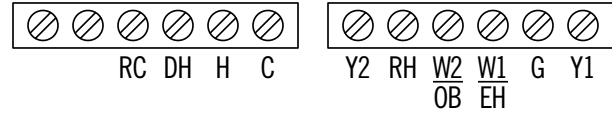
Avoid the following locations:

- Hot or cold air from ducts
- Radiant heat for appliances or sun such as a skylight
- Unheated or uncooled areas: for example an outside wall behind the thermostat.
- Ensure that there is no furniture directly below or beside the thermostat.

MOUNTING THERMOSTAT TO THE WALL

1. Make sure to turn off the power supply located at the electrical service panel. All heating and cooling units should be OFF.
2. Separate the backplate from the thermostat by grasping the unit firmly at the bottom lip and pulling gently until the two pieces are apart.
3. Align the backplate to the wall.
4. Mark the three locations for drilling the 3/16" holes required for the plastic screw anchors.
5. Remove the backplate and drill the three 3/16" holes in these locations.
6. Insert the plastic gyproc screws and ensure that they are snug in the wall.
7. Securely mount the backplate to the wall with the 3 supplied screws.
8. Make the appropriate wire connections based on the specifications of the household HVAC unit(s). Please refer to Wiring Table to determine the appropriate wire connections.
9. Place the thermostat on the backplate by firmly but gently from the top aligning the pins with the screw terminals.
10. Turn on the electricity at the electrical service panel.

WIRING LEGEND

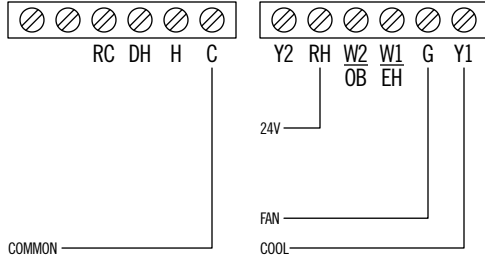


TERMINAL	EQUIPMENT	STANDARD COLOR
Y1	Cool 1 or Compressor (HP)	Yellow
G	Fan	Green
W1/EH	Heat 1 or Emergency Heat (HP)	White
W2/OB	Reversing Valve or Heat 2	Orange
RH	24VAC Heat	Red
Y2	No Connection	
C	24VAC Common	Blue
H	No Connection	
DH	No Connection	
RC	24VAC Cool	Unknown

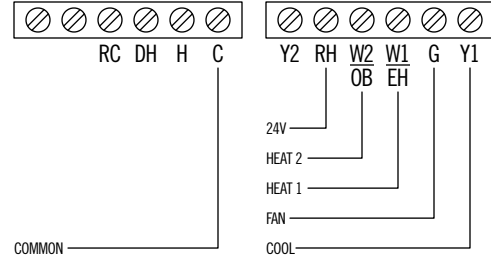
NOTE: The above colors are semi-standard in HVAC industry.

The wiring should be confirmed on both ends before installation.

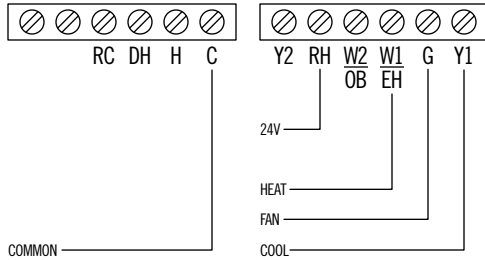
ONE STAGE COOL



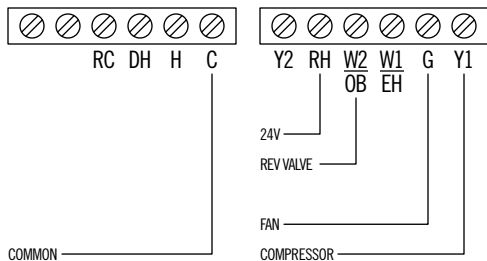
ONE STAGE COOL AND TWO STAGE HEAT



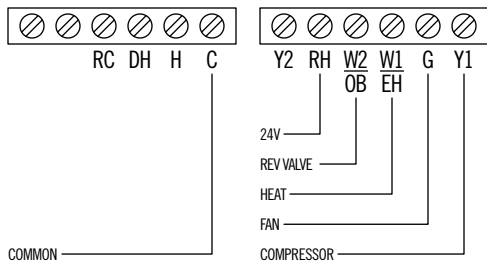
ONE STAGE COOL AND ONE STAGE HEAT



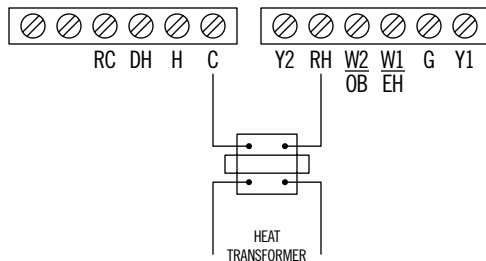
ONE STAGE HEAT PUMP



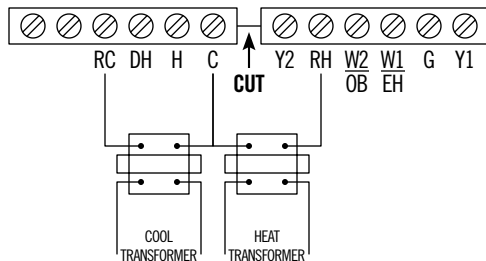
ONE STAGE HEAT PUMP WITH AUX/EMERGENCY HEAT

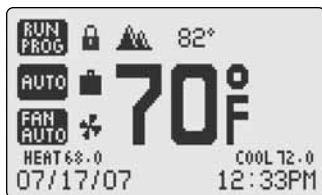


ONE TRANSFORMER



TWO TRANSFORMERS






❖ To return to the HOME SCREEN, simply touch  icon at any time!

❖ The HOME SCREEN displays the following information:

70°F

Current Room Temperature


 82° Current Outdoor Temperature

 Fan Operation Indicator

 Vacation Mode Indicator

 Current Thermostat Operation Mode

 Security Indicator

 Current Temperature Control Mode

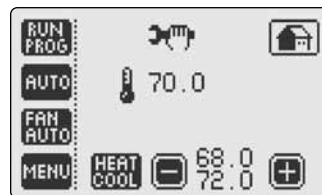
HEAT 67.0 Heat setpoint

 Current Fan Operation Mode

COOL 70.0 Cool setpoint



01/27/07 Date



12:33PM Time






❖ To access the CONTROL SCREEN, simply touch the HOME SCREEN Screen...

❖ From the CONTROL SCREEN, you can:

 67.0  Change the Temperature Setpoint(s) using - and + buttons. In AUTO MODE toggle the HEAT/COOL button (HEAT or COOL will flash once selected), then raise or lower setpoints as desired.

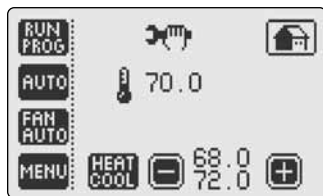
  Select the Thermostat Operation Mode by toggling thermostat operation mode button.

     Select the Temperature Control Mode by toggling the temperature control mode button.

   Select the Fan Operation Mode by toggling the fan operation mode button.

 Access MENU SCREEN to enter into all thermostat features and settings.

 Displays Installer Message to review important information.



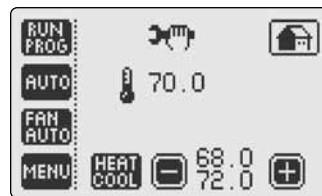
- ❖ TrueTouch™ thermostat can operate in **PROGRAM MODE** or can **HOLD** a fixed temperature.

**RUN
PROG**

RUN PROGRAM: Initiates the 7-day Programmable Temperature Control Program with 4 independent events per day. To set up a custom temperature control program with customizable Temperature Setpoint and Fan operation mode, refer to Section PROGRAM SETTINGS (page 27).

**HOLD
TEMP**

HOLD TEMPERATURE: Regulates the room temperature as determined by the selected Temperature Setpoint.



- ❖ Based on your HVAC equipment TrueTouch™ thermostat can operate in the following temperature control modes - **AUTO** or **HEAT** or **EMERGENCY HEAT** or **COOL** or **OFF**.

AUTO

AUTO - Keeps the room temperature between the selected HEAT and COOL setpoints by using both the cooling and heating HVAC units.

HEAT

HEAT - Only turns on the heating units to regulate room temperature.

**EMER
HEAT**

EMERGENCY HEAT - Enables the emergency heat (if required).

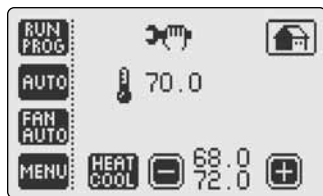
COOL

COOL - Only turns on the air conditioning to regulate room temperature.

OFF

OFF - Will not control temperature. The thermostat will continue to display the current room temperature, current room humidity and outdoor temperature.

FAN OPERATION MODES



❖ TrueTouch™ thermostat can operate the fan in one of the following three modes:



FAN AUTO: The fan runs only when there is a demand for heating or cooling.



FAN ON: The fan runs continuously



FAN INTERMITTENT: The fan runs 10 minutes per 1/2 hour providing a convenient way to improve air quality and save energy.



When the fan is running, the animated fan icon will appear on the HOME SCREEN.



❖ To access the MENU SCREEN, simply touch MENU from the CONTROL SCREEN.

❖ From the MENU page, you can:

DATE/TIME SETTINGS

Access **DATE AND TIME SETTINGS** to enter the accurate date and time

PROGRAM SETTINGS

Access **PROGRAM SETTINGS** to pre-program temperature changes during each day of the week.

ENERGY WATCH

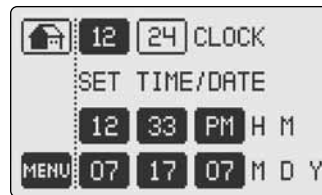
Access **ENERGY WATCH** to display kWh consumption and the dollar cost of operating the HVAC System

CLEAN SCREEN

CLEAN SCREEN places the touch screen in a sleep mode for 15 seconds which allows you to wipe the screen with a dampened cloth.

SET SCREEN

Access the **SET SCREEN** menu to change screen properties.



VACATION SETTINGS

Access **VACATION SETTINGS** to activate the VACATION MODE

FILTER MONITOR

Access **FILTER MONITOR** to review days of "fan run time."

ADVANCED SETTINGS

Access **ADVANCED SETTINGS** to configure the thermostat.

To access the ADVANCED SETTINGS, hold the ADVANCED SETTINGS button for 5 seconds. The thermostat will continuously beep for 5 seconds to indicate that you are in the process of entering this feature.

CAUTION Altering the system properties in the ADVANCED SETTINGS may affect the performance of the HVAC system and should be performed only by a qualified installer.



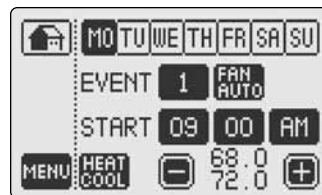
Select the **12 OR 24 HOUR CLOCK** display by pushing the corresponding button.



Set the **TIME** by toggling hour, minute and AM/PM buttons.



Set the **DATE** by toggling Month, Day and Year buttons.



PROGRAM SETTINGS

PROGRAM SETTINGS feature allows you to easily and quickly program daily temperature changes to fit your lifestyle and reduce energy consumption. You can customize the program for each day of the week with 4 independent temperature and fan operation settings per day. To setup your program:



Select the **DAY OF THE WEEK**



Select the **EVENT NUMBER** by toggling the Event Number button



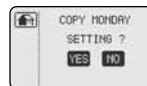
Choose desired **FAN OPERATION MODE** by fan operation mode button.



Enter the event **START TIME** with Hour/Minute and AM/PM buttons



Choose desired **TEMPERATURE SETPOINT** with - and + buttons



Select the next event and repeat the steps described above. Once finished, select the next day of the week that you would like to program. The thermostat will prompt you to copy the settings. Repeat steps to program other days of the week.



ENERGY WATCH

ENERGY WATCH feature provides a report on the energy consumption and the dollar cost of operating your HVAC system (for up to the last 255 days).

Once the cost of the kWh per compressor, furnace and fan have been entered into the ENERGY WATCH Settings (see page 28) Energy Watch will display the consumption as well as the real time dollar cost of the HVAC system.

Otherwise, ENERGY WATCH will display only the total time the Compressor and the Furnace have been operating.



- **BACKLIGHT:** Select between automatic and permanent backlight for the screen.

AUTO

AUTO: The screen back-light will come on only when you touch the screen.

ON

ON: Screen will constantly be back-lit.

- **REVERSE:** Select the positive or negative screen display.

ON

ON: Negative Display (Dark Background)

OFF

OFF: Positive Display (Light Background)

- **NIGHT REVERSE:** changes the touch screen background at night for improved display under low-lighting conditions. Select between:

ON

ON: the screen automatically reverses the background at 9PM and returns to the normal display at 6:00AM .

OFF

OFF: screen background is determined by REVERSE function.

- **CONTRAST:** Toggle the screen contrast settings button (1-11) to select the screen contrast that suits best your thermostat surroundings. XCI recommends the setting of 7.



❖ **VACATION SETTINGS** allows you to set the temperature to a fixed setpoint during the time you are on vacation, providing energy savings without compromising comfort upon your return.

IMPORTANT: HEAT or COOL must be selected from the CONTROL SCREEN before entering the Vacation Settings screen.



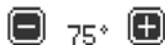
To begin select Vacation Mode ON:



Select the **START** Date



Select the **END** Date



Adjust the HEAT or COOL temperature setpoint: the Vacation mode begins at 10 PM on the day of your departure and ends at Midnight on the day of your arrival.



When the Vacation mode is active the suitcase icon appears on the HOME SCREEN. Upon your return, the message VACATION MODE ENDED will be displayed on the screen. Simply touch the screen, and your thermostat will automatically revert to the Program Settings if you are in RUN PROGRAM or to HOLD TEMPERATURE operation mode.



FILTER MONITOR: Displays filter usage in days



RESET: Resets filter timer (You should reset FILTER MONITOR after changing the air filter.)



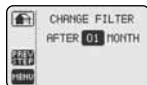
When activated the FILTER MONITOR icon appears on your HOME SCREEN - this feature must be activated in ADVANCED SETTINGS.



- **DAYLIGHT TIME:** Choose Daylight Time **ON** or **OFF** dependent on your Time Zone.



FILTER: Enter the air filter "fan run time" information here. The Filter Monitor feature uses this information to inform you when to change your air filter by displaying CHANGE FILTER icon on the HOME SCREEN.



ENERGY WATCH: Enter the HVAC system consumption parameters (rounded off to kW) as well as your electrical energy cost (¢/kW) and the ENERGY WATCH feature will display a real time totals of electrical energy consumption and cost. To review touch the ENERGY WATCH button on the MENU SCREEN.



*: EXAMPLE: Fan 1kW, Heat Pump 1kW/ton, Furnace 5-30 kW, 7-9¢/kW

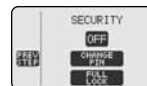
ENERGY WATCH feature will run consecutively for 255 days. If you do not enter your information what will appear on the display is the total time the Compressor and the Furnace have been operating.



Select temperature display in either **CELSIUS** or **FAHRENHEIT** degrees by toggling the °C / °F button to either °C or °F.



SECURITY: The security settings allow you to protect the thermostat from unauthorized use.



Turn Security **ON** or **OFF**. You will be prompted to enter the PIN. The Default PIN 1111.



To **CHANGE PIN**, enter your new PIN and then, when prompted, re-enter your new PIN.



Choose a security mode by toggling SECURITY MODE button:

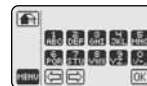
FULL LOCK does not allow any changes unless the user enters the PIN.

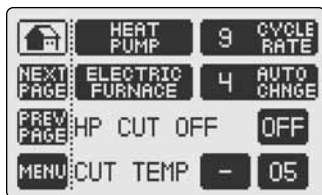


PARTIAL LOCK allows you to change only the temperature set-point without entering a PIN.



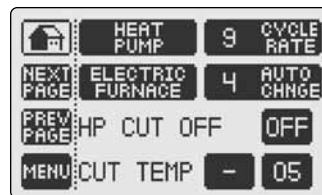
Enter the **INSTALLER MESSAGE:** (up to 42 characters) to appear at programmable intervals. Type the message using the keyboard, and push OK button to confirm. You will be prompted to enter the number of months after which you would like the message to appear.





! IMPORTANT: By inadvertently modifying system configuration settings, you may seriously degrade HVAC system performance.

- ⌘ Choose system heating and cooling equipment - remember all you need to do is toggle the appropriate button until the correct setting appears.
- Choose **HEAT PUMP** or **AIR CONDITIONING** or **NO COMPRESSOR** - please review the wiring table and diagram for wiring instructions.
- Choose **FURNACE OFF** (No Furnace) or **ELECTRIC FURNACE** or **GAS FURNACE** or **OIL FURNACE** or **2 STAGE GAS FURNACE**; please review the wiring table and diagram for wiring instructions.
- Cycle Rate: Set Maximum compressor cycles per hour. We recommend that the factory default be maintained for optimal performance..
- AUTO CHANGE: Set the minimum difference between Auto Mode, Heat and Cool temperature setpoints. We recommend that the factory default be maintained for optimal performance.



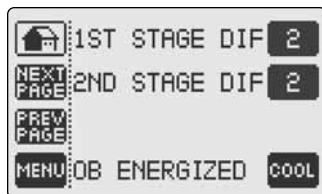
! IMPORTANT: This feature can only be activated when used with the TrueTouch™ Outdoor Wireless Temperature Transmitter and Receiver. Please install the TRUETOUGH™ Wireless Temperature Transmitter and Receiver before activating this feature.

Increasing energy efficiency and reducing costs can be achieved by using the dual fuel switch. Your heat pump can generally provide heat and comfort without assistance to an outside temperature of just a few degrees below freezing. This temperature is called the heat pump balance point. When the outside temperature is above the balance point, the heat pump alone is sufficient for heating.

Once the outdoor temperature drops to the balance point the heat pump must be assisted by your alternate energy source. When the outdoor temperature drops below the systems normal crossover temperature (-12°C or -15°C), your heat pump will stop operating and the alternate energy source will take over.

- HP Cut **ON** or **OFF**
- Cut Temperature:
 - +/- Temperature in Celsius (-5°C to 25°C)
 - +/- Temperature in Fahrenheit (13°F to 41°F)

¹ Available only in combination with WIRELESS OUTDOOR TEMPERATURE TRANSMITTER AND RECEIVER KIT (TOS)



❖ **The TrueTouch™ TSZ-1 allows you to control up to 2 Stages of Heating and 1 Stages of Cooling, dependent on the type of system you have configured.**

- **1ST STAGE DIFFERENTIAL:** Set temperature difference between temperature set point and actual temperature reading before 1st stage heating or cooling is initiated.
- **2ND STAGE DIFFERENTIAL:** Set temperature difference between 1st stage initiation
- **OB ENERGIZED:** Reverses the Heat Pump OB Valve contact to HEAT or COOL (manufacturer dependent).



- Specify the number of minutes for which Stage 1 will function until Stage 2 is activated to help raise (or cool) temperature (if the temperature set point is not reached). This unique function avoids excess compressor wear in the case where the necessary temperature set point is not met through setting of the Staging Differential. Set to "00" to disable.

ADVANCED SETTINGS - HEAT PUMP



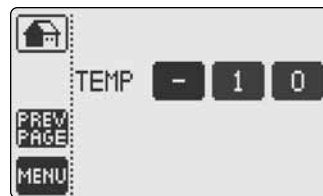
- HP **ON** when Furnace On: Heat Pump and Furnace can operate together when 2nd stage furnace is required. HP **OFF** when Furnace On: turns off the Heat Pump when the furnace is On (required on some gas or oil furnaces).



❖ Calibration of Temperature

TrueTouch™ Thermostat is rated for an accuracy of +/-1°F (+/-0.5°C).

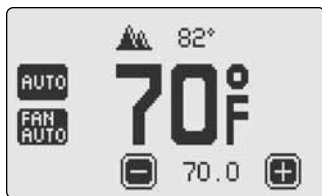
If you have determined due to drafts, sunlight or other environmental factors that your thermostat requires calibration, follow this easy guide. Common cause of offset are lack of air circulation, drafts or skylights in the direct vicinity of the thermostat.



❖ Temperature Calibration Table

- Determine the temperature difference using an accurate thermometer, then use the following table to adjust your thermostat calibration.

THERMOSTAT CALIBRATION NUMBER	FAHRENHEIT CHANGE	CELSIUS CHANGE
+3.0	+6°F	+3.0°C
+2.5	+5°F	+2.5°C
+2.0	+4°F	+2.0°C
+1.5	+3°F	+1.5°C
+1.0	+2°F	+1.0°C
+0.5	+1°F	+ .5°C
0.0	0°F	0°C
-0.5	-1°F	-.5°C
-1.0	-2°F	-1°C
-1.5	-3°F	-1.5°C
-2.0	-4 °F	-2.0°C
-2.5	-5°F	-2.5°C
-3.0	-6°F	-3.0°C



- ❖ TrueTouch™ thermostat can also function as a virtual non-programmable thermostat after it has been switched to a "SIMPLE MODE".
- ❖ To enable "SIMPLE MODE", press the reset button (take off the thermostat faceplate and press the reset button located in the bottom right-hand corner). The message "TOUCH FOR SIMPLE THERMOSTAT" will appear. Touch the screen immediately, and it becomes a simplified non-programmable thermostat.
- ❖ "SIMPLE MODE" has the following temperature control modes:



- ❖ "SIMPLE MODE" has the following fan operation modes:



Please note that when entering "SIMPLE MODE" all configurations and settings are stored permanently.

- ❖ To revert back to the Programmable TrueTouch™ Thermostat, simply press the reset button and touch the screen when the message "TOUCH FOR PROGRAMMABLE THERMOSTAT" appears.

- ❖ **Touch screen buttons do not function properly.** Remove cover, press the reset button located in the bottom left corner then accurately touch 3 target centers on the screen when prompted.
- ❖ **Air conditioning turns on in HEAT mode and heating turns on in COOL mode.** Reverse the OB valve (see "Advanced Settings" Page 36).
- ❖ **PARTIAL LOCK and FULL LOCK do not function.** You must not touch the screen for 1 minute for the thermostat to automatically lock.
- ❖ **Thermostat appears normal until the screen becomes blank when the compressor or heating system turns on.** You need to connect the "C" wire.
- ❖ **I forgot my PIN and cannot unlock the thermostat.** Remove the cover plate, press the reset button located in the bottom right corner, as soon as the message "touch to reset password" appears touch the screen, your PIN will be erased and the thermostat will unlock.

WARRANTY

HARDWARE

XCI Controls, L.P. warrants the original end user ("Customer") that products will be free from defects in workmanship and materials, under normal use, for five (5) years from the original purchase date.

EXCLUSIONS

This warranty excludes (1) physical damage to the surface of the product, including cracks or scratches on the touch-screen or outside casing; (2) damage caused by misuse, neglect, improper installation, unauthorized attempts to open, repair, or modify the product, or any other cause beyond the range of intended use; (3) damage caused by accident, fire, power changes, other hazard, or Acts of God; or (4) use of the product with any device if such device causes the problem.

EXCLUSIVE REMEDIES

Should a covered defect occur during the warranty period and Customer notifies XCI Controls, L.P., Customer's sole and exclusive remedy will be, at XCI Controls, L.P.'s sole option and expense, to repair or replace the product. Replacement products or parts may be new or reconditioned or a comparable version of the defective item. XCI Controls, L.P. warrants any replaced product or part for a period of ninety (90) days from shipment, or through the end of the original warranty, whichever is longer.

OBTAINING WARRANTY SERVICE

Customer must contact and return product to a local XCI Controls, L.P. product dealer or installer within the applicable warranty period to obtain warranty service. Dated proof of original purchase will be required. XCI Controls, L.P. will not be responsible for Customer's memory data contained in, stored on, or integrated with any products returned to XCI Controls, L.P. for repair, whether under warranty or not.

WARRANTY EXCLUSIVE

THE FORGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, CORRESPONDENCE WITH DESCRIPTION, AND NON-INFRINGEMENT, ALL OF WHICH ARE EXPRESSLY DISCLAIMED BY XCI Controls, L.P. AND ITS SUPPLIERS.

DISCLAIMER

NEITHER XCI Controls, L.P. NOR ITS SUPPLIERS SHALL BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE OR USE OF THIS PRODUCT, WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE) OR ANY OTHER THEORY, EVEN IF XCI Controls, L.P. HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. XCI Controls, L.P.'S ENTIRE LIABILITY SHALL BE LIMITED TO REPLACEMENT OR REPAIR OF THE PRODUCT.

TrueTouch™

Touch-Screen Thermostat



TECHNICAL SUPPORT: **1-866-XCI-CTRL** (1-866-924-2875)

PHYSICAL DIMENSIONS

Case: 5.75" x 4.75" x 1.25"

Screen: 4.1875"

ELECTRICAL RATING

24 volt AC/DC

Class 2 maximum 4 amps

ACCURACY RATING

Temperature Accuracy $\pm 1^{\circ}\text{F}$ ($\pm 0.5^{\circ}\text{C}$)

*See Warranty Statement for Details and Limitations



PATENTS:

7,185,825; 7,156,318; 7,145,110; 7,050,026;
7,028,912; 6,902,117; 6,786,421; Other
Patents Pending

FCC STATEMENT THIS DEVICE 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 UNDESIRE OPERATION.

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