

Instruction Guide:

Color Touchscreen Communicating with Humidity Control Thermostat
TPCC32U01



**Color Touchscreen Communicating with Humidity Control
TPCC32U01 (Firmware Version 3.01 and later)**

Heat Pump Thermostat User Information

This communicating thermostat communicates via a 4-wire Modbus protocol and will only operate as a stand-alone thermostat with the Aurora Control System, or as a zone thermostat (not the MasterStat) in the IntelliZone2 or IntelliZone2

- 24V zoning system. The thermostat will auto recognize whether it is connected as a stand-alone thermostat or a zone thermostat and display the proper set up screens.



Zone Configuration

The thermostat will auto detect that it is attached to the IntelliZone2 relay panel and will display the screen below. Use the up/down arrows ▲ ▼ to select the zone.



If more than one zone is assigned the same zone number an error will be displayed on the thermostat and MasterStat. After the initial configuration to change the zone numbers enter the configuration mode by holding a finger over the Zone number in the upper left hand corner for 5 sec. Select zone number and use the up/down arrow to adjust.

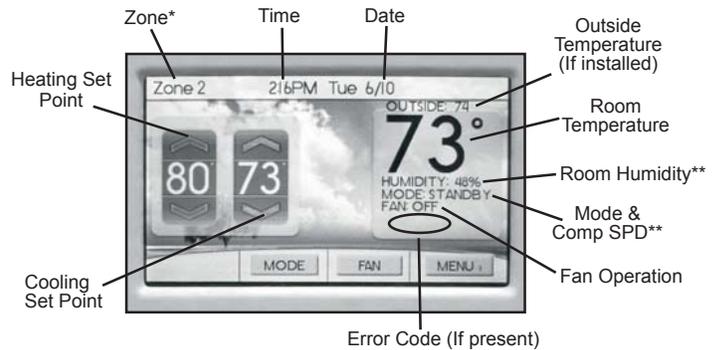
Thermostat Operation

Adjusting Temperature

(Temporary Override in Programmable models)

* Displayed if configured as a Zone Thermostat

**Comp SPD and Room Humidity only displayed if configured as a stand-alone thermostat



NOTE: Outdoor temperature is only displayed if an outdoor sensor is installed.

1. To select a MODE, press the screen button MODE, and then press the desired operating mode.
2. Press the blue up or down arrow to increase or decrease the cooling temperature set point. Press the red up or down arrow to increase or decrease the heating temperature set point.

Non-Critical Faults

Non-critical faults (error codes) are displayed below the temperature on the main screen. These faults will clear themselves if the fault condition corrects itself. Your dealer should be informed when either a critical or non-critical fault occurs.

Lockout/Critical Faults

Critical faults will change the top and bottom bars of the screen red to indicate service needed. The system can be reset by pressing reset lockout. Some of the faults will clear themselves if the fault condition corrects itself. Your dealer should be informed when either a critical or non-critical fault occurs.

Menu

(Screens shown below are for stand-alone thermostat configuration)

Press the Menu button.



If your heat pump has Energy Monitoring installed, the screen shall be this:



NOTE: The humidity function must be enabled by the installer for it to display on this screen. If your system does not use a humidifier this function may not be enabled.

(If configured as a Zone Thermostat, the menu will appear as depicted below.)



Fan Operation



The thermostat can operate the fan in three ways:
 AUTO (on only during heating and cooling calls)
 CONTINUOUS (always on)
 INTERMITTENT (cycles fan)

1. From the Home screen or Menu, press the Fan button.
2. Select the operation you desire as described above by pressing the up and down arrows ▲ ▼.

Intermittent Fan

Temperature conditions can vary widely between the thermostat location and extremities of the space the thermostat serves. This air stratification problem can be especially pronounced during mild outdoor conditions when long periods elapse between space conditioning demands from the thermostat. This intermittent fan operation can also improve the performance of air cleaning or special filtration systems that locate the cleaning or filtration media at the return air side of the fan.

If the FAN hasn't been on for an hour, the fan will start cycling based on these times. Default is OFF. The first screen is the amount of time you want the fan to be energized. Ranges are OFF to 20 minutes in 5 minute increments. Then adjust the time of the fan is OFF. Ranges are 5-40 minutes in 5 minute increments. Fan ON and OFF cycles will continue until the fan has been energized by a call for heating or cooling.

Humidity

(NOTE: This option is not available if configured as a Zone Thermostat, but is available at the MasterStat)



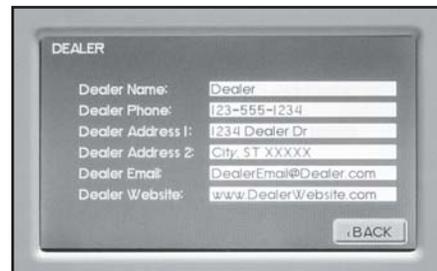
The humidity function must be enabled by the installer for this screen to be visible. If your system does not use a humidifier then this option may not be enabled. This allows adjustment of Humidification and Dehumidification settings. Options are Auto, Manual, factory default setting for Dehumidification is "Auto". Humidification "Auto" is only available if an outdoor sensor is installed. Humidification only works with an active heating call. Manual humidity choices range from 15% to 50% in 1% increments. Dehumidification choices range from 35% to 65% in 1% increments.

**Active dehumidification
 (Variable Speed Heat Pumps Only)**

This feature will only activate during cooling operation and is based upon the humidity set point of the thermostat being at least 5% below the actual relative humidity. When in active dehumidification the room temperature could be overcooled 1.5°F below set point. In this mode you may see increased energy usage due to the additional compressor run time.

Display Dealer Information

The installing dealer's contact information can be displayed on this screen. From the main screen, press Menu and then press Dealer. Simply press the screen segment where information is to be entered and a keypad will appear.



Programming Your Thermostat

(NOTE: This option is not available if configured as a Zone Thermostat, but is available at the MasterStat.)



Preset Programming

Preset options will step you through the programming. Simply select the temperatures and then view the completed program.

Programming a Day or a Series Of Days

After selecting the programming screen, you have the option of programming everyday, weekdays, weekends, or individual days. Once you've selected a certain day to program, a screen appears that allows you to set the time, heat setting, cool setting, and fan operation for each event.

1. From the Program menu, select program ON.
2. Select the number of events each day, 2 or 4.
3. You can program each day differently, or every day the same or the weekdays or weekends the same.

Copying a Program From One Day to Another



In the PROGRAM menu, there is an option to COPY. The option can be used to copy the program from one day to another day. After COPY is selected, the thermostat will prompt you for which day to copy from. Next, it will prompt you for which day to copy the program to. After these selections, it will then confirm what is being copied to where.

Advanced Settings

Set Date and Time

(NOTE: This option is not available if configured as a Zone Thermostat, but is available at the MasterStat.)



NOTE: If this thermostat is installed with an AWL and Time Synchronization is enabled then Date and Time will be updated via the internet and cannot be manually adjusted. If AWL Time Synchronization is disabled or no AWL is installed then follow the steps below for setting Date and Time.

1. From the home screen, press Menu, then press Settings, then press Date/Time
2. Set month/day/year, by pressing the up and down arrows ▲▼.
3. Set hour: minute, by pressing the up and down arrows ▲▼.
4. Within this menu option, you can change the time displayed by your thermostat to 24 Hour time (Military Time).
5. If your area observes daylight savings time, select D.S.T. to ON.
6. Date and Time are now set. You can return to the Main Menu by pressing the BACK to return to the previous menu.

Security Lockout

This thermostat has the option to set security features to lockout everything but the adjustment of the temperature.

1. From the home screen, press Menu, then press Settings.
2. Select Security, press ON.
3. Enter Pin Number screen.
4. Select a pin number to lock out the thermostat. Once you've entered the 4-digit pin number, press the OK button to save the pin.
5. In the event pin number is lost default is 9999



Backlight Brightness

Press the up and down arrows ▲▼ to adjust desired backlight brightness when the thermostat is in active display or in the sleep display mode.



Sound Volume

Adjust the desired sound level of screen buttons when pressed and the desired sound, either beep, one click, or two clicks.

Background

Select the desired background.



Picture Upload

This thermostat will allow personal photo upload to be displayed once the thermostat goes into sleep mode. The thermostat can only accept photos that are tci format. Common photo formats can be converted to the tci format, which is used by the thermostat, by using the thermostat photo converter software. Once the photos have been converted and uploaded to the thermostat they will be displayed as a slide show when the thermostat goes into sleep mode. Sleep mode occurs after 5 minutes of inactivity (no screen touches). The photo conversion software and instructions for uploading the photos can be found at www.auroracontrols.com

Vacation

(NOTE: This option is not available if configured as a Zone Thermostat, but is available at the MasterStat.)

1. From the MENU, press the Vacation button to set vacation starting date, time, and desired temperature, return date, time.
2. To cancel this setting, press the CANCEL button.
3. Press the OK to return to the previous menu.



USB

This screen allows you to import or export the User setting or Program.



Superboost (Variable Speed Heat Pumps Only)

(NOTE: This option is not available if configured as a Zone Thermostat, but is available at the MasterStat.)

Superboost can be found under the main menu settings of the thermostat. The Superboost option temporarily enables a larger cooling capacity range, for example, a large party. Normal cooling mode is limited to compressor speeds 1-9 and Superboost allows compressor speeds 10-12 if needed. This screen will allow the homeowner to turn on or off the Superboost option. The Superboost option will be enabled, by default, for a 24-hour period of time and then will automatically be disabled.



CAUTION: Continuous use of Superboost will result in the overheating of the ground loop.

On Peak

(NOTE: This option is not available if configured as a Zone Thermostat, but is available at the MasterStat.)



This screen allows you to adjust the desired On Peak temperature.

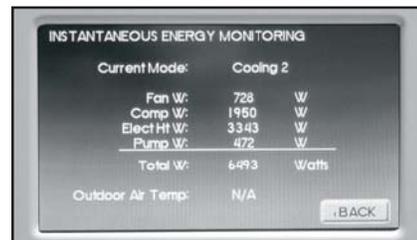
Energy Monitor (If Installed)

(NOTE: This option is not available if configured as a Zone Thermostat, but is available at the MasterStat.)

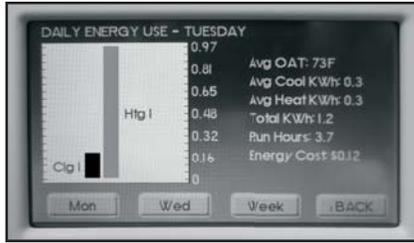


1. If your heat pump has Energy Monitoring installed, the energy consumed can be viewed by pressing the Energy button.
2. There are three choices to view the energy consumed: Instant, Daily, and Monthly.

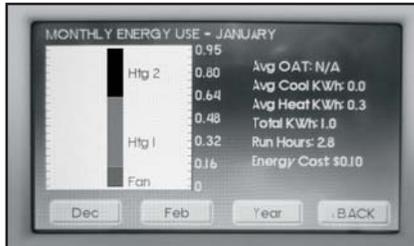
Instantaneous Energy Use screen



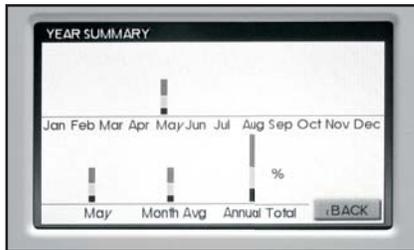
Daily Energy Use screen



Monthly Energy Use screen



Yearly Summary screen



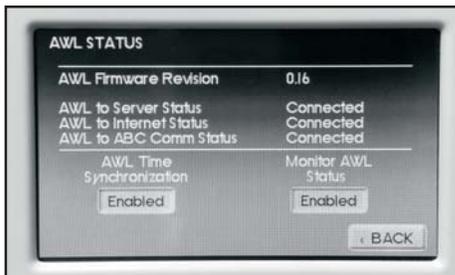
KWH Cost

(NOTE: This option is not available if configured as a Zone Thermostat, but is available at the MasterStat.)

To enter your electric utility rate, select KWH cost. The cost can be set from \$0.01 to \$2.00. The default cost is \$0.10. The total energy cost for the system will be displayed on the daily and monthly summary screens.

AWL Status (If Installed)

(NOTE: This option is not available if configured as a Zone Thermostat, but is available at the MasterStat.)



This screen displays the AWL firmware version and provides the current AWL communication status relating to an Aurora WebLink (AWL) device. This screen is available whether an AWL is installed on the system or not.

AWL Time Synchronization - When enabled the AWL will synchronize the thermostat's date and time with internet time servers. This option by default is disabled. NOTE: setting the proper time zone in the Symphony Portal is necessary for correct operation.

Monitor AWL Status - When enabled, the thermostat will monitor the AWL's RS485, INTERNET, and SERVER status. The thermostat will display "AWL Comm Err" when the AWL is not communicating properly with the Aurora Modbus Network, "AWL Internet Err" when the AWL is unable to communicate to the symphony Servers. This option by default is disabled.

Installer Information/Advanced Features Safety Considerations

Improper wiring or installation may damage thermostat. Wiring must conform to local and national electrical codes.

Introduction

The thermostat is a wall mounted, low-voltage thermostat which maintains room temperature by controlling the operation of a heating and air conditioning system. Batteries are not required; temperature and mode settings are preserved with the power off.

Installation Considerations

The thermostat requires no batteries. The thermostat is not a power stealing device and **MUST** have both R and C connected.

Installation

Thermostat Location

Thermostat should be mounted:

- Approximately 5 ft. (1.5m) from floor.
- Close to or in a frequently used room, preferably on an inside partitioning wall.
- On a section of wall without pipes or duct work.

Thermostat should **NOT** be mounted:

- Close to a window, on an outside wall, or next to a door leading to the outside.
- Exposed to direct light and heat from a lamp, sun, fireplace, or other temperature-radiating object which may cause a false reading.
- Close to or in direct airflow from supply registers and return-air grilles.
- In areas with poor air circulation, such as behind a door or in an alcove.

Install Thermostat

1. Turn off all power to unit.
2. If an existing thermostat is being replaced:
 - Remove existing thermostat from wall.
 - Disconnect wires from existing thermostat, one at a time. Be careful not to allow wires to fall back into the wall.
 - As each wire is disconnected, record wire color and terminal marking.
 - Discard or recycle old thermostat.

NOTE: Mercury is a hazardous waste and **MUST** be disposed of properly.



3. Separate the front and back pieces of plastic.
4. Route thermostat wires through hole in back piece of plastic. Level plastic against wall (for aesthetic value only - thermostat need not be leveled for proper operation) and mark wall through 2 mounting holes.
5. Drill two 3/16-in. mounting holes in wall where marked. **(NOTE:** Mounting holes on thermostat are designed to fit on a horizontal J-box).
6. Secure back plastic to wall with 2 anchors and screws provided making sure all wires extend through hole in plastic.
7. Connect wires to proper terminal of the connector block in the front plastic.
8. Push any excess wire back into wall. Excess wire inside the thermostat plastic case can interfere with proper air flow across the temperature sensor. Seal hole in wall to prevent air leaks. Leaks can affect operation.
9. Snap front and back pieces of plastic together.
10. Turn on power to the unit.

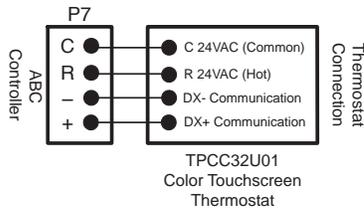


CAUTION: To clean the thermostat display, lightly dampen a clean non-abrasive cloth with water or any non-abrasive household cleaner. To clean, gently wipe the surface of the thermostat.

NOTE: Do not spray liquids directly on the

Wiring Diagrams

All excess wire should be pushed back into the wall as far as possible. Excess wire inside the thermostat plastic case may interfere with the air flow across the temperature sensor. See IntelliZone2 or IntelliZone2 • 24V Installation Manual for wiring as a zone thermostat.



Thermostat Connections

- C – 24V Common for Control Circuit
- R – 24V Supply for Control Circuit
- DX+ – Communication Terminal
- DX- – Communication Terminal
- S1, S2 – Remote Temperature Sensor (indoor or outdoor)



WARNING: Before installing thermostat, turn off all power to unit. There may be more than one power disconnect. Electrical shock can cause personal injury or death.

Installer Settings

NOTE: These options are intended to be used by the installer. End users are not advised to change or modify any of these settings. Doing so may make your equipment stop working properly and/or may void the warranty of the thermostat as well as the equipment connected to the thermostat. Once the thermostat is added to the Aurora system via the AID Tool enter the installer setting menu at the thermostat. To access the installer setting menu, press and hold the upper left corner of the main screen for at least 5 seconds to enter the installer screen.



Equipment

(NOTE: This option is not available if configured as a Zone Thermostat, but is available at the MasterStat.)

The system will auto detect the type of equipment connected and displays it on this screen.

SINGLE STAGE/MULTI STAGE

- Single Stage* – Used with heat pumps with PSC motors
- Multi Stage* – Used with heat pumps with ECM motors, either Single Speed or Dual Capacity
- Variable Speed* – Used with heat pumps with variable speed compressors

Thermostat Type

(NOTE: This option is not available if configured as a Color ZoneStat, but is available at the MasterStat.)



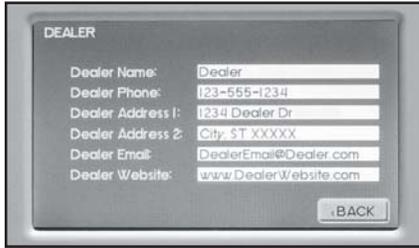
NORMAL/DUAL FUEL

- Normal* – used for normal operation
- Dual Fuel* – used on dual fuel systems; needs outdoor sensor to lockout dual fuel



Dealer

This screen allows the dealer to input their contact information to be viewed by the homeowner.



Status

Displays the equipment status for MODE and FAN as well as temperature status for ROOM TEMP and REMOTE TEMP, OUTDOOR TEMP if applicable.

Restore Defaults

This will allow you to revert to the factory default settings.

Fan with Heat (For Dual Fuel Applications)

Options are ON or OFF. This selection determines whether G (fan) output is to be ON or OFF when W (auxilliary heat) output is ON.

Humidity Settings

(NOTE: This option is not available if configured as a Zone Thermostat, but is available at the MasterStat.)

If your system is setup with a humidifier, or you desire a dehumidification option, select the appropriate setting.



- HUMIDIFY
- DEHUMIDIFY
- BOTH (H or DH)
- NONE

Humidify - Turns on the H output when the room humidity is below the set point and MODE is set to HEAT, EHEAT, or AUTO when Heating was the last mode run.

Dehumidify – Turns on the DH output when the room humidity is above the set point and the MODE is set to COOL or AUTO when Cool was the last mode run.

– Turns on Active Dehumidification (variable speed heat pumps only)

Both – HUMIDIFY operates in the HEAT mode and DEHUMIDIFY operates in COOL mode.

NONE – Neither is active.

Restart

The Restart button is used to load firmware updates and give the capability to reboot the thermostat without cycling power to the heat pump.

Installer Setting Page Two

Press NEXT button. It will bring you to the second page of installer setting.



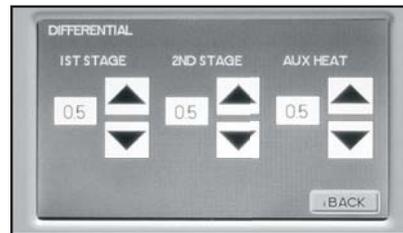
Cycles Per Hour

(NOTE: This option is not available on variable speed systems or if configured as a Zone Thermostat)

This feature will not allow more than the specified number of equipment cycles per hour. Values can range from 4 or 6 (or 1 cycle every 15 minutes (default) or 1 cycle every 10 minutes, if 6 is set). Factory default setting is 4. This default selection will provide optimum performance in nearly all installations.

Differential

(NOTE: This option is not available if configured as a Zone Thermostat, but is available at the MasterStat.)



This adjustment will vary the number of degrees, from the set point, before a call for heating or cooling is made. Adjustments can range between 0.2° and 4° differential. Default is 0.5° offset. (If your set point is 70°F in heating, your thermostat will not call for heat until the temperature is 69.5°F, with a 0.5 differential).

Auto/Manual

Default is AUTO. If MANUAL is chosen, you will need to change from heating to cooling or vice versa. When MANUAL is set, AUTO is removed from the MODE screen as a choice and AUTO CHANGEOVER will not be selectable in the installer screens.



Smart Recovery

(NOTE: This option is not available if configured as a Zone Thermostat.)

Smart recovery is a feature of your thermostat designed to improve comfort by adjusting temperatures to achieve a room temperature by the programmed time. When it's time for a programmed temperature change, smart recovery begins working in advance, turning the system on and off as needed to adjust the indoor temperature. During these transition periods, you may notice that the actual temperature and your temperature setting don't match. That's smart recovery in action, adjusting temperatures in small increments for greater energy efficiency. This is more energy efficient than simply allowing the system to operate at full capacity until the desired temperature has been met. Smart Recovery helps avoid excessive use of auxiliary heat when recovering from night setback in the heating mode.

Electric Heat (Aux) Lockout

(NOTE: This option is not available if configured as a Zone Thermostat, but is available at the MasterStat.)

When an outdoor temperature sensor is installed, you can set it up so the electric heat or Dual Fuel option doesn't energize if the outdoor temperature is above a certain temperature. Ranges for this are NONE (default) to 40°F in 5° increments.

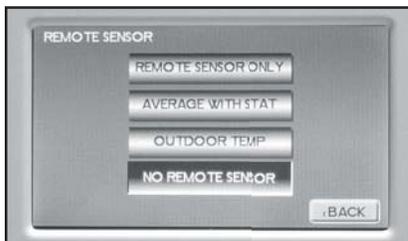
Cooling Lockout

(NOTE: This option is not available if configured as a Zone Thermostat)

When an outdoor temperature sensor is installed, it can be set up so cooling option doesn't energize if the outdoor temperature is below a certain temperature. Ranges for this are NONE (default), 45°F, 50°F, or 55°F.

Remote Sensor

Allows selection of the remote sensor to determine indoor or outdoor temperature. Options for indoor sensor are REMOTE SENSOR, AVERAGE, and STAND ALONE. The REMOTE SENSOR is connected to the S1 and S2 on the thermostat terminals.



Compressor Satisfy

(NOTE: This option is not available if configured as a Zone Thermostat)

- Normal* – allows compressor downstaging from Y2 to Y1. Recommended setting for most products.
- Y2 Finish* – Once the heat pump has engaged Y2 the thermostat will not allow downstaging to Y1. The call is satisfied in Y2. (Option not available on variable speed systems.)

Installer Setting Page Three

Press NEXT button. It will bring you to the installer setting page three.



Set Anticipator

(NOTE: This option is not available if configured as a Zone Thermostat)

This adjustment controls the sensitivity and cycle rate of the thermostat. Higher numbers decrease the cycle rate. Lower numbers increase the cycle rate. Default value is 1, and the range is 0-9.

Accessories

(NOTE: This option is not available if configured as a Zone Thermostat, but is available at the MasterStat.)



Each of these options has settings for Cumulative Run Time and Calendar Time. Messages will flash at the top of the Main screen when these events are met to alert the owner that it is time to service these options.

- Air Filter* - Cumulative Run Time default is 1000 hours and Calendar Time is 3 months. Values can range from NONE-2500 hours for Cumulative Run Time (in 100 hour increments), or Calendar Time can range from NONE - 12 months (in 3 month increments).
- Humidifier* - Cumulative Run Time default is NONE hours (OFF) and Calendar Time is NONE. Values can range from NONE, or 400-2500 hours for Cumulative Run Time (in 100 hour increments), or Calendar Time can range from NONE to 12 months (in 3 month increments).
- UV Lamp* - Cumulative Run Time default is NONE hours (OFF) and Calendar Time is NONE. Values can range from NONE, or 400-3600 hours for Cumulative Run Time (in 100 hour increments), or Calendar Time can be set to NONE to 48 months (in 3 month increments).
- Air Cleaner* - Cumulative Run Time default is NONE hours (OFF) and Calendar Time is NONE. Values can range from 400-2500 hours for Cumulative Run Time (in 100 hour increments), or Calendar Time can be set to NONE to 12 months (in 3 month increments).

To cancel the message, select the CANCEL.



Offsets

Temperature Offsets – This option allows calibration (or deliberate miscalibration) of the room temperature sensor(s). There are various reasons why the displayed temperature would be adjusted to a higher or lower value. NOTE: Do not adjust for 30 minutes after installation because board may be heated by handling. The selected number is the number of degrees, plus or minus, which will be added to actual temperature. The numbers can range between -5° and +5°. Default values are set to 0° offset.

Temperature Offset

Remote Indoor Offset (if sensor is attached)

Outdoor Offset (if sensor is attached)

Humidity Offset – This option allows calibration of the humidity sensor. Adjustments can range between -10% and +10%. Default is 0% offset.

Auto Changeover

With auto changeover, the thermostat automatically switches itself from heating to cooling, or vice versa, based on the setpoints. When setting up the thermostat you have to enter both a cooling setpoint and a heating setpoint. The thermostat will also prevent the user from setting the cooling setpoint lower than the heating setpoint. Mode is set to AUTO for this operation to work.

Auto Changeover Time – This setting sets the minimum off time before the thermostat can change from one mode to another. Default is 5 minutes. Range is from 5-125 minutes in 15 minute increments.

Auto or Manual Change – Default is AUTO. If MANUAL is chosen, you will need to change from heating to cooling or vice versa. When MANUAL is set, AUTO is removed from the MODE screen as a choice.

USB

Allows Import and Export of Installer Settings, User Settings, Program, and Dealer Details. If configured as a zone thermostat this can also be done at the MasterStat.

°F / °C

(NOTE: This option is not available if configured as a Zone Thermostat, but is available at the MasterStat.)

This screen changes the unit of measurement that is displayed on the thermostat. Fahrenheit is the default setting.

Installer Setting Page Four

Press NEXT button. It will bring you to the Installer Setting page four.

Residential/Commercial

For future use

Energy Demo Mode

(NOTE: This option is not available if configured as a Zone Thermostat, but is available at the MasterStat.)

This screen is used for demonstration purposes only. It allows the installer to show the user what those screens will display once their system is running for the time periods shown (if equipped with energy monitoring). Energy Demo is located in the installer setup screen on page 4 of 4. In the weekly screen, the seven days usage will be displayed across the top, and the current day and daily average will be displayed along the bottom. In the monthly screen, the 12 months usage will be displayed across the top, and the current month, monthly average, and annual total will be displayed across the bottom. These are just images representing energy usage, not actual data from the system. You can view both the weekly and monthly data. After approximately 5 minutes of inactivity, the demo mode will exit and go back to the home screen.

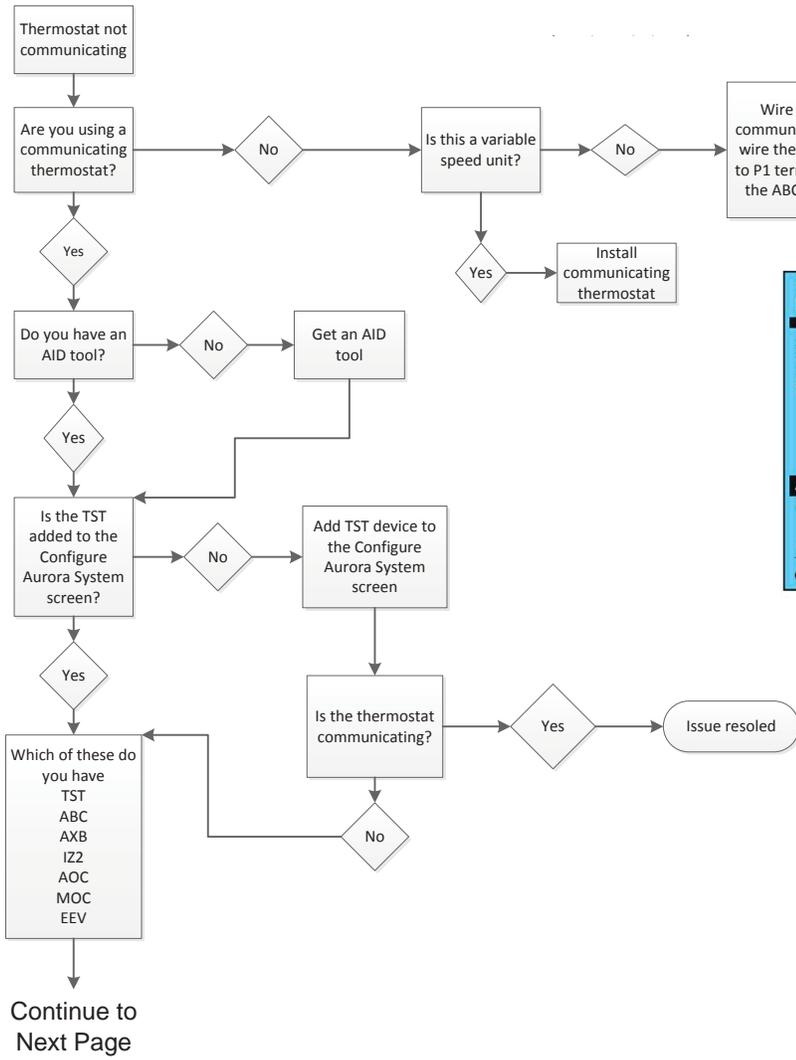
Thermostat Fault Codes

NZ-1	Humidity temperature sensor open
NZ-2	Humidity temperature sensor shorted
NZ-3	Outdoor temperature sensor error
NZ-4	Humidity reading too low
NZ-5	Humidity reading too high
NZ-6	Humidity sensor failure
NZ-8	Remote room sensor error
NZ-9	Primary temperature sensor open
NZ-10	Primary temperature sensor shorted
NZ-11	Temperature reading too low
NZ-12	Temperature reading too high
NZ-13	ABC control no communication
NZ-14	Low voltage under 19VAC
NZ-15	Low voltage under 16VAC

NOTE: If you experience an NZ-11 fault, it is because the ambient temperature is below 40°F. To protect the compressor, only auxiliary electric heat will be available. Once the set point is met, the auxiliary electric heat will turn off, and the compressor will operate as intended.



Communicating/Troubleshooting



Configure Aurora System Screen

Config Aurora System		
Dev	Comm	Ver
ABC	Y	X.XX
TST	Y	X.XX
AXB	Y	X.XX
Add Device		
Remove Device		
◀ Back		
Option ▲▼		Enter ■

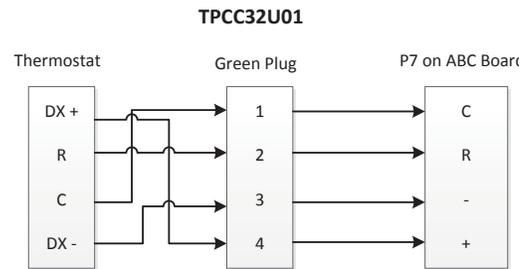
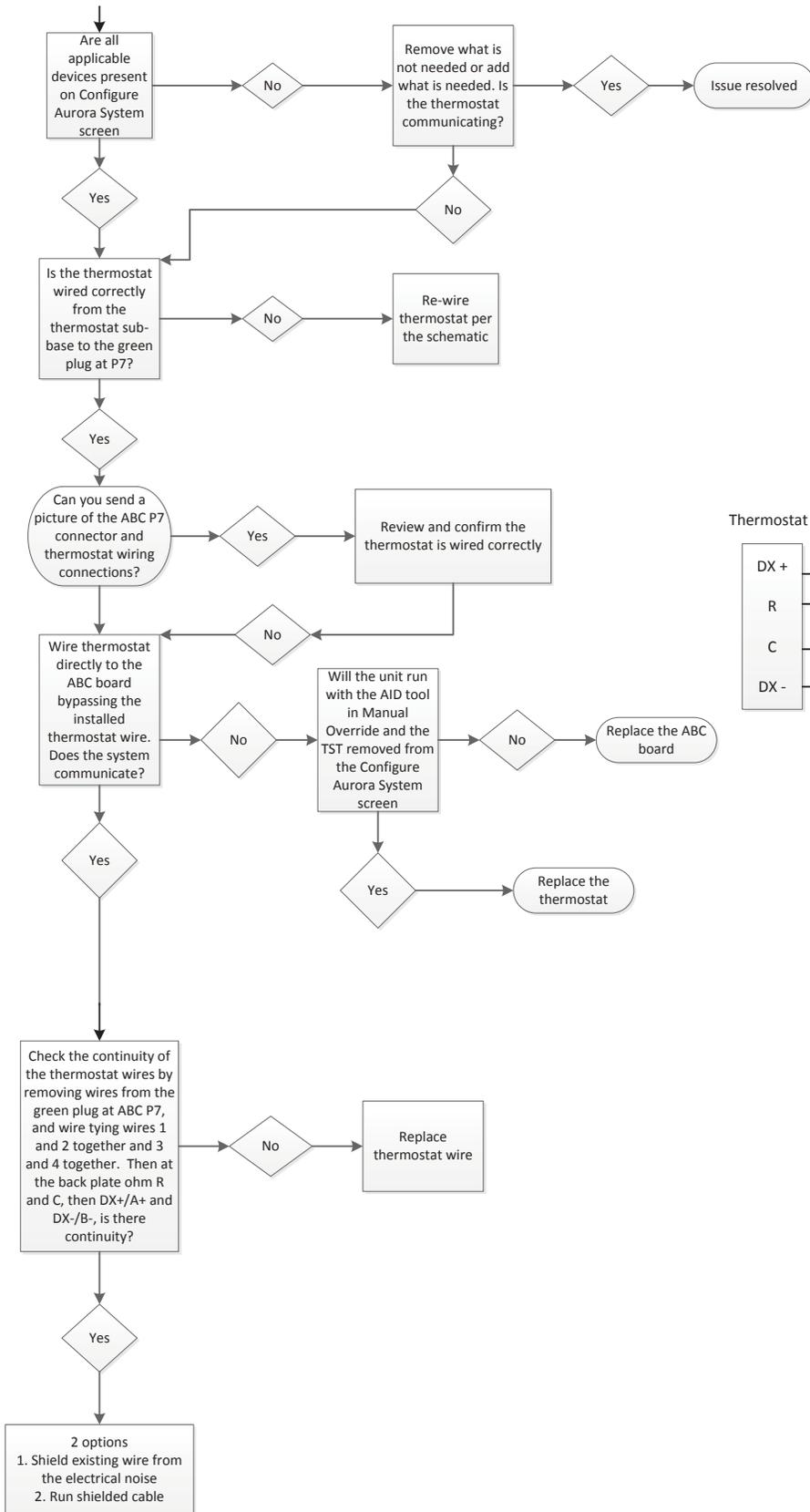
Single and Dual Capacity unit

Config Aurora System		
Dev	Comm	Ver
ABC	Y	X.XX
TST	Y	X.XX
AXB	Y	X.XX
AOC	Y	X.XX
MOC	Y	X.XX
EEV2	Y	X.XX
Add Device		
Remove Device		
◀ Back		
Option ▲▼		Enter ■

Variable Speed unit

Y – Active Communication
N – Device has been found, but communication has failed.

Communicating/Troubleshooting cont.



NOTES

