





THIS MANUAL MUST BE LEFT WITH THE HOMEOWNER FOR FUTURE REFERENCE

NOTICE

Read this manual before programming this thermostat.

Use this thermostat only as described in this manual.

AWARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life.

Installation and service must be performed by a licensed professional HVAC installer (or equivalent) or service agency.

INSTALLER'S SYSTEM SETUP GUIDE

iComfort Wi-Fi® Flex

Touchscreen Programmable Thermostat (11U61)

CONTROLS





Shipping and Packing List

Thermostat container includes:

- 1 Thermostat
- 4 Wall anchors
- 1 Homeowner's manual
- 4 Mounting screws

Equipment Interface container includes:

- 1 Equipment Interface Module
- 1 Equipment Interface Module Installation Instruction
- 1 Warranty card

TABLE OF CONTENTS

Overview - Technical Description and Features
Installation and set up
Adjusting System Settings 4
Connecting to Home Wi-Fi Router 6
Troubleshooting Wi-Fi Connection
Account Registration
Firmware Update
Adding Conventional Outdoor Unit and Accessories 15
Outdoor Unit (Air Conditioner or Heat Pump)
Bypass (24VAC) Humidifier
Auxiliary Dehumidifier
Adjusting Humidification and Dehumidification Settings with Conventional Outdoor Units
Using the Tests / Diagnostics Features
Using the Secure Web Portal
Skins
Screen-Saver
Accessing Installer Screens and Changing Equipment Parameters
Wiring Diagrams

▲ WARNING

This is a 24VAC Class 2 thermostat. Do not install on voltages higher than 30VAC.

Do not switch system to cool if the outdoor temperature is below 45°F (7°C). This can damage the cooling system.

Overview - Technical Description and Features

The **iComfort Wi-Fi**[®] Flex Thermostat is a 24VAC, color display touchscreen and 7-day programmable thermostat. It stores system parameters and settings in non-volatile memory (i.e., it retains data when electrical power fails or is turned off).

The **iComfort Wi-Fi**[®] Flex thermostat can connect to online services via the Internet through the homeowner's Wi-Fi access point. After online registration is completed, the system may then be accessed by the homeowner from anywhere using a remote Internet connection via computer, smartphone or other personal Internet-connected devices.

This thermostat supports:

- Wireless bands 802.11b, 802.11g and 802.11n
- Three languages (English, French, Spanish)
- Air conditioning or heat pump units with up to four stages of heat / two stages of compressor operation (2 stages of heat pump heating, 2 stages of auxiliary back-up heating and 2 stages of emergency heating)
- Variable-capacity / multiple-stage heat / cool and universal compatibility (gas/electric/heat pump/air conditioner).
- Dual-fuel capable with two balance points.
- Indoor air quality with time-based notification of consumables including media filters, UVC bulbs, humidifier pads and PureAir™ system catalyst service / replacement,
- Humidification measurement and control.
- Dew point adjustment control
- Equipment maintenance reminders

 Autochangeover mode -- Permits control of heating, cooling, humidification, and dehumidification without user involvement

Installation and Setup

During initial thermostat start-up the following screen will appear (see figure 1). This indicates that the thermostat is active and booting up.



Figure 1. Boot-Up Screen COMMUNICATION ERROR SCREEN

During initial thermostat start-up if the following screen appears (see figure 2), this will indicate that the thermostat has been incorrectly wired or has shorted

wires. Turn power off to the system and verify that all wiring is correct.



Figure 2. Communication Error Screen

Adjusting System Setting

SET TIME AND DATE

Use the arrows to select **Time and Date**; touch **edit** to proceed to the "Set current time and date" screen.

When "Time and Date" screen appears, enter the correct date as follows:

- Use the left and right arrows to change the month and year.
- Touch a day of the month to select it.
- Touch on the hour or minute; up down arrows appear to allow change.

- Touch the am/pm field to toggle it between am and pm.
- When the correct date and time is set, touch save to save settings and return to previous settings screen.

Touch **next** to continue to next screen.

CIRCULATE FAN ON TIME SETTING

"Circulate" is enabled on the user's **home** screen or **system settings** page. It keeps air circulating from 15% to 50% percent of time. The following settings approximate how long the fan will run at these typical settings:

15% (9 minutes fan run time per hour)

25% (15 minutes fan run time per hour)

35% (21 minutes fan run time per hour)

45% (27 minutes fan run time per hour).

NOTE - If the circulate fan mode is on, a timer is set to measure all the time that the fan is blowing, regardless if it is running to deliver heating or cooling or just for air circulation.

DEALER NUMBER

Either the dealer number or phone number is required. Once either number is entered, all other fields will automatically be populated once the thermostat has been registered during the Wi-FI set up procedure later on in this instruction (if the dealer has an account with Lennox already).

NOTE - Dealer number is the dealer's Lennox account number. Dealer phone number is the dealer's main office phone number.

- Use the arrows to scroll down to the Dealer Number or Dealer Phone setting. Press the edit button.
- Enter the **Dealer Number** or **Dealer Phone** Number using the on-screen keyboard. Press save to continue.

NOTE: If a **Dealer Number or Dealer Phone Number** is not entered and the **next** button is selected, a pop-up warning screen will appear.

 Press yes to continue to the System Devices screen. Press no to return to the system settings screen.

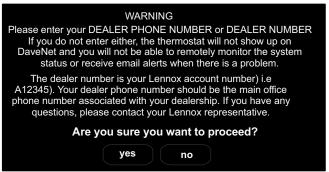


Figure 3. Dealer Number Warning

The following table lists all of the installer configurable system level parameters available from the installer set up screens. After adjusting system settings, select **next** to continue.

Table 1. System Settings

Parameter Name	Detault		Increment	
Time and Date	_	(Time/date elements screen)		
Daylight Saving Time	Enabled	Enabled, Disabled	_	
Circulate Fan ON Time	35%	Range 15 to 45%	1%	
Temperature Unit				
System Name	_	(keyboard input screen)	_	
Dealer Number	***	(keyboard input	_	
Dealer Name	Lennox	screen)	_	
Dealer Address	_	Note: When adding the dealer number, all other dealer	_	
Dealer Phone	1-800-9-LEN- NOX	fields will auto pop- ulate once thermo-	_	
Dealer Email	_	stat registration is	_	
Dealer Website	www.lennox com	completed.	_	

Connecting to a Home Wi-Fi Router

Check the router utility program or contact service provider for help. When determining the location for the Wi-Fi thermostat, be sure it is in an area near enough to the home Wi-Fi router to ensure good communications signal strength between the thermostat and the Wi-Fi router. (Hint: Use a smart phone with Wi-Fi and Wi-Fi finder application to locate and determine optimal location based on router Wi-Fi signal strength.)

NOTE - Thermostat will not be able to reliably connect to a router if the received signal strength indicator (RSSI) is -70 or greater.

NOTE - Correct the cause of any alerts prior to continuing set up. Secure Connection Recommended! Verify the home Wi-Fi router supports at least one of the supports wireless bands (802.11b, g or n). Check router utility program or contact service provider for assistance.

ENABLING WI-FI

To enable the Wi-Fi feature to communicate with a wireless router

 Press and release Wi-Fi in the lower left corner of the HOME screen

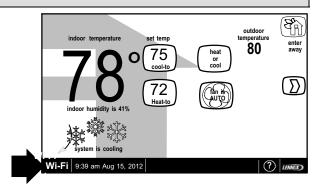


Figure 4. Press Wi-FI

2. Press the Wi-Fi disable button to enable Wi-Fi.

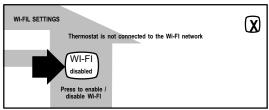


Figure 5. Enable Wi-Fl

3. The *User Agreement* screens will appear next. Press **next** as many times as necessary; then press **accept** after reading the User Agreement.

ESTABLISHING A WI-FI CONNECTION

There are two methods to set up your Wi-Fi connection. Select either *NETWORK SETTINGS* or *connection status*.

Method 1 — Network Settings Method

 Press NETWORK SETTINGS; this screen shows a graphical view of buttons representing OPEN and SECURE Wi-Fi networks and a button for adding a network.

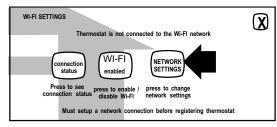


Figure 6. Enable Wi-FI

- Open connection which which requires no password.
- Secure connection which requires Wi-Fi password (security key).

- Add a network is required when Wi-Fi identification (SSID) is being hidden (not broadcasting). You will need to know the Wi-Fi network name (SSID), security encryption type (if enabled), and security password (if security encryption is enabled).
- When selecting a:
 - unsecured connection a screen will appear with two options, connect and router info. Press connect to continue.
 - secured connection a screen will appear requesting the Wi-Fi network password (security key). There are two options to select from which are connect and router info. Using the on-screen keyboard, enter the password (security key) and then press connect to continue.

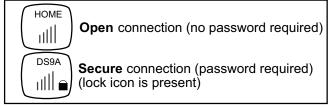


Figure 7. Typical Connection Type and Signal Strength

- NOTE The **router info** button provides information concerning the home Wi-fi connection (i.e, RSSI, IP address, MAC address and wait state) all of which may be helpful in troubleshooting network connection issues).
- If connection is successful the screen will return to the available networks screens. Press AP3 as exampled in figure 8 to return to the previous screen. If the connection was successful it will be listed connected as exampled below.

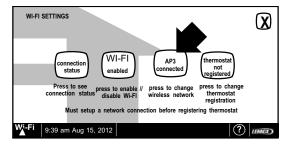


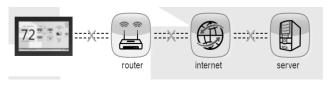
Figure 8. Network Connected ESTABLISHING A WI-FI CONNECTION TO A HIDDEN NETWORK

 When connecting to a hidden network, press the add new network icon to continue. Enter the network name (SSID). If security encryption is enabled, then press the security is none icon. Select either WEP, WPA or WPA2.

- Using the on-screen keyboard, enter the password (security key). If the network name or security key combination is incorrect or incorrectly type, and access to the specified network failed, a message will alert you to retry.
- If connection is successful the screen will return to the available networks screens. The network successfully connected will be listed and shown as connected as exampled in figure 8.

Method 2 — Connection Status Method

1. Press connection status; this screen shows a graphical view of the current connection status.



- 2. Select the router icon to choose the desire W-Fi network. When selecting a:
 - unsecured connection a screen will appear with two options, connect and Router Info. Press connect to continue.
 - secured connection a screen will appear requesting the Wi-Fi network password (security key). There are two options to select from which are connect and router info. Using the on-screen keyboard, enter the password

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(security key) and then press **connect** to continue.

 If connection is successful the screen will return to the available networks screens. Press X to return to the previous screen. If the connection was successful it will be listed connected as exampled below.

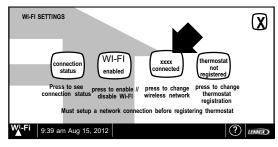


Figure 9. Network Connected

4. Select **X** to return to the **WI-FI SETTINGS** screen. Select connection status again to verify that connection to the *router* and *Internet* is active. Both the *router* and *internet* icons will have green backgrounds if connections are successful.



Skip the next section if connection to the home Wi-Fi router, Internet and server were successful.

Troubleshooting Wi-Fi Connection

ROUTER / MODEM CHECK IF CONNECTION FAILS

- 1. Make sure the router and modem are turned on.
- 2. Check for connections to other wireless devices and internet connection.
- 3. Make sure the thermostat's Wi-Fi is enabled and connected to the home network (Router).
- 4. If having difficulty connecting to the router, online research the router model number and/or internet provider to discover and verify that the router band is set to B, G or N bands. You will need to access the routers utility program to make any changes. If not accessible please contact your service provider for help. The thermostat will connect to B, G or N band routers at this time. NOTE: When set to B or G bands, video streaming will likely be slower that N band. If homeowner has implemented a dedicated N band router for the purpose of video streaming, a separate router for the thermostat may be required.
- Reboot your router
 - A Unplug your power cord, wait 30 seconds, then reconnect. If you have multiple routers, try rebooting all of them when problems occur.
 - B If their are multiple routers you must have different name and password for each one.

- C On your computer, turning Wi-Fi off and then back on will force the system to rescan for available networks. Do you see the network your thermostat is trying to connect to?
- 6. Power cycle the thermostat.
- Keep cordless phones, microwaves and other electrical equipment at least 3.5 feet (1m) away from access point.
 - A Try moving your router closer to the device if possible. If connection is improved, then there is probably some interference. Must have signal stronger than -70db (also, see Router Signal Strength on page 3); anything less will have signal losses or not connect at all.
 - B Adjust the direction of the router toward the thermostat. Adjust the routers antenna. A signal repeater may be needed.
- Try changing channels on the access point and test it out with one of your internet devices (i.e. laptop, desktop). The IP address to the server from the stat will be close to the same IP address from the computer to the server (www.mycomfortsync.com).

COMPUTER CONNECTIONS:

- A On Access Point, Login to configuration (usually web based interface) > go to Wireless Settings and select a different channel > Save settings.
- B Devices cannot change Wi-Fi channel. It is set only at the router.

- C On the thermostat, disable, then re-enable the Wi-Fi connection.
- Antenna in thermostat is fixed and cannot be moved. Location of your access point with respect to the thermostat is very important.
- 10. Baby monitors, garage door openers and wireless video cameras may create signal interference.
- 11. Check your encryption key (Password).
- Double check and re-enter your WEP/WPA encryption keys / pass-phrases (usually found on the router). If set to WEP security, change to WPA if allowed.
- In your thermostat's wireless settings, verify that your encryption key (password) is correct. There can not be spaces at the end of the SSID or Password.
- 14. It is important to note that number of walls that the signal must pass thru to reach the thermostat can be an issue. (e.g. 4 indoor walls, or 1 outdoor wall + 2 indoor walls could mean a weak signal at the thermostat).
- 15. The addition of a signal repeater or extender maybe an option. (Desktop or wall outlet plug-in devices are available online or at your local electronics stores in price range \$70 \$150).
- 16. If multiple routers are in the home make sure each router has a different name.

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- 17. If you don't get the pop up box that says the registration request has been forwarded, then the email was not sent to the server and the return registration link will not be sent to your email address. Try all the router troubleshooting procedures and if you still can't get it to send the email, cycle the power to the thermostat. This will cause the thermostat to ask for the Lennox server mac address again and try to resend the email.
- 18. If all is correct, refer user to their Router manufacturer and Network provider. Router may have incoming fire wall check with service provider.

ROUTER SIGNAL STRENGTH

After connecting to your router, you can check your signal strength by pushing the Wi-Fi icon on the home screen, then the networks button, then <u>your</u> network button, then the router info button (see figure 10).

A strong wireless signal (RSSI) is indicated by a NEGATIVE decibel number in the range from -46 to -58db; anything greater than -70db will not connect. If you are connected but have a signal above -70db then you may consider adding a signal repeater/extender or making some of the other router adjustment mentioned in the Router / Modem Check section

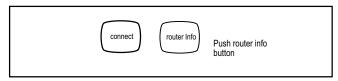


Figure 10. Access connection data

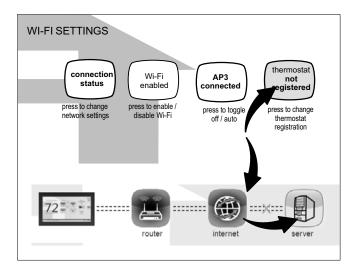
```
AT+NSTAT=?
MAC=00:ID:C9:A0:40:95
WSTATE=CONNECTED MODE=AP
BSSID=98:FC:11:47:B9:00 SSID= LINKSYS" CHANNEL=6 SECURITY=NONE
RSSI=-78
IP ADDR=192.168.8.117 SUBNET=255.255.255.0 GATEWAY=192.168.8.1
DNSI=192.168.1.1 DNS2=0.0.0.0
RXCOUNT=14 TXCOUNT=345
OK
```

Figure 11. Connection Data

Registering the Thermostat

REGISTRATION FOR ONLINE ACCESS

 From the WI-FI SETTINGS screen, press either the thermostat not registered icon or the connection status icon and select the server icon.



2. Enter homeowner email address and system description and press the **register** button.

Register with iComfort Wi-Fi thermostat to enable remote access	ss and
enter your email	
System Desc	
register	

- 3. A pop-up screen will appear asking if the email address below is correct? Verify the email address is correct and press **yes**.
- 4. Another pop-up screen will appear notifying the user to check their email.

An email has been sent to xxxxxxxxxx@lennoxind.com with instructions on how to register your thermostat. If you haven't received the email, please check your spam folder and make sure that your email address is correct.

NOTE - If the email address originally entered is incorrect, return to the **thermostat registered** screen and reenter the correct information and press register.

5. After the **iComfort Wi-Fi**® server sends the email with the network link, registration and account creation must be completed from the homeowner's personal computer.

NOTE - Time from pushing the registration button on the thermostat and receiving the consumer portal register link from your email on your computer is normally from 5 to 15 minutes depending on Internet speed and traffic.

After registration has been completed, press the connection status icon to verify the connection was successful. If the connection is successful the server icon background will be green.



7. After successful connection to the server is completed, the *firmware update* button will appear. The default setting is set to auto. If any firmware updates are available they will immediately start downloading and update the thermostat. The thermostat will reboot itself after the update is completed. Updates are done in the background and will not impair normal thermostat operations.

This auto update feature can be disabled by pressing the firmware update button to toggle to OFF but is not recommended.

NOTE - Firmware updates will not affect installer or user thermostat settings. Both will be retained after the update.

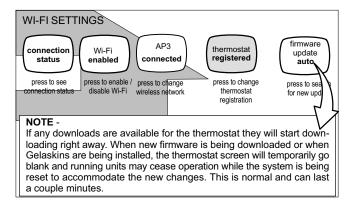


Figure 12. Registration for Online Access

User Account Registration for Lennox Server Access



Figure 13. Registration Screen

NOTE - This following information is customer set up instructions and is shown here to allow the installer to help walk the customer through the set up process.

After registering through your **iComfort Wi-Fi**[®] Flex thermostat interface, go to the homeowner's computer and locate the email sent from the server.

NOTE - if the customer has already set up an account, click the "Click Here" button to access that account.

Click on the Register link; the screen (to the left) will appear. Fill in the User Name and Password fields and check the agree to terms and conditions box. Click **Create User** button.

A series of pages and prompts follows to provide guidance through profile set up and user preference definitions.

USER NAME REQUIREMENT

The following are the minimum user name requirements:

- User name must begin with a letter.
- User name has a minimum of four and a maximum of 37 characters.
- User name is not case sensitive.
- User name cannot be a email address
- User name must be unique. If user name used is already in use, a message indicating so will appear.

PASSWORD REQUIREMENT

The following are the password requirements:

- · Upper and lower case combinations are allowed.
- At least one number must be used.
- Minimum of six characters.

Firmware Update

FIRMWARE UPDATE BUTTON

- Firmware Update (Off) No automatic firmware updates (highly recommend leaving ON)
- If the status is changed from Off to Auto, it will trigger an immediate check and update for the firmware update. This can take up to 1 hour to complete depending on the user's internet speed, signal strength, internet traffic, etc.
- Changing from Auto to Off during a download will NOT stop the current download if it is already in process.
- Firmware Update (Auto) (Default state). If enabled, the thermostat checks for firmware update a few minutes after commissioning and then every 24 hours in early morning hours.
- 5. Once a download is completed, the thermostat stops all activity for up to 3 seconds, restarts for 5 seconds, then continues with normal operation. All prior system and user settings are retained (Equipment, programs, Wi-Fi settings, etc.). Note a variation in indoor temperature may be observed after restart. This is normal operation of the thermostat while the temperature sensor algorithms adjust after a restart of the system.

Adding Outdoor Unit and Accessories

OUTDOOR UNIT (AIR CONDITIONER OR HEAT PUMP)

To add (or remove) an outdoor unit, you must be at the "Add or Remove Non-communicating equipment?" screen.

- 1. Touch the yes button next to Add or Remove Non-communicating equipment?.
- In the "non-communicating device list" screen, use the arrows to highlight Outdoor Unit Type and touch edit.
- 3. Touch one of the radio buttons to select a 1-or 2-stage air conditioner unit or a 1-or 2-stage heat pump unit; touch **save**.
- 4. Use arrows to highlight any red colored text in the device list (e.g. select **Outdoor Unit Capacity**; text turns white). Touch **edit**.
- 5. Use either the up or down arrows to display the correct size outdoor unit. Touch **save** to continue.

NOTE - If the defaults are correct, you do not have to make any changes, but you must touch **save**. When all red text is gone, the **back** button will appear; touch it to return to the "Add or Remove Non-communicating equipment?" screen.

HUMIDIFIER

Before adding a humidifier, be sure that the:

- Humidifier is wired to the equipment interface module and furnace or air handler control,
- Entire system is wired, powered up and you are at the "Add or Remove Non-communicating equipment?" screen.

To add a humidifier:

- 1. Touch the **yes** button on this screen.
- 2. In the "non-communicating device list" screen, use the arrows to highlight **Humidifier** (note the current value, **Not Installed**) and touch **edit**.
- Touch one of the radio buttons to select the type of humidifier (or select **Not Installed**, if removing humidifier); touch **save**.
- 4. The previous screen returns, but the current value now shows your selection. Touch the **back** button.
- 5. The "Add or Remove..." screen reappears with your addition shown in the system devices list. At this point, you may add more equipment (touch yes) or if finished, touch the next button to advance to the "Adjust a setting..." screen (see page 17).

NOTE - Adding humidity regulating non-communicating devices may be a 2-step procedure:

 First the device must be installed and wired. After the humidifier is installed, the setting under the

- "System" mode "Humidification Control Mode" defaults to "Basic".
- Second, if you want another mode, i.e. Precision, Basic Dew Point, or Precision Dew Point, the device requires further configuration (see page 17).

AUXILIARY DEHUMIDIFIER

Before adding a dehumidifier, be sure that:

- the dehumidifier is wired to the equipment interface model and furnace or air handler control.
- the entire system is wired, powered up and you are at the "Add or Remove Non-communicating equipment?" screen.

To add (or remove) a dehumidifier, you must be at the "Add or Remove Non-communicating equipment?" screen.

- 1. Touch the **yes** button on this screen.
- In the "non-communicating device list" screen, use the arrows to highlight **Dehumidifier** and touch **edit**. Note the current value (e.g. Not Installed).
- Touch one of the radio buttons to select the type of dehumidifier (or select **Not Installed**, if removing dehumidifier); touch **save**.
- 4. When you scroll to the Dehumidifier device, (Note the current value, e.g. auxiliary dehumidifier.) Click **back** to return to the "Add or Remove..." screen.

5. The "Add or Remove..." screen reappears with your addition shown in the system devices list. At this point, you may add more equipment (touch yes) or if finished, touch the next button to advance to the "Adjust a setting..." screen.

NOTE - The device must be installed and wired. After the dehumidifier is installed, the setting under the "System" mode "Dehumidification Control Mode" defaults to "Basic".

Adjusting Humidification and Dehumidification Settings with Outdoor Units

HUMIDIFICATION SETTINGS — SYSTEM DEVICES SCREEN

Pre-adjustment REQUIREMENTS:

- First the device has been installed.
- Second, you pressed next at the "Add or Remove..." screen.

Configure the device as follows:

- 1. In the "system devices" list, use the arrows to highlight **System**. Touch **edit**.
- 2. In the "System" list, use the arrows to highlight **Humidification Control Mode.** Touch **edit**.
- 3. Touch one of the radio buttons to select the mode of humidification control; touch **save**. (After saving,

- check that the current value now shows the new selection).
- 4. Touch the **back** button to return to "Adjust a setting..." screen.

NOTE - If the defaults for the settings are shown in red, you are not required to make any changes, but you must go into the edit tool, and touch **save**. When all red text is gone, the **back** button will appear; touch it to return to the "Adjust a setting..." screen.

How Humidification Mode Works

DISPLAY, BASIC AND PRECISION—These modes allow user control of relative humidity between 15 and 45%. These conditions must be met for either mode to operate:

- humidification mode has been enabled, and
- the unit is in HEAT mode, and
- humidification demand exists (24V present at H), and
- DISPLAY mode indicates humidification is OFF.
- BASIC mode mode also requires presence of heating demand [Y for HP heat, or W for gas heat (W may be energized with G de-energized)].
- PRECISION—(Available only if Wi-Fi is operational or outdoor sensor is attached)

<u>Basic Dew Point Control</u> adjustment mode will change the humidification setpoint based on the outdoor temperature and a user-defined dew point adjustment setting.

<u>Precision Dew Point Control</u> adjustment mode will operate when these conditions are met:

- humidification mode has been enabled, and
- the unit is in HEAT mode, and
- humidification demand exists (24V present at H).

HUMIDIFICATION SETTINGS — FEATURE SCREEN

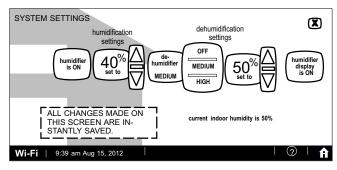


Figure 14. Humidification Controls

- 1. From the **Main Screen**, touch the **right arrow** icon to go the the **Features** screen.
- 2. From the **Features** screen, select **system** settings.

- 3. Touch the button of the humidification settings you want to adjust; if it says humidifier OFF, one touch will display a selection for ON.
- 4. When you touch the **set-to** button, the arrows appear, allowing you to change to the desired humidity percentage setting.

DEHUMIDIFICATION SETTINGS — SYSTEM DEVICES SCREEN

Pre-adjustment REQUIREMENTS

- First the device has been installed
- Second, from the "Add or Remove Non-communicating equipment?", touch next.
- Third, in the "Adjust a setting..." screen, configure the device as follows:
- In the "system devices" list, use the arrows to highlight System. Touch edit.
- Use arrows to highlight Min Dehumidification Setpoint; touch edit. Note the current value (e.g. 45).
- Use arrows to make changes; touch (After saving, check that the current value now shows the new selection).
- Touch the **back** button to return to "Adjust a setting..." screen.

DEHUMIDIFICATION SETTINGS — FEATURE SCREEN

1. From the **Main Screen**, touch the **right arrow** icon to go the the **Features** screen.

- 2. From the **Features** screen, select **system** settings.
- Touch the button of the dehumidification settings you want to adjust; if it says de-humidifier OFF, one touch will display a selection for OFF, MEDIUM or HIGH.
- 4. Selecting MEDIUM or HIGH will bring on the **set-to** button.
- 5. When you touch the **set-to** button, the arrows appear, allowing you to change to the desired de-humidifier percentage setting.

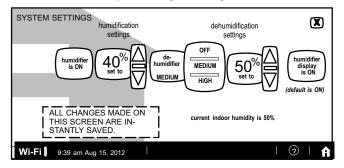


Figure 15. Humidifier Controls (Outdoor Unit)

HOW DEHUMIDIFICATION MODE WORK — NO EXTERNAL DEHUMIDIFICATION DEVICE

NOTE - **OFF, MEDIUM** and **HIGH** dehumidification modes are also a function of the HVAC system with NO external dehumidification devices installed.

In OFF mode, dehumidification if off.

In **MEDIUM** mode, dehumidification occurs if these conditions are met and signals are present at specific terminals:

- dehumidification has been enabled on installer settings, and
- the unit is in COOL mode, and
- dehumidification demand exists (RH above setpoint), and
- cooling demand exists (Y1 energized).

In **HIGH** mode, dehumidification occurs if all BASIC conditions are true, except cooling demand may or may not be present. Also note that:

- Maximum over cool from cooling setpoint is 2°F.
- Deadband temperature is limited to a minimum of 5°F (instead of 3°F in DRY or MODERATE modes) because of 2°F overcooling.

AUXILIARY DEHUMIDIFIER — OUTDOOR UNITS

Control State	Conditions
Auxiliary dehumidification is controlled by thermostat.	System must be in cooling mode and have a call for dehumidification from the thermostat. This will start the auxiliary dehumidifier. A separate wire from auxiliary dehumidifier will need to be run to G terminal on indoor unit control to start the blower.
Auxiliary dehumidification is controlled by dehumidification control.	Needs a dehumidification demand from the stand-alone dehumidification thermostat and a separate wire run to G terminal on indoor unit to start the blower.

Using the Tests / Diagnostics Features

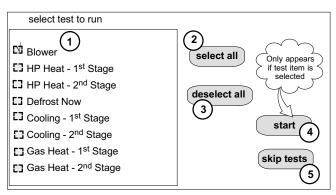


Figure 16. Selecting Tests TO SELECT TESTS TO RUN

Use the following procedure to run tests for various heating and cooling stage operations.

- Select a specific test (1) to run or use the select all (2) button to run all configurations. Use the deselect all (3) button to un-check desired test.
- 2. Touch the **start** button (**4**) to run all selected tests or touch **skip tests** (**5**) to end the test procedure.
- 3. After the tests are completed or you have selected skip test select the exit button to end.

NOTE - Test mode lasts for 30 minutes (with the temperature updating every 30 seconds) except for the defrost test, which lasts 30 seconds. Tests feature provides the technician time to manually verify the equipment operation.

The **tests** feature is available after **set up** has been completed once. After you touch **next** in the final **set up** screen, the "select tests to run" screen (figure 16) will appear. (If you want you may skip tests; touch **skip tests**.)

To run all of the tests, touch **select all**. All boxes in the list of tests will be checked. Or, touch box(es) next to test(s) to run certain tests.

After the tests have been started, the screen will describe which test is running and show a diagnostic summary of each test (see figure 17). After reviewing the results and concluding that no further tests are needed, touch **next** to proceed to next test. The technician must verify that the test procedure is producing the desired result at the equipment.

After pressing **next** after the final test, the **Testing finished** screen will appear (figure 18). At this point, use the **EXIT** button (if you have completed the required set up), or use **diagnostics** button (to analyze the system), or use **equipment** button (if you wish to make any changes to device details).

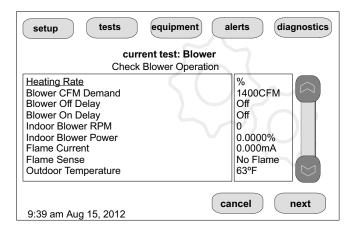


Figure 17. Typical Tests Results Screens



Figure 18. Testing Finished Screen

Touch **confirm** to continue system configuration; the screen will change to the system discovery screen. At this point, the program goes through the same set up as the initial set up process which begins on page 3.

NOTE - "Compatible device found" screen (shown below) appears only when a device has been removed and replaced with a compatible device.

Missing Device Equipment Type No. Model No. (control model no.) Serial No. (control serial no.) Found Compatible
Device Equipment Type No.
Model No. (control model no.)
Serial No. (control serial no.)

Settings were not copied

iComfort® Equipment Interface Module

The iComfort® Equipment Interface Module (EIM) can be configured in the following set ups:

Thermostat, Equipment Interface Module with a (conventional) indoor and outdoor units.

- Wiring—See Communicating System and Optional Accessories Wiring diagrams.
 - 4-conductor thermostat wire from the iComfort Wi-Fi® Flex thermostat to the equipment interface module (R, i+, i-, C)
 - Up to 8-conductor thermostat wire from the conventional furnace and outdoor unit terminal strips to the equipment interface module (R, C, O, Y1, Y2, G, W1, W2 and W3).
 - Wiring as required for accessories
- 2. **DO NOT** cut any option link on furnace control.

- After the entire system is wired, power up the system; the iComfort Wi-Fi[®] thermostat will check the system for equipment interface module.
- 4. On the thermostat, go past the Add or remove non-communicating devices to the To adjust a setting screen. Select System from the device list using the up/down arrows and press the edit button
- Select Balance Point Control and press edit. Use the down arrow to select *Enabled* and press save. High and Low Balance Points will appear in red.
- Complete Balance Point Control by editing the High and Low Balance Points. It is not necessary to change the defaults, but you must save each setting. The red settings will go away after pressing save. Press the back button to return to the adjust screen.
- 7. Use the arrows to select Furnace from system devices list; press edit. From this Furnace screen you will have access to the various airflow settings. Set the system air volumes according the needs of the home. When you change certain settings, the system will prompt you to please view and save all red settings. Use the arrows to select the red settings and press edit. Either make changes or not, but press save either way. The red settings will go away after pressing save. When all CFM settings are complete, press the back button. Press next step to advance to the tests button.

- Test the system operation and confirm the heat pump unit is electrically energized and operational. Press done.
- Exit the installer set up mode by selecting the EXIT button.

TIPS

- High and Low Balance points are enabled and adjusted under the installer section of the thermostat. In the equipment button select "System" and press edit. Scroll down to Balance Point Control and press edit and select Enabled and then save.
- An outdoor temperature sensor is required (field-provided) and connected to the outdoor air sensor terminal on the Equipment Interface Module.
- To display the outdoor temperature on the home screen of the thermostat, you must turn on the Outdoor Temp Display.

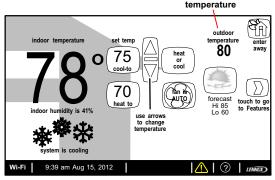
Using the Secure Web Portal

Access all the great Wi-Fi enabled features on your iComfort® thermostat from our secure web portal.

www.myicomfort.com

After signing in, you'll be able to view your iComfort system settings, adjust the temperature and view reminders and alerts – just as you would on your iComfort thermostat at home. With a familiar look and settings this simple, you should feel right at home. Don't forget to check out the available Apps and skins.

- 1. From the Home screen, press the Features button.
- 2. Select Display Settings
- Select outdoor temp display.
 Options are off, internet and sensor.
 outdoor



From the web portal welcome page, you may also click on links to launch an interactive demo or learn more about iComfort.

Skins

By adding a skin and matching skin image screen-saver to your iComfort Wi-Fi, you can coordinate it with the decor in any room. Skins are available in many colors, patterns and designs.

Skins can be ordered from nuvango.com

Go to Shop > All Products and scroll down to EVERYTHING ELSE and select LENNOX ICOMFORT

After ordering the skin, the company will email the image file (.jpg) to you. The frame skin will be mailed to you as well. The skin image can be uploaded to the iComfort Wi-Fi thermostat from the consumer portal site (www.myicomfort.com) under the tab "skins".

Screen-Saver

You can also customize the screen-saver by uploading your own photo on <u>www.myicomfort.com</u> under the tab "skins". Image must be 800x480 DPI in JPG format.

HOW DO I TURN ON SCREEN-SAVER

- From the thermostat Home screen, press ⁽¹⁾
- 2. Press the **display setting** button.
- 3. Press the screen saver button.
- 4. From the pop-up menu, select either **on** for the default screen-saver or **skins** for your custom uploaded image. The skin picture will appear after 30 seconds of inactivity.
 - When set to off, the screen stays on.
 - When set to on, after 30 seconds of inactivity the screen will go blank
 - When set to skins and no skin or custom image has been uploaded, the screen will display

LENNOX after 30 seconds of inactivity. If a skin or custom image has been uploaded, after 30 seconds of inactivity, the image will be displayed.

Accessing Installer Screens and Changing Equipment Parameters

To access the installer screens after the unit has been placed in operation and the user home screen is displayed, touch the "Lennox" logo and hold for 5 seconds. The system will access the installer screens.

A message screen stating "Qualified Lennox equipment installer warning" screen appears.

- 1. When pressing **yes**, the thermostat will search for equipment interface module.
- When pressing no, the thermostat returns to the main screen.
- When pressing reset, the thermostat resets all parameters to factory default, searches for communicating equipment and erases all information concerning conventional equipment previously stored in the thermostat.

After initial installation, if an alert is present when you are making changes to settings, no action on the alert is mandatory. Press **equipment** if you need to set up equipment parameters and edit details of devices in the system.

Press **diagnostics** if you need to analyze the system (see page 20).

If any component of the HVAC system has been changed, e.g. replacing an outdoor sensor, reconfiguring the system will be required. To begin reconfiguring a system (after you have accessed the program from the Lennox logo [previous page]), touch the **setup** button. The "Start system configuration" screen will appear. Press **start** to proceed. The "Re-configure confirmation" screen will appear. This reminder notes that *system configuration* may affect some existing device settings and prompts to **confirm** or **cancel** the configuration process.

Press **confirm** to continue system configuration; the screen will change to the system discovery screen. At this point, the program goes through the same set up as the initial set up process which begins on page 3.

NOTE - "Compatible device found" screen (shown below) appears only when a device has been removed and replaced with a compatible device.

Missing
Device Equipment Type No.
Model No. (control model no.)
Serial No. (control serial no.)

Found Compatible Device Equipment Type No. Model No. (control model no.) Serial No. (control serial no.)

Settings were not copied

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ADJUSTING EQUIPMENT PARAMETERS AFTER INITIAL INSTALLER SET UP

- From the Home Screen, touch and hold Lennox until the warning screen appears. Press yes to continue.
- Press equipment to change equipment parameters and edit details of devices in the system without having to re-run the set up program.
- 3. Select the **equipment** button to continue. The

- **system devices** screen will open. Use the arrows to select a device and touch **edit**.
- Use the arrows to highlight a setting and then touch edit.
- When finished, touch back; equipment parameters screen then touch next. "Select tests to run screen appears"; either run tests as before or touch skip tests.

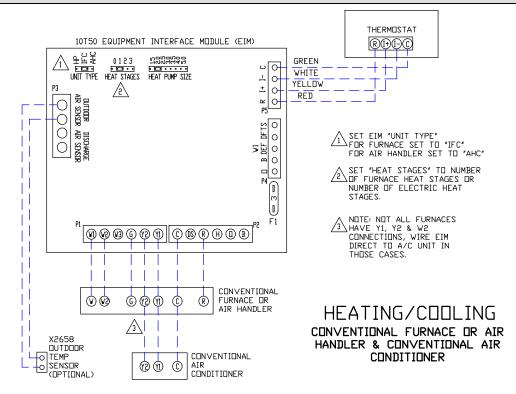


Figure 19. Thermostat and Conventional Indoor Unit and Air Conditioner

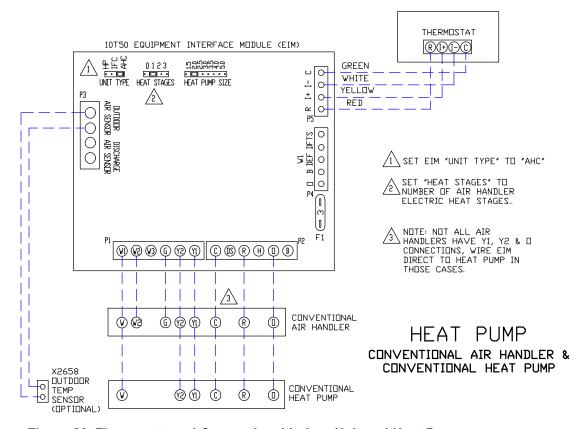
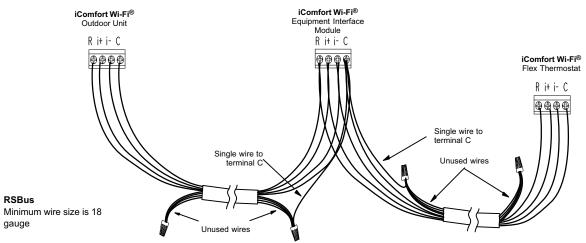


Figure 20. Thermostat and Conventional Indoor Unit and Heat Pump

Note: iComfort Wi-Fi® Flex thermostat does not require shielded cable wiring.



BEST PRACTICES! Keep all communication wiring as far away from house electrical wiring and large electrical appliances as possible (15' [5m] recommended).

Maximum total length of all connections on the RSBus is limited to 1500 ft. (450 m). Max. length between components is 300 ft. (90 m).

Figure 21. Thermostat Wire Termination in Communicating System (Electrical Noise)

	Table 2. Al	ert Codes and Troubleshooting	Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.			
Alert Code	Priority	Alert Text	Steps to clear			
10	Critical	(Thermostat) The thermostat has found an unknown device on the system.	The room thermostat has found an unknown device on the system. An unknown device is seen by the room thermostat in or outside of configuration mode. Clear by reconfiguring the system			
11	Critical	(Thermostat) The thermostat cannot find a previously installed unit.	Check all connections and cycle system power. If problem persists, clear by reconfiguring the system. Press the setup tab, touch start, and touch confirm.			
12	Critical	(Thermostat) The thermostat cannot find an iComfort®-enabled equipment interface module.	Thermostat did not find an Indoor Unit. Make sure there is an iComfort® equipment interface module is on the system. Check R, i+, i- and C connections, ohm wires and cycle power. Replace equipment interface module control if there is no response.			
14	Critical	(Thermostat) The thermostat found more than one thermostat, more than one indoor unit, or more than one outdoor unit on the system.	Check wiring and remove duplicate equipment. Reconfigure system.			
18	Minor	(Thermostat) The outside temperature is below the level where the heat pump is programmed to heat the home. The system will not use the heat pump to warm your home.	Notification only - Outdoor Temp is below the Low Balance Point. Heat Pump will not be used to service a heating demand.			
19	Minor	(Thermostat) The outside temperature is higher than the level where the furnace or electric heat is programmed to work. The system will only use the heat pump to warm your home.	Notification only - Outdoor Temp is above the High Balance Point. Indoor Unit (furnace or air-handler) will not be used to service a heating demand.			

	Table 2. Ald	ert Codes and Troubleshooting	Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.			
Alert Code	Priority	Alert Text	Steps to clear			
29 Critical		(Thermostat) The thermostat is reading an indoor temperature that is higher than 99°F. The thermostat will not allow any heating operation to begin until it senses a temperature lower than 99°F.	Indoor temperature rose above 99°F during a heating or cooling demand. Heating operation is not allowed. Check to ensure that Heating Equipment is not stuck ON (reversing valve, etc.). Check the accuracy of the thermostat temperature sensor. Select cooling system mode to cool the indoor space.			
30	Moderate	(Thermostat) The thermostat is reading an indoor temperature that is lower than 40°F. The thermostat will not allow any cooling operation to begin until it senses a temperature higher than 40°F.	Indoor Temp fell below 40°F. Cooling operation is not allowed. Check to ensure that cooling equipment is not stuck ON. Check accuracy of the thermostat temperature sensor. Select heating system mode to heat the indoor space to above 40°F.			
31	Critical	(Thermostat) The thermostat has lost communication with the (furnace, air-handler or outdoor unit) for more than 3 minutes.	[Indicated unit] has not communicated with thermostat for more than 3 minutes. Check connections. Ohm wires. If fault persists, then cycle power. Fault clears after communication is restored.			
32	Moderate	(Thermostat) The (furnace, air-handler or outdoor unit) is resetting itself.	[Indicated unit] is resetting itself. This event may occur during a power outage or power fluctuation in the system. If persistent or if it coincides with the system operation then proceed with the following steps. Check the power connections, check the amp draw at the transformer (the transformer maybe overloaded) and check 24VAC voltage at the DEVICE. The alarm is only cleared by pressing the clear button on the Installer Alerts Tab. If the fault persists after checking the connections, replace the unit's control board.			
34	Critical	(Thermostat) The thermostat does not know the capacity (tonnage) of the (furnace, air-handler or outdoor unit). Please program the correct capacity of the (furnace, air-handler or outdoor unit).	[Indicated unit] is missing the programmed unit capacity. Go to [Indicated unit] and program the unit capacity manually. See the unit IOM for programming instructions. Remove power to thermostat before programming the unit control board. Once programming is complete, reconnect thermostat wires and reconfigure system.			

	Table 2. Ale	ert Codes and Troubleshooting	Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.				
Alert Code	Priority	Alert Text	Steps to clear				
36	Critical	(Thermostat) The system has been heating for at least 15 minutes, without a demand for heating.	Run the system in diagnostic mode and verify that it matches actual equipment operation. Check for other alarms/codes that may be preventing the system from operating as expected. Step 1: Check all heating equipment to determine cause of heating demand. Step 2: Recycle power. System will clear code when it detects condition has cleared.				
37	Critical	(Thermostat) The system has been cooling for at least 15 minutes, without a demand for cooling.	Run the system in diagnostic mode and verify that it matches actual equipme operation. Check for other alarms/codes that may be preventing the system from operating as expected.				
38	Critical	(Thermostat) The system has not been able to turn on the heating for more than 45 minutes. The system will go offline for 60 minutes and try again.	Run the system in diagnostic mode and verify that it matches actual equipment operation. Check for other alarms/codes that may be preventing the system from operating as expected. Step 1: Check all heating equipment to determine cause. Step 2: Recycle power. System will clear code when it detects condition has cleared.				
39	Critical	(Thermostat) The system has not been able to turn on the cooling for more than 45 minutes. The system will go offline for 60 minutes and try again.	Run the system in diagnostic mode and verify that it matches actual equipment operation. Check for other alarms/codes that may be preventing the system from operating as expected. Step 1: Check all cooling equipment to determine cause. Step 2: Recycle power. System will clear code when it detects condition has cleared.				
120	Moderate	(Thermostat / Furnace / Air Handler / Outdoor Unit / Equipment Interface Module) There is a delay in the (Thermostat, furnace, air-handler or outdoor unit) responding to the system.	Typically, this alarm/code does not cause any issues and will clear on its own. The alarm/code is usually caused by a delay in the outdoor unit responding to the thermostat. Check all wiring connections. Cleared after unresponsive device responds to any inquiry.				

	Table 2. Al	ert Codes and Troubleshooting	Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.
Alert Code	Priority	Alert Text	Steps to clear
124	Critical	(Thermostat / Furnace / Air Handler / Outdoor Unit / Equipment Interface Module / Damper Control Module)) The thermostat has lost communication with the (furnace, air-handler or outdoor unit) for more than 3 minutes.	Equipment lost communication with the thermostat. Check the wiring connections, ohm wires and cycle power. The alarm stops all associated HVAC operations and waits for a heartbeat message from the unit that's not communicating. The alarm/fault clears after communication is re-established.
131	Critical	(Thermostat / Furnace / Air Handler / Outdoor Unit / Equipment Interface Module / Damper Control Module)) The (Thermostat, furnace, air-handler or outdoor unit) control parameters are corrupted.	Reconfigure the system. Replace the control if heating or cooling is not available.
132	Critical	(Air Handler / Damper Control Mod- ule) The device's control software is corrupted.	Recycle power. If failure re-occurs, replace the control. System reset is required to recover.
180	Critical	(Furnace / Air Handler / Outdoor Unit/ Equipment Interface Module) The thermostat has found a problem with the (furnace, air-handler or outdoor unit) outdoor sensor.	In normal operation after control recognizes sensors, the alarm will be sent if valid temperature reading is lost. Compare outdoor sensor resistance to temperature/resistance charts in unit installation instructions. Replace sensor pack if necessary. At the beginning of (any) configuration, furnace or air-handler control will detect the presence of the sensor(s). If detected (reading in range), appropriate feature will be set as 'installed' and shown in the 'About' screen. The alarm/fault will clear upon configuration, or sensing normal values.
290	Critical	(Furnace) There is a problem with the furnace ignition circuit.	The system will go into Watchguard mode. Measure resistance of hot surface igniter. Replace the hot surface ignitor it is not within specifications. The alarm/fault will clear on next successful ignition.
345	Critical	(Air Handler / Equipment Interface Module / Heat Pump) The "O" relay on the air-handler has failed. Either the pilot relay contacts did not close or the relay coil did not energize.	O relay / Stage 1 failed. Pilot relay contacts did not close or the relay coil did not energize. Replace control. Cleared after the fault recovered following reset.

	Table 2. Ald	ert Codes and Troubleshooting	Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.			
Alert Code	Priority	Alert Text	Steps to clear			
347	Critical	(Furnace / Air Handler / Equipment Interface Module) The "Y1" relay on the (furnace or air-handler) has failed. Either the pilot relay contacts did not close or the relay coil did not energize.	Operation stopped. Y1 relay / Stage 1 failed. (Pilot relay contacts did not close or the relay coil did not energize; no input back to IFC chip). Critical Alert. Cleared after reset and Y1 input sensed.			
348	Critical	(Furnace / Air Handler) The "Y2" relay on the (furnace or air-handler) has failed. Either the pilot relay contacts did not close or the relay coil did not energize.	Y2 relay / Stage 2 failed. (Pilot relay contacts did not close or the relay coil did not energize; no input back to IFC chip). Critical Alert. Cleared after reset and Y1 input sensed.			
380	Moderate / Critical	(Equipment Interface Module) Inter- lock relay failure (IFC or AHC mode only)	Interlock relay is energized, but input is not sensed after 3 seconds. There will be no heating or cooling due to this error. De-energize interlock relay and energize after 5 minutes if demand is still present.			
381	Moderate / Critical	(Equipment Interface Module) Inter- lock relay stuck (IFC or AHC modes only)	Interlock relay continuously sensed (with relay off). No heating and cooling operations. Alarm clears 30 seconds after fault clears.			
382	Moderate	(Equipment Interface Module) Relay W1 failure (IFC and AHC modes only)	W1 relay energized, but input is not sensed after three seconds.			
420	Critical	(Outdoor Unit) The "W" output terminal on the outdoor unit is not wired correctly	Defrost cycle lasts longer than 20 minutes. Check heat pump operation. Cleared when W1 signal is removed. Applicable only in communicating mode with non-communicating heat pump.			
594	Moderate / Critical	(Equipment Interface Module) Pre-coil discharge air temperature sensor problem (DFM mode only). Advances from moderate to critical after ten (10) minutes.	Interlock relay energized, but input not sensed after 3 seconds. No heating and cooling operations. De-energize interlock relay and re-energized 5 minutes later if demand is still present. Alarm clears 5 minutes after fault clears.			

	Table 2. Ale	ert Codes and Troubleshooting	Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.
Alert Code	Priority	Alert Text	Steps to clear
600	Critical	Compressor has been cycled OFF on utility load shedding.	Load shedding function: Provides a method for a local utility company to limit the maximum power level usage of the outdoor unit. The feature is activated by applying 24 volts AC power to the L and C terminals on the outdoor control.
601 Critical Outdoor unit has been cycled OFF on low temperature protection.			Low temperature Protection: Outdoor unit will not operate when the outdoor temperature is at or below -4°F (-20°C). If the unit is operating and the outdoor temperature drops below -4°F (-20°C), the unit will continue to operate until the room thermostat is satisfied or the outdoor temperature drops to -15°F (-26°C). (Outdoor unit ambient sensor provides temperature readings).
700	Moderate	(Thermostat) The temperature sensor in the thermostat is not working properly.	Recalibrate thermostat to clear. Replace thermostat if needed.
701	Moderate	(Thermostat) The thermostat is read- ing indoor temperatures above the pre-programmed limit.	Recalibrate thermostat to clear; cool thermostat; adjust setpoint. Replace thermostat, if needed.
702	Moderate	(Thermostat) The thermostat is reading indoor temperatures below the pre-programmed limit.	Recalibrate thermostat to clear; warm thermostat; adjust setpoint. Replace thermostat, if needed.
703	Moderate	(Thermostat) The humidity sensor in the thermostat is not working properly.	Recalibrate thermostat to clear; adjust setpoint. Replace thermostat, if needed.
704	Moderate	(Thermostat) The thermostat is reading indoor humidity levels above the pre-programmed limit.	Recalibrate thermostat to clear. Replace thermostat, if needed.
705	Moderate	(Thermostat) The thermostat is reading indoor humidity levels below the pre-programmed limit.	Recalibrate thermostat to clear. Replace thermostat, if needed.
Ohm Check	_	The ohm reading in the system is either too high or too low.	Ohm reading between i+ and i- anywhere on the RSBus with supply power off should be between 70 and 90 ohms. If above 90 ohms, check and repair wiring, splices or other wiring defects that may be causing the excessive resistance. If less than 70 ohms, check for shorted wires.

HOMEOWNER SERVICE ALERT CODES

Number	Value	Number	Value	Number	Value	Number	Value	Number	Value
3000	Filter 1	3002	Humidifier Pad	3004	Maintenance	4000	User Wi-Fi state change, disable	4002	Image file down- load failed
3001	Filter 2	3003	UV Light	3005	PureAir Main- tenance	4001	Firmware download failed		