



iComfort® E30

Smart Thermostat

Installation and Setup Guide

Disponible en español en www.lennoxPros.com.

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Shipping and Packing List

Quantity	Description
1	iComfort® E30 smart thermostat includes a Smart Hub, HD Display, Mag-Mount and optional use wall plate.
6	Mounting screws (#6 X 1.25" pan head) - Mag-Mount requires 4 and Smart Hub 2.
6	Wall anchors (alligator flanged solid wall anchors)
1	Installation and setup guide
1	User guide
1	Checklist
1	Warranty certificate

! IMPORTANT

The iComfort E30 smart thermostat CAN NOT be connected as a communicating device to indoor or outdoor units. Only conventional 24VAC wiring to indoor and outdoor units is supported.

NOTE: Due to Lennox' ongoing commitment to quality, features and options are subject to change without notice and without incurring liability.

Operating and Storage Environment, Electrical and Dimensions

- Operating Temperature is 32°F to 104°F (0 to 40°C)
- Shipping and storage temperature range is -4°F to 140°F (-20°C to 60°C)
- Operating humidity range is 10% to 90% non-condensing at 104°F (40°C)
- Storage humidity range is 5% to 95% non-condensing at 104°F (40°C)
- E30 Smart Hub Power Input: 24VAC, 1AMP at 60Hz.
- E30 Smart Hub DC Power Output: 12VDC (to Mag-Mount/HD Display)
- Dimensions (H x W x D):
 - » Mag-Mount: 3-1/4" x 3-1/4" x 1/2" (83 x 83 x 13 mm)
 - » HD Display: 5" x 7-1/2" x 1" (127 x 19 x 25 mm)
 - » E30 Smart Hub: 11-1/2" x 7-1/8" x 1-7/8" (292 mm x 181 mm x 48 mm) - antenna length is 7-1/4" (184 mm)

Installation Recommendations

! WARNING

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 a service agency.

Before beginning installation, note the type of equipment, number of stages, and any accessories being installed.

Do

- Read this entire document, noting which procedures pertain to your specific equipment and system requirements.
- Make sure that all wiring conforms to local and national building and electrical codes and ordinances.

Do Not

- Install on voltages higher than 30VAC.
- Exceed 300 feet (91 meters) run when using 18 #AWG thermostat wire or larger.
- Allow power load from any thermostat connection to be more than 1 AMP.

Smart Hub Installation, External Components, LEDs, Terminals & Jumpers

1. Things to consider when installing the Smart Hub:

- Install near the indoor unit such that there is a direct path to the approximate location of the home Wi-Fi access point (the signal is not blocked by the indoor unit or duct work, for example).
- Can be attached to a vertical surface such as a wall stud or roof truss web, or to a horizontal surface such as a floor or ceiling joist, or a roof rafter.
- Smart Hub antenna should be positioned such that it is roughly vertical, no matter the orientation of the Smart Hub, itself.
- Do not install the Smart Hub on the indoor unit, duct work, or other equipment that could induce vibration in the Smart Hub.
- Do not install the Smart Hub on or near large metal objects. This could adversely affect the range and directional coverage of the Smart Hub Wi-Fi signal.
- If the Smart Hub MUST be installed on a metal object, orientate the antenna perpendicular to the metal surface.

- In all cases, the Smart Hub antenna orientation may need to be adjusted to obtain best Wi-Fi results.
2. Use the following procedure outlined in “Figure 1. Smart Hub Installation” to install the Smart Hub.
 3. For low voltage wiring connections use diagrams in section titled “Connecting Low Voltage Wiring” on page 12.

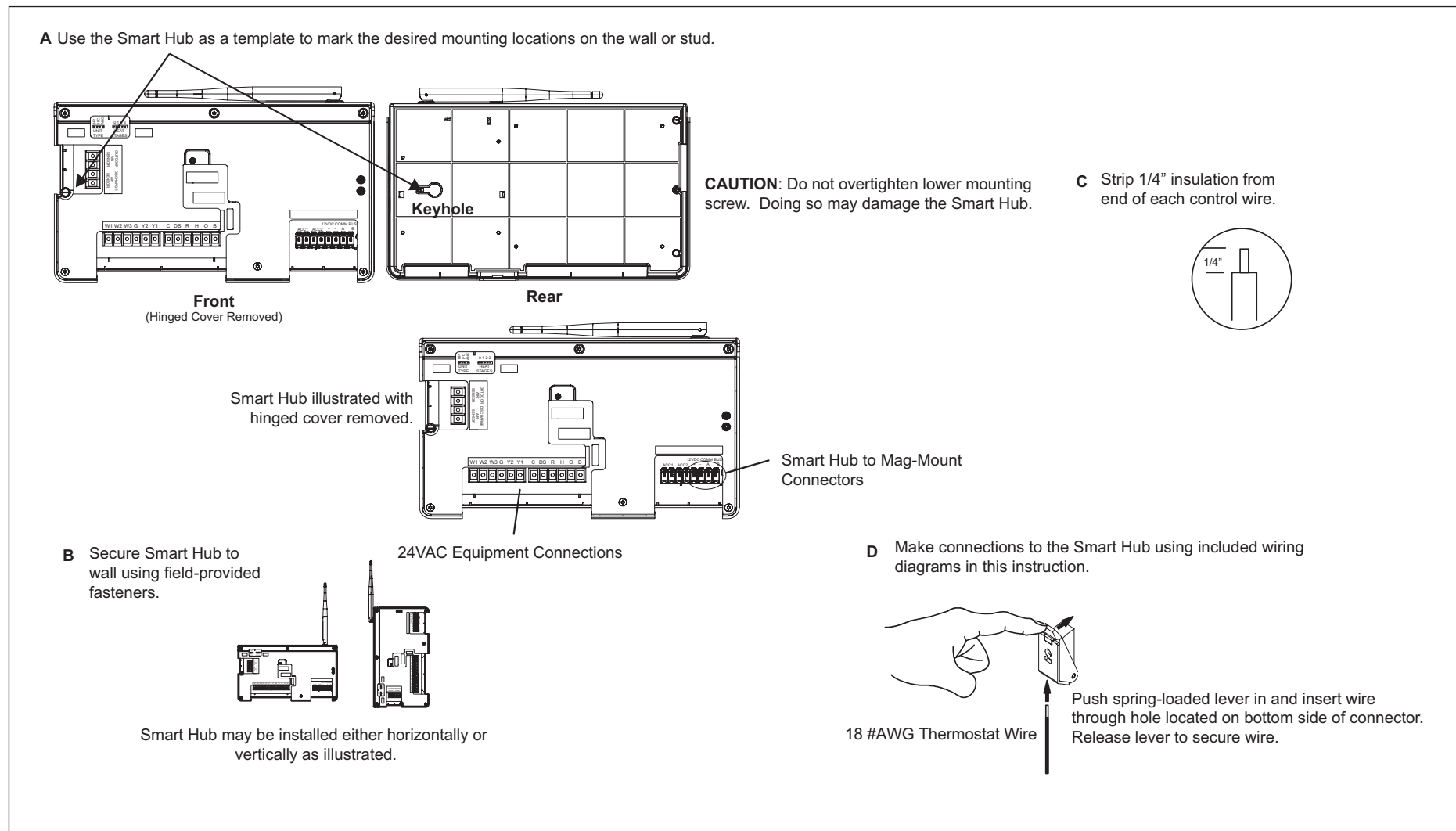


Figure 1. Smart Hub Installation

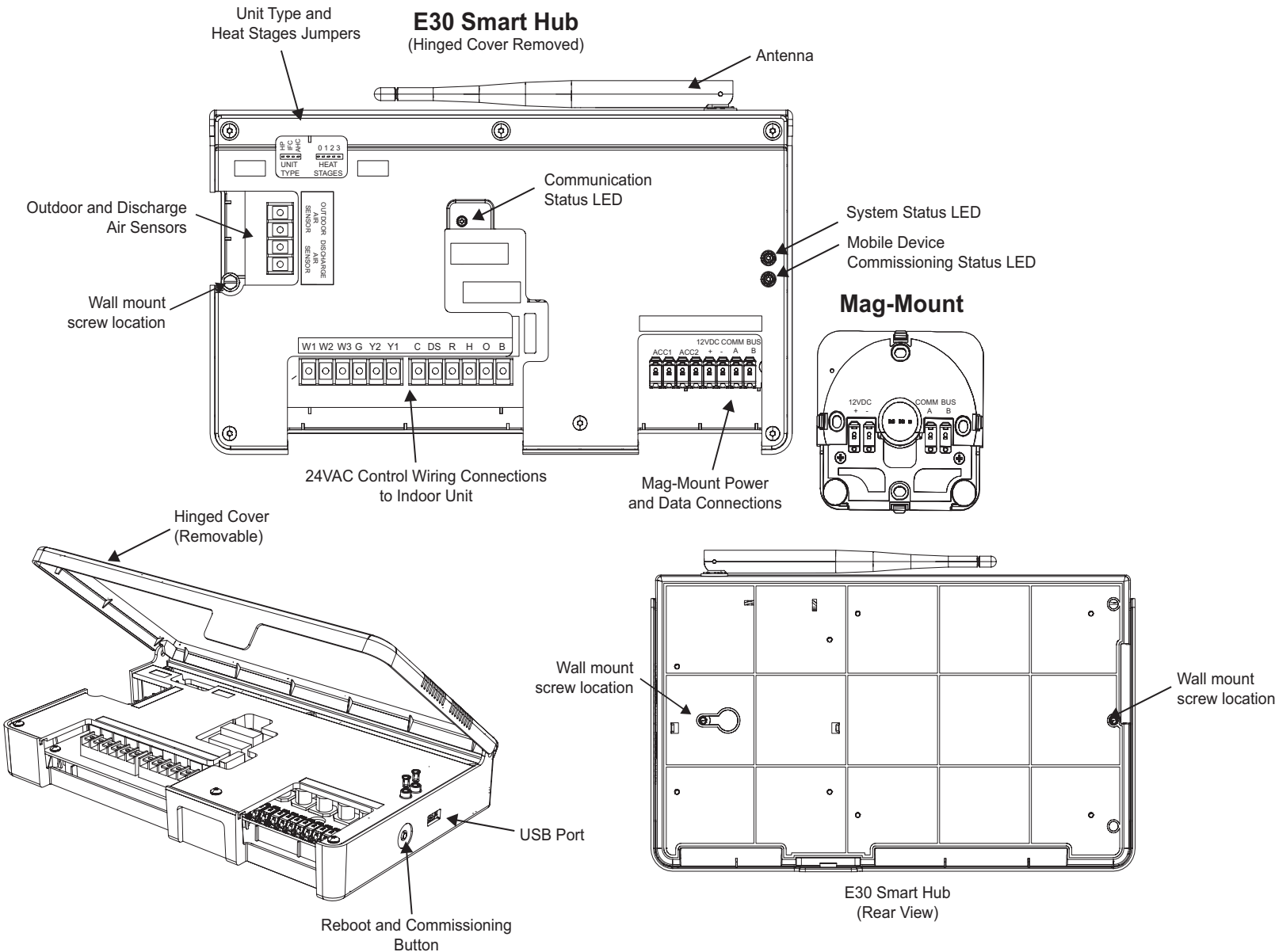


Figure 2. E30 Smart Hub Indicators and External Components

PUSH BUTTON FUNCTION

The Smart Hub push button switch has two primary functions.

- **Rebooting:** Press and hold the button for five seconds to reboot the Smart Hub.
- **Commissioning:** Quickly press and release the button to start the process of creating a direct network connection between the Smart Hub and mobile device running the iComfort Mobile Setup application.

The push button has a LED associated with it that indicates the status of the Smart Hub commissioning state.

LED INDICATORS

When alarms are present, you may review alarm(s) listed either on the homeowner notification screen or the **menu / settings > advanced settings > dealer control center > notifications screen**.

Alert codes which require manual clearing can only be done under the dealer control center > notification screen.

Table 1. System and Commissioning LED Indicators

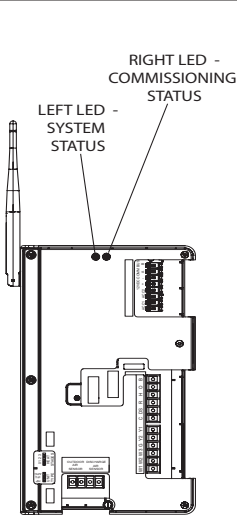
	LED Color	Status	Description
System Status LED			
	Green	System is normal	A solid green LED indicates no system errors are detected. System operating as designed.
	Red	HVAC Fault	System has critical alert which needs installer attention.
	Amber	Wi-Fi Error	Blinking amber LED indicates either Wi-Fi is not connected, no Wi-Fi is within range, or and Wi-Fi hardware error. Could also indicate intermittent Wi-Fi connection.
	Magenta	T-Stat Error	Blinking magenta LED indicates either Mag-Mount or HD display not connected.
	Cyan	Hardware Error	Blinking cyan LED indicates E30 internal communication error.

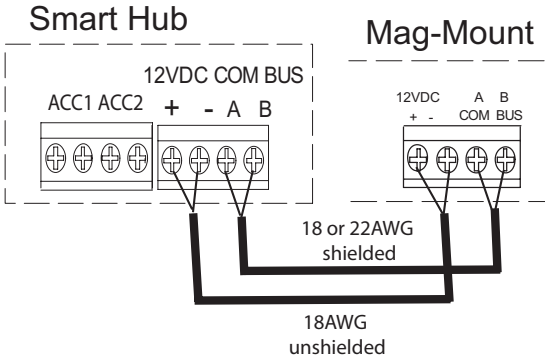
Table 1. System and Commissioning LED Indicators

	LED Color	Status	Description
Commissioning Status LED			
	Blue	System is normal	No mobile device is directly connected using Wi-Fi to the Smart Hub.
	Green	Blinking green LED indicates the commissioning button has been activated and the Smart Hub is waiting for a connection with a mobile device.	
	Green	A solid green LED indicates a mobile device is connected to the Smart Hub.	
<p>If multiple errors are present, the system status LED will display each active condition for one second on and one second off.</p> <p>The system will continue to cycle through all active conditions.</p> <p>System status errors are displayed in the following priority: HVAC alerts, thermostats and then Wi-Fi.</p>			

! IMPORTANT

If any jumpers were set incorrectly AFTER commissioning was completed, then reposition jumpers to correct configuration. Re-running the commissioning procedure will be required at the thermostat or with the mobile app.

Table 2. Terminal Designations and Wiring Recommendations

Terminal Designation	Description	Thermostat Wiring	Typical Wiring
ACC1	Accessory 1 and 2 (typically can be used for 1 or 2 speed ventilators and fresh air damper)	18AWG unshielded	<div>DO NOT connect shield wires to Smart Hub</div> <div></div>
ACC2			
12VDC +	12VDC output	18AWG unshielded	
12VDC -	12VDC return	18AWG unshielded	
COM BUS A	Communications bus A	18 - 22AWG shielded (recommended)	
COM Bus B	Communications bus B		

CONVENTIONAL EQUIPMENT TERMINAL CONNECTIONS

Table 3. Conventional Terminals (24VAC)

Label	Description	Function
W1	First-stage heat output (first-stage gas heat output when configured as furnace (IFC) and first-stage electric heat output when configured as air handler (AHC).	
W2	Second-stage heat output (second-stage gas heat output when configured as IFC and second-stage electric heat output when configured as AHC.	
W3	Third-stage heat output (third-stage electric heat output when configured as air handler)	
G	Indoor blower control (continuous fan) (monitoring only). G input may be connected to IAQ devices such as humidifier, Lennox Ventilation Control System and Heat or Energy Recovery Ventilators to turn the indoor blower on and off.	
Y2	Second-stage compressor output.	
Y1	First-stage compressor output.	
DS	24VAC dehumidification signal output. The DS terminal is powered when there is not a dehumidification call.	
C	Class II, 24VAC trans- former common	Both R and C terminals are used to receive power from the indoor unit and capable of providing the power to the Smart Hub and all the associated loads. The R power input uses a 3A fuse (Lennox part number 25J49).
R	Class II. 24VAC trans- former power	
H	24VAC humidifier signal output.	
O	Heat pump reversing valve (24VAC = cool)	Used as reversing valve output for heat pumps. The E30 uses a single-pole dual throw relay to generate O and B signals. Normally the O output is open and B output at 24VAC during heating calls. During cooling calls O is 24VAC and B open. With relay de-energized 24VAC is present on O terminal.
B	Heat pump reversing valve (24 VAC = heat)	

UNIT TYPE JUMPERS

Set the unit type jumper for the type of indoor unit being used (see “Figure 2. E30 Smart Hub Indicators and External Components” on page 5 and “Table 4. Unit Type Jumpers Positions”). The factory default setting is IFC. If jumper is missing from header, alarm 130 is activated.

Table 4. Unit Type Jumpers Positions

Jumper Position	Indoor Unit	Outdoor Unit
HP	DO NOT USE	
IFC	Conventional furnace, hydronic baseboard heating and hot water coils	Conventional heat pump or air conditioner
AHC	Conventional Air Handler	

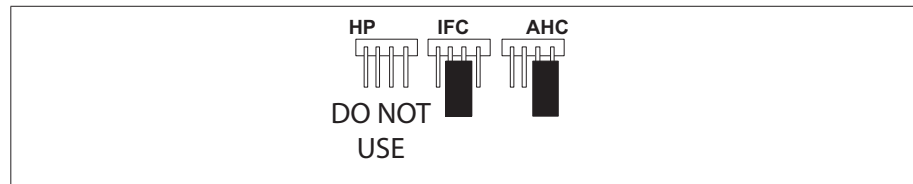


Figure 3. Unit Type Jumper Positions

HEAT STAGE JUMPER POSITIONS

The heat staging Jumper must be set for the number of stages of electric heat (air handler) or the number of stage of gas heat (furnace) and stages of heat pump. Using the heat stages jumper (see figure 3 and table 8).

The factory default setting is position 2. If jumper is missing from header, alarm 130 is activated.

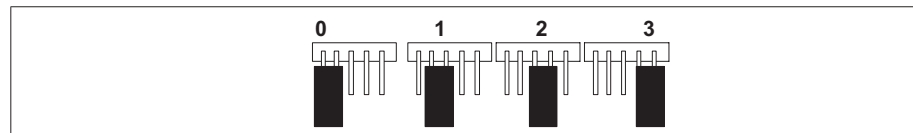


Figure 4. Heat Stage Jumper Positions

Table 5. Heat Stage Jumpers

Label (Position)	Air Handler Heat Stages		Furnace Heat Stages		Heat Pump Stages	
	Number of Electric Heat Stages	Stage Percentage	Number of Gas Stages	Stage Percentage	Number of Compressors Stages	Stage Percentage
0	No Electric Heat	0	1	100%	1	100%
1	1	100%	1	100%	1	100%
2 (default)	2	50%, 100%	2	70%, 100%	3	70%, 100%
3	3	33.5%, 66.5%, 100%	2	70%, 100%	3	70%, 100%

If jumper is missing, setting defaults to single-stage. Changing jumper position after power-up requires recommission for the change to be recognized.

AIR TEMPERATURE SENSOR CONNECTIONS

Table 6. Sensors

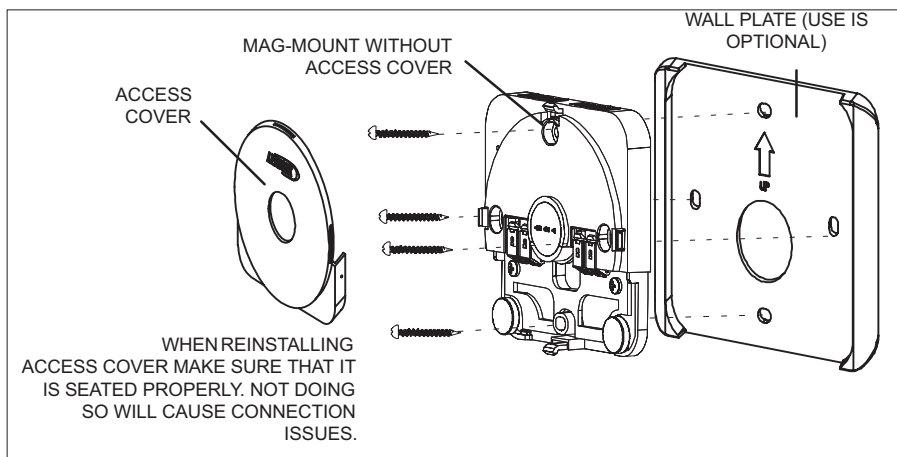
Label	Function / Description
Outdoor Air Sensor	Show ambient temperatures (optional if weather feed is acceptable; use X2658 Outdoor Sensor - 2 terminals). Wiring distance between the thermostat and the outdoor temperature sensor can not exceed 200 feet (61 m) when wired with 18 #AWG thermostat wire.
Discharge Air Sensor	Optional for diagnostics of indoor air; use 88K38 Discharge Air Sensor - 2 terminals. Wiring distance between the furnace or air handler control module and the discharge air sensor should not exceed 10 feet (3 meters) when wired with 18 #AWG thermostat wire.

Mag-Mount LED and Installation

⚠ CAUTION

Magnets located in this product have far-reaching and strong magnetic fields. They could damage TVs and laptops, computer hard drives, credit and ATM cards, data storage media, mechanical watches, hearing aids and speakers. Keep HD Display and Mag-Mount away from devices and objects that could be damaged by strong magnetic fields.

INSTALLATION



Use the following procedure for installation of the Mag-Mount where existing thermostat wiring does not exist:

1. Unpack the HD Display and Mag-Mount (wall base).
2. Determine the best location to install Mag-Mount. Ideal location should be located away from outside wall, direct sunlight or discharge air vents.
3. Cut or drill a small hole for thermostat wiring.



4. Pull about three inches of thermostat wire through the opening and remove the outer thermostat wire jacket.



Seal wire hole in wall to prevent cold or hot air from affecting temperature sensor in display

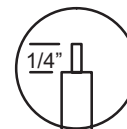
⚠ IMPORTANT

Seal wire hole in wall to prevent cold or hot air from affecting temperature sensor in HD Display.

⚠ IMPORTANT

Do not install smart hub in location where direct exposure to condensation or dripping water is possible.

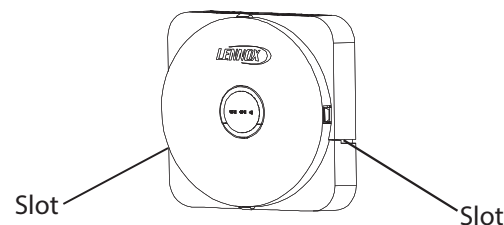
5. Strip 1/4" (7 mm) insulation from end of each wire.



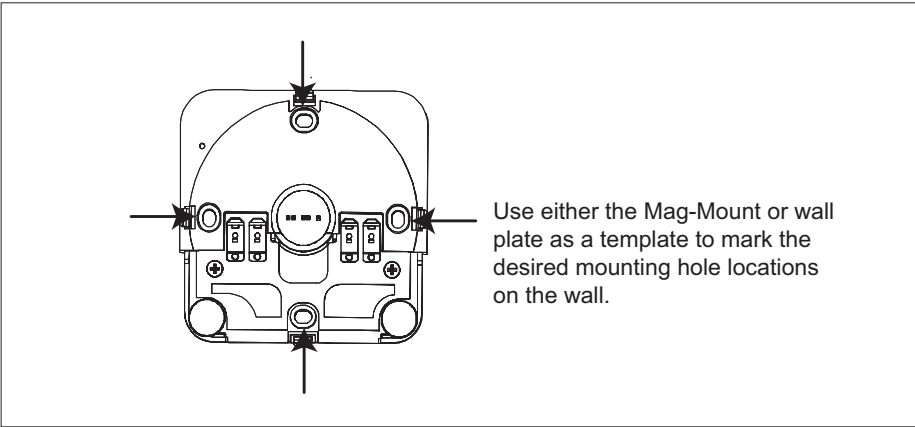
6. Use a level to align either the mag-mount or wall plate on wall horizontally.



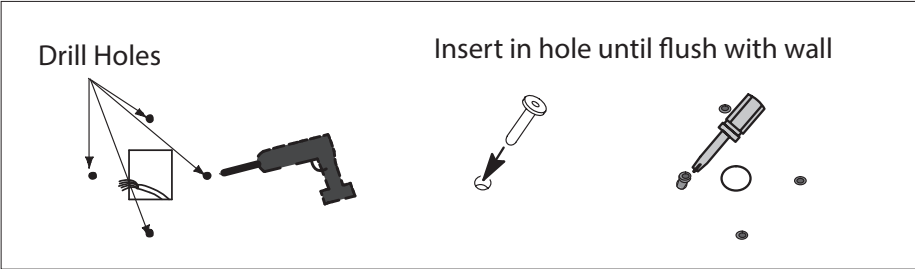
7. Remove cover from mag-mount by inserting a flat-head screwdriver into the slot on each side of the mag-mount. Give it a gentle twist to separate the two sections.



8. Use mag-mount as a template to mark the desired mounting hole locations on the wall.



9. Drill 3/16" (5 mm) holes at marked locations on the wall for anchors. Then insert wall anchors into holes until flush with the wall.



10. Secure mag-mount to wall or through wall-plate to wall with provided #6 x 1.25" pan head screws (4).
11. Connect thermostat wiring and reinstall access cover.

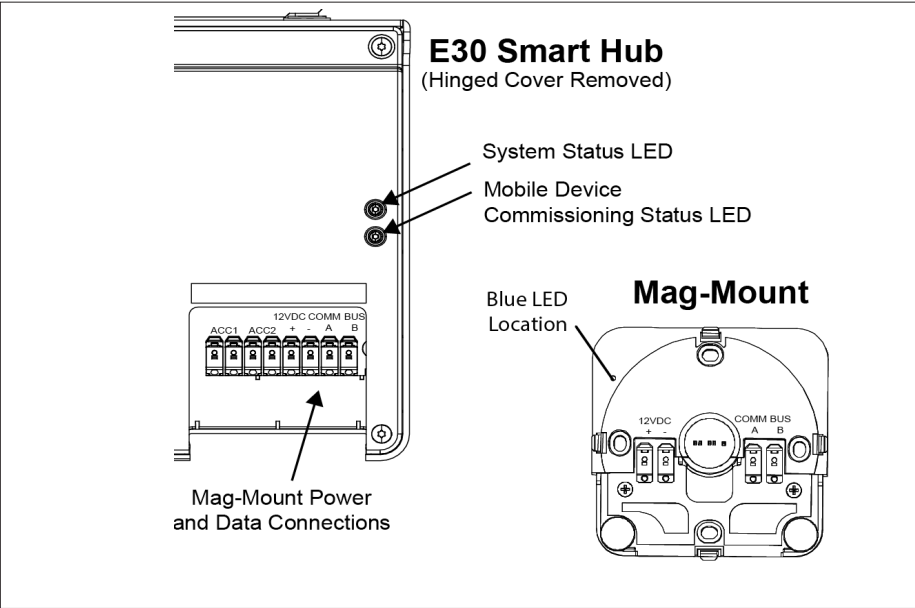
WARNING

DO NOT over-tighten mounting screws. Doing so may distort the mag-mount plastic housing and cause connection issues when installed the HD display.

12. Reinstall access cover.
- NOTE:** Make sure the Mag-Mount cover is reinstalled correctly to the Mag-Mount base. The cover must be flush with the base or could cause power or communication issues.

LED INDICATORS

1. A blue LED is visible when power is connected to the Mag-Mount and the HD Display is not installed.



2. The LED has three conditions; steady on, flashing and off. Below is a troubleshooting guide on Mag-Mount to Smart Hub connections:

Table 7. Communication Error Troubleshooting (Mag-Mount to Smart Hub)		
Possible Connection Issues	Mag-Mount LED Condition (HD Display Removed)	E30 Smart Hub - System Status LED
One communication wire at either the Mag-Mount or Smart Hub COMM BUS A or B terminals is disconnected.	Steady Blue	Flashing Magenta LED
Both communication wires – at either the Mag-Mount or Smart Hub COMM BUS A or B are disconnected.	Flashing Blue	Flashing Magenta LED

Table 7. Communication Error Troubleshooting (Mag-Mount to Smart Hub)

Possible Connection Issues	Mag-Mount LED Condition (HD Display Removed)	E30 Smart Hub - System Status LED
Power wires at either the Smart Hub or Mag-Mount 12VDC + and - terminals are disconnected.	Off	Flashing Magenta LED.

Table 7. Communication Error Troubleshooting (Mag-Mount to Smart Hub)

Possible Connection Issues	Mag-Mount LED Condition (HD Display Removed)	E30 Smart Hub - System Status LED
If terminals are connected correctly, then check HD Display mounting to Mag-Mount. HD Display may not be secured correctly to Mag-Mount.	LED not visible when HD Display is installed.	Flashing Magenta LED. HD Display screen may be either blank or a message indicating iComfort cannot communicate with the equipment.

HD Display Components and Installation

INSTALLATION

NOTE: Do not install HD Display or Mag-Mount on outside walls or in direct sunlight.

1. Hold the HD Display by the edges, line it up with the Mag-Mount, and move the HD Display toward the Mag-Mount.
2. When the magnets in the Mag-Mount attract the HD Display, guide it toward the Mag-Mount and let the magnets pull it into place.
3. Lightly press on the sides of the HD Display to make sure it is completely seated on the Mag-Mount.
4. To remove the HD Display from the Mag-Mount, rotate the HD Display right or left (clockwise or counter-clockwise) at least 30 degrees to disengage the plastic hooks and then pull it straight off of the Mag-Mount.

! WARNING

Failure to rotate the HD Display before pulling it off of the Mag-Mount may loosen the dry wall anchors or pull the Mag-Mount off of the wall due to the increased force required to separate the HD Display from the Mag-Mount when it is not rotated.

NOTE: If the HD Display is removed from the Mag-Mount base, the HD Display will shut down and not be able to communicate with the system. System can be controlled from mobile devices or dealer web portal once registration has been completed.

5. Do not remove the protective film covering the HD Display screen until after power is applied to the system.

CAUTION

- 1) Battery may need to charge before operation. Once the display is connected, instructions may appear within 15 seconds with further detail.
- 2) TO AVOID BREAKING THE GLASS DISPLAY
 - a. Do not apply force directly to the glass display
 - b. Holding the display horizontally
 - i. Center the display cavity on the base
 - ii. Press both sides equally until the snaps engage
- 3) AVOID EXCESSIVE FORCE TO THE GLASS DISPLAY

EXTERNAL COMPONENTS

- Proximity Sensor - Detects a person approaching the HD Display. If the HD Display is in Screen Saver mode and the Proximity Detect feature is set to ON, the proximity sensor takes the HD Display out of screen saver mode and returns the home screen when someone approaches.
- Power Button - Resets the HD Display when pressed and held for about 5 seconds.
- microSD Card slot - Not functional, for future use
- Micro USB connector - Not functional, for future use

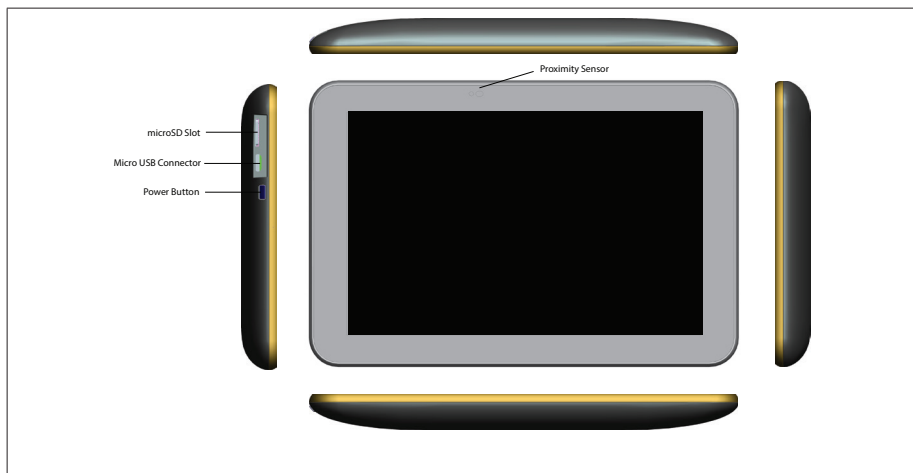


Figure 5. HD Display Components

Connecting Low Voltage Wiring

The following diagrams illustrate the basic Lennox communication control wiring for all compatible components.

DISCHARGE AIR TEMPERATURE SENSOR (DATS)

Installation of discharge air temperature sensor (DATS) (88K38) must comply with the following requirements:

- Installed downstream of the heat exchanger or electric heat elements.
- It must be placed in free airflow, where other accessories (such as humidifiers, UV lights, etc.) will not interfere with its accuracy.
- Wiring distance between the Smart Hub and the discharge air sensor must not exceed 10 feet (3 meters) when wired with 18 #AWG thermostat wire.
- DATS is highly recommended for all systems to provide more precise dehumidification operation.

OUTDOOR AIR TEMPERATURE SENSOR (OATS)

The optional outdoor air (temperature) sensor (OATS) (X2658) wiring distance to iComfort E30 should not exceed 150 feet (45 meters) when wired with minimum 22 #AWG (recommend 18 #AWG) dedicated 2-conductor thermostat cable. Installation of OATS must comply with the following requirements:

- Sensor wiring must be run to avoid touching or being close to high voltage wiring and light ballast.
- Choose a protected outdoor location away from direct sunlight or other heat sources (usually on the north side of the building).

- Ensure that water will neither collect on, or wash over the sensor.
- Do not locate the sensor near driveways or similar heat-absorbing masses which may reflect stored heat energy onto the sensor and send inaccurate information to the thermostat.
- Locate the sensor away from attic and soffit vents, or furnace venting pipes.
- Do not locate the sensor directly above an air conditioner or heat pump.

WIRING SPECIFICATIONS

The following is the wiring specification for the system:

- Smart Hub to Mag-Mount wiring size is 18# AWG.
- Thermostat does not require shielded cable wiring.
- Maximum total length of all connections combined is 1500 feet (457 meters).
- Maximum length between components is 300 feet (90 meters).

SMART HUB / MAG-MOUNT WIRING CONNECTIONS

Smart Hub to Mag-Mount

This system requires four thermostat wires between the Mag-Mount and Smart Hub - see "Figure 6. Thermostat Wiring - E30 Smart Hub to Mag-Mount (Electrical Noise Termination Consideration)".

Reducing Electrical Noise on Communication Bus

When a thermostat cable with more than four wires is used, the extra wires must be properly connected to avoid electrical noise. The wires must not be left disconnected.

- Use wire nuts to bundle the unused wires at each end of the cable. A single wire should then be connected to the indoor unit end of the wire bundle and attached to the "C" terminals as shown in "Figure 6. Thermostat Wiring - E30 Smart Hub to Mag-Mount (Electrical Noise Termination Consideration)".
- Keep all wiring as far away from the house electrical wiring and large electrical appliances as possible. Recommended minimal distance is 15 feet (5 meters).

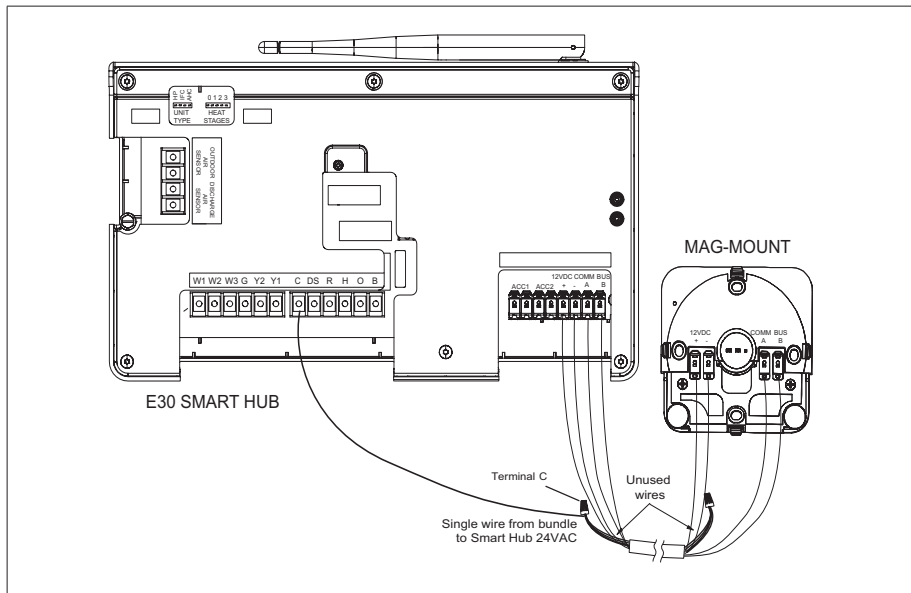


Figure 6. Thermostat Wiring - E30 Smart Hub to Mag-Mount (Electrical Noise Termination Consideration)

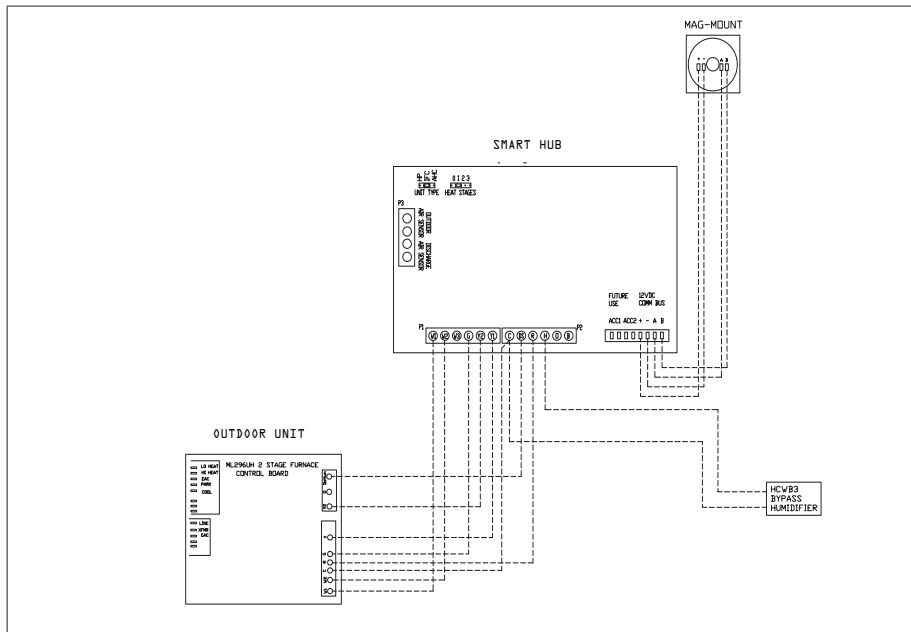


Figure 7. Thermostat Wiring - E30 Smart Hub to HCWB3 Bypass Humidifier

COMPONENT WIRING DIAGRAMS

Diagrams are typical low voltage conventional wiring connections.

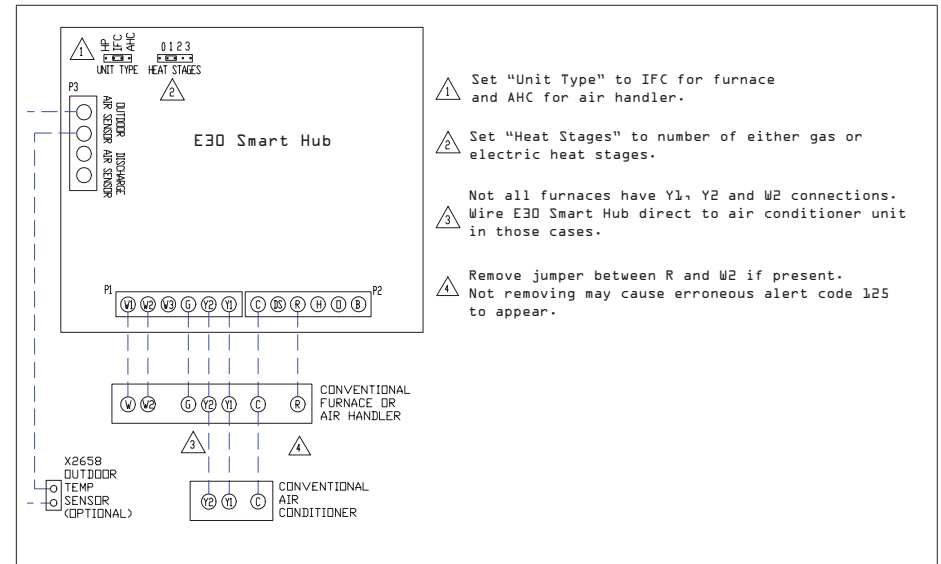


Figure 8. iComfort E30, Conventional Furnace or Air Handler and Conventional Air Conditioner

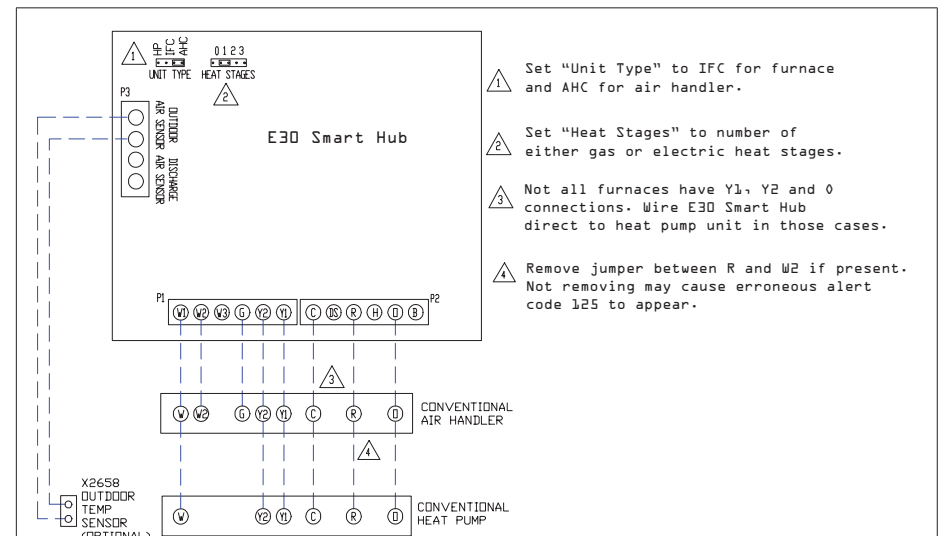


Figure 9. iComfort E30, Conventional Air Handler and Conventional Heat Pump

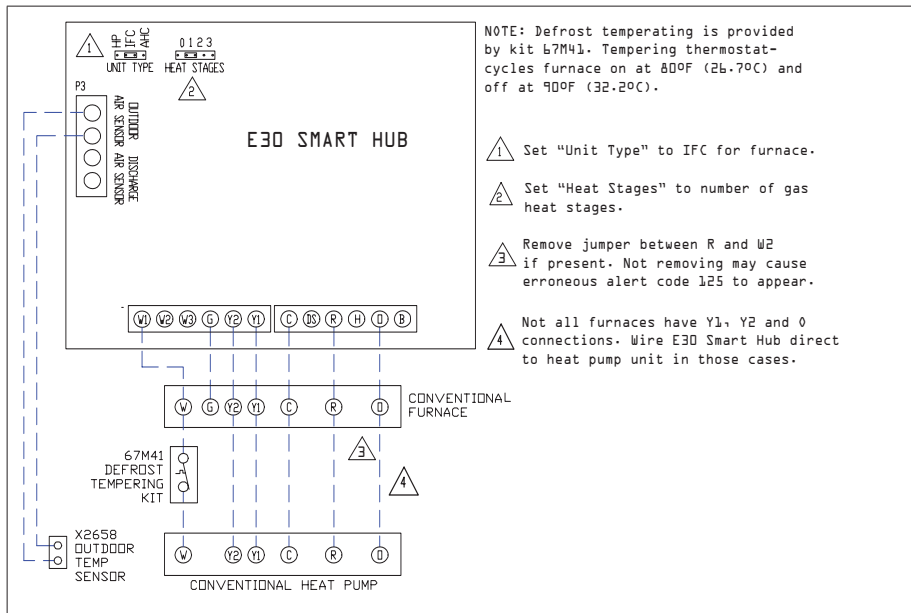


Figure 10. iComfort E30, Conventional Furnace, Conventional Heat Pump and Defrost Tempering Kit (Dual-Fuel)

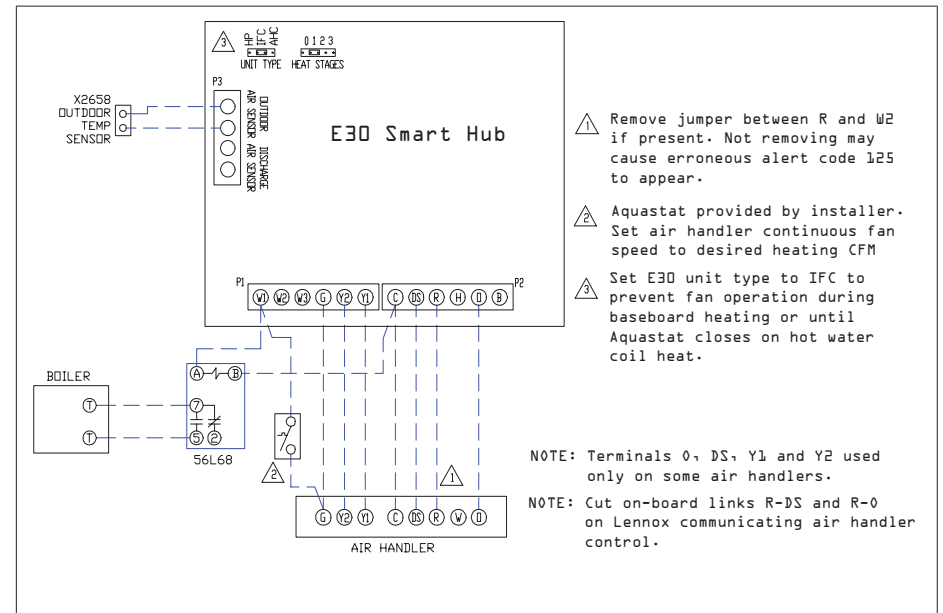


Figure 12. iComfort E30, Conventional Air Handler, Relay and Boiler

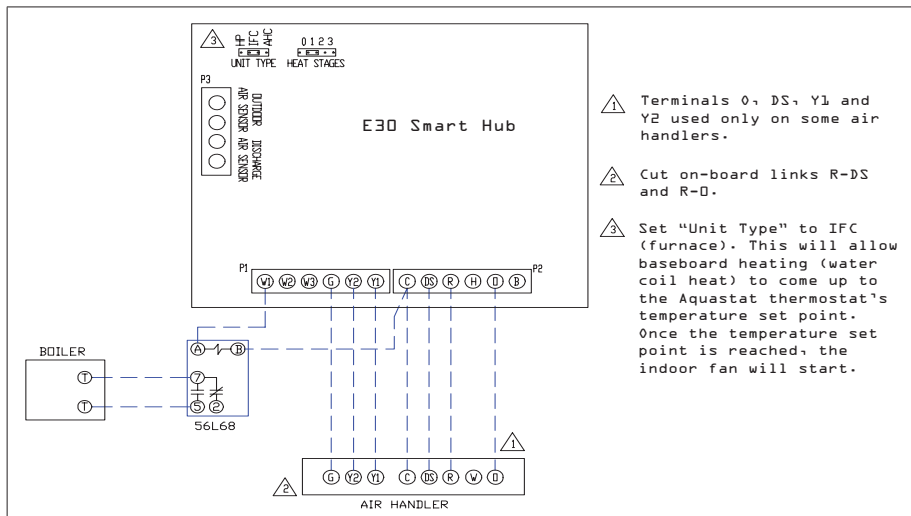


Figure 11. iComfort E30, Conventional Air Handler, Hydronic Baseboard Heating and Relay

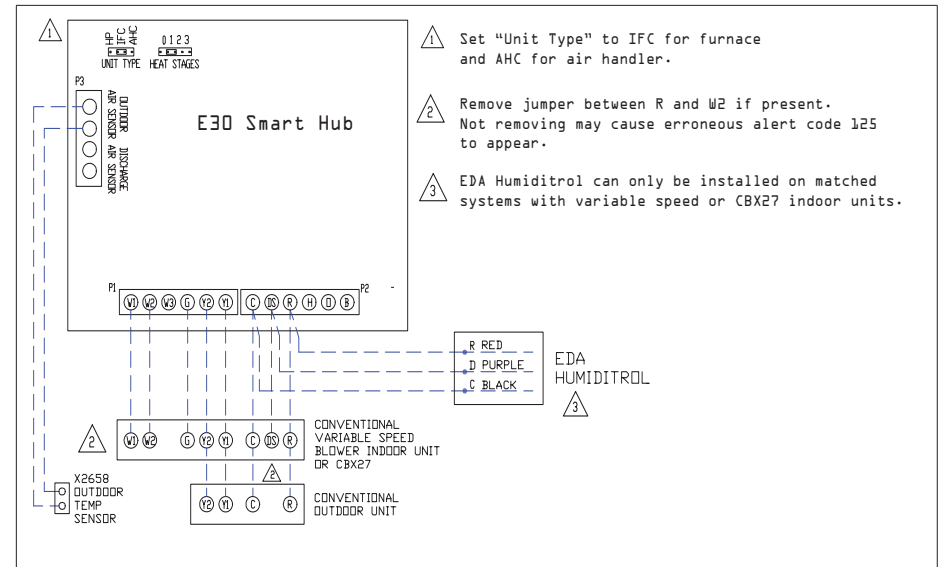


Figure 13. iComfort E30, Conventional Variable Speed Indoor Unit, Conventional Outdoor Unit and Enhanced Dehumidification Accessory (EDA) - Humiditrol

Commissioning (Using the Mobile Setup Application)

This application tool is used by dealers to commission a iComfort E30 smart thermostat using a Wi-Fi enabled mobile device.

A temporary Smart Hub local network provides a means for a mobile device using the iComfort Mobile Setup application to directly communicate with the Smart Hub.

NOTE: The iComfort Mobile Setup application running on a mobile device cannot connect to the Smart Hub through the Internet or home Wi-Fi network.

To use the iComfort Mobile Setup app, the mobile device must be:

- Wi-Fi capable
- Located in the home near the Smart Hub

NOTE: A router with Bonjour capabilities is required for this function. Check the router features if the Smart Hub does not connect. Apple Bonjour® is an implementation of Zero-configuration networking (Zeroconf), a group of technologies that includes service discovery, address assignment, and host name resolution.

MOBILE DEVICE OPERATING SYSTEM REQUIREMENTS

The iComfort Mobile Setup application is available for both IOS 6.0 and higher (App Store) and Android 4.1 and higher (Google Play).

IMPORTANT

If the connection between the iComfort Mobile Setup application and Smart Hub is idle for three (3) minutes, the Smart Hub will auto-disconnect from the mobile device. Repeat procedures to reconnect.

1. Download and install the iComfort Mobile Setup application.

NOTE: It is recommended that when using the iComfort Mobile Setup application to commission the system, remove the HD Display from the Mag-Mount before starting. Once commissioning is completed, reattach the HD Display to the Mag-Mount.

2. Go to the Smart Hub and press the commissioning button located on the side of the unit (see “Smart Hub Installation, External Components, LEDs, Terminals & Jumpers” on page 3 for location of button).
3. The commissioning status LED will start blinking green for two minutes. During this time the Smart Hub will broadcast its Wi-Fi identifier (SSID).

4. Go to your mobile device’s Wi-Fi connection tool and locate the Smart Hub Wi-Fi broadcast identifier. A typical example of a identifier (SSID) is DIRECT-XY12-3456.

NOTE: Refer to your mobile device’s owners manual on how to use your Wi-Fi Connection tool.

5. Connect to the Smart Hub by using the last eight digits of the Smart Hub SSID as the password. In this example, it would be XY123456).
6. Once the mobile device is connected to the Smart Hub, the commissioning Status LED will turn solid green.
7. Start the iComfort Mobile Setup application and make sure you are connected to the correct Smart Hub by checking the serial number.
8. Touch the **remote-in** tab on the iComfort Mobile Setup application home screen. This will take you to the commissioning screen.
9. You can use the information provided in “Commissioning (Using the Mobile Setup Application)” on page 16 to complete the commissioning process using the iComfort Mobile Setup application.
10. If the system has not been commissioned it will go to commissioning screen. If the system has already been commissioned it will go to dealer control center.
11. Once the commissioning is completed, exit the iComfort Mobile Setup application.
12. Go to the mobile device’s Wi-Fi tool and manually disconnect from the Smart Hub.
13. Once disconnected, the Smart Hub commissioning LED turns to a solid blue.
14. Reinstall the HD Display on the Mag-Mount.

SERVICE

To use iComfort Mobile Setup application as a service tool, the commissioning of the system must have already been completed.

1. Download and install the iComfort Mobile Setup application if not already installed.
2. Go to the Smart Hub and press the commissioning button once.
3. The LED will start blinking green for two minutes. During this time the Smart Hub will broadcast its Wi-Fi identifier (SSID).
4. If this is the first time connecting to the target Smart Hub then go to your mobile device’s Wi-Fi connection tool and locate the Smart Hub Wi-Fi

broadcast identifier. A typical example of a identifier (SSID) is DIRECT-XY12-3456.

5. If your mobile device had already connected previously to the target Smart Hub, then touch the applicable Smart Hub SSID on the list and skip to step 7.

NOTE: Refer to your mobile device's owners manual on how to use your Wi-Fi Connection tool.

6. Connect to the Smart Hub by using the last eight digits of the Smart Hub SSID as the password (XY123456) for example.
7. Once connected to the mobile device the Smart Hub commissioning LED will turn solid green.
8. Start the iComfort Mobile Setup application and make sure you are connected to the correct Smart Hub by checking the serial number.
9. Touch the **remote-in** tab on the iComfort Mobile Setup application home screen.
10. If the system has not been commissioned it will launch the commissioning screen. If the system has already been commissioned it will go to dealer control center.
11. Once servicing is completed, exit the iComfort Mobile Setup application.
12. Go to the mobile device's Wi-Fi tool and manually disconnect from the Smart Hub.
13. Once disconnected the Smart Hub LED will change to a solid blue.

ALTERNATIVE METHOD

From the home screen, go to **menu > settings > advanced settings > pair Smart Hub** to iComfort dealer mobile application selection. It will auto connect to dealer application and start you at the dealer control center screen. The following screen will appear and show the status of the connection. Once connected the screen will automatically disappear.

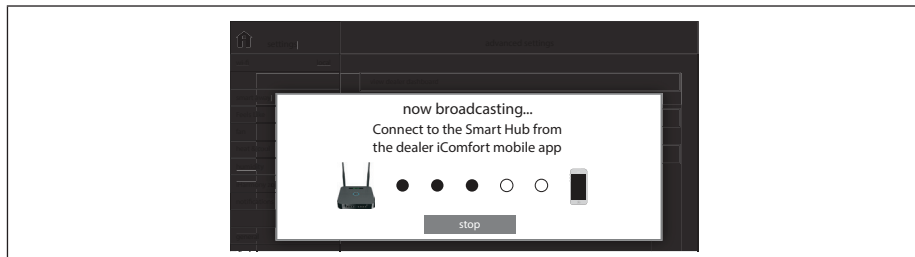


Figure 18. Pairing

MULTIPLE SMART HUB(S) - GROUP ID

Multiple Smart Hubs in a home can be assigned to a group (up to nine groups with up to five (5) Smart Hubs in each group). All Smart Hubs in a group can communicate with other Smart Hubs in the same group over the home Wi-Fi network.

Default is Group ID 1. Range is 1 to 9.

For example, seven Smart Hubs in a home can be divided up for example as 1 in Group 1 and six in Group 2 or 4 in Group 1 and 3 in Group 2. Smart Hubs in Group 1 will not be able to see or interact with the Smart Hubs in Group 2. This allows the intentional isolation of the Smart Hub for the master bedroom from the Smart Hub for the children's area, for example.

NOTE: If a Smart Hub is set to Group 0, there no connectivity with another Smart Hub.

Group IDs can be changed by going to **menu > settings > advanced settings > view > dealer control center > equipment > smart hub**.

RESTARTING SMART HUB

Pressing the Smart Hub button for more than five seconds will reboot the Smart Hub.

Commissioning (Using the HD Display)

The following procedures are written for commissioning the system using the HD display interface.

When power is applied the system will use the smart hub configured equipment settings and factory defaults. All non-communicating equipment must be added in the "add non-communication equipment" screen.

BOOT-UP SCREEN

When power is applied to the system, the HD Display will display a welcome screen.

If there is an issue with communication between any component attached to the thermostat, a critical alert message will appear on the screen. The alert message will provide detail information concerning the possible cause. Once the issue is corrected and power is restored to the system the first screen in the initial setup sequence will appear.

Below is an example of a communication error message.



Figure 19. Communication Error Message

Low BATTERY STATUS

If a critical low battery screen is displayed, the system will automatically start charging the HD Display internal battery. On the screen the word “charging” will appear. Once “charging” disappears (typically 3 to 10 minutes) then the display will automatically start-up.

APPLE HOMEKIT WI-FI ACCESSORY CONFIGURATION

A pop-up screen will appear providing instructions on how to connect the thermostat to the home Wi-Fi network using an Apple IOS device. If you wish to use this method to configure the unit for Wi-Fi and Apple HomeKit, then refer to the provided user guide for additional instructions.

Otherwise, select **cancel** to proceed with the thermostat commissioning procedures. There is an option to perform this task later on at the homeowners convenience.

NOTE: This procedure can only be accomplished using the homeowner's Apple mobile IOS device.



Figure 20. IOS Wi-Fi Accessory Configuration

DEALER INFO AND LANGUAGE SELECTION

The first screen in the commissioning sequence is the dealer information screen and language selection tool. Supported languages are English, French and Spanish. The drop-down selection tool is located in the upper right-hand corner of the screen.

Dealer ID and/or phone number can be added. Once the system is connected to the Internet, the remaining information will be populated automatically by the Lennox server based on the dealer ID or phone number entered. All information can be entered manually if desired however.

Information that can be manually entered is name, email website, dealer address which includes address 1, address 2, city, state and zip/postal code. Once completed touch continue.

WARNING SCREEN

If either the Dealer ID or phone number is NOT provided, a warning screen will appear. The warning screen will provide information on the limitation imposed on the system if this information is not provided. Touch no to return to the previous screen to complete the information requested or touch yes to continue.

GENERAL INFORMATION

On this screen general information needs to be verified or changed. Touch any item to change its contents. A pop-up screen will appear that will allow the information to be added or changed.

Information required:

1. Select desired language (ENGLISH, FRANÇAIS or ESPAÑOL).
2. Select country / region.
3. Select time and date which includes time, date, time zone and daylight savings time (ON/OFF).
4. Temperature unit (Fahrenheit or Celsius).
5. Once completed touch **continue**.

EQUIPMENT FOUND SCREEN

This screen will display the Smart Hub equipment settings. If additional 24VAC equipment needs to be added (air conditioner or heat pump), it can be done so from this screen by selecting the add non-communicating equipment.

Depending on whether the Smart Hub is configured for air handler or furnace operations, the name of each option will appear as either EIM-Furnace or EIM-Air Handler.

Non-Communicating Equipment

When selecting the non-communicating (24VAC) equipment icon a screen will appear listing equipment that can be added. When selecting an applicable component, a green check will appear next to the item.

NOTE: A temporary dialog box will appear indicating: *Updating - Wait while we check for dependencies.*

NOTE: *This is where an outdoor unit type only is selected. Selections are one or two-stage heat pumps or air conditioners. Outdoor unit capacity will also have to be set. Other equipment that can be added are humidifiers and dehumidifiers. Other non-communicating equipment that can be added are:*

- » Humidifiers
- » Dehumidifiers
- » Humiditrol
- » Auxiliary Dehumidifier
- » Fresh Air Damper
- » 1 or 2 Speed ERV (energy recovery ventilation)
- » 2 or 2 Speed HRV (heat recovery ventilation)

NOTE: Once completed touch **done** which will display the equipment found screen. There the additional non-communicating equipment will now be displayed along with the iComfort equipment.

Once completed touch **continue**.

REMINDERS

This screen allows you to set reminders as either disabled or 3, 6, 12 or 24 months and also custom by specific date. The other options on this screen is to trigger the reminder event either by calendar or actual system run-time.

Reminders may be set for Replace filter 1, Replace filter 2, Replace UV bulb, Replace humidifier pad, Ventilation maintenance and Ventilation filter.

Once a reminder is set for a specific item, touch done to return to the previous screen. An “expires on date” will appear next to the item just set.

Dealer Control Center

This menu provides access to the dealer for performing various functions as listed below:

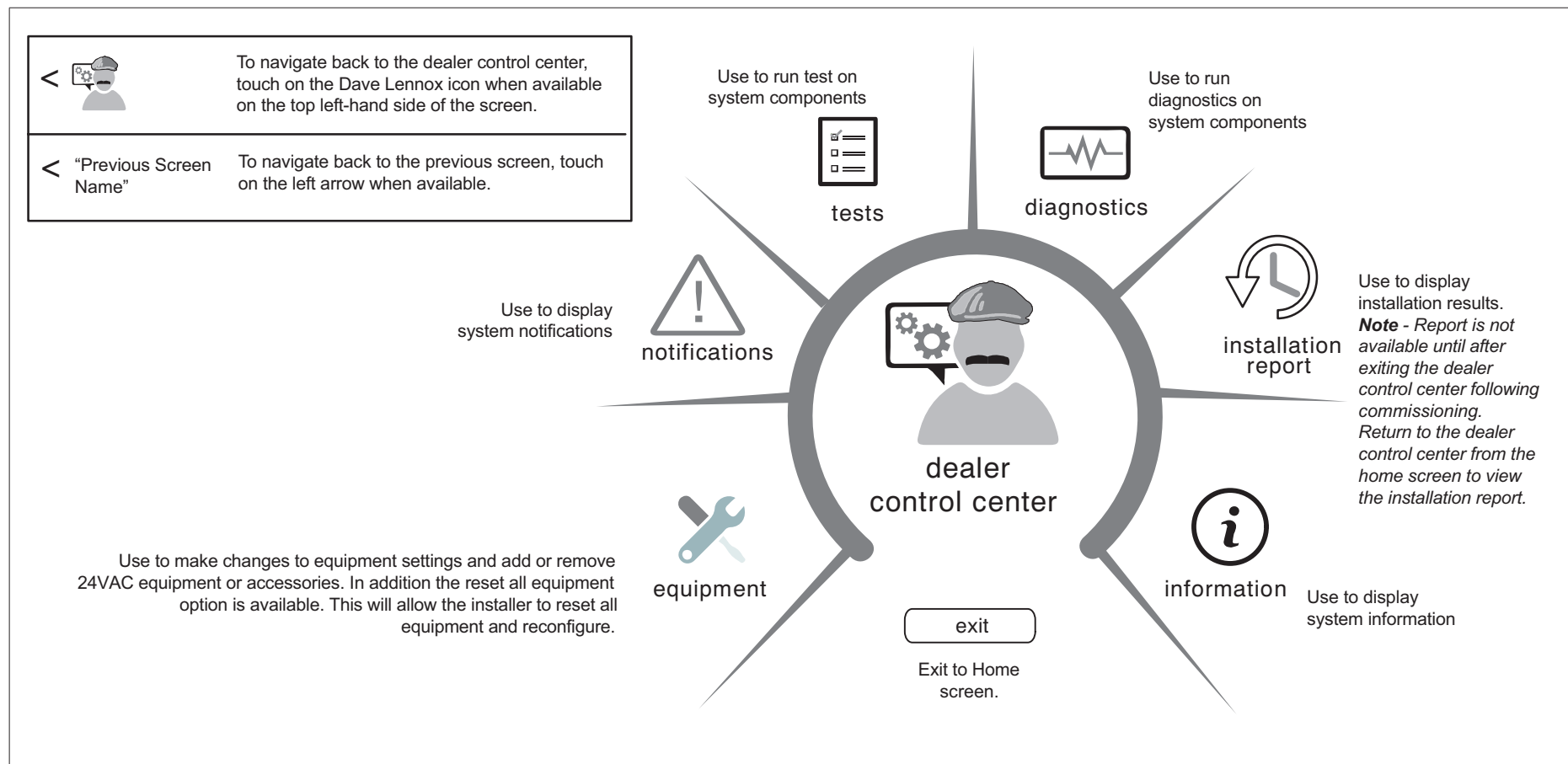


Figure 21. Dealer Control Center

EQUIPMENT PARAMETERS

Selections listed in this section are dependent on system hardware configuration. Not all options will be available.

NOTE: When changing the default settings for any parameter, there is a possibility that it will affect the settings for another parameter. If this happens, a pop-up message will be displayed listing the other affected parameters and their new automatically set values.

The following is a complete list of all possible parameters under System. Parameters actually available are dependent on the Smart Hub settings.

Table 8. Smart Hub Parameters

Parameter (In alphabetical order)	Description
About	This screen provides information concerning language supported, equipment type name, control software revision, model, control mode number, control serial number, control hardware revision, protocol revision number, device product level, 24VAC average power consumption, 24VAC peak power consumption, compatible devices list, application code memory size and micro-controller part number.
Auto Changeover - Humidif. Deadband	Prevents the Humidification and Dehumidification settings from being closer together than 5% or greater than 10% (Dead-band). Range is 5 to 10%. Default is 5%. Adjustments are in increments of 1%.
Auto Changeover - Temp Deadband	Prevents the Heating and Cooling from being set closer together than 3°F (1.67°C) or greater than 9°F (5.0°C) (Dead- band). Range is 3 to 9°F (1.67 to 5.0°C). Default is 3°F (1.67°C). Adjustments are in increments of 1°F (0.56°C).
Auto Dehumidification Overcooling Threshold	Range is 0 - 10%. Default is 4%. Adjustments are in increments of 1%. This value can automatically be affected by adjusting other parameters. One example would be when enabling Max Dehumidification Overcooling.
Balance Point Control If system is set up as dual fuel or heat pump with electric heat and a outdoor temperature sensor connected to Smart Hub, the low and high balance point settings will appear. The balance points feature requires that a sensed outdoor temperature is provided to the thermostat. The outdoor ambient temperature can be read from a field-installed outdoor temperature sensor (X2658). When balance point control is ENABLED, the low and high balance point fields will be turned "ON" and show RED. A message will be displayed asking you to review the low and high balance point settings and save all RED settings. Highlighted fields in RED must be saved to allow exit from that screen. Options are enabled or disabled. Default is disabled. When enabled, both low and high balance points can be set. High Balance Point This setting is used to prevent the furnace or electric heat from heating the structure. (Alert 19 - Minor - Notification only - The outdoor temperature is higher than the level where the furnace or electric heat is programmed to heat the home.) Range is -17 to 75°F (-27.22 to 23.89°C). Default is 50°F (10.0°C). Adjustments are in increments of 1°F (0.56°C). Low Balance Point Setting used to prevent the heat pump from heating the structure. (Alert 18 - Minor - Notification only - The outdoor temperature is below the level where the heat pump is programmed to heat the home). Range is -20 to 72°F (-28.89 to 22.22°C). Default is 25°F (-3.89°C). Adjustments are in increments of 1°F (0.56°C).	
Cooling Mode	Options are Normal and Comfort. Default is Normal. When changing to Comfort Mode, several parameters are automatically modified for optimal system operations. The changed parameters are listed on the screen when set to Comfort. Normal - This setting cools the home to the desired temperature setting. Once second-stage is activated by timer or differential, it will not stage down to first-stage until the next cooling cycle demand. Comfort - This is when the system could automatically stage up or down based on the current load demand.
CFA Cooling Discomfort Threshold	Default is ON. The purpose of this algorithm when set to ON is to detect systems with faults which are causing measurable loss of comfort and thus, need repair/service intervention. The algorithm monitors the duration in which the indoor temperature is above the cool set point or below the heat set point and does not approach the set-point. When an issue is detected alarm 901 is activated.

Table 8. Smart Hub Parameters

Parameter (In alphabetical order)	Description
Electric Heat Stages During Defrost	Can increase or decrease the number of electric elements to come on during a call for defrost. Thermostat will have a demand for heat.) Range is 0 to 5 electric heat stages. Default is 2. Adjustments are in increments of 1.
Equipment Name	A unique name can be assigned to this component. Name can be up to 29 characters. Name can consist of letters, numbers, special characters and spaces. Default name is Subnet Controller.
Group ID	Default Group ID is 1. Valid range is 0 to 9. Multiple Smart Hubs in a home can be assigned to a group (up to nine groups with up to eight Smart Hubs in each group). All Smart Hubs in a group can communicate with other Smart Hubs in the same group over the home Wi-Fi network. If a Smart Hub is set to Group ID 0, there is no connectivity with another Smart Hub.

Heat Cool Stages Locked In

Heat Cool (H/C) Stages Lock in default is disabled (heat/cool stages are turned off separately). If changed to Enabled, heat/cool stages are turned off together. *For non-variable speed systems only.*

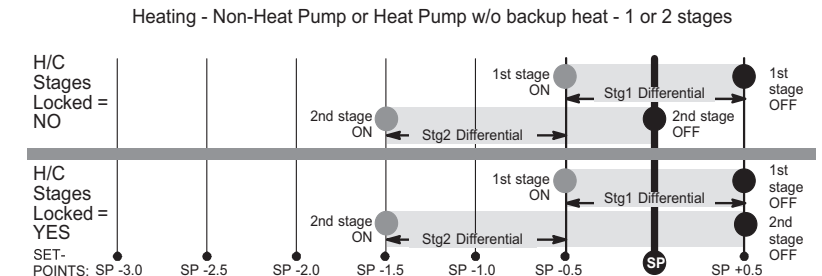
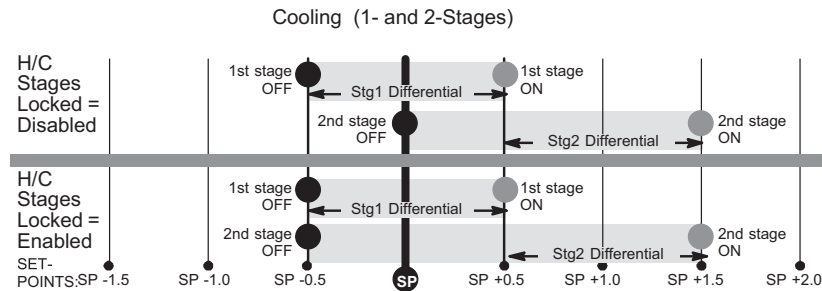


Table 8. Smart Hub Parameters

Parameter (In alphabetical order)	Description
	<p style="text-align: center;">Heating - Heat Pump with Electric - 3 Stage (2 compressor / 1 backup OR 1 compressor / 2 backup)</p> <p>H/C Stages Locked = NO</p> <p>H/C Stages Locked = YES</p> <p>SET-POINTS: SP -3.5 SP -3.0 SP -2.5 SP -2.0 SP -1.5 SP -1.0 SP -0.5 SP SF</p>
	<p style="text-align: center;">Heating - Heat Pump with Electric - 4 Stage (2 compressor / 2 backup)</p> <p>H/C Stages Locked = Disabled</p> <p>H/C Stages Locked = Enabled</p> <p>SET-POINTS: SP -3.5 SP -3.0 SP -2.5 SP -2.0 SP -1.5 SP -1.0 SP -0.5 SP SF</p>
	<p style="text-align: center;">Heating - Dual Fuel - 2 Stage (1 compressor / 1 backup)</p> <p>H/C Stages Locked = Disabled or Enabled</p> <p>SET-POINTS: SP -3.0 SP -2.5 SP -2.0 SP -1.5 SP -1.0 SP -0.5 SP SP +0.5 SF</p>

Table 8. Smart Hub Parameters

Parameter <i>(In alphabetical order)</i>	Description
Humiditrol Comfort Adjust	Options are Maximum Overcooling, Midpoint Overcooling and Minimum Overcooling. Default is Maximum Overcooling. Maximum Overcooling: Indoor temperature > (greater than) two degrees above heating setpoint. Midpoint Overcooling: Indoor temperature > (greater than) HEAT setpoint + COOL setpoint / 2. Minimum Overcooling: Indoor temperature > (greater than) two degrees below cooling setpoint. XP20 and XP25 is not compatible with Humiditrol (EDA).
Humidity Reading Calibration	Range is -10.0 to 10.0%. Default is 0.0%. If it is determine that the actual humidity percentage being detected at the thermostat is off based on independent readings using other humidity reading devices, the display can be adjusted using this setting.
Lock In 2nd Stage HP by Outdoor Temp (Lennox Two-Stage Heat Pumps Only)	This accessory allows the unit to lock in 2nd stage HP heating when the outdoor temperature goes below the jumper pin setting. Options are off, 40°F, 45°F, 50°F and 55°F (4°C, 7°C, 10°C and 13°C). Default is off.
Max Heat Setpoint	The highest temperature setting that the heat set point can be set on the thermostat. Default is 90.0F (32.33°C). Range is 60.0 to 90.0°F (15.56 to 32.22°C). Adjustable in increments of 1°F (0.56°C).
Max Humidification Setpoint	Maximum allowed set point for humidification. Range is 15 to 45%. Default is 45%. Adjustments are in increments of 1%.
Min Cool Setpoint	The lowest temperature setting that the cool set point can be set on the thermostat. Range is Range is 60.0 to 90.0°F (15.56 to 32.22°C). Default is 60°F (15.56°C). Adjustments are in increments of 1°F (0.56°C).
Min Dehumidification Setpoint	Adjustable minimum dehumidification setting. Range is 40 to 60%. Default is 40%. Adjustments are in increments of 1%.
Outdoor Temperature Reading Calibration	Range is -10 to 10°F (-5.56 to 5.56°C). Default is 0°F (0.0°C). Adjustments are in increments of 1°F. (0.56°C) This will allow for adjustment to the outdoor temperature display when the display temperature is off. Outdoor sensor is required.
Reset Smart Hub	Reset Smart Hub (erases Smart Hub settings and restarts installer setup).
Severe Weather Protection Options are enabled or disabled. Default is disabled. When enabled either the heat or freezing alert temperature setting will automatically generate a email notification to the homeowner that the applicable condition exist and homeowner interaction is required. Notification is dependent on the thermostat having a active Wi-Fi connection and the user account has been setup and includes a valid email address. <p style="text-align: center;">Heat Alert Temperature</p> This will notified the homeowner when the indoor temperature reaches the setting defined for this parameter. Range is 80°F to 100°F (26.67 to 37.78°C) with a factory default of 90°F (32.22°C). Increments adjusted by 1.0°F (0.56°C). <p style="text-align: center;">Freezing Alert Temperature</p> This will notified the homeowner when the indoor temperature reaches the setting defined for this parameter. Range is 30°F to 50°F (-1.11 to 10.0°C) with a factory default of 40°F 4.4°C). Increments adjusted by 1.0°F (0.56°C).	

Table 8. Smart Hub Parameters

Parameter (In alphabetical order)	Description
	<p>Single Setpoint Mode (SSP)</p> <p>On the user screens this is referred to as Perfect Temp (Temperature). Options are enabled or disabled. Default is disabled. The Single Set Point (SSP) algorithm allows the user the set only one temperature set point value rather than one value for heating and a different value for cooling. When zoning is present, the following SSP settings are not available. When enabled the following parameters are automatically configured for optimal settings.</p> <p style="text-align: center;">SSP Heating Cancel Coast Counter Increment Slope</p> <p>Range is 0 to 0.75°F (0.0 to 0.42°C). Default is 0.25°F (-0.14°C). Adjustments are in increments of 0.125°F (0.07°C).</p> <p style="text-align: center;">SSP Heating Cancel Coast Counter Decrement Slope</p> <p>Range is 0.25 to 2°F (0.14 to 1.11°C). Default is 0.5°F (0.28°C). Adjustments are in increments of 0.125°F (0.07°C).</p> <p style="text-align: center;">SSP Cooling Cancel Coast Counter Increment Slope</p> <p>Range is -0.75 to 0.0°F (-0.42 to 0.0°C). Default is -0.25°F (-0.14°C). Adjustments are in increments of 0.125°F (0.07°C).</p> <p style="text-align: center;">SSP Cooling Cancel Coast Counter Decrement Slope</p> <p>Range is -2.0 to -0.25°F (-1.11 to -0.14°C). Default is -0.5°F (-0.28°C). Adjustments are in increments of 0.125°F (0.07°C).</p> <p style="text-align: center;">SSP Heating Lockout Outdoor Temp</p> <p>When the outdoor temperature is above this setting, heating is not allowed if single set point is running. Range is 50 to 80°F (10.0 to 26.67°C). Default is 70°F (21.11°C). Adjustments are in increments of 1.0°F (0.56°C).</p> <p style="text-align: center;">SSP Cooling Lockout Outdoor Temp</p> <p>When the outdoor temperature is below this setting, cooling is not allowed if single set point is running. Range is 30 to 60°F (-1.11 to 15.56°C). Default is 40°F (4.44°C). Adjustments are in increments of 1.0°F.</p>
	<p>Options are disabled, conservative, medium and aggressive. Default is disabled.</p> <p>Disable - There is no monitoring of Smart Alert Enable.</p> <p>Conservative - The system will wait longer to display any Smart Alert Enable alarms. This options allow for a minimum chance for false alarms being shown.</p> <p>Medium (default) - Extensive testing by the Lennox development team to minimize the number of false alarms.</p> <p>Aggressive - Will shorten time to display any Smart Alert Enable alarms.</p> <p>Smart Alert Enable function monitors:</p> <ul style="list-style-type: none"> • Thermostat set point setting • Temperature reading • Determine whether the system moving towards the desired temperature setting or is unable to achieve the desire temperature setting. • Uses local climate design temperatures • System run times. • Depending on type of system (conventional heating/cooling or heat pump system) and optional equipment not all system settings will be displayed.

Table 8. Smart Hub Parameters

Parameter (In alphabetical order)	Description
Smooth Setback Recovery (SSR)	<p>When enabled, smooth set back begins recovery up to two hours before the programmed time so that the programmed temperature is reached at the corresponding programmed event time. Assume 12°F (6.6°C) per hour for first-stage gas/electric heating and 6°F (3.3°C) per hour for first-stage compressor based heating or cooling. With Smooth Set Back disabled, the system will start a recovery at the programmed time. Options are enabled or disabled. Default is enabled.</p> <p>The SSR set point calculation is as follows:</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>For New SSR CSP</p> $\text{Current SSR CSP} - \frac{\text{Current Program CSP} - \text{Target Program CSP}}{N}$ <hr/> <p>For New SSR HSP</p> $\text{Current SSR HSP} - \frac{\text{Target Program HSP} - \text{Current Program HSP}}{N}$ <p>Where: CSP = Cool Set Point HSP = Heat Set Point N = number of 30 second intervals to the target program set point Note: N = 240 when target program set point is 2 hours away (maximum recovery time)</p> </div> <p>Rules for SSR:</p> <ul style="list-style-type: none"> • SSR is enabled when both “Smooth Setback Recovery” is set to enabled (default) and the program schedule is turned on. • SSR does NOT turn off stage delay timers. • SSR will NOT change the dead band between heating and cooling modes. • SSR will not overshoot the target set point. • SSR will reset if the user updates the program schedule during the active SSR period
Stage Delay Timers (First)	<p>Enabled (default) setting: When enabled all stage delay timers (stages 2 through 6) are enabled and will serve to bring on additional stage(s) of cooling or heating on a timed basis (default 20 minutes)</p> <p>Disabled setting: All stages delay timers are disabled. Heat/cool stages are changed based on temperature</p> <p>The second-stage delay timer (when stage timers is Enabled) is used for both HEATING and COOLING.</p>
Stage Delay Timers (2 through 6)	<p>Second through Sixth Stage Delay timer (where applicable) - If staged delay timers are “Enabled”, the default is 20 minutes but can be programmed from 5 to 120 minutes in 5-minute increments. If the first stage fails to advance the ambient temperature toward the set point by 1.0°F (0.56°C) in the programmed delay time, then the second stage is activated.</p>
Stage Differentials (1 through 6)	<p>Number of stages in thermostat is dependent on equipment that is installed.</p>
Temp Reading Calibration	<p>Range is -5.0 to 5.0°F (-2.78 to -2.78°C). Default is 0.0°F (-0.0°C).</p> <p>If it is determine that the actual temperature being detected at the thermostat is off based on independent readings using other ambient temperature reading devices, the display can be adjusted using this setting.</p>
Temperature Control Mode	<p>Options are Normal and Comfort. Default is Normal. The Feels-Like feature factors in the outdoor temperature and indoor humidity for a more accurate control of the temperature in the home. Either an outdoor temperature sensor is used or Internet Weather is enabled for this feature to operate. Modifying this setting here will also change the feature status on the user settings screen.</p> <p>Normal - This setting cools or heats the home to the desired temperature setting (feels-like) is OFF.</p> <p>Comfort - This setting cools or heats the home to the desired temperature setting (Feels Like) is ON. When set to ON, other parameters are modified to optimal settings for this feature. Those setting changes will be listed on-screen when Comfort is enabled.</p>

Table 8. Smart Hub Parameters

Parameter (In alphabetical order)	Description
Ventilation Control Mode - timed (default)	
Ventilation Minutes Per Hour	<p>Parameter range is 0.0 - 60.0 minutes. Default is 20.0 minutes. Can be adjusted in increments of 1.0 minutes.</p> <ul style="list-style-type: none"> • The system first tries to satisfy the ventilation time by only ventilating while conditioning is occurring. Continuous fan is not considered conditioning. • When the required time remaining to ventilate for the hour does not equals the amount of time remaining in that hour, the system begins ventilation and does not stop until the ventilation time requirement is satisfied. • When ventilating without a conditioning demand, the ventilation output is active as well as a continuous indoor fan demand. • When ventilating with a conditioning demand, the ventilation output is active with the conditioning demand outputs.
<p style="text-align: center;">Ventilation Rates</p> <p>Thermostat ventilation CFM parameters are to be adjusted only after the HRV/ERV set up is completed and the CFMs are known. Once the thermostat's CFMs are adjusted they are used with the thermostat's timer algorithm to determine how long to run the HRV/ERV and to change from low to high speed if a 2-stage HRV/ERVs.</p>	
Ventilation Rate (Only listed for 1-speed ERV or HRV)	Parameter range is 20 - 500 CFM. Default is 130 CFM. Can be adjusted in increments of 1.0 CFM.
Ventilation Rate for Low Speed (Only listed for 2-speed ERV or HRV)	Parameter range is 10 - 200 CFM. Default is 50 CFM. Can be adjusted in increments of 1.0 CFM.
Ventilation Rate for High Speed (Only listed for 2-speed ERV or HRV)	Parameter range is 20 - 500 CFM. Default is 130 CFM. Can be adjusted in increments of 1.0 CFM.
Ventilation High Outdoor Temperature Limit	<p>Parameter range is 60 to 115°F. Default is 100°F. Can be adjusted in increments of 5°F.</p> <p>While the outdoor temperature is equal to or higher than the setting for Ventilation High Outdoor Temperature Limit, ventilation does not run. When locked out due to high outdoor temperature, it will become unlocked when either the outdoor temperature is missing, or when the temperature reported is 1°F less than the Ventilation High Outdoor Temperature Limit setting when display units are in Fahrenheit, or is reported as 0.5°C less than lock out setting when the display units are Celsius.</p>
Ventilation Low Outdoor Temperature Limit	<p>Parameter range is -20 to 55°F. Default is 0°F. Can be adjusted in increments of 5°F.</p> <p>While the outdoor temperature is lower than the setting for the Ventilation Low Outdoor Temperature Limit, ventilation does not run. When locked out due to low outdoor temperature, it will become unlocked when the outdoor temperature is missing, or when the temperature reported is 1°F higher than the Ventilation Low Outdoor Temperature Limit setting when display units are Fahrenheit, or is reported as 0.5°C higher than lock out setting when the display units are Celsius.</p>
Ventilation High Outdoor Dew Point Limit	<p>Parameter range is 45 to 80°F. Default is 55°F. Can be adjusted in increments of 5°F.</p> <p>While the outdoor dew point is higher than the setting for the high outdoor dew point limit, ventilation does not run. When locked out due to high outdoor dew point limit, it will become unlocked when the outdoor dew point is missing, or when the dew point temperature reported is 1°F less than the lock out setting when display units are Fahrenheit, or is reported as 0.5°C less than lock out setting when the display units are Celsius.</p>

Table 8. Smart Hub Parameters

Parameter <i>(In alphabetical order)</i>	Description
Ventilation Control Mode - ASHRAE	
<ul style="list-style-type: none"> In this mode the thermostat can assist the installer by validating the ventilation CFMs are capable of meeting the ASHRAE required ventilation volumes, but the thermostat has no ability to control CFM from the HRV/ERV. The system first tries to satisfy the ventilation volume by only ventilating while conditioning is occurring. Continuous fan is not considered conditioning. The total volume of ventilation air is accumulated and stored to compare against the target hourly ventilation volume V_{hr}. The accumulated value resets each hour. When the remaining required volume of ventilation air for the hour divided by the fan only ventilation rate is equal to or greater than the time remaining to ventilate for the hour and no conditioning is occurring, the system begins ventilation using continuous fan and does not stop until the target hourly ventilation volume requirement is satisfied. When ventilating without a conditioning demand, the ventilation output is active as well a continuous indoor fan demand. When ventilating with a conditioning demand, the ventilation output is active with the conditioning demand outputs. When the system is ventilating, the user interface can indicate as such by showing “ventilating” to the user on the home screen. 	
<p style="text-align: center;">Ventilation Rates</p> <p>Thermostat ventilation CFM parameters are to be adjusted only after the HRV/ERV set up is completed and the CFMs are known. Once the thermostat’s CFMs are adjusted they are used with the thermostat’s timer algorithm to determine how long to run the HRV/ERV and to change from low to high speed if a 2-stage HRV/ERVs.</p>	
Ventilation Rate <i>(only listed for 1-speed ERV or HRV)</i>	Parameter range is 20 - 500 CFM. Default is 130 CFM. Can be adjusted in increments of 1.0 CFM.
Ventilation Rate for Low Speed <i>(only listed for 2-speed ERV or HRV)</i>	Parameter range is 10 - 200 CFM. Default is 50 CFM. Can be adjusted in increments of 1.0 CFM.
Ventilation Rate for High Speed <i>(only listed for 2-speed ERV or HRV)</i>	Parameter range is 20 - 500 CFM. Default is 130 CFM. Can be adjusted in increments of 1.0 CFM.
Ventilation Outdoor Condition Override	Options are Disabled (default) or Enabled.
ASHRAE Compliance Check	= NO (Ventilation CFM too low to comply with ASHRAE 62.2) or YES (Current settings comply with ASHRAE 62.2)
ASHRAE Infiltration Credit	Parameter range is 0.0 - 200.0 CFM. Default is 2500 square feet. Can be adjusted in increments of 1.0 CFM.
ASHRAE House Floor Area Served by This Ventilator	Parameter range is 500.0 - 5000.0 square feet. Default is 2500.0 CFM. Can be adjusted in increments of 100.0 square feet. The formula for calculating how much ventilation is required is: (total square footage of the home/100) + ((number of bedrooms+1) x 7.5 cfm)
ASHRAE Number of Bedrooms	Parameter range is 1.0 - 10.0. Default is 3.0. Can be adjusted in increments of 1.0.
Ventilation High Outdoor Temperature Limit	Parameter range is 60 to 115°F. Default is 100°F. Can be adjusted in increments of 5°F. While the outdoor temperature is equal to or higher than the setting for Ventilation High Outdoor Temperature Limit , ventilation does not run. When locked out due to high outdoor temperature, it will become unlocked when either the outdoor temperature is missing, or when the temperature reported is 1°F less than the Ventilation High Outdoor Temperature Limit setting when display units are in Fahrenheit, or is reported as 0.5°C less than lock out setting when the display units are Celsius.

Table 8. Smart Hub Parameters

Parameter <i>(In alphabetical order)</i>	Description
Ventilation Low Outdoor Temperature Limit	Parameter range is -20 to 55°F. Default is 0°F. Can be adjusted in increments of 5°F. While the outdoor temperature is lower than the setting for the Ventilation Low Outdoor Temperature Limit , ventilation does not run. When locked out due to low outdoor temperature, it will become unlocked when the outdoor temperature is missing, or when the temperature reported is 1°F higher than the Ventilation Low Outdoor Temperature Limit setting when display units are Fahrenheit, or is reported as 0.5°C higher than lock out setting when the display units are Celsius
Ventilation High Outdoor Dew Point Limit	Parameter range is 45 to 80°F. Default is 55°F. Can be adjusted in increments of 5°F. While the outdoor dew point is higher than the setting for the high outdoor dew point limit, ventilation does not run. When locked out due to high outdoor dew point limit, it will become unlocked when the outdoor dew point is missing, or when the dew point temperature reported is 1°F less than the lock out setting when display units are Fahrenheit, or is reported as 0.5°C less than lock out setting when the display units are Celsius.
Wall Insulation	Options are poor, average and good. Default is average.

Table 9. Air Handler Parameters

Parameter	Description
About	Provides information concerning unit code, language support, equipment type name, unit model number, unit serial number, unit nominal capacity, number of heating states, heating capacity by stage, indoor blower CFM range, control software revision, control model number, control serial number, control hardware revision, discharge air temp sensor, outdoor air temp sensor, protocol revision number, device product level, factory installed transformer, 24VAC average power consumption, 24VAC peak power consumption, line voltage average power consumption, line voltage peak power consumption, compatible devices list, applicable code memory size, and micro-controller part number..
Reset Air Handler	Any installer modifications under the air handler tab will be reset back to the factory defaults if the reset air handler option is used.

Table 10. Furnace Parameters

Parameter	Description
About	This screen provides information on unit code, language supported, equipment type name, unit model number, unit serial number, unit nominal capacity, number of heating stages, heating capacity by stage, indoor blower CFM range, control software revision, control model number, control serial number, control hardware revision, discharge air temp sensor, outdoor air temp sensor, protocol revision number, device product level, factory installed transformer, 24VAC average power consumption, 24VAC peak power consumption, line voltage average power consumption, line voltage peak power consumption, compatible devices list, application code memory size and micro-controller part number.
Reset Furnace	Any installer modifications under the furnace tab will be reset back to the factory defaults if the reset furnace option is used.

Table 11. Thermostat (HD Display) Parameters

Parameter	Description
About	This screen provides information concerning model number, serial number, hardware revision, software revision, language support and equipment type name.
Auto Brightness	Options are on and off. Default is off.
Brightness Value	The brightness range is 0 - 100. Default 80. Touch either the + or - button to increase or decrease the setting.
Display Air Quality	Options are on and off. Default is off. Air Quality is displayed under the weather display. Touch the Weather icon on the home page to see the current air quality.
Display Indoor Humidity	Options are on and off. Default is off.
Display Outdoor Weather	Options are on and off. Default is off.

Table 11. Thermostat (HD Display) Parameters

Parameter	Description
Outdoor Temperature Source	Options are off, Internet (AccuWeather) or sensor. Default is Internet (AccuWeather).
Proximity Control	Options are ON and OFF. Default is OFF. Is used to wake-up the display from screen saver mode when motion near the HD Display is detected.
Reset thermostat	Resets the thermostat settings to factory default.
Screen Locked	Options are unlocked, partially locked and locked. Default is unlocked.
Screen Saver	Options are off, weather, power save and logo. Default is off.
Wide Setpoint	Options are ON and OFF. Default is OFF. This allows a wider low and high temperature. Normal range is 60 to 90°F (15.5 to 32.0°C). When this parameter is set to ON, the range is 40 to 100°F (0.0 to 40°C). This feature can also be set through the user interface setting screen. From the home screen go to menu > settings > heat & cool > wider set-point range .

Table 12. Mag-Mount Parameters

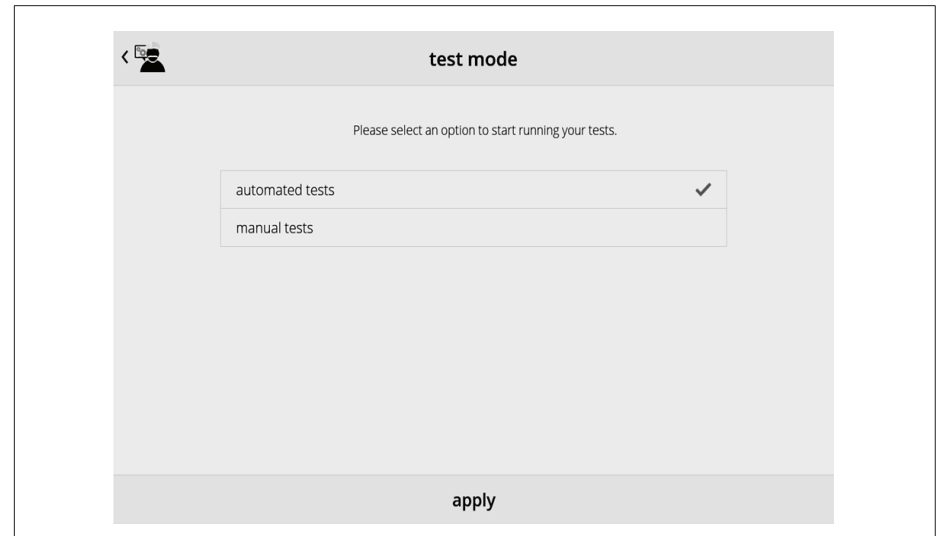
Parameter	Description
About	This provides information on equipment type name, control hardware revision, control software revision, control serial number and control model number.

Table 13. Utilities

Parameter	Description
Restart Smart Hub	Restarts the Smart Hub.
Re-configure System	Re-configure HVAC system.
Reset HVAC Equipment	Resets all HVAC equipment.
Factory Reset Thermostat	Resets thermostat to factory default settings.
Factory Reset Smart Hub	Resets Smart Hub parameters back to factory default.

TESTS

Verify Airflow Per Zone is the first screen to appear under this selection. If no zoning is installed, zone airflow settings will be for zone 1 only. If zoning equipment is detected by the system then zones 1 through 4 will be listed. These screens allow for verification and modification of CFMs for blower, heating and cooling circulation. Touch continue to proceed to the next screen.

**Figure 22. PureAir S Performance Status Screen**

Select **Test Mode** is the next screen to appear. Your options are automated tests or manual tests. Select the desired option and select **apply**.

- **Automated Tests:** Select this options and the next screen will allow you to select the specific tests available for your hardware configuration. The test are automatic and no installer / service technician's attendance is required. When the automatic testing is complete the system returns to the consumer home screen. A updated installation report is generated and available in Lennox Pros under the Homeowners account.
- **Manual Test:** Depending on hardware present, various tests are available. By default all items to be tested are enabled. Selecting a specific test will uncheck the item. When a specific set of tests are completed the results will be

displayed on the screen next to the tested item. Touch continue to proceed to the next set of test items. Once all tests are completed press done to return to the touch tests to run screen. Touch the left arrow at the top left side of screen to return to the Dealer Control Center

DIAGNOSTICS

This screen allows the installer to verify the current operational state of the air handler or furnace. Diagnostics results are for active various inputs, voltage, delays and relays.

Touch the left arrow at the top left side of screen to return to the Dealer Control Center.

INSTALLATION REPORT

- Overview: The overview screen provides information on dealer and customer information. Also included under day of install section is information on conditions at the time of installation. Information includes date, time indoor and outdoor temperatures and indoor humidity.
- System: Information to complete is System name, model number and other system information.
- Indoor Unit (air handler / furnace): name, model number, serial and other information.

NOTE: *Installation Report is not available until after exiting the dealer control center following commissioning. Return to the Dealer Control Center from the home screen to view the installation report.*

INFORMATION

The dealer information screen will appear. The next screen will be for dealer information. Here either the dealer ID or phone number can be added. Once the system is connected to the Internet, the remaining information is automatically populated. Not all information for this screen will be viewable. Touch and hold and then swipe up to access the remaining information on the screen.

Information Required: Dealer ID and / or dealer phone number. Information that can be manually entered is name, email website, dealer address which includes address 1, address 2, city state and zip/postal code. Once completed, touch the left arrow at the top left side of screen to return to the Dealer Control Center.

Warning Screen: If the dealer ID or phone number is not provided, a warning screen will appear. The warning screen will provided information on the limitation imposed on the system if this information is missing. Touch no to return to the above screen to complete the information requested or press yes to continue.

General Information

On this screen general information needs to be verified or changed. Touch any item to change its contents. A pop-up screen will appear that will allow the information to be added or changed.

Information Required:

1. Select desired language (ENGLISH, FRANÇAIS, ESPAÑOL).
2. Select country / region.
3. Select time and date which includes time, date, time zone, daylight savings time (ON/OFF)
NOTE: *When connected to INTERNET, then time and date can not be changed. If the time and date is incorrect then turn off Wi-Fi and correct then turn Wi-Fi back on.*
4. Temperature unit (Fahrenheit or Celsius).
5. Once completed press continue.

Home Address

On this screen general information needs to be verified or changed. Touch any line item to change its contents. Information to be added is address 1, address 2, state, city and zip/postal code.

Complete the requested information and press the continue button.

IMPORTANT

Adding dealer information will ensure the thermostat is associated with your LennoxPros.com account when connecting to the Lennox server.

Dehumidification Settings

All controls for dehumidification are under **menu > settings > humidity**. Under Humidity Control, select **dehumidify** to enable dehumidification. By default it is disabled.

When dehumidify is enabled, the options are as follows and are dependent on equipment type and accessory installed.

DEHUMIDIFICATION SETTING OPTIONS


- Normal — Recommend when the air outside is not too humid.
- Max — Single and Two-Stage Outdoor Units units without a Discharge Air Temperature Sensor (DATS) Installed. Recommend when outdoor air is excessively humid. May cool your home below the set temperature.

DEHUMIDIFICATION SET POINT

Slide bar adjust with a range of 40% to 60%.

ADVANCED DEHUMIDIFICATION DESCRIPTIONS

Table 14. Dehumidification Control Modes of Operations

Mode of Operation	Option	Description
Dehumidification Only	Normal	Staged Outdoor Units: Dehumidifies while servicing a cooling demand and will not over-cool. The over-cool slider is hidden from the user.
	Max	Staged Outdoor Unit: If at the start or during a cooling call, the humidity is above the relative humidity set point then the unit dehumidifies during the cooling demand. If at the time the cooling call terminates, the humidity demand is not satisfied, over-cooling will occur up to the over-cooling slider setting in an attempt to satisfy the dehumidification demand. Once the room temperature reaches the over-cooling set point. If the system still has a dehumidification demand, the system keeps using the over-cooling set point as its operating cooling set point (will not wait for the temperature to rise to the normal cooling set point to run again) until the dehumidification demand is satisfied
	<div>dehumification set-point</div> 	

Ventilation (ERV, HRV and Fresh Air Damper)

This equipment is designed to provide fresh air while exhausting an equal amount of stale air.

VENTILATION RATES

The S30 ventilation function is only a turn on - turn off feature. All CFMs must be adjusted from the HRV/ERV unit. The ventilation function can be controlled by outdoor temperatures and by timers in the thermostat. The ventilation feature can also control 1 and 2 stages of ventilation operation.

Thermostat ventilation CFM parameters are to be adjusted only after the HRV/ERV set up is completed and the CFMs are known. Once the thermostat's CFMs are adjusted they are use with the thermostat's timer algorithm to determine how long to run the HRV/ERV and to change from low to high speed if a 2-stage HRV/ERVs.

ENERGY RECOVERY VENTILATOR (ERV)

The ERV unit is equipped with an enthalpic core. This device is designed for use in warm, humid climates with heavy air conditioning loads. The ERV unit transfers both sensible (temperature) and latent (moisture) heat from incoming fresh air to the stale air as it is being exhausted; thus, reducing the air conditioning load.

HEAT RECOVERY VENTILATOR (HRV)

The HRV unit is equipped with an aluminum core. The device uses the stale air that is being exhausted to condition the fresh air as it is being brought in.

Lennox models are all non-communicating equipment and can be added during the commissioning procedure (see "Commissioning (Using the HD Display)" on page 17).

FRESH AIR DAMPER

This option is used to control a damper connecting outside air to the return plenum of the system. When a fresh air damper style of ventilation is added to the system, and ventilation is required, the ventilation demand is serviced by energizing 1 relay to close or open the relay contacts connected to the fresh air damper and commanding the blower to run at a rate of at least the continuous fan speed.

The parameter Fresh Air Damper Ventilation CFM represents the CFM of the air drawn through the fresh air damper while the system runs the indoor blower at the continuous fan speed for non-zoned systems, and the lowest zone CFM (continuous fan, heating, or cooling) for zoned applications. All calculations used to determine the ventilation volume requirement and the amount of ventilation air delivered use this number regardless of the actual fan speed.

ZONING APPLICATION

- When ventilation is demanded in zoned applications without conditioning calls, the fresh air damper will open and the blower will run at the lowest set zone CFM referred to above.
- Ventilation while a zone is being conditioned is serviced simply by opening the fresh air damper while the zone system conditions the zone.
- The system keeps track of the amount of ventilation delivered in the same manner as any single speed HRV or ERV.
- When the time required to satisfy the ventilation time requirement using the fresh air damper ventilation rate is greater than or equal to the time remaining in the ventilation time block, then ventilation is initiated and continues until the ventilation time requirement is satisfied.

OPERATION OF FRESH AIR DAMPERS WITH ENVIRONMENTAL OVERRIDES

- When the Non-ASHRAE Compliant mode is selected (Timed), the system first checks for the outdoor temperature and dew point to be within the set parameter range before allowing ventilation to occur.
- When the ventilation changes states (on/off) due to an environmental override, it will remain in that state for a minimum of 10 minutes before again changing states due to an environmental override.
- Operation is otherwise the same as the ASHRAE compliant method

WIRING

Parameter settings and descriptions are listed in “Table 8. Smart Hub Parameters” on page 21. The table below list which parameters are available for the Fresh Air Damper, ERV and HRV equipment.

VENTILATION CONTROL MODES

Thermostat ventilation CFM parameters are to be adjusted only after the HRV/ERV set up is completed and the CFMs are known. Once the thermostat's CFMs are adjusted they are used with the thermostat's timer algorithm to determine how long to run the HRV/ERV and to change from low to high speed if a 2-stage HRV/ERVs.

Table 15. Ventilation Control Modes

Ventilation Control Mode	Fresh Air Damper	1 Stage HRV	2 Stage HRV	1 Stage ERV	2 Stage ERV
Timed					
Ventilation Minutes Per Hour (0 to 60 min., default is 20 min.)	X	X	X	X	X
Ventilation Rate (for single speed ERV/HRV) (20 to 500 cfm, default is 130 cfm)	---	X	---	X	---

Table 15. Ventilation Control Modes

Ventilation Control Mode	Fresh Air Damper	1 Stage HRV	2 Stage HRV	1 Stage ERV	2 Stage ERV
Ventilation Rate for Low Speed (for two-speed ERV/HRV) (10 to 200 cfm, default is 50 cfm)	---	---	X	---	X
Ventilation Rate for High Speed (for two-speed ERV/HRV) (20 to 500 cfm, default is 130 cfm)	---	---	X	---	X
Ventilation High Outdoor Temperature Limit (60 to 115°F, default is 100°F)	X	X	X	X	X
Ventilation Low Outdoor Temperature Limit (–20 to 55°F, default is 0°F)	X	X	X	X	X
Ventilation High Outdoor Dew Point Limit (45 to 80°F, default is 55°F)	X	X	X	X	X
ASHRAE (62.2)					
NOTE: In this mode the thermostat can assist the installer by validating the ventilation CFMs are capable of meeting the ASHRAE required ventilation volumes, but the thermostat has no ability to control CFM from the HRV/ERV.					
Ventilation Rate (for single speed ERV/HRV) (20 to 500 cfm, default is 130 cfm)	---	X	---	X	---
Ventilation Rate for Low Speed (for two-speed ERV/HRV) (10 to 200 cfm, default is 50 cfm)	---	---	X	---	X
Ventilation Rate for High Speed (for two-speed ERV/HRV) (20 to 500 cfm, default is 130 cfm)	---	---	X	---	X
ASHRAE Compliance Check	NO	YES	YES	YES	YES
ASHRAE Infiltration Credit (0 to 200 cfm, default is 0 cfm)	X	X	X	X	X
ASHRAE House Floor Area Serviced by this Ventilator	X	X	X	X	X
ASHRA Number of Bedrooms	X	X	X	X	X
Ventilation Outdoor Condition Override - Enabled					
Ventilation High Outdoor Temperature Limit (60 to 115°F, default is 100°F)	X	X	X	X	X
Ventilation Low Outdoor Temperature Limit (–20 to 55°F, default is 0°F)	X	X	X	X	X
Ventilation High Outdoor Dew Point Limit (45 to 80°F, default is 55°F)	X	X	X	X	X

- Wiring connections are listed in “Figure 16. iComfort E30 to either ERV or HRV” on page 15.

Wi-Fi Connection

This is for connecting the thermostat to a secure home wireless network.

NOTE: A router with Apple Bonjour® capabilities is required for this function. Check the router functions if the Smart Hub does not connect. Apple Bonjour is an implementation of zero-configuration networking (Zeroconf), a group of technologies that includes service discovery, address assignment, and host name resolution.

NOTE: Never use a home guest account. Never use an open router connection (non-secure). Always use a secure connection physically located in the home where the thermostat is located.

Home Wi-Fi Access Point is Visible

1. Go to **Menu > Settings > wi-fi**.
2. Slide the option to **ON** to enable Wi-Fi.
3. Wi-Fi network will show **not connected**. Press on **not connected** to display a list of available access points.
4. Select a network will be displayed listing all detected networks within range. Select your home network by pressing on the network name.

NOTE: The thermostat can connect to a home wireless router that uses up to 32 characters in the access point name (visible or hidden).

5. When connecting to a secure home Wi-Fi network, a password will be requested. Enter your home Wi-Fi network password and press join to continue.

NOTE: If you wish to see the characters you are typing, check show password. The thermostat will support up to a 63 character password. The password cannot contain the % or # symbols.

Home Wi-Fi Access Point is Hidden

1. Slide the option to ON to enable Wi-Fi.
2. Wi-Fi network will show not connected. Press on not connected.
3. Select other.
4. The “enter new network information” screen will appear. Enter the name of the hidden network.

NOTE: The thermostat can connect to a home wireless router that uses up to 32 characters in the access point name (visible or hidden).

5. Select Security. Options are: none, WEP, WPA and WPA2. If your home Wi-Fi connection is unsecured, then Wi-Fi security must be enabled using

WEP, WPA or WPA2 via the router before proceeding. Consult your router documentation on how to enable Wi-Fi security.

6. Once security type is selected, a password field will appear. Enter the password to access your home Wi-Fi network.

NOTE: If you wish to see the characters you are typing, check show password. The thermostat will support up to a 63 character password.

7. Press join.

Whether connecting to a visible or hidden network, if successful, a check mark will appear above both the router and Internet icons.

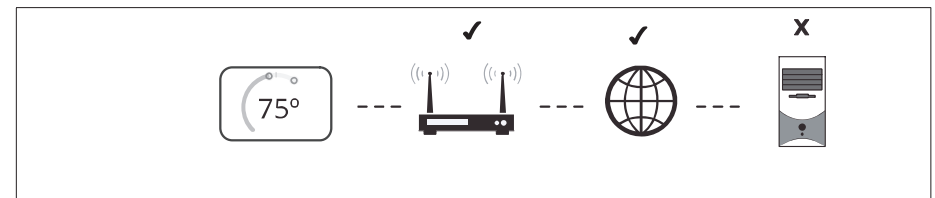


Figure 23. Connection Status

Troubleshooting Wi-Fi Connection

The following terminology is used in this troubleshooting section:

- Received Signal Strength Indication (RSSI). This is an indication of the signal strength of the Wi-Fi router being received by the scanning device (i.e., smart phone). Therefore, the higher the RSSI number (or less negative in some devices), the stronger the signal.
- Wireless networks supported by this system are:
 - » 802.11b is 2.4Ghz band (max 11 Mbit/s)
 - » 802.11g is 2.4Ghz band (max 54 Mbit/s)
 - » 802.11n is 2.4Ghz band (max 130 Mbit/s)
- Internet Protocol Address (IP address). This is an address assigned by your home router for each network device (e.g., computer, printer, thermostat).

Electromagnetic Interference Causing Poor Connectivity: Locate the Smart Hub and router away from other devices that could possibly interfere with wireless communications. Some examples of other devices that could interfere are:

- Microwave ovens
- Wireless cameras
- Portable phones and bases
- Baby monitors
- Wireless speakers

- Bluetooth devices
- Garage door openers
- Neighbor's wireless devices

To eliminate a possible source of interference, temporally disable any devices and see if Wi-Fi performance has improved.

Received Signal Strength Indication (RSSI)

The ideal signal strength range for the thermostat is -1 to -69 RSSI. The signal strength can be viewed from the thermostat interface.

1. Press **NETWORK SETTINGS**; this screen shows a graphical view of buttons representing OPEN and SECURE wireless networks, along with button for adding a network.
2. Select the access point that has already been established and connected. When selecting the info icon, a screen will appear which will display an option to forget the network and IP address assigned to the thermostat by your router, sub-net mask, router, DNS and RSSI. If the RSSI signal strength is anywhere between -9 to -69, then the signal strength is sufficient. If outside this range, then either relocate the router closer to the thermostat, add a repeater, or move the Smart Hub. Adjusting antenna on router and/or Smart Hub may resolve the issue.

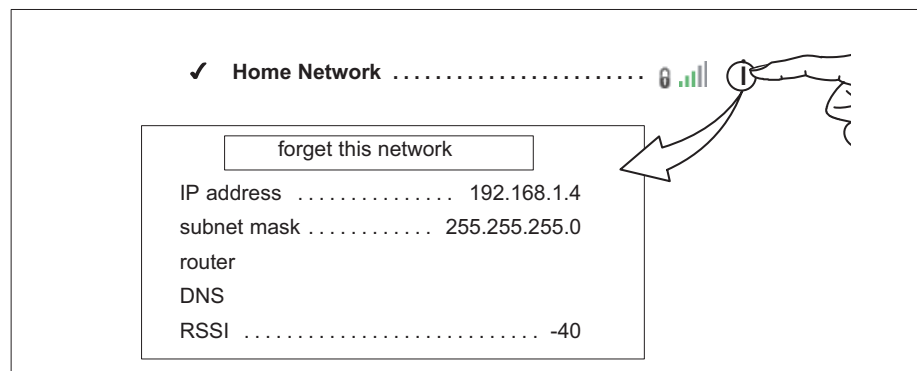


Figure 24. Verifying Signal Strength

Performance Reports

Performance reports are only available through either the consumer or dealer web portals.

- Homeowner access is available at www.myiComfort.com.
- Dealer access is available through the Dealer Dashboard at www.LennoxPros.com.

More information concerning Performance Reports is available in the user guide.

Replacement Parts

The following thermostat component parts can be ordered:

Table 16. Replacement Parts

Catalog #	Component	Remarks
12X97	HD display	Thermostat interface
12X99	Mag-Mount	Wall mount for HD display.
15S64	Smart hub	Control base
13X01	Wall plate	Wall plate for Mag-Mount (use is optional)

Mobile Applications

iCOMFORT THERMOSTAT APP (HOMEOWNER)

The free iComfort® Thermostat app is available for use on iPhone®, iPad® and Android™ devices.

Control cooling/heating temperatures, fan operation, set programs and set Away mode for multiple locations.

iCOMFORT MOBILE SETUP APP (INSTALLER)

Allows the installer to commission the system and remotely turn the system on and off during setup on any iPhone®, iPad® and Android™ device.

Apple, the Apple logo, iPhone and iPad are trademarks of Apple Inc. registered in the US and other countries.

Android is a trademark of Google Inc. Use of this trademark is subject to Google permission.

Notifications

These screens provide information on active notifications and previously cleared notifications. When selecting either a cleared or active notification a brief description and alert code will be displayed. Notifications are categorized by system, indoor unit (air handler or furnace), outdoor unit (air conditioner or heat pump), zoning control (if installed) and thermostat.

ALERT CODE TYPES

To expand a specification notification to access a more detail description of the alert code, press the down arrow to expand the description.

- Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Critical means that a service call is needed to get the system running.
- Minor and Moderate alerts are found only in the Installer alert button.

What does minor and moderate mean?

- Minor is information only, helps Lennox interpret test results, understand complicated behavior.
- Moderate means that the system will likely recover on its own, no action necessary.

Communication System: When communication controls are operating in a communication system, all jumper and link setting on controls are ignored. Jumpers and link setting are treated as defaults and would only be active if the system was converted to a non-communicating system.

SOFT DISABLE

Soft disabling is when the iComfort® thermostat finds an unknown control on the E30 system communication bus. The thermostat sends the unknown control a message to go into soft disable mode until the component is properly configured or removed.

The iComfort® thermostat will not show any code for a soft disabled control. When soft disabling occurs only the control that has been disabled will display the blinking LED status. Refer to the device's installation and setup guide for further guidance.

Use the following procedure when a soft disable code is present:

1. Confirm proper wiring between all devices such as thermostat and Smart Hub.
2. Cycle power.
3. Go to the **menu > settings > advanced settings > view dealer control center**. Touch **proceed** to continue.
4. Select **equipment**.
5. Touch **reset**.
6. Touch **re-configure** system.
7. Select **confirm** to continue.
8. The thermostat will reboot and start through the system commissioning procedure.

SERVICE NOTIFICATION CODES

The following are service notification alert codes.

Table 17. Service Alert Notification Codes

Service Alert Code	Function
3000	Filter 1
3001	Filter 2
3002	Humidifier pad
3003	UV Light
3004	Maintenance
3005	PureAir Maintenance
4000	User Wi-Fi state change, disabled
4001	Firmware download failed
4002	Image file download failed

ALERT CODES

Alert Codes and Troubleshooting

Initial notification of critical alerts will pop up on the home screen and will be listed under notification menu. Minor and moderate alerts are found only under the notification menu.
Moderate alerts are not emailed to Homeowners. Dealers will get an email and code can be seen on thermostat under the installer notification section.

Alert Code	Priority Condition	Applicable System Component(s)	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
10	Critical	Thermostat	Unknown Device Detected - DEVICE2	<p>The thermostat when NOT in configuration mode has detected an unknown device. Typically the thermostat will send a command to the unknown device and place the device into a soft disable state. The soft disable control will indicate so as follows:</p> <p>On air handler, furnace and outdoor controls, the soft-disabled state is displayed by double horizontal lines on seven-segment display.</p> <p>On the damper control module, the green LED will blink 3 seconds on and 1 second off.</p> <p>On the equipment interface module, the green LED will blink 3 seconds on and 1 second off.</p> <p>A new communicating device has been added to the system since the original configuration setup was completed.</p> <p>Go to menu > advanced settings > view dealer control center > equipment and press reset all equipment. This will allow the system to auto-detect any iComfort components attached.</p>	Clear alert code by reconfiguring the system.
12	Critical	Thermostat	Incomplete System	<p>Thermostat did not find an indoor unit. Make sure there is an iComfort indoor unit on the system.</p> <p>Check for voltage and missing component.</p> <p>Check R, i+, i- and C connections.</p> <p>Ohm wires for electrical continuity.</p> <p>Cycle power to both indoor unit first and then thermostat.</p> <p>Verify that equipment interface module (if applicable) is configured as either an air handler or furnace when used with a non-communicating indoor unit.</p> <p>Go to menu > advanced settings > view dealer control center > equipment and press reset all equipment. This will allow the system to auto-detect any iComfort components attached.</p> <p>Replace indoor unit control if there is no response.</p>	Automatically clears when the system detects that the issue no longer exists.
14	Critical	Thermostat	Too Many Devices of the Same Type	<p>The thermostat found more than one thermostat on the system.</p> <p>Check wiring and remove duplicate equipment.</p> <p>Go to menu > advanced settings > view dealer control center > equipment and press reset all equipment. This will allow the system to auto-detect any iComfort components attached.</p>	Automatically clears when the system detects that the issue no longer exists.

Alert Codes and Troubleshooting

<p>Initial notification of critical alerts will pop up on the home screen and will be listed under notification menu. Minor and moderate alerts are found only under the notification menu.</p> <p>Moderate alerts are not emailed to Homeowners. Dealers will get an email and code can be seen on thermostat under the installer notification section.</p>					
Alert Code	Priority Condition	Applicable System Component(s)	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
29	Critical	HD Display (Thermostat)	Over Temperature Protection	<p>The thermostat is reading an indoor temperature that is higher than 90°F (factory default). The thermostat will not allow any heating operation to begin until it senses an indoor temperature lower than 90°F. Indoor temperature rose above 90°F during a heating demand.</p> <ul style="list-style-type: none"> • 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 below 90°F. 	Automatically clears when the system detects that the issue no longer exists.
30	Moderate	HD Display (Thermostat)	Low Temperature Protection	<p>The thermostat will not allow any cooling operation to begin until it senses a temperature higher than 40°F.</p> <ul style="list-style-type: none"> • 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. 	Automatically clears when the system detects that the issue no longer exists.
105	Critical	Thermostat	Communication Problem	<p>A system component has lost communication with the system. System component (device) is unable to communicate.</p> <p>This may indicate the existence of other active alert codes.</p> <p>In most cases errors are related to electrical noise. Verify that high voltage power is separated from the low voltage communication wires.</p> <p>Check for incorrectly wired or loose connections between system components (devices).</p> <p>Check for a high voltage source of noise close to the system.</p>	Automatically clears when the system detects the issue no longer exists.
110	Critical	Furnace	Low AC Line Voltage	<p>The component AC line voltage is too low. This alert code may appear during a brownout. It may also occur when line voltage is below its designed operating value.</p> <p>Check and correct the power line voltage.</p>	Automatically clears when the system detects the issue no longer exists.
115	Critical	Thermostat	Low Secondary (24VAC) Voltage	<p>24VAC power to a system component control is lower than the required range of 18 to 30VAC.</p> <p>Check and correct voltage.</p> <p>Check for additional power-robbing system components (devices) connected to system.</p> <p>This alert code may require the installation of an additional or larger VA transformer</p>	Automatically clears when the system detects the issue no longer exists.
120	Moderate	Thermostat	Unresponsive DEVICE2.	<p>There is a delay in the system component responding to the system. Typically this alert code does not cause any operational issues and will clear on its own.</p> <p>This alert code is usually caused by a delay in the outdoor unit responding to the thermostat.</p> <p>Check all wiring connections.</p>	Automatically clears after an unresponsive system component (device) responds to any inquiry.

Alert Codes and Troubleshooting

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Alert Code	Priority Condition	Applicable System Component(s)	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
124	Critical	Thermostat	Active Subnet Controller Missing	<p>The thermostat has lost communication with a system component for more than three minutes. System component has lost communication with the thermostat.</p> <p>Check the wiring connections.</p> <p>Ohm wires.</p> <p>Cycle power.</p> <p>Check voltage at component.</p> <p>This alert code stops all associated system operations and waits for a heartbeat message from the system component that is not communicating.</p>	Automatically clears after communication is re-established with applicable system component (device).
125	Critical	Thermostat	Control Hardware Problem	<p>There is a hardware problem on a system component control. There is a control hardware problem.</p> <p>Replace the control if the problem prevents operation and is persistent.</p> <p>Remove jumper if present on indoor unit between R and W2 on Smart Hub.</p>	Automatically clears five minutes after the issue no longer exists.
130	Moderate	Smart Hub	Configuration Jumper Missing	<p>Configuration jumper missing on Smart Hub.</p> <p>Install the missing jumper</p>	Automatically clears after the missing or incorrectly installed jumper is installed or corrected.
132	Critical	Thermostat	Failed Flash CRC Check	<p>System component control software is corrupted.</p> <p>Recycle power.</p> <p>If failure re-occurs, replace the system component control.</p>	Manual system power reset is required to recover from this alert code.
180	Critical	Smart Hub	Outdoor Temperature Sensor Problem	<p>The thermostat has found a problem with a system component's outdoor temperature sensor. In normal operation after system component control recognizes sensors, the alarm will be sent if valid temperature reading is lost.</p> <p>Compare outdoor sensor resistance to temperature / resistance charts in unit installation instructions.</p> <p>Replace sensors pack if necessary.</p> <p>At the beginning of (any) configuration, furnace, air-handler control or equipment interface module will detect the presence of the sensor(s).</p> <p>If detected (reading in range), appropriate feature will be set as 'installed' and shown in the 'About' screen.</p>	Automatically clears upon configuration, or sensing normal values.
310	Moderate	Smart Hub	Discharge Air Temp Sensor Problem	<p>There is a discharge air temperature sensor issue.</p> <p>Compare discharge temperature sensor (DATS) resistance to temperature / resistance charts in system component installation instruction.</p> <p>Replace discharge air sensor if necessary.</p> <p>Confirm there is no short or open circuits in the iComfort thermostat connections to any of the other components in the communication system.</p> <p>Issues with a DATS connected to Smart Hub not generate an alert code.</p>	Automatically clears 30 seconds after condition is detected as recovered or after system restart.

Alert Codes and Troubleshooting

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Alert Code	Priority Condition	Applicable System Component(s)	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
344	Critical	Furnace	Relay Y1 Stuck	Link Relay Problem. Relay Y1 Failure Possible Y1 relay failure. All system operations will stop.	Automatically clears five minutes after Y1 input sensed OFF.
345	Critical	Thermostat	Relay O Failure	The O relay on the system component has failed. Either the pilot relay contacts did not close or the relay coil did not energize. Possible O relay / stage 1 failure. Pilot relay contacts did not close or the relay coil did not energize. Replace system component (device) control.	Automatically clears after the fault recovered following reset.
347	Critical	Thermostat	Relay Y1 Failure	The Y1 relay on the applicable system component has failed. Either the pilot relay contacts did not close or the relay coil did not energize. System operation will stop. Possible Y1 relay / stage 1 failure. Pilot relay contacts did not close or the relay coil did not energize; There is no input back to the applicable system component control.	Automatically clears after reset and Y1 input sensed.
380	Moderate / Critical	Smart Hub	Interlock Relay Failure	Interlock relay failure (furnace or air handler modes only). Interlock relay is energized, but input is not sensed after three seconds. There will be no heating or cooling due to this alert code – moderate condition. De-energize interlock relay and energize after five minutes if demand is still present – critical condition.	Automatically clears after fault recovered.
381	Moderate / Critical	Smart Hub	Interlock Relay Stuck	Interlock relay stuck (furnace or air handler modes only). Interlock relay continuously sensed (with relay off). There is no heating and cooling operation – moderation condition. After 10 minutes if event still exist it will be escalated – critical condition.	Automatically clears 30 seconds after fault clears.
382	Moderate	Smart Hub	Relay W1 Failure	Relay W1 failure (furnace or air handler modes only). W1 relay is energized but input is not sensed after three seconds.	Automatically clears when W1 relay input is sensed.
418	Moderate	Smart Hub	W Output Hardware Fault	There is a faulty W output circuit. W terminal is energized while in cooling mode. Possible cause may be a stuck closed relay on the control, or something external to the control that is energizing W terminal when it should not be energized. Disconnect any wiring from the W terminal. If 24VAC is still present on the terminal, then it is a stuck relay. If 24VAC disappears, then there is a need to check any of the wires hooked up to the W terminal.	Automatically clears after fault signal is removed.

Alert Codes and Troubleshooting

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Alert Code	Priority Condition	Applicable System Component(s)	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
419	Critical	Smart Hub	W Output hardware Fault Lockout	The W output has reported more than five errors. The system will shut down the outdoor unit. The W output (code E418) on the outdoor unit has reported more than five strikes. Disconnect thermostat wire from W and verify there is no 24VAC on the W. If 24VAC is present, replace the outdoor control.	Automatically clears after power recycled.
420	Critical	Smart Hub	Defrost Out of Control	The heat pump defrost cycle has taken more than 20 minutes to complete. Defrost cycle lasts longer than 20 minutes. Check heat pump operation.	Automatically clears when W1 signal is removed.
421	Critical	Smart Hub	W External Mis-wire Fault	The W output terminal on the outdoor unit is not wired correctly. Voltage sensed on W output terminal when Y1 out is deactivated.	Automatically clears once voltage is not sensed on output or power is cycled.
594	Moderate / Critical	Smart Hub	Pre-Coil Air temp Sensor Problem	Pre-coil discharge air temperature sensor problem (dual-fuel mode only). Advances from moderate to critical after ten (10) minutes. Interlock relay energized, but input not sensed after three seconds. No heating and cooling operations. De-energize interlock relay and re-energized five minutes later if demand is still present.	Alarm clears five minutes after fault clears.
610	Critical	Thermostat	Low Room Temperature Detected	This alert will automatically notified the user that a low room temperature condition exist. A notification is displayed on the HD Display and email notification sent to homeowner and dealer. The freeze alert protection parameter range is 30°F to 50°F (-1.11 to 10.0°C). Default is 40°F (4.44°C). Notification is dependent on the thermostat having a active Wi-Fi connection and the user account has been setup and includes a valid email address.	Automatically clears when condition is resolved.
611	Critical	Thermostat	High Room Temperature Detected	This alert will automatically notified the user that a high room temperature condition exist. A notification is displayed on the HD Display and email notification sent to homeowner and dealer. The heat alert protection parameter range is 80°F to 100°F (26.67 to 37.78°C). Default is 90°F (32.22°C). Notification is dependent on the thermostat having a active Wi-Fi connection and the user account has been setup and includes a valid email address.	Automatically clears when condition is resolved.
700	Critical	E30 HD Display Unit or Mag-Mount	Comfort Sensor Temp Sensor Problem	The temperature sensor in the HD Display is not working properly. Run reset all under Dealer Control Center. Try removing display from mag-mount and reattaching. If issue persist, then replace either the E30 HD Display or Mag-Mount.	Automatically clears when the system detects that the issue no longer exists.

Alert Codes and Troubleshooting

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Alert Code	Priority Condition	Applicable System Component(s)	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
701	Moderate	Thermostat	The thermostat is reading indoor temperatures above the pre-programmed limit.	Run reset all under Dealer Control Center.	Automatically clears when the system detects that the issue no longer exists.
702	Moderate	Thermostat		Cool thermostat	Automatically clears when the system detects that the issue no longer exists.
703	Moderate	E30 Mag-Mount		Adjust set point.	
704	Moderate	E30 Mag-Mount		Replace HD Display or mag-mount, if needed.	Automatically clears when the system detects that the issue no longer exists.
705	Moderate	E30 Mag-Mount		Run reset all under Dealer Control Center.	Automatically clears when the system detects that the issue no longer exists.
				Replace mag-mount, if needed.	
900	Moderate	E30 System	Temperature Control Problem	Something is causing the system not to be able to reach set point. Check for dirty coil, low refrigerant or verify the system is not under size for the application.	Automatically clears when the system detects that the issue no longer exists.
901	Moderate (On/Off) Default	E30 System	Smart Alert Modes: Heating & Cooling	System is unable to persistently meet set point. There may be a component that requires attention. Examples: Dirty Filter, Low Freon charge or bad TXV etc.	If alarm exist must be manually cleared.
65537	Critical	Thermostat	Missing Mag-Mount Base	Base not detected for more than 30 seconds. Amber LED is displayed on Smart Hub. Mount and wire Mag-Mount before powering up Smart Hub.	Automatically clears once is detected for two seconds.
65538	Minor	Thermostat	Missing Mag-Mount Base	Base not detected for less than 30 seconds. Amber LED is displayed on Smart Hub. Mount and wire Mag-Mount before powering up Smart Hub.	Automatically clears once is detected for two seconds.
65539	Critical	Thermostat	Missing HD Wall Display	HD Wall Display not detected for more than 30 seconds. Solid blue LED will appear on Mag-Mount if powered. Blinking blue LED will appear if not communicating with Smart Hub.	Automatically clears once is detected for two seconds.
65540	Minor	Thermostat	Missing HD Wall Display	HD Wall Display not detected for less than 30 seconds. Solid blue LED will appear on Mag-Mount if powered. Blinking blue LED will appear if not communicating with Smart Hub.	Automatically clears once is detected for two seconds.
65541	Minor	Thermostat	Download-failed	Download for firmware failed. Typically the thermostat will send a command to the unknown device and place it in a soft disable state.	Not applicable.

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Alert Code	Priority Condition	Applicable System Component(s)	Actual Displayed Alert Text	Component or System Operational State and Troubleshooting Tip	How to clear alert code
65542	Minor	Thermostat	Hash verification failed	<p>Has verification failed. Update failed.</p> <p>Solid blue LED will appear on Mag-Mount if powered.</p> <p>Blinking blue LED will appear if not communicating with Smart Hub.</p>	<p>Not applicable.</p> <p>Automatically clears once is detected for two seconds.</p>
65543	Info	Thermostat	Firmware updated	When new firmware has been successfully updated to thermostat.	Clears automatically after successfully update.
65544	Critical	Thermostat	Too many siblings	The system is limited to no more than eight (8) Smart Hubs in a local Wi-Fi network.	Once the system detects that only five or less Smart Hubs are detected on the network will the alert code automatically clears.
65545	Moderate (On/Off) Default	Thermostat	Cooling Capacity Alert	<p>Cooling operation may not be sufficient for the hottest days. Based on local conditions and climatological data for zip code.</p> <p>Examples: Dirty Filter, Low Freon charge, TXV, etc. Symptom during mild temperatures may include; system running longer than normal but not showing any other symptoms.</p>	Auto cleared on next prediction.

Installation Checklist			
Smart Hub Checks:		YES	NO
1	Is the Smart Hub properly mounted to either a wall stud or wall? (Do not mount on equipment or ductwork)		
2	Is communication status LED (green) visible when hinged cover is closed? When LED is active it indicates that 24VAC is present at the Smart Hub. It also indicates communication is active between Smart Hub, Mag-Mount and HD Display.		
3	Is blinking communicating green LED seen (located in center of Smart Hub) when cover is open?		
4	Are all terminal wiring properly connected and tight?		
5	Are jumpers set to proper equipment type and number of stages?		
6	When required, is either or both the discharge (DATS) and outdoor (OAS) air sensors properly connected and isolated when used?		
Mag-Mount Checks:		YES	NO
1	Are all terminal wiring properly connected and tight?		
2	Is the solid blue LED visible when the HD Display is removed? This indicates all wiring is correct. Blinking blue LED indicates the A and B communication wires are reversed.		
3	Is the solid blue LED not visible when the HD Display is removed? This usually indicates 12VDC to + and - is not present at the Mag-Mount terminals.		
HD Display Checks:		YES	NO
1	Is the HD Display properly placed and connected to Mag-Mount? When properly connected, the Mag-Mount blue LED will be off.		
2	Is the screen blank after initial power-up? The HD Display may take up to three minutes before anything appears on the screen due to a HD Display low battery condition. HD Display battery charging only occurs when connected to the Mag-Mount.		
System Checks		YES	NO
1	Is the Wi-Fi connected?		
2	Can the homeowner access the consumer portal (www.myicomfort.com) from either a PC or tablet?		
3	Has the homeowner downloaded the Lennox Thermostat application from either Google Play or IOS App Store to their mobile devices?		
4	Is the Lennox Dealer account number or your main shop phone number been added to the dealer information screen?		
5	Has a complete system test been run? If not, from the HD Display home screen go to settings > advanced settings > view dealer control center > and select tests.		

Technical Support and Mobile Apps for Installers/Technicians Only

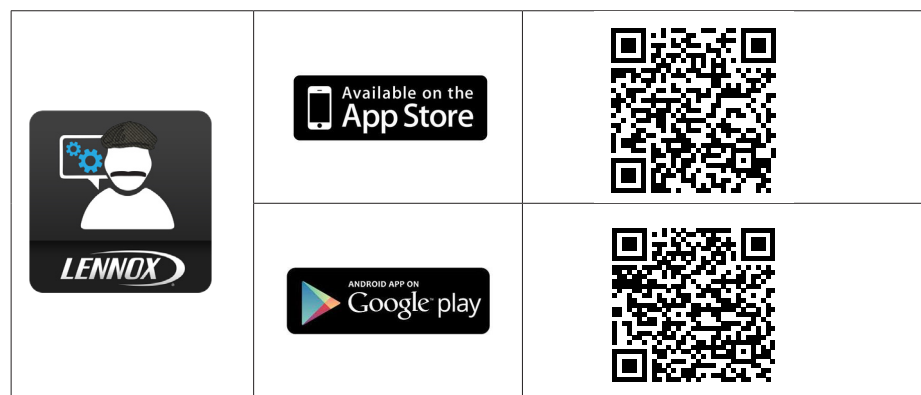
TECHNICAL SUPPORT FOR INSTALLERS/TECHNICIANS ONLY

Lennox Residential technical support can be reached at 1-800-453-6669. Hours for support are Monday through Friday 8am - 8pm EST.

Get targeted help: Tell us the issue so we get you to right rep, offer relevant tips, reminders & follow-up!

- Complaints
- Technical support
- Repairs
- Returns

LENNOX MOBILE SETUP APPLICATION FOR INSTALLERS/TECHNICIANS ONLY



The Lennox iComfort Mobile Setup App lets HVAC technician's setup, configure and test a Lennox iComfort E30 system directly on their mobile device.

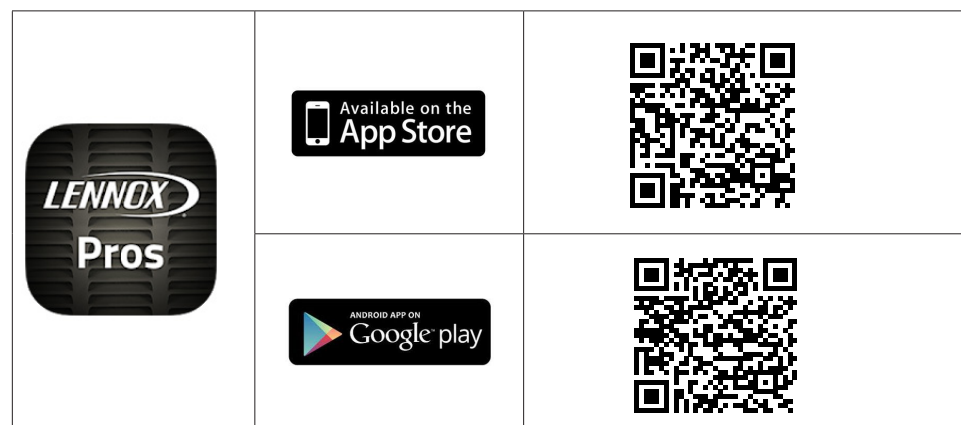
Once installed, the dealer can pair their mobile device to the Lennox iComfort Smart Hub to easily make changes from anywhere in the home, saving them the hassle of walking back and forth from the thermostat to the indoor and outdoor HVAC unit.

With just a touch, technicians can:

- Setup and Configure the system
- Adjust parameters
- Run system tests

This app is designed for Lennox HVAC technicians servicing iComfort E30 and S30 systems.

LENNOXPROS MOBILE APPLICATION FOR INSTALLERS/TECHNICIANS ONLY



LennoxPROs.com and the LennoxPROs mobile application have all the information HVAC Professionals and businesses need in one place. From shopping for parts and supplies to using our FREE e-tools, we have you covered.

Features Include:

- Product Catalog
- Residential products
- Parts and Supplies
- AHRI Residential Match-up Tool
- OEM Repair Parts
- iComfort Dashboard
- Technical Documents
- Marketing Brochures
- Warranty Lookup
- Training Center
- My Learning
- Alert Code.

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