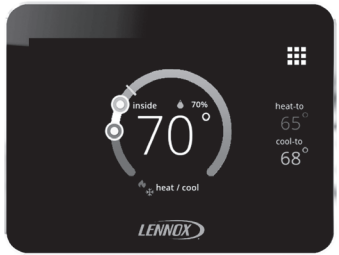


iHarmony® Zoning System - Zone Sensor (17A30)

Installation and Setup Guide

507826-02 6/2021
Supersedes 11/2019

Tables of Contents

Shipping and Packing List

Item	Quantity
Zone sensor with backplate attached	1
Wall plate	1
Mounting screws (M3.5x25mm self-tapping screws)	2
Wall anchors	2
Warranty sheet	1
Installation and setup guide	1
User guide	1

⚠ 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.

The 17A30 Zone Sensor can be used in systems controlled by any Lennox communicating thermostat.

The 17A30 zone sensor can also be used in combination with the now discontinued 10C17 In-Zone thermostat.

⚠CAUTION

This is a 12VDC low-voltage zone sensor. Do not install on voltages higher than 14VDC.

Electrical Characteristics

All values are at 77°F (25°C). This unit does employ mis-wire circuit protection.

Table 1. Zone Sensor Power Requirements

	Min	Nom	Max	Unit
Input Voltage	10	12	14	VDC
Input Current	-	61.5	133	mA

⚠WARNING

Always turn off power at the main power source by switching the circuit breaker to the OFF position before installing or removing this zone sensor.

All wiring must conform to local and national building and electrical codes and ordinances.

Dimensions

Unit Dimensions (H x W x D)

Dimensions: 3-5/16 x 4-5/16 x 7/8 in. (84 x 110 x 22mm)

Wall Plate Dimensions (H x W)

Dimensions: 4-1/2" x 5-3/4" (114 x 146mm)

Installation Guide

Installation Considerations

The 17A30 zone sensor is a 12VDC low-voltage device and requires a common wire to the damper control module to operate.

- Shut off all power to system components before installing zone sensor.
- Make sure that all wiring conforms to local and national building and electrical codes and ordinances.
- Never install the zone sensor on outside walls or in direct sunlight.
- Use 2-pair, 18AWG unshielded thermostat cable (field-provided) for power terminals (PWR and C). Recommend using 2-pair 22AWG shielded thermostat cable for communications terminals (D+ and D-) which will help eliminate any noise interference.

Unpacking Zone Sensor and Determining Best Location

This procedure is for either new or relocating a zone sensor installations.

1. Unpack the zone sensor.
2. Select a location for the zone sensor about 5 feet (1.5 meters) above the floor in an area with good air circulation at average temperature.
3. Do not install the zone sensor where it can be affected by:
   - Drafts or dead spots behind doors and in corners
   - Building entrances or automatic doors
   - Heat generating equipment such as kitchen appliances
   - Hot or cold air from ducts
   - Radiant heat from sun or appliances
   - Concealed pipes and chimneys
   - Non-heated (non-cooled) areas such as an outside wall behind the zone sensor

Installing Zone Sensor

IMPORTANT

Installation uses 18 gauge thermostat wire with a wire run length NOT TO EXCEED 197 feet (60 meters) between damper control module and any one zone sensor.

Do not run wiring next to high voltage or high voltage ballast.

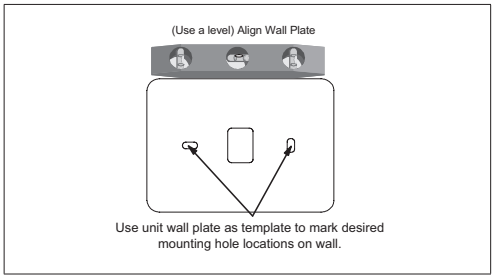
Load from any zone sensor connection is 1 AMP or less.

1. Run thermostat wiring from iHarmony damper control module to location where zone sensor will be installed.
2. Drill or make opening through wall for thermostat wiring 3/4” x 3/4” (19mm x 19mm).
3. Pull about three inches (76mm) of thermostat wire through the opening and remove outer thermostat wire jacket. This will help in routing the thermostat wiring to the proper zone sensor terminals.
4. Seal the hole in the wall with a suitable material to prevent drafts from entering the zone sensor case. Not doing so could affect the zone sensor’s internal temperature and humidity sensors.

5. Trim 1/4 inch (6 mm) insulation from end of each thermostat wire lead.

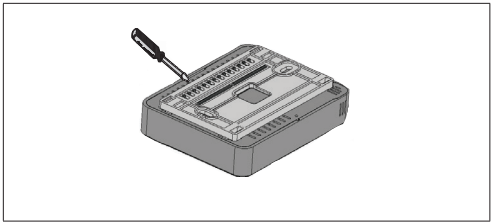
6. Use the provided wall plate as a template on where to drill the mounting holes.

NOTE: *Installation of wall plate is optional. Use a field-provided level to allow for proper alignment.*

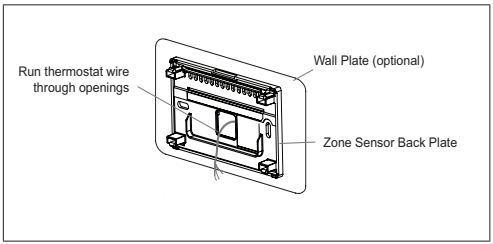


7. Drill 3/16” (5 mm) holes in wall for provided wall anchors. Insert provided wall anchors into drilled holes.

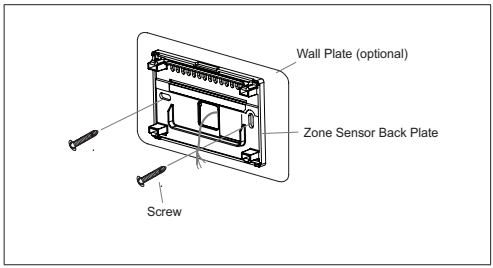
8. Remove back plate from main zone sensor assembly using a flat-head screw driver.



9. Route wiring from wall through center openings on wall plate (use is optional) and back plate.

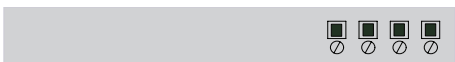


10. Secure back plate and wall plate (optional) to wall with the two provided mounting screws.



Zone Sensor Terminal Information

Table 2. Terminal Designations



Terminal	Purpose
PWR	Zone sensor power 12VDC input.
D+	Zone sensor data high.
D-	Zone sensor data low.
C	Zone sensor 12VDC return.

See “Figure 2. Connecting Zone Sensor to Damper Control Module” on page 7.

Connecting Zone Sensor Wiring

Use “Table 2. Terminal Designations” on page 6 for connecting the thermostat wiring to the back plate terminals.

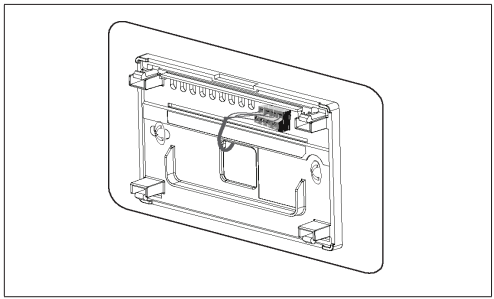


Figure 1. Backplate

NOTE: *Remember to seal the hole in the wall with a suitable material to prevent drafts from entering the zone sensor case. Not doing so could affect the zone sensor’s internal temperature and humidity sensors.*

NOTE: *Use 2-pair, 18AWG unshielded thermostat cable (field-provided) for power terminals (PWR and C). Recommend using 2-pair 22AWG shielded thermostat cable for communications terminals (D+ and D-) which will help eliminate any noise interference.*

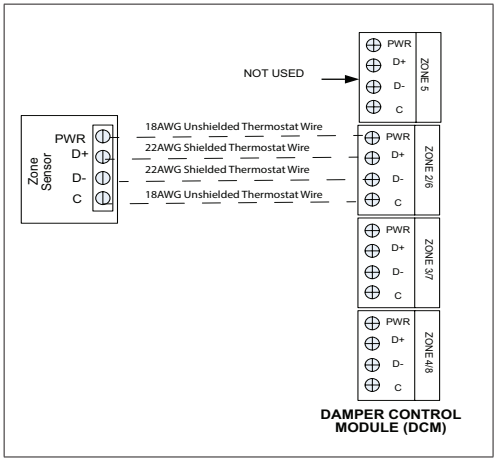


Figure 2. Connecting Zone Sensor to Damper Control Module

Install Zone Sensor to Backplate

The zone sensor assembly simply snaps onto the back plate. Once secure to the back plate apply power to the system. The zone sensor should boot up and go into the commissioning process.

If power is applied and the zone sensor screen remains off, inspect and verify all wire connections.

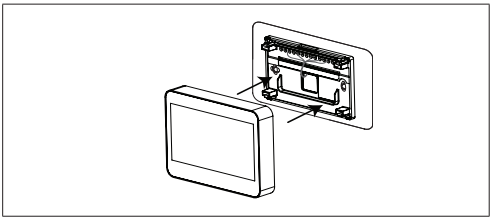


Figure 3. Installing Zone Sensor

Setup Guide

⚠CAUTION

When replacing a failed zone sensor, remember to set the new zone sensor to the same address as the one being replaced. Also, If an existing zone sensor has failed and being replaced by a zone sensor relocated from another zone in the home, remember to set relocated zone sensor's address to match the one that has failed. Not doing so could contribute to incorrect zone operations and possible equipment damage.

Apply Power and Set Zone Numbers

After power is applied to the zone sensor for the first time it will display the Lennox® "splash screen" and then the zone number selection screen. Set the

address using the plus/minus buttons. Selections are 2, 3 or 4.

NOTE: *Zone 1 is always the S30 thermostat. Each additional zone sensor will have to have a unique zone number assigned to it.*

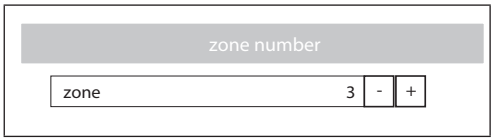


Figure 4. Zone Selection

Menu > Advanced Settings

	This represents the menu icon. Most procedures will start with menu and with directions to sub-menus.

Table 3 lists the settings that can be adjusted under this menu selection

Table 3. Advanced Settings

Menu Selection	Setting
Zone Number	Default value is 2. Minimum value is 2. Maximum value is 4. Adjustment is made with using the + or - selection tool. ***NOTE:*** *Zone 1 is always reserved for the S30.*

Table 3. Advanced Settings

Menu Selection	Setting
Reset	Resets the zone sensor to factory default settings. Select Confirm to reset all.
Restart	Reboots the zone sensor.

iComfort S30 Ultra Smart Thermostat - Installer Zoning Control Settings

Thermostat Initial Commissioning

If zoning control was added during initial installation of the S30 control system. Perform the following steps:

1. Navigate through the various commissioning screens until you reach Equipment Found screen. Verify that a Zone Control icon is present. If so, the system has detected the equipment. Press continue to proceed.

NOTE: *If zoning control is not listed, verify installation of the damper control module and all wiring connections. Make any corrections required and run Re-Configure System feature again.*

2. When the iHarmony Zoning screen appears, select each zone listed to rename it if desired. The system provides predefine names or a custom name can be added. Press done when completed and press continue to proceed.

NOTE: *If a particular zone is missing from the list, verify that the zone sensor wiring is correct and that the zone address is set correctly on zone sensor.*

3. The Verify Airflow Per Zone screen will appear. Make the requirement CFM adjustment for each zone on this screen. When done, press continue to proceed.

Rerunning Thermostat Commissioning

If zoning control was added to an existing S30 control system. Perform the following steps:

1. From the home screen, select the Menu Icon
2. Select **Settings**
3. Select **Advanced Settings**
4. Select **View Dealer Control Center**
5. Select **Equipment**
6. Select **Reset**
7. Select **Re-Configure System**. This will instruct the thermostat to scan for new equipment.
8. Navigate through the various commissioning screens until you reach Equipment Found screen. Verify that a Zone Control icon is present. If present, the system has detected the equipment. Press continue to proceed.

NOTE: *If zoning control is not listed, verify installation of the damper control module and all wiring connections. Make any corrections required and run Re-Configure System feature again.*

9. When the iHarmony Zoning screen appears, select each zone listed to rename it if desired. The system provides predefine names or a custom name can be added. Press done when completed and press continue to proceed.

NOTE: *If a particular zone is missing from the list, verify that the zone sensor wiring is correct and that the zone number address is set correctly on both types of zone sensors (17A30 and 10C17).*

10. The Verify Airflow Per Zone screen will appear. Make the requirement CFM adjustment for each zone on this screen. When done, press continue to proceed.

Verify Airflow Per Zone

To verify zone airflow, use the following procedure:

1. From the home screen, select the Menu Icon
2. Select **Settings**
3. Select **Advanced Settings**
4. Select **Dealer Control Center**
5. Select **Tests**
6. Make the requirement CFM adjustment for each zone on this screen. When done, press continue to proceed.

Changing Zone Names

If at a later time the zone name needs to be changed, use the following procedure to do so:

1. From the Home screen, select the Menu icon in the upper right-hand corner of the screen.
2. Press **settings**.
3. Press **iHarmony zoning** to bring up the zone list. To rename each zone, select the applicable zone.

Alert Codes

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

- **Service Urgent** alerts are displayed on Home (user) screen under the homeowner and installer alert buttons. **Service Urgent** means that a service call is needed to get the system running.
- **Service Soon / Service Urgent** means that the system will likely recover on its own and no interaction is necessary. Typically, either after a specific timer period or a specific number of instances, some **Service Soon** alerts will escalate to **Service Urgent**.
- **Service Soon** alerts are found only in under the installer alert button.
- **Information Only-Dealer** is information only and helps Lennox interpret test results and understand complicated behaviors. **Information Only** are not reported to homeowner or dealer.

NOTE: **Communication System***: When communication controls are operating in a communication system, all jumpers and links setting on the controls are ignored. Jumpers and links setting are treated as defaults and would only be active if the system was configured as a non-communicating system.*

Table 4. Alert Codes and Troubleshooting				
GF= Gas Furnace, AH=Air Handler, ID=Indoor unit (GF or AH), HP=Heat Pump, AC=Air Conditioner, OD=Outdoor Unit (AC or HP), PA=Pure Air S, ZA=Zone system and TS=Thermostat				
Alert Code	**Priority Condition**	**Actual Displayed Alert Text Under dealer control center > Notifications**	**Component or System Operational State and Troubleshooting Tip**	**How to clear alert code**
532	Information Only-Dealer	ZS Zoning Pressure Switch Opened (High Pressure)	Zoning Pressure Switch Opened (high pressure). • Compressor pressure is above the specified limit. • Compressor is turned off. • Zoning will be restored once the high pressure switch closes. Occasionally we get this with an AC system and the fix is to just jump out the pressure switch terminals on the damper control module board.	Automatically clears after compressor pressure is within limits.

Table 4. Alert Codes and Troubleshooting

GF= Gas Furnace, AH=Air Handler, ID=Indoor unit (GF or AH), HP=Heat Pump, AC=Air Conditioner, OD=Outdoor Unit (AC or HP), PA=Pure Air S, ZA=Zone system and TS=Thermostat

Alert Code	Priority Condition	Actual Displayed Alert Text Under dealer control center > Notifications	Component or System Operational State and Troubleshooting Tip	How to clear alert code
542	Service Soon	ZS Zone 1 Temp Sensor Fault	Possible Causes: • Zone temperature sensor reading out of range. • Check for loose or incorrectly wired connections at the zone sensor or damper control module terminals. • Open or short zone temperature sensor detected for more than five second. • More than one zone sensor has the same assigned zone number. Check zone sensor(s) zone number assignment. System Response: • Both types of zone sensors will display "--" as the indoor temperature on the main screen. • Damper control module will operate in central mode (all dampers open) in both moderate and critical priority conditions. • If after 10 minutes the condition does not change, the applicable alert code (542, 543, 544 or 545) is escalate by the Lennox communicating thermostat to critical. System will continue to operate in central mode. • At the Lennox communicating thermostat, only zone 1 screen will be available. ***NOTE:*** *The Lennox communicating thermostat will display the alert code as "Problem (Zoning Control)". Email notifications will describe the issue as " Zone "X" Temp Sensor Problem.*	Automatically clears 30 seconds after condition no longer exist.
543	Service Soon	ZS Zone 2 Temp Sensor Fault		
544	Service Soon	ZS Zone 3 Temp Sensor Fault		
545	Service Soon	ZS Zone 4 Temp Sensor Fault		

Table 4. Alert Codes and Troubleshooting				
GF= Gas Furnace, AH=Air Handler, ID=Indoor unit (GF or AH), HP=Heat Pump, AC=Air Conditioner, OD=Outdoor Unit (AC or HP), PA=Pure Air S, ZA=Zone system and TS=Thermostat				
Alert Code	**Priority Condition**	**Actual Displayed Alert Text Under dealer control center > Notifications**	**Component or System Operational State and Troubleshooting Tip**	**How to clear alert code**
546	Service Soon	ZS Parameters resetting from restored power	An EEPROM is a memory device that stores and remembers the information even after power has been removed from the device. It saves settings that the user might have selected like to desired heating and cooling temperatures. When power is removed and then comes back on, the zone sensors (or thermostat for zone 1) remembers what the users setting were. Code 546 is given if the zone sensor notices that the EEPROM has an issue right after power is first applied. The system will set itself to energy save mode and continue to operation	Zone sensor will have to be replaced.
547	Service Soon	ZS Parameters resetting from system interruption	An EEPROM is a memory device that stores and remembers the information even after power has been removed from the device. It saves settings that the user might have selected like to desired heating and cooling temperatures. When power is removed and then comes back on, the zone sensor remembers what the users setting were. Code 547 is given if the zone sensor notices that the EEPROM has an issue sometime later after the product has been on for a while. It will not raise the issue until it needs to again read from the EEPROM memory when it is first powering to retrieve the necessary information. System will operate in a normal mode operator until power off.	Zone sensor will have to be replaced.

Table 4. Alert Codes and Troubleshooting

GF= Gas Furnace, AH=Air Handler, ID=Indoor unit (GF or AH), HP=Heat Pump, AC=Air Conditioner, OD=Outdoor Unit (AC or HP), PA=Pure Air S, ZA=Zone system and TS=Thermostat

Alert Code	Priority Condition	Actual Displayed Alert Text Under dealer control center > Notifications	Component or System Operational State and Troubleshooting Tip	How to clear alert code
548	Service Soon	ZS Humidity Sensor Error	Without humidifiers or dehumidifiers, sensor reads out of range 0% to 100%. This message indicates humidity sensor has malfunctioned.	Zone sensor will have to be replaced or if sensor auto corrects itself the alert will be automatically cleared and system will return to normal operations.
551	Service Soon	ZS Zone Sensor Lost Communication	Any lost communication between any zone sensor and the damper control module will result in applicable alert code(s) being displayed (543, 544 or 545) at the thermostat. • A pop-up display on the thermostat will appear indicating a communication error. • Indoor temperature for the specific zone in error will displayed as "--" on the home screen. • When any zone sensor loses communication with the damper control module, the entire system will go into central mode (single temperature control). Check for loose, damage or incorrect wiring between damper control module and the zone sensor reporting alert code 551.	Once communication is reestablished the zone sensor will return to normal zone operations.

Table 4. Alert Codes and Troubleshooting				
GF= Gas Furnace, AH=Air Handler, ID=Indoor unit (GF or AH), HP=Heat Pump, AC=Air Conditioner, OD=Outdoor Unit (AC or HP), PA=Pure Air S, ZA=Zone system and TS=Thermostat				
Alert Code	**Priority Condition**	**Actual Displayed Alert Text Under dealer control center > Notifications**	**Component or System Operational State and Troubleshooting Tip**	**How to clear alert code**
--	Service Soon	--	Possible loose or mis-wired connections or two zone sensors are assigned the same zone number. Two dashes will be displayed on the S30 thermostat for indoor temperature and/or zone sensor. The system will go into central mode. Individual zone functions is disabled. Anytime the zone sensor loses communication with the damper control module, the entire system will go into central mode. If two sensors are assigned the same zone number, this could result in the double dashes to appear as well.	If two zone sensors are assigned the same zone number, this could cause the double dashes to appear. If loose or mis-wired connection was confirmed, correct the issue and run the re-configuration procedure.

Installer Checklist

Table 5. Installation Checklist

Item	Description	Yes	No
1	Is the zone sensor properly mounted to either a wall stud or wall? (Do not mount on exterior wall or near any ventilation outputs, doorways or location that could be directly exposed to sunlight)		
2	Are all terminals wiring properly connected and tight?		
4	Have all the zone sensor features been explained to the homeowner?		
5	Has user manual been given to homeowner?		
6	Was the correct thermostat wiring gauge used?		
7	Are unused thermostat wires (conductors) wired together to minimize electrical interference that could affect electronic components in the zone sensor. (See “Figure 3. Communicating and Low Voltage Connections” on page 7.)		
8	Was the hole in the wall sealed with a suitable material to prevent drafts from entering the zone sensor case. Not doing so could affect the zone sensor internal temperature sensor.		
9	Did the zone sensor address get set correctly during initial power up of the zone sensor? (Use either 2, 3 or 4)? See “Apply Power and Set Zone Numbers” on page 7.		
10	When replacing an existing zone sensor did you set the address of the new or relocated zone sensor to match the address of the zone sensor being replaced?		