



Installation and Setup Guide

**ComfortSense® 8500 Commercial
Programmable Thermostat Series —
Zoning (14X57 and 14X58)**

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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 service agency.

Shipping and Packing List

- 1 - ComfortSense® 8500 touchscreen - Zoning with back plate
- 1 - Wall plate
- 2 - Mounting screws (M3.5x25mm self-tapping screws)
- 2 - Wall anchors
- 1 - Warranty sheet
- 1 - Installation & Setup Guide
- 1 - User Guide

ComfortSense 8500 Features

The ComfortSense® 8500 Commercial Series — Zoning is a thermostat which will communicate with the L Connection network. In addition, it can be used as a thermostat/zone controller. This thermostat is available with or without CO₂ sensing option.

This thermostat can be used along with ZoneLink and a Network Controller (NTC) to relay data to the M3 Unit controller. In-turn that data can be relayed via either BACnet or LonTalk to a building automation system.

Table 1. Model Information

Configuration Types	Model	Catalog Numbers
Zoning	C0SNZN04FF1L	14X57
Zoning with CO ₂	C0SNZN31FF1L	14X58

This thermostat is a electronic touch screen interface devices. It also offers enhanced capabilities which include:

- Built-in humidification monitoring - range 5% to 95% with accuracy at $\pm 5\%$
- Built-in carbon dioxide monitoring (14X58 only) - range 400-2000 ppm with accuracy at ± 40 ppm + 3% or reading @ 77°F (25°C). Sensor has built-in self-calibration algorithm.
- Temperature monitoring - two internal thermistors, range 32°F (0°C) to 99°F (37°C). Measurement accuracy $\pm 0.5^\circ\text{F}$ (-17.5°C)
- External indoor temperature sensor connections 10k Ω (47W37) or 11k Ω (94L61) — up to nine (9) sensor in parallel may be used.
- External occupancy sensor connection (24VAC)
- Menu-driven touch-screen display
- Supports 50 and 60Hz operations.

Unit Dimensions (H x W x D)

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

Wall Plate Dimensions (H x W)

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

Cable Requirements

Communication Wire

Use one of the following Lennox communication cables (twisted pair with shield plenum rated) depending on the application:

Table 2. Twisted Pair Communication Wire

Order	Description
ZoneBus - Lennox Purple Communication Cable	
23W99	500 foot roll
24W00	1000 foot roll
24W01	2500 foot roll

Remote Sensor Wire

All remote sensors use standard non-shielded thermostat wiring; sensors may be wired using two wires of a multiple wire cable.

NOTE - *Outdoor and indoor sensor wire runs should not exceed 300 feet (100m).*

Transformer Wire

Standard thermostat wire (one pair 20 AWG minimum) may be used to wire the ComfortSense 8500 to the optional wall plug 24VAC transformer 18M13 or other field-provided 2VA minimum, 24VAC output transformer.



CAUTION

This is a 24VAC low-voltage sensor. Do not install on voltages higher than 30VAC.

Do not short (jumper) across terminals to test installation. This will damage the sensor and void the warranty.

Installation

1. Unpacked the thermostat and open the case with a thin-blade screwdriver. Place between wall base and unit and twist to separate unit from base.
 2. Select a location for the sensor about 5 feet (1.5m) above the floor in an area with good air circulation at average temperature.
 3. Do not install the thermostat where it can be affected by:
 - Drafts or dead spots behind doors and in corners.
 - Entrance or automatic doors.
 - Heat generating equipment such as kitchen equipment.
- Enclose environment unless a remote indoor sensor is used.
 - Hot or cold air from ducts.
 - Radiant heat from sun or appliances.
 - Concealed pipes and chimneys.
 - Unheated (uncooled) areas such as an outside wall behind the sensor.

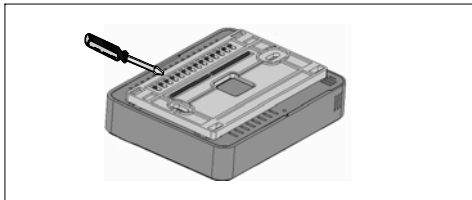


Figure 1. Removing Back Plate

4. Use steps A through D (see figure 7 for using provided optional wall plate).

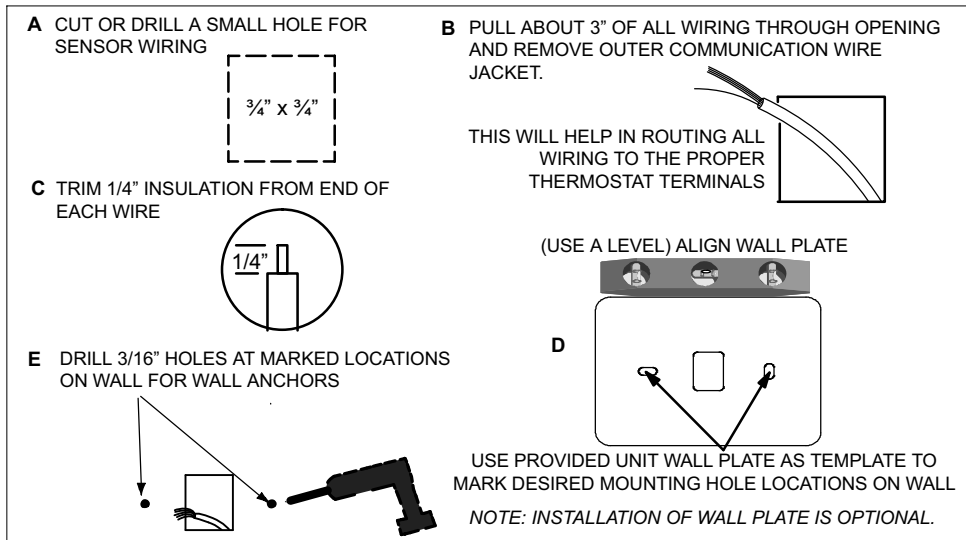


Figure 2. Installing Sensor

Terminal Connections

Terminal(s)	Purpose
DO	10VDC to damper actuator
SG	Common to damper actuator
HR	Heat relay
FR	Fan relay
RH	Relay Hot
R	24VAC
T T	External indoor temperature sensor (10K Ω or 11K Ω)
OC OC	Occupancy sensor
CM- CM+	Zone Bus communication (L Connection)
C	24VAC common

NOTE - All external sensors use standard thermostat wiring; it may be wired using two wires of a multiple wire cable. Wire run should not exceed 300 feet (100m). Terminals CM- and CM+ will use twisted pair communication.

IMPORTANT!

Damage to the ComfortSense 8500 may occur if 24VAC polarity is not maintained.

Wiring Thermostat - (with or without CO₂)

Below are the terminal designations and a general description of their purpose.

1. Connect wiring between thermostat and applicable controller.
2. Connect external sensors if applicable.
3. Seal the hole in the wall with a suitable material to prevent drafts from entering the thermostat case.
4. Configure thermostat and equipment for system type and test system.

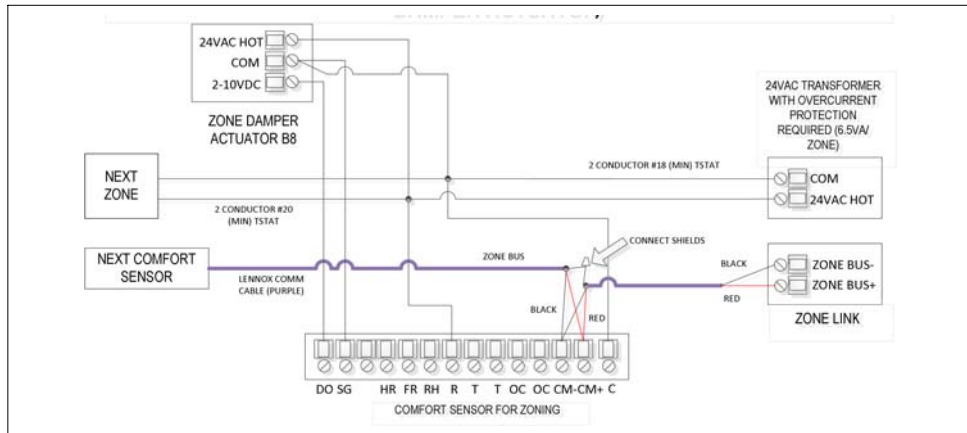


Figure 3. Thermostat Connections (14X57 or 14X58)

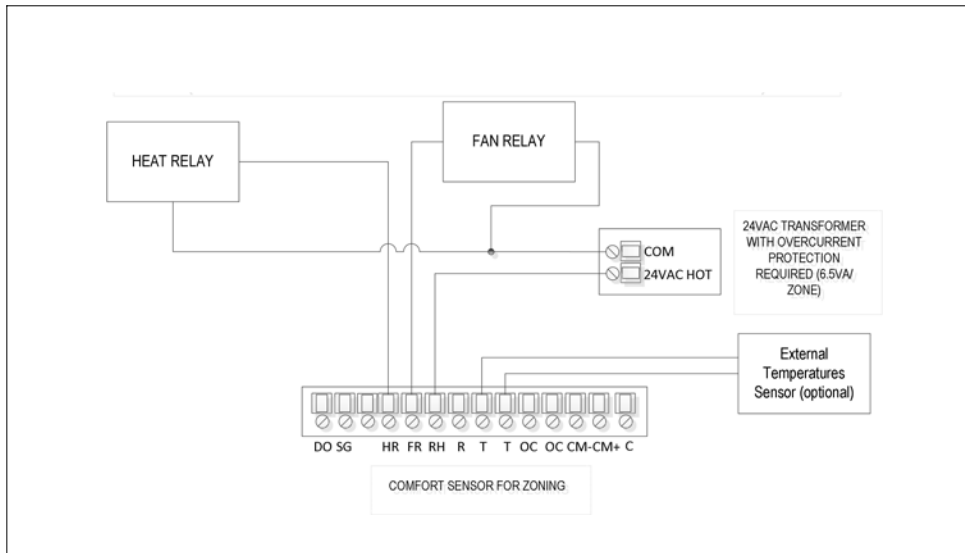


Figure 4. Thermostat Zoning Model Connections (14X57 or 14X58)

Installing Indoor Temperature Sensors

Wire external sensors as shown in figure 5. Up to nine sensors may be used in averaging sensor applications. Use Lennox catalog numbers 10k Ω (47W37) or 11k Ω (94L61). Sensors are not polarity sensitive.

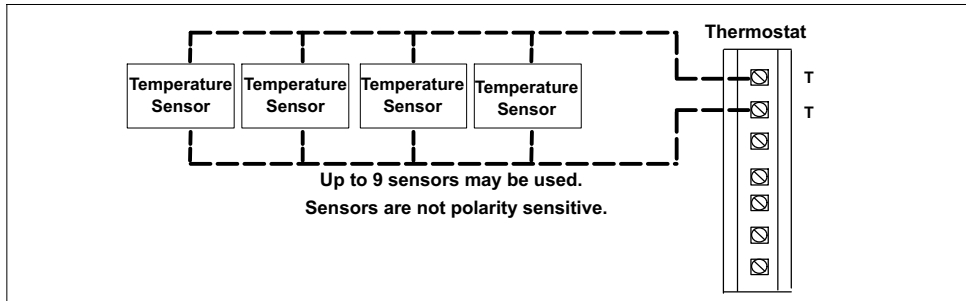


Figure 5. Temperature Sensor Wiring (parallel)

The thermostat will calculate the average temperature readings from all connected external temperature sensors. If any of the sensors malfunction, they may still report a temperature value. When the average value of the connected temperature sensors including any malfunction sensor(s) is lower than -40°F, or when it is higher than 158°F, the thermostat would determine that an external temperature sensor(s) has failed and switch to the thermostat internal temperature sensor.

Installing Occupancy Sensor

When occupied the sensor will output 24VAC and 0VAC when unoccupied. Below is an example on how to make connections for a occupancy sensor.

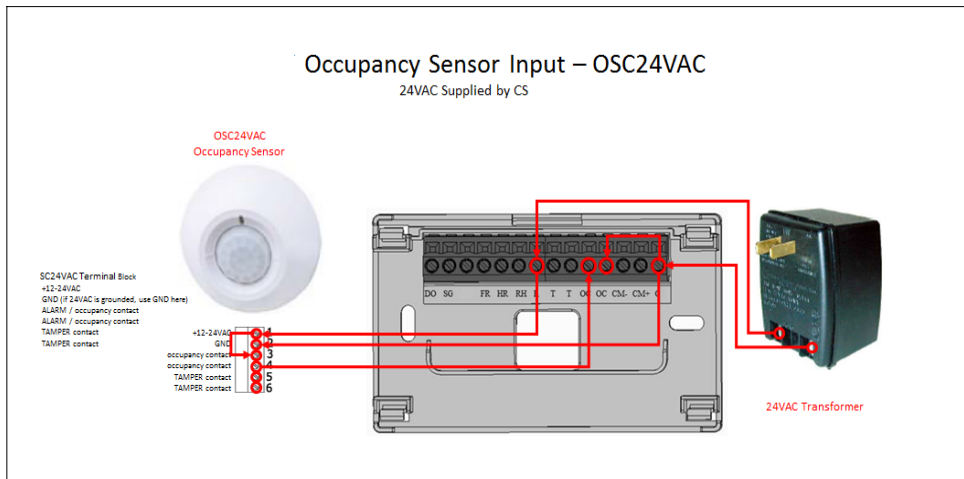


Figure 6. Occupancy Sensor Connections

Thermostat Installation with Wall Plate

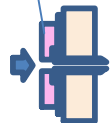
Place wall plate over holes in wall.



Insert wall anchors through wall plate into wall.



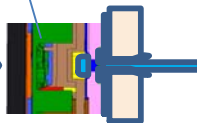
Attach back plate to wall plate.



Insert provided screws through back and wall plates into wall anchors.

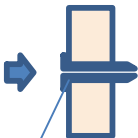


Attach sensor to back plate.

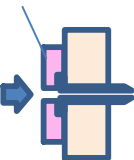


Thermostat Installation without Wall Plate

Place back plate over wall anchors in wall.



Insert wall anchors into wall.



Insert provided screws through back plate into wall anchors.



Attach sensor to back plate.

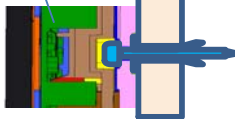


Figure 7. Thermostat Installation to Wall

Fan and Heat Relay Outputs

The following are the fan and heat relay outputs.

Table 3. Fan and Heat Relay Outputs

		LOCAL HEAT MODE				HEATING MODE	
		1 st Stage Heat		2 nd Stage Heat		1 st /2 nd Stage Heat	
Fan Type	Heat Type	Fan Output	Heat Output	Fan Output	Heat Output	Fan Output	Heat Output
none	none	-	-	-	-	-	-
series	none	ON	-	ON	-	ON	-
parallel	none	ON	-	ON	-	OFF	-
none	reheat	-	ON w/ unit blower, damper to VENT	-	ON w/ unit blower, damper to VENT	-	OFF
series	reheat	ON	ON	ON	ON	ON	OFF
parallel	reheat	ON	ON	ON	ON	OFF	OFF
none	auxiliary	-	OFF	-	ON w/ unit blower	-	OFF
series	auxiliary	ON	OFF	ON	ON	ON	OFF
parallel	auxiliary	ON	OFF	ON	ON	OFF	OFF
none	peripheral	-	ON	-	ON	-	ON
series	peripheral	ON	ON	ON	ON	ON	ON
parallel	peripheral	ON	ON	ON	ON	OFF	ON

System Setup

The optional settings (M2 ECTOs or M3 Parameters) can be adjusted using Unit Controller software, a PC with UC software, and L Connection PC converter. Settings do not have to be adjusted for zoned system operation; default parameters will be used. See table 2 for additional M2 ECTOs or M3 Parameters information.

Units Equipped with an NTC

ECTO A4.07 - Set to 1. Enables remote sensor mode in the NTC.

Thermostat Configuration — M1 and M2 Unit Controllers

The following options (M1/M2 ECTOs and M3 Parameters) must be set when the thermostat is used.

ECTO 6.01 - Set to 1, 2, or 3. Tells the M1/M2 unit controller what control mode and back-up set points to use.

- 1 = Zone sensor mode with no backup.
- 2 = Zone sensor mode with local sensor backup.
- 3 = Zone sensor mode with return air sensor backup.

ECTO 5.27 - Set to 2, 3, 10, or 11, depending on the options available. Zone temperature reading is standard on all models. Setting tells the M1/M2 unit controller where to get zone temperature, CO₂, and indoor RH input.

- 2 = Zone temperature (A2)
- 3 = Zone temperature and IAQ (A63)
- 10 = Zone temperature and indoor RH (A91)
- 11 = Zone temperature, IAQ, and indoor RH

ECTO A4.07 - Set to 1. Enables remote sensor mode in the network thermostat controller (NTC).

Thermostat Configuration — M3 Unit Controller:

L Connection®

To **enable** the M3 Unit Controller to use the thermostat, use the following procedure:

1. Set CONFIGURATION ID1, position 5 to N.
2. Go to SETUP and select NETWORK INTEGRATION.
3. Use the Adjust and set values arrows to display L-CONNECTION and press the SAVE button to continue.
4. Adjust the L-CONNECTION ADDRESS if required and press SAVE button to continue.

NOTE: Both the L-Connection address setting and thermostat address setting will need to be exactly the same.

5. CONTROL MODE will need to be set to ROOM SENSOR. Press the SAVE button to continue.
6. NETWORK SENSOR > CO₂ (if equipped) needs to be set to YES if needed. Press the SAVE button to continue.
7. NETWORK SENSOR > RELATIVE HUMIDITY needs to be set to YES if needed. Press the SAVE button to continue.
8. NETWORK SENSOR > TEMPERATURE will need to be set to YES (mandatory).
9. Press the SAVE and quit the menu.

NOTE: If the thermostat is not communicating with the Unit Controller, cycle power to the Unit Controller.

Thermostat Troubleshooting

1. Make sure 24VAC is supplied to the CS.
2. Make sure the CS S-Bus address setting matches the M1/M2 unit controller address. (Note: an NCP is required when using an NTC.)
3. Check communication cable wiring.

4. Verify that the sensor data from the CS display matches the Prodigy Unit Controller display.
5. For the M1 unit controller (IMC), use the IMC MODE TEMP switch to display the data.
6. For the M2 unit controller use the **DATA > SENSORS** menu to display the data.
7. For the M3 Unit Controller use the **DATA > IN/OUTPUT > SENSORS > NETWORK**

Setting Return Air Temperature Limits

The M3 unit controller may be set up to monitor return air temperature and interrupt the demand if return temperature is above the heating adjustable limits.

To enable this feature set parameters 113 and 115 locally at the Prodigy 2.0 unit controller which is located inside Lennox rooftop unit.

- Adjusting parameter 113 enables return room temperature limits. Default is 0 (OFF). To enable set to 1 (ON). Go to **SETTINGS > RTU OPTION > EDIT PARAMETER = 113 (EN RET AIR TMP LMT)**
- Adjusting parameter 115 is used to interrupt a heating demand. Default is 85.0°F. Adjustable range is 60.0°F to 100.0°F. Go to **SETTINGS > RTU OPTION > EDIT PARAMETER = 115 (HEAT RET AIR LIMIT)**

If return air temperature is above the adjustable limits, alarm code 40 will be displayed but not stored in memory for recall.

Thermostat Zoning Configuration

Multiple thermostats (14X57 or 14X58) cannot be connected directly to the Prodigy Unit Controller for zoning applications. From the Prodigy unit controller a connection is made to the Zone Link and separate connection is made from the Zone Link to the Network Control Panel (NCP).

Connect the L Connection PC Converter phone cable to the NCP to configure all of the thermostat. When the converter is connected to the thermostat, only the Controllers on that Zone Bus can be adjusted.

The following optional settings (M2 ECTOs or M3 Parameters) can be adjusted using Unit Controller software, a PC with UC software, and L Connection PC converter. Settings do not have to be adjusted for zoned system operation; default parameters will be used. See table 2 for additional M2 ECTOs or M3 Parameters information.

NOTE - One exception is the installation of a zone terminal box. Heat Type and Fan Type must be set.

Main Screen Display Options

- Setpoint High Resolution
- Zone Temperature High Resolution
- CO2 Display
- Outdoor Temperature
- Temperature Set points
- RH
- Damper Position
- Momentary Backlight - Display backlight intensity within 5 seconds of button being pressed.
- Continuous Backlight - Display backlight intensity all of the time.

Fan Type

Terminal Box Fan Type - none, series, or parallel.

Heat Type

Zone Heat Type - none, terminal box, auxiliary, peripheral.

Heating

- Heating votes (1st stage: 2nd stage).
 - 0:0 - No votes (no affect on system heating demands).
 - 0:1 - Vote only when sensing high zone heating demand.
 - 1:1 - Vote single weight vote during either low or high zone heating demand.

- ✓ 1:2 - Vote single weight during low zone heating demand, vote double weight during high demand.
- Heating Differential 1 - Defines the temperature below setpoint that creates a low heating demand.
- Heating Differential 2 - Defines the temperature below setpoint that creates a high heating demand. Must be greater than Differential 1.
- Heating Deadband - Defines the temperature above demand start temperature that ends the demand.
- Heating Integration Constant - The integration time, in seconds, that is used in the damper position control algorithm during a zone heating demand.
- Heating Proportional Constant - The proportion band, in degrees Fahrenheit, that is used in the damper control algorithm during a zone heating demand.
- Heating Supply Air Temperature Differential - The amount warmer that the supply air temperature must be than the zone temperature, to be used for a heating demand.

Damper

- Minimum zone damper position.
- Maximum zone damper position.
- Zone damper ventilation position.
- Zone control loop reset position (damper starting position).
- Zone CO₂ setpoint for ventilation (IAQ / indoor air quality ventilation setpoint 500-2000ppm of CO₂).

Cooling

- Cooling Votes (1st Stage; 2nd Stage)
 - ✓ 0:0 - No votes (no affect on system cooling demands)
 - ✓ 0:1 - Vote only when sensing high zone cooling demand.
 - ✓ 1:1 - Vote single weight vote during either low or high zone cooling demand.
 - ✓ 1:2 - Vote single weight during low zone cooling demand, vote double weight during high demand.
- Cooling Differential 1 - Defines the temperature above setpoint that creates a low cooling demand.

- Cooling Differential 2 - Defines the temperature above setpoint that creates a high cooling demand. Must be greater than Differential 1.
- Cooling Deadband - Defines the temperature below demand start temperature that ends the demand.
- Cooling Integration Constant - The integration time, in seconds, that is used in the damper position control algorithm during a zone cooling demand.
- Cooling Proportional Constant - The proportion band, in degrees Fahrenheit, that is used in the damper control algorithm during a zone cooling demand.

Setpoint Range and Sensor Calibration

Setpoint adjustment range except when zone is in manual mode.

- Internal temperature offset calibration.
- External temperature offset calibration.
- RH offset calibration.

Troubleshooting

Make sure the thermostat is displayed on the NCP network list. If the thermostat is not displayed:

1. Make sure 24VAC is supplied to the thermostat.
 2. Make sure the thermostat address setting is different from all other thermostats on its ZoneBus.
 3. Check communication cable wiring: the red and black leads should be connected to thermostat's CM- and CM+ terminals.
- Make sure connections are correct at the Zone Link and unit.
 - Verify communication using LEDs on the Zone Link and IMC or NTC.
 - 4. Make sure the IMC or NTC is setup for zoning application. Refer to the Zone Link installation instruction.
 - 5. Re-poll the network at the NCP (see NCP user's manual).

Verify that the sensor data from the thermostat display matches the NCP zone data screen.

Parameters (ECTOs)

Table 4. Parameters

	Name	DESCRIPTION		MIN	MAX	DEF.	UNIT	Notes
D0	DIS- PLAY_OPT	bit	Option					
		7	1, Disable override button					
		6	Damper					
		5	RH					
		4	Set points					
		3	Outdoor Temperature					
		2	CO2					
		1	Zone Temp. High Resolution					
		0	Setpoint High Resolution	0	255	08		

	Name	DESCRIPTION	MIN	MAX	DEF.	UNIT	Notes
D1	BACKLIGHT	upper nibble: bright setting, lower nibble: dim setting	0	255	98(\$62)		
D2	SP_ADJ_RANGE	Setpoint Adjustment Range	0	?	16		
			0		4	°F	
D3	IT_CAL	Calibration factor, internal temperature	-5	+5	0	°F	
			236	20	0		
D4	ET_CAL	Calibration factor, external temperature	-5	+5	0	°F	
			236	20	0		
D5	RH_CAL	Calibration factor, RH sensor	-5	+5	0	%	
			251	5	0		
D6	CO2_CAL	Calibration factor, CO2 sensor	-200	+200	0	PPM	Last of the Sensor Only ECTOs.
			236	20	0		
D7	FAN_TYPE	None, series, parallel	0	2	0		
			None	parallel	none		


	Name	DESCRIPTION	MIN	MAX	DEF.	UNIT	Notes
D8	HEAT_TYPE	None, reheat, auxiliary, peripheral	0	3	0		
			none	peripheral	None		
D9	DAMP_MIN	Minimum damper position	0	100	20	%	
D10	DAMP_MAX	Maximum damper position	0	100	100	%	
D11	DAMP_VNT	Damper ventilation position	0	100	60	%	
			0	255			
D12	DAMP_RST	Damper control loop reset position	0	100	50	%	
			0	255			
D13	IAQ_SP	CO2 setpoint to go to vent position	50	201	0		201 is Off.
D13	IAQ_SP	CO2 setpoint to go to vent position	500	2000	0	PPM	
D14	VOT-ING_COOL	(1 st stage: 2 nd) 0:0, 0:1, 1:1, 1:2	0	3	3		
			0:0	1:2	1:2	Votes	
D15	CLG_DF	First cooling setpoint differential	0	3	.5	°F	
			0	12	2	Counts	

	Name	DESCRIPTION	MIN	MAX	DEF.	UNIT	Notes
D16	CLG_DF2	2nd cooling setpoint differential	0	3	1	°F	
			0	12	4	Count s	
D17	CLG_DB	Cooling deadband	1	4	2	°F	
			4	16	8	Count s	
D18	CLG_TI	Integration constant, cooling	10	2550	1200	SEC	0 is no integration term.
			1	255	120	Count	
D19	CLG_PB	Proportional constant, cooling	2	30	4	°F	0 or 31 is no PI control; damper operates at reset value.

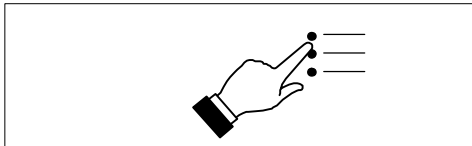
	Name	DESCRIPTION	MIN	MAX	DEF.	UNIT	Notes
D20	VOT- ING_HEAT	(1 st stage: 2 nd) 0:0, 0:1, 1:1, 1:2	0	3	3		
			0:0	1:2	1:2	Votes	
D21	HTG_DF	First heating setpoint differential	0	3	.5	°F	
			0	12	2	Count s	
D22	HTG_DF2	2nd heating setpoint differential	0	3	1	°F	
			0	12	4	Count s	
D23	HTG_DB	Heating deadband	1	4	2	°F	
			4	16	8	Count s	
D24	HTG_TI	Integration constant, heating	10	2550	1200	SEC	0 is no integra- tion term.
			1	255	120	Count	

	Name	DESCRIPTION	MIN	MAX	DEF.	UNIT	Notes
D25	HTG_PB	Proportional constant, heating	2	30	4	°F	0 or 31 is no PI control; damper operates at reset value.
			2	30	4		
D26	SA_DF	Supply air differential, determines if suitable for heating	0	20	10	°F	
			0	80	40	Count s	

Technician Settings Overview

During initial power up of the thermostat, the technician settings menu will appear first. The S-bus address option must be selected and a address set before you can proceed. Use either the minus/plus buttons or numeric keypad to enter enter the address. After setting the s-bus address is set, touch the , to return to the technician settings menu.

NOTE: If you need to access the **technician settings** option in the future, go to the home page, touch menu > technical settings and enter technician PIN code 864. This code cannot be changed.



Technician Settings Menu Options


The following settings are also available from this screen:

- S-bus address

- display on home screen
- contractor info
- temperature sensor config.
- offsets
- reset to factory defaults
- installation test
- change owner pin
- damper invert

Technician Settings Descriptions

1. S-bus Address

Options are 0 through 31. Select address and touch the set button  to save the setting and turn to the technician setting screen.

2. Display on Home Screen

Turn ON or OFF for the followings options:

- CO₂ value (only on models with CO₂ sensor)
- Box heater state
- Box fan state
- RTU function state
- Service required alert

Factory default is OFF for all of the above options. Touch < in the upper left-hand corner of the screen to return to the technician settings menu.

3. Contractor Information

Information to be completed for this option is name, address, phone, email, website and contractor number. Touch < in the upper left-hand corner of the screen to return to the technician settings menu.

4. Temperature Sensor Config.

Temp. Sensor source by default is set to **internal temp. sensor**. The other option is **external temp. sensor(s)**. When **external temp. sensor(s)** is selected, the following settings need to be configured;

- **number of external temp. sensor:** Default is 1, and up to nine can be selected.
- **type of external sensor:** Options are 10k sensor type 2 (47W37) or 11k sensor type

2 (94L61). Default sensor type is 10k sensor type 2.

Touch < in the upper left-hand corner of the screen to return to the technician settings menu.

5. Offsets

- **Internal temp. Sensor offset:** Offset for the built-in temperature sensor (internal) is -5°F to +5°F. Default is 0°F.
- **external temp. sensor offset** (only selectable when **external temp. sensor** is selected under temperature sensor config.): Offset for the external temp, sensor is -5°F to +5°F. Default is 0°F.
- **humidify offset:** The setting option for this is -10% to +10%. Default is 0%.
- **CO₂ sensor offset:** Offset for the CO₂ sensor is -10 ppm to +10 ppm. Default is 0 ppm. (Only on models with internal CO₂ sensor.)

6. Reset to Factory Defaults:

There are three options under this setting, partial reset and all reset.

- **reset all settings** - Resets everything to factory factory default.
- **reset all owner settings** - Resets all owners settings listed under general display menus.
- **reset technician settings**: Resets all technician settings listed on the technician menu.

Touch < in the upper left-hand corner of the screen to return to the technician settings menu.

7. Installation Test

The installation test function allows the technician to check the HVAC system after the thermostat setup has been completed. Test options are **fan relay**, **heater relay** and **damper position**. The damper position range bar allow the position of the damper to be manually set from fully closed (0%) to fully open (100%).

NOTE: *In test mode normal operation is suspended and the technician can exercise all of the outputs (fan, heat and damper). No save parameters are modified in this process.*

8. Change Owner Pin

This option is used to create or change the owner pin number when **screen lock** is enabled under the owner settings > generals settings. The default owner pin is 864. Screen lock can be set under **home screen > menu > owner settings > general**. Screen lock ON or OFF. Default is OFF.

9. Damper Invert

Options for this setting are ON or OFF. Default is OFF.

- When damper invert option is set to **OFF**, the analog control for the damper actuator is a 2-10VDC with 10VDC being fully closed. The thermostat uses percent (%) for bypass damper position. For example, 70% bypass damper position equals 4.4VDC.

- When damper invert option is set to **ON**, the analog control for the damper actuator is a 2-10VDC with 2VDC being fully closed. The thermostat uses percent (%) for bypass damper position. For example, 30% bypass damper position equals 4.4VDC.


Table 5. Damper Invert is OFF















Damper Position (%)	Control Voltage (VDC)
0 (closed)	10.0
10	9.2
20	8.4
30	7.6
40	6.8
50	6.0
60	5.2
70	4.4
80	3.6
90	2.8
100	2.0

Table 6. Damper Invert is ON

Damper Position (%)	Control Voltage (VDC)
0 (closed)	2.0
10	2.8
20	3.6
30	4.4
40	5.2
50	6.0
60	6.8
70	7.6
80	8.4
90	9.2
100	10.0

Technician Status Icons

The technician system status icon screen can be accessed by touching the  which is located on the left side of the home screen. Then press the

 comm. status errors detected	connected, error detected	 F.A.T heating	LEGEND: CS - Thermostat HP - Heat Pump FAT - Fresh Air Tempering RTU - Roof Top Unit	
 comm. status connected	connected, no error detected	 F.A.T cooling		
 comm. status offline	Online or offline	 F.A.T dehumidifying		
 occupied warmup	Occupied warmup or heating	 some RTU compr. locked		 fan is auto
 occupied cool-down	Occupied cool-down or cooling	 all RTU compr. locked		 fan is on
 HP defrosting		 RTU fault state fault detected		faults detected



RTU fault state
zero faults

no faults detected



CS fault state
fault detected



CS fault state
zero faults

no faults detected



CO₂ 1265 ppm

LEGEND:

CS - Thermostat

HP - heat pump

FAT - Fresh Air Tempering

RTU - Roof Top Unit

(under technician only)



damper is 20%



box heater on



box fan on



will start soon!

“will start soon!” is the waiting state.

Notifications

Touch the three lines in the upper right-hand corner of the screen to access the **menu**. Selectable options under **menu** are **notifications** and **settings**.

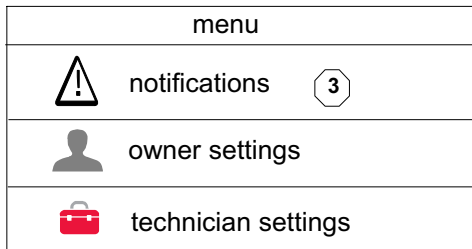
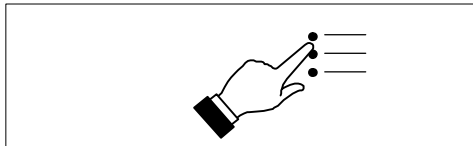


Figure 8. Menu Screen

When a system error or reminder occurs, a pop-up screen will appear indicating the condition.

- Error code notification pop-up can be dismissed by touching the back button. Contact the contractor to resolve the issue.
- For notification, touch either clear or set a future reminder.

Any active history for notifications are listed under **settings > notification** as illustrated in figure 9. Touch the down arrow icon next to the notification to expand the notification for further details. Touch the contractor info option for assistance.

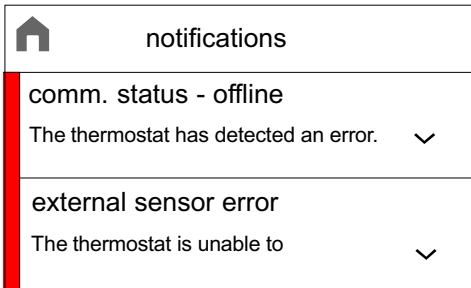


Figure 9. Notifications

Table 7. Error Codes and Reminders

Condition	Display	System Action	Action to Clear / Recovery Condition
<p>Built-In Temp Sensor error - temperature sensor reads 40°F or less or 158°F ($\pm 5^\circ\text{F}$) or greater.</p>	<p>temperature sensor error</p>	<ul style="list-style-type: none"> • Indoor temp is displayed as "--" on the home screen. • This error is displayed on the notification screen as well. 	<ul style="list-style-type: none"> • If the sensor starts detecting a normal operating range, the error message will automatically clear and the system will return to normal operation. • Contact service contractor to replace the thermostat.
<p>Remote temperature sensor error. External sensor reads reads 40°F or less or 158°F ($\pm 5^\circ\text{F}$) or greater.</p>	<p>external sensor error</p>	<ul style="list-style-type: none"> • Indoor temp is displayed as "--" on the home screen. • This error is displayed on the notification screen as well. • When configured for external temperature sensors and there is an error, the unit will automatically switch to the internal temperature sensor. 	<ul style="list-style-type: none"> • If the sensor starts detecting a normal operating range, the error message will automatically clear and the system will return to normal operation. • Contact service contractor to replace the external temperature sensor. • Other than replacing the thermostat, go to the <i>technician setting > temperature sensor config.</i> and change the <i>temp. sensor source</i> back to <i>internal temp. sensor</i>. That will remove the error message from the home and notification screens.

Condition	Display	System Action	Action to Clear / Recovery Condition
EEPROM error (power-on)	Memory Error	<ul style="list-style-type: none"> • System will restore all settings to factory default and resume operations. • This error is displayed in notification screen. 	<ul style="list-style-type: none"> • Contact service contractor to replace the thermostat.
EEPROM error (operating)	Memory Error	<ul style="list-style-type: none"> • System will operate in normal mode until power off. • This error is displayed in notification screen. 	<ul style="list-style-type: none"> • Contact service contractor to replace the thermostat.
Humidity sensor error (without Humidifier or Dehumidifier): Sensor reads out of range 0% to 100%	Humidity Sensor Error	<ul style="list-style-type: none"> • The reading for humidity is not valid. This message indicates humidity sensor is not working correctly. When there is an error the home screen humidity display will indicate "--". • This error is displayed on the notification screen as well. 	<ul style="list-style-type: none"> • If the sensor starts detecting a normal operating range, the error message will automatically clear and the system will return to normal operation. • Contact service contractor to replace the thermostat.

Condition	Display	System Action	Action to Clear / Recovery Condition
CO ₂ Sensor error - sensor reads out of range (above 3500 ppm)	CO ₂ sensor error	<ul style="list-style-type: none"> • The reading for CO₂ is not valid. This message indicates CO₂ sensor is not working correctly. • The display of Indoor CO₂ from HOME will be "--". • This error is displayed on the notification screen as well 	<ul style="list-style-type: none"> • Contact service contractor to replace the thermostat. • If the sensor starts detecting a normal operating range, the error message will automatically clear and the system will return to normal operation.
Comm error state at start-up. NOTE: Also if 2 or more length or Checksum errors are detected (in any message) since the last message received by this address.	Comm Status – Errors Detected	<ul style="list-style-type: none"> • When the failed (offline) state is detected, continue listening for a valid message. • If this occurs then normal operation should resume. • This error is displayed in notification screen. 	<ul style="list-style-type: none"> • Contact service contractor to check communication wire connection. • If a valid message is received, then the error message will be automatically cleared and system will resume normal operations.

Condition	Display	System Action	Action to Clear / Recovery Condition
Some RTU Compressors Locked	All RTU compressors Locked	This error is displayed in notification screen and technician system status screen.	<ul style="list-style-type: none"> • User will have to contact the Service Contractor to have the system serviced. • Will need to check RTU state • If the RTU recovered from the error automatically the error will also automatically clear.
All RTU Compressors Locked	Some RTU compressors Locked	This error is displayed in notification screen and technician system status screen.	<ul style="list-style-type: none"> • User will have to contact the Service Contractor to have the system serviced. • Will need to check RTU state • If the RTU recovered from the error automatically the error will also automatically clear.
RTU Fault State	RTU Fault State Detected	This error is displayed in notification screen and technician system status screen.	<ul style="list-style-type: none"> • User will have to contact the Service Contractor to have the system serviced. • Will need to check RTU state • If the RTU recovered from the error automatically the error will also automatically clear.

