Tech Tip: AUX and E Wires

Audience

Professional Installers and Support Agents

Summary

Some HVAC systems support auxiliary heat (AUX) as well as emergency heat (E).

Auxiliary heat is used when the balance point can no longer efficiently transfer heat from the outside air (usually about 35 degrees Fahrenheit). A thermostat senses this and automatically turns on electric heat strips to provide the additional heat needed.

Some thermostats have an E wire. The E wire controls emergency heating. **Emergency heat** is used when the HVAC system is not functioning properly (usually when the compressor is out of service). When you set a thermostat to emergency heat, the system bypasses the compressor and directly accesses the electric heat strip.

Problem Identification

Zen Thermostat supports 2 stage heating with emergency heat. If the customer desires to use emergency heat there are two options.

Option 1: Heat pump HVAC system that supports 2 stage heating w/ emergency heat as separate wires. (AUX and E) **R<>G<>Y<>C<>W1/O/B<>AUX/W2 <>E** The E wire will be placed into the W2 terminal on the Zen Thermostat. The W2 wire will go in the terminal marked Y2 on the Zen Thermostat.	

Option 2: 2 Stage heating w/ emergency heat. Single wire (W2 or AUX) **R<>G<>Y<>W1/O/B<>AUX/W2<>C**	

Steps to confirm expected behavior

To verify that both HEAT mode and EMER (emergency heat) mode are working as expected, follow the steps below.

High-level instruction	Step by step instruction

Set Zen Thermostat mode = HEAT	1. With the Zen Thermostat attached to the wall plate, tap the Zen Thermostat display to enter the menu
	2. Scroll left to the HEAT menu and center tap to select
	3. Scroll up to adjust the heating setpoint to be at least 5 degrees higher than the current ambient temperature, center tap to select
	4. The flame icon will be illuminated
	
	    Flame icon
	
	5. Within the HVAC safety timeout period, typically 5-10 minutes, the active icon will become illuminated indicating heating is active
	
	    Active
	
	6. At this point, the HVAC unit will turn on and warm air will start blowing from the vents

Set Zen Thermostat mode = EMER	1. With the Zen Thermostat attached to the wall plate, tap the Zen Thermostat display to enter the menu 2. Scroll left to the EMER menu and center tap to select

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	3. Scroll up to adjust the heating setpoint to be at least 5 degrees higher than the current ambient temperature, center tap to select 4. The emergency heating icon will be illuminated **EMER** Emergency heating 5. The active icon will become illuminated indicating emergency heating is active Active 6. At this point, the electric heat strips will turn on and warm air will start blowing from the vents
Set Zen Thermostat mode = OFF	1. Tap the Zen Thermostat to wake the display. 2. Scroll left to the OFF menu and center tap to enter. 3. Within the HVAC safety timeout period, typically 5-10 minutes, the active icon will turn off indicating cooling and heating are not active. Active 4. At this point, the HVAC unit will turn off and no air should be blowing from the vents

Exception and Escalations

If assistance is required, please collect the below information on site to assist Zen Thermostat Support:

- A photo of the originally installed thermostat wiring
- A photo of the wiring connected to the wall plate
- A photo of the back of the Zen Thermostat showing the serial number. To locate the serial number, remove the Zen Thermostat from the wall and on the back of the Zen Thermostat body the serial number is listed on a sticker at the side of the device.

Send the photos to support@zenecosystems.com to continue the escalation to Zen Thermostat support.

For further assistance, please do not hesitate to call us at 949-359-8208.