

THIS PROCEDURE MUST BE PERFORMED BY A QUALIFIED TECHNICIAN

OPERATION

2100 Series room heaters have onboard temperature sensing and control. In some applications, the system owner may want to use a low voltage thermostat. While either a single stage or 2-stage thermostat may be used, Steffes strongly recommends using a 2-stage thermostat.

When using a low voltage thermostat there are only one or two speeds available for air discharge and target output temperatures. The blower will run at the selected speed regardless of core temperature.

With a single stage thermostat, the blower will run at the speed selected in Location 29 (L029) and have the output target temperature selected in Location 49 (L049).

When using a 2-stage thermostat, the blower will run at the speed selected in Location 28 (L028) and target the output temperature selected in Location 48 (L048) with a stage 1 heat call. It will run at the speed selected in Location 29 (L029) and target the output temperature selected in Location 49 (L049) with a stage 2 heat call.

NOTES: A separate 24VAC source is required to operate the thermostat and provide signal voltages to heaters.

The number of heaters controlled using this application is limited by the ratings of the power source and thermostat. The current draw of each input is .015A.

Heaters with version 2.02 or lower are only capable of running in a single stage configuration. If a 2-stage configuration is desired the processor control board must be replaced.



WARNING

HAZARDOUS VOLTAGE:
Risk of electric shock. Can cause injury, or death. System may be connected to more than one branch circuit. Disconnect power to all circuits before servicing.

INSTALLATION WITH WHITE AND WHITE/BLACK WIRES

To configure the heater to operate with a low voltage thermostat perform the following:

- Mount the thermostat in the desired location and connect wiring in the manner which is appropriate for the application according to Figures 1 and 2.
- Version 2.02 or lower only:** Disconnect one of the wires from the fan resistor on each heater.

Version 2.04 or higher only: Remove the 2-bit from the value in Location 35 (L035). Unless other changes to the heater's configuration have been made, the new value will be 152.
- Set the value in Location 3 (L003) to a value of 32 to display heat call status or a value of 16 to display outdoor temperature.
- Set the values in Location 28 (L028), 29 (L029), 48, (L048), and 49 (L049) as shown in Table 1.

Table 1

Single Stage Thermostat

Location	Model				
	2102	2103	2104	2105	2106
L028	1				
L029	10	33	55	78	100
L048	90				
L049	200				

2-Stage Thermostat

Location	Model				
	2102	2103	2104	2105	2106
L028	5				
L029	20	65	110	155	200
L048	180				
L049	200				

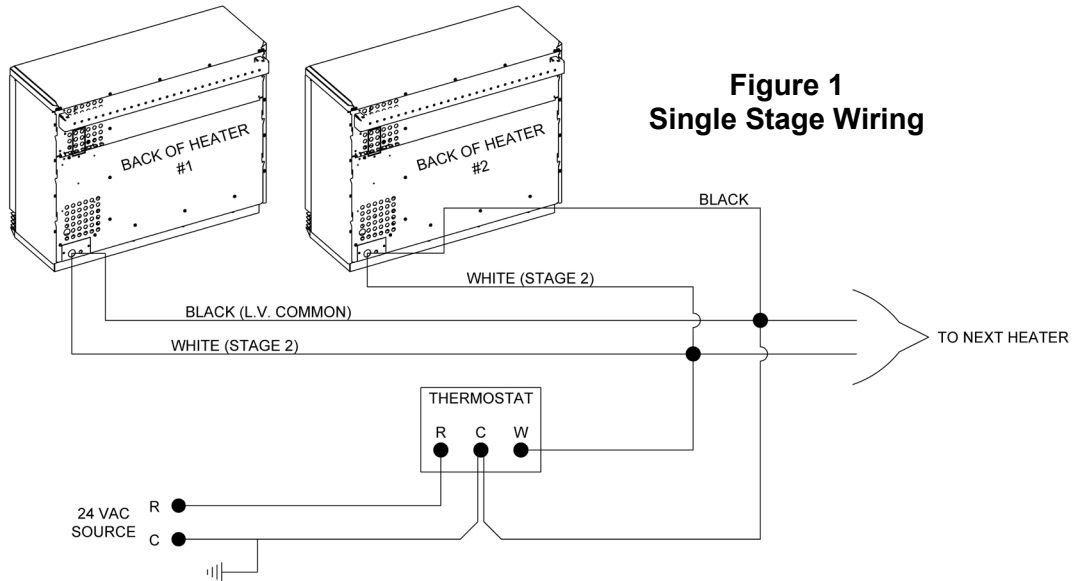


Figure 1
Single Stage Wiring

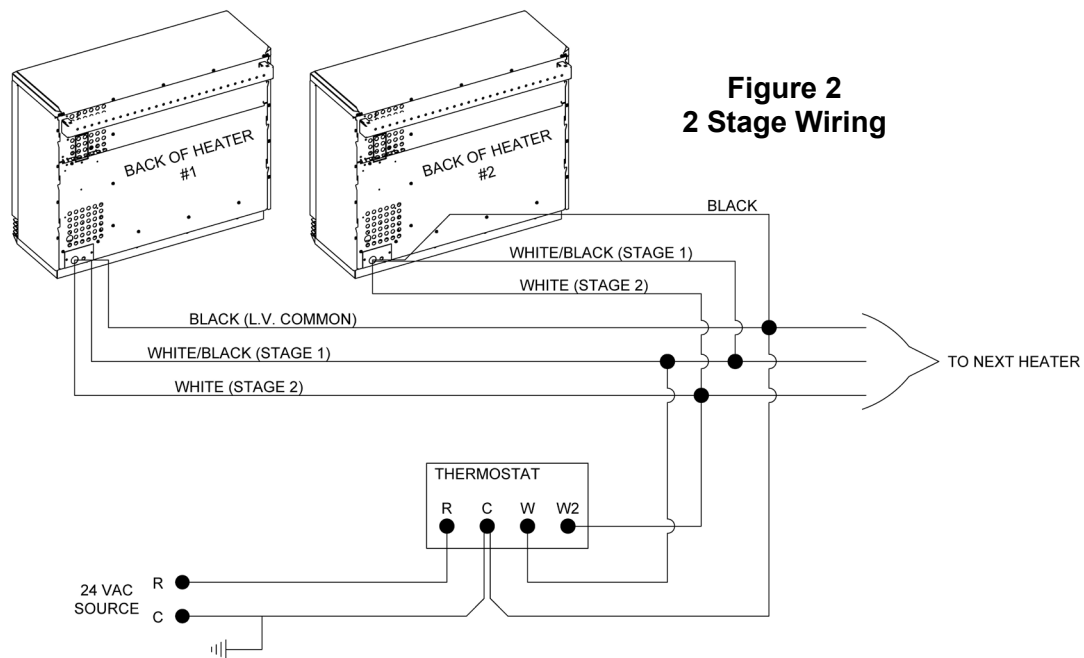


Figure 2
2 Stage Wiring

INSTALLATION WITHOUT WHITE AND WHITE/BLACK WIRES

To configure the heater to operate with a low voltage thermostat perform the following:

1. Mount the thermostat in the desired location.
2. Check low voltage wiring harness on the heater and determine if it includes a white and white/black wire. If it does, skip to Step 6.
3. If the heater is NOT equipped with the white and white/black wires shown, disconnect the 15-pin wiring harness from the processor control board on the heater.
4. Move the yellow wire from its current position shown in Figure 3 to the 3rd position (Stage 2 Heat Call) from the right on the 15-pin harness as shown in Figure 4.



WARNING

HAZARDOUS VOLTAGE:
Risk of electric shock. Can cause injury, or death. System may be connected to more than one branch circuit. Disconnect power to all circuits before servicing.

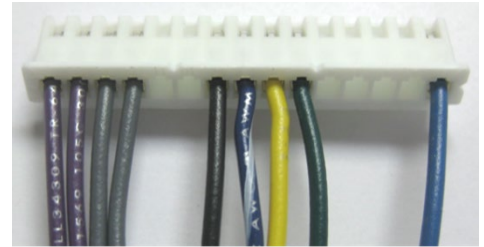
Low Voltage Thermostat Installation continued...

5. If using a 2-stage thermostat, move the green wire from its current position shown in Figure 3 to the 4th position (Stage 1 Heat Call) from the right on the 15-pin harness as shown in Figure 4.
6. Connect wiring in the manner which is appropriate for the application according to Figure 5 and 6.
7. **Version 2.02 or lower only:** Disconnect one of the wires from the fan resistor on each heater.

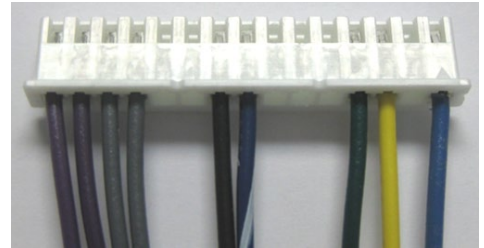
Version 2.04 or higher only: Remove the 2 bit from the value in Location 35 (L035). Unless other changes to the heater's configuration have been made, the new value will be 152.

8. Set Location 3 (L003) to a value of 32 to display heat call status or 16 to display outdoor temperature.
9. Set the values in Location 28 (L028), 29 (L029), 48, (L048), and 49 (L049) as shown in Table 2.

**Figure 3
15-Pin Harness - Unmodified**



**Figure 4
15-Pin Harness - Modified**



**Figure 5
2 Stage Wiring**

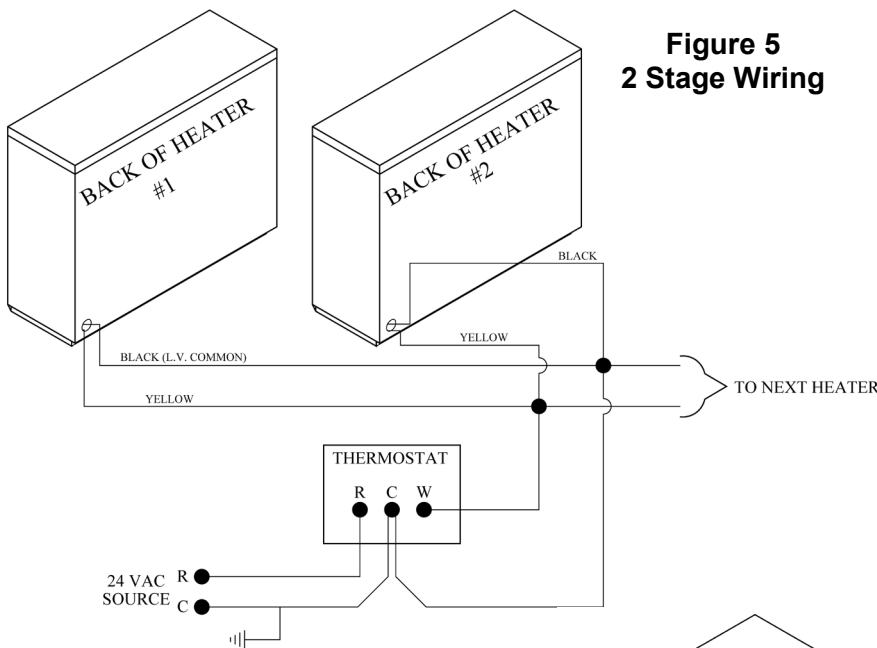
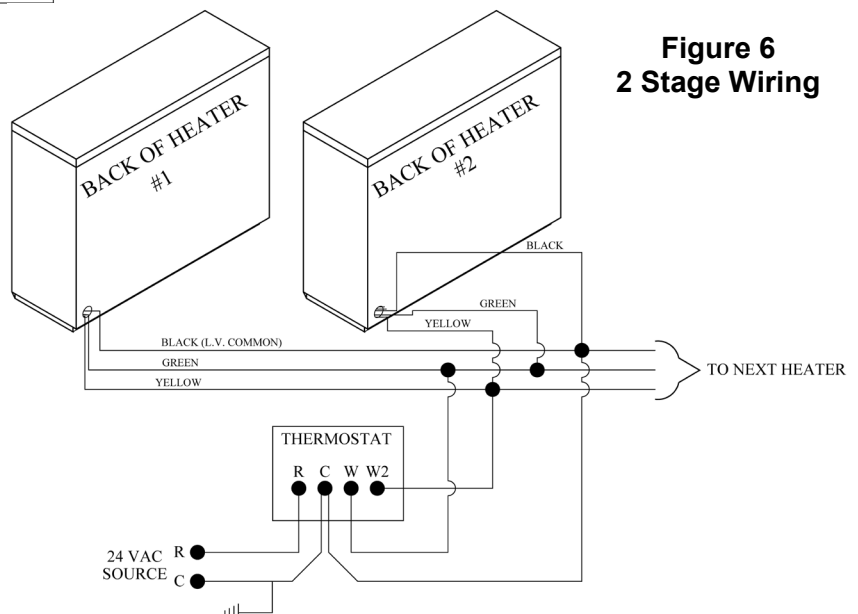


Table 2

Single Stage Thermostat					
Location	Model				
	2102	2103	2104	2105	2106
L028	1				
L029	10	33	55	78	100
L048	90				
L049	200				

2-Stage Thermostat					
Location	Model				
	2102	2103	2104	2105	2106
L028	5				
L029	20	65	110	155	200
L048	180				
L049	200				

**Figure 6
2 Stage Wiring**



ACCESSING LOCATION VALUES

NOTE: During the first few minutes of operation, access to location values 1 (L001) - 99 (L099) is allowed. If the timer expires, access to the locations can be gained by powering the system off and back on.



To edit or view location settings:

- Step 1** Press and hold the **M** button until the display shows Edlt.
- Step 2** While holding the **M** button, press and hold the up-arrow button. Continue to hold both buttons simultaneously until L000 is displayed.

NOTE: If the **M** button is released before the **L000** is displayed, start over from Step 1.

- Step 3** Release the buttons. The faceplate will flash between L000 and the value in this location. The L indicates location, and the last three numbers indicate the specific location number. (For example: Location 91 reads L091) Press the up arrow until the location to be edited is reached.
- Step 4** To edit the location value, press and hold the **M** button, then use the up or down arrow buttons to change the value in the location.
- Step 5** To exit locations, press only the down arrow button until L000 is displayed. Press the down arrow button one more time. The normal display mode will be shown, and changes made will be saved.

NOTE: If no buttons are pressed for a brief amount of time, the faceplate automatically returns to its normal operating mode. Any changes made to the location settings are saved.