

**STEFFES CORPORATION**  
**CONTROL BOARD INSTALLATION INSTRUCTIONS**  
**Models: 2100, 3100, 4100, and 5100 Series**

Item #1023065R (PCB Control Board Universal)

***THIS PROCEDURE MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN***

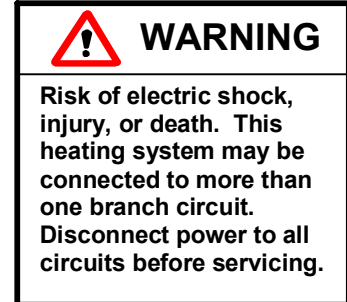
## INSTALLATION

1. De-energize the Steffes heating system and remove the electrical panel cover (painted front panel on 2100 Series).
2. Disconnect the red and yellow thermocouple wires from the existing control board. It is extremely important to note the position of these wires.

***NOTE:*** *These thermocouple wires MUST be positioned correctly to ensure proper operation of the system.*

3. Disconnect the wiring harness(es) and the interface cable from the existing control board.
4. Remove the existing control board from the mounting bracket.
5. Mount the new control board on the existing bracket and connect the wiring harness(es) and interface cable in the proper positions.
6. Reconnect the thermocouple wires.

***NOTE:*** *The thermocouple wires MUST be positioned correctly to ensure proper operation of the system.*



## SYSTEM SET UP

***NOTICE TO PALM USERS:*** *If using the Palm hand held with ETS Tender, use the "Configurations" option of the pull down menu to automatically set up and configure the system.*

1. Energize the system and use the following information to complete the system setup:

***NOTE:*** *To complete the system set up, location values in the system MUST be changed as follows. For information on how to access and/or edit location values, refer to page 2 of these instructions.*

***2100 SERIES*** - The replacement circuit board is shipped with a 2100 Series set up installed.

Model 2102: Set Location 29 (L029) to a value of 20 and configure the system.

Model 2103/2104/2105: Configure the system.

Model 2106: Set Location 29 (L029) to a value of 200 and configure the system.

***3100 SERIES*** Model 3120: Set Location 98 (L098) to a value of 30 and configure the system.

***4100 SERIES*** Model 4120: Set Location 98 (L098) to a value of 40 and then set Location 92 (L092) to a value of 1. Configure the system.

Model 4130: Set Location 98 (L098) to a value of 40 and then set Location 91 (L091) to a value of 6. Configure the system.

Model 4140: Set Location 98 (L098) to a value of 40 and configure the system.

***5100 SERIES*** Model 5120: Set Location 98 (L098) to a value of 50 and then set Location 92 (L092) to a value of 1. Configure the system.

Model 5130: Set Location 98 (L098) to a value of 50 and then set Location 91 (L091) to a value of 6. Configure the system.

Model 5140: Set Location 98 (L098) to a value of 50 and configure the system.

2. ***208V:*** If installing this control board in a system with 208V input power on the control circuit, change the value in Location 16 (L016) to 210.
3. **Once the system has been properly configured, set Location 98 (L098) to a value of 99.**
4. Verify that the system is operating properly.

*NOTE: During the first minute of operation, you may access the edit mode and edit L001 through L099. If access to these locations is lost, you MUST power the system off and back on again to edit L090 through L098.*

**To edit or view location settings:**

**STEP 1** Press and hold the **M** button. The faceplate should display “EdIt”.

**STEP 2** While holding the **M** button and with “EdIt” displayed on the faceplate, 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** After reaching the location to be edited, press and hold the **M** button. Use the up or down arrow buttons to change the value in the location to the desired setting.

**STEP 5** Release the **M** button. Press the down arrow button until “L000” is displayed. Then, 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.*

## CONFIGURATION

Steffes heating systems have a Configuration Menu, which allows the systems to be customized to the power company and consumer’s needs. This menu can be accessed on start-up and allows configuration settings to be easily adjusted.

**Accessing the Configuration Menu**

**Step 1** Energize the system. Access to the Configuration Menu is allowed for the first two (2) minutes of operation. If the system has been energized over two (2) minutes, power it off and back on.

**Step 2** Press and release the **M** button until the faceplate displays “CONF”.

**Step 3** Press the up arrow once and the faceplate will display “C000”. The display will flash between “C000” and the corresponding configuration value.

**Step 4** If necessary, edit the configuration by pressing and holding the **M** button while using the up or the down arrow button to change the value.

**Step 5** Once correct, release the buttons and press the up arrow button to go to the next configuration (C001, C002, etc.).

**Step 6** Repeat steps 4 through 5 until all configuration settings are adjusted to the desired values.

**Step 7** When configuration is complete, use the down arrow to leave the Configuration Menu.

In most applications only a few, if any, configuration changes will be necessary. Following is a description of the configuration settings and their functions:

**C000 Off-Peak Method of Charge Control** - Sets method of brick core charge control to be used during off-peak (charge) periods. Systems are configured for automatic charge control (5). To utilize manual charge control, set value to 6.

**C001 Start Brick Core Charge Set Point** - If utilizing automatic charge control as set in C000, this value indicates the outdoor temperature at which the heater will start charging.

**C002 Full Brick Core Charge Set Point** - If utilizing automatic charge control as set in C000, this value indicates the outdoor temperature at which the heater will target a full core charge.

**C003 Power Line Carrier (PLC) Channel Selection** - If using PLC communication, this setting must match the channel setting in the Steffes PLC transmitting device. A value of zero indicates PLC is disabled.

**C004 Optional Controls Configuration**

<b>Configuration Description</b>	<b>2100</b>	<b>3100</b>	<b>4100</b>	<b>5100</b>
No Time Clock Module/Utilizing PLC or Manual Charge Control	154	8	8	8
No Time Clock Module/Direct Wired Outdoor Sensor	155	9	9	9
Time Clock Module/Manual Charge Control	158	12	12	12
Time Clock Module/Direct Wired Outdoor Sensor	159	13	13	13

**C005 Control Switch Configuration** - If utilizing power line carrier control, the Steffes time clock module, or line voltage control, this value should be zero. For all other applications, this value should be one (1).

**C006 Output Control Configuration** - Configures output controls of the system. To determine value, check the options desired from the list below. Then, add the numbers from the **“Value”** column and enter the sum into this location.

<b>Value</b>	<b>Option Selected</b>
2	All 3100 and 5100 Series Systems.
3	All 4100 Series Systems.
6	All 2100 Series Systems.
8	Enables compressor control if there is a "COOL" call during a peak (control) period.
32	Enables compressor cycling if there is a "COOL" call during a peak (control) period. The compressor will turn off and on in 20 minute intervals (off 20 minutes, on 20 minutes, etc.).
128	Interface with a heat pump that has a reversing valve which is energized for heating.

**C007 Charge Factor** - This configuration should be set to a value of thirty (30).

**C008 Heat Pump Compressor Outdoor Lock-Out Temperature for Off-Peak or Anticipated Peak Modes** - Indicates the outdoor temperature at which the heat pump’s compressor is locked out and not allowed to operate during an off-peak or anticipated peak period.

**C009 Heat Pump Compressor Outdoor Lock-Out Temperature for On-Peak Mode** - Indicates the outdoor temperature at which the heat pump’s compressor is locked out and not allowed to operate during an on-peak period.

**C010 Minimum Discharge Air Temperature** - Sets the minimum discharge air temperature the system targets during a Stage 1 heat call.

**C011 Maximum Outlet Water Temperature** - Value set indicates maximum outlet water temperature to be targeted.

**C012 Minimum Outlet Water Temperature** - The value set indicates the minimum outlet water temperature to be targeted.

