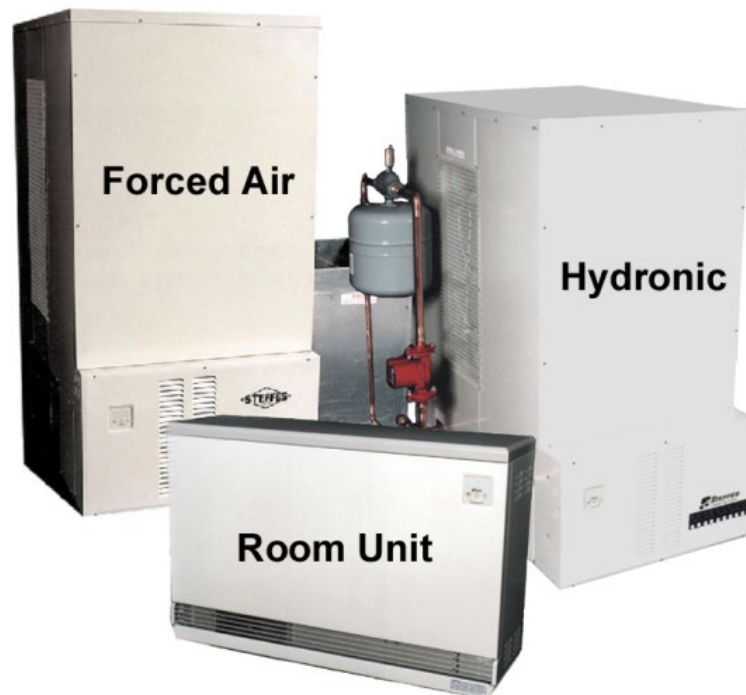




# Error Codes

2100/3100/4100/5100  
Series Heaters



*"Manufactured in North America"*

## Error Codes

**NOTE: Location values are shown with the letter "L" followed by the number. For example, Location 114 is shown as L114.**

<b>Error 1 (Er01)</b>	The brick core sensor (lower core sensor on 4130/5130 and 4140/5140) temperature is out of normal operating range. An open, shorted, or otherwise defective sensor or a processor control board which is out of calibration can cause this.
<b>Error 2 (Er02)</b>	The upper brick core sensor (3120, 4130/5130 and 4140/5140) temperature is out of normal operating range. This can be caused by an open, shorted, or otherwise defective core sensor or a processor control board which is out of calibration.
<b>Error 3 (Er03)</b>	<p><b>2100</b> - Room sensor temperature is out of normal operating range. This may indicate an open sensor, a short in the wiring, or a processor control board which is out of calibration. Take an ohm (resistance) reading across the sensor to ensure proper operation, check the wiring, and verify the value in L035/C004. The room temperature sensor should be connected to the purple low voltage wires. Compare the sensor reading to the value in L114 to verify proper calibration of the processor control board. <i>Approximate ohm readings are 60°F/16°C = 1552 ohms; 70°F/21°C = 1199 ohms; 80°F/27°C = 941 ohms.</i></p> <p><b>3100/4100</b> – Only applicable if using freeze protection. If this error is displayed without freeze protection, verify that the 2-bit is not set in L035/C004. Contact Steffes Technical Support.</p> <p><b>5100</b> – Er03 should never occur in 5100 Series. Verify the value in L035/C004 to ensure that the 2-bit is not set.</p>
<b>Error 4 (Er04)</b>	<p>Discharge air temperature is out of normal range, 40°F/4°C to 350°F/177°C.</p> <p><b>2100</b> - This error generally indicates an open discharge air sensor. It can also indicate a sensor that is shorted to ground or mis-wired (reversed polarity); or a processor control board which is out of calibration.</p> <p>The discharge air sensor should be tested and the value in L035/C004 should be verified. To test the sensor, read mV DC across the sensor and compare the sensor reading to the value in L111. Approximate mV DC readings are 70°F/21°C = 0.0 mV DC; 200°F/93°C = 3.8 mV DC. Installing a jumper in the discharge air should read 60-90°F/15-32°C in a normal ambient temperature.</p> <p><b>3100/4100</b> - This error generally indicates a dirty discharge air sensor in heating systems built prior to March 2013 when Steffes started conformal coating the sensor. Er04 can also indicate a sensor that is open, shorted to ground, or a processor control board which is out of calibration.</p> <p>If the heating system was built prior to March 2013, the discharge air sensor should be cleaned with rubbing alcohol for testing. Steffes recommends that the sensor be replaced to avoid future need to clean.</p> <p>In all heating systems, test the sensor by reading resistance (ohms) across the sensor wires. Compare the sensor reading to the actual duct temperature and the value in L112 to verify proper operation. Approximate ohm readings are 60°F/16°C = 1552 ohms; 70°F/21°C = 1199 ohms; 80°F/27°C = 941 ohms.</p>

<p><b>Error 4 (Er04)</b></p>	<p>Make sure the discharge air sensor wiring harness is connected properly. The harness runs from the sensor on the supply air blower assembly to the DS and SC terminals on the terminal block (PSC) or the "Air" terminals on the low voltage circuit board (Variable Speed).</p> <p><b>5100 - AIR HANDLER INSTALLED:</b> This error generally indicates a dirty discharge air sensor in heating systems built prior to March 2013 when Steffes started conformal coating the sensor. Er04 can also indicate a sensor that is open, shorted to ground, or a processor control board which is out of calibration.</p> <p>If the heating system was built prior to March 2013, the discharge air sensor should be cleaned with rubbing alcohol for testing. Steffes recommends that the sensor be replaced to avoid future need to clean.</p> <p>In all heating systems, test the sensor by reading resistance (ohms) across the sensor wires. Compare the sensor reading to the actual duct temperature and the value in L112 to verify proper operation. Approximate ohm readings are 60°F/16°C = 1552 ohms; 70°F/21°C = 1199 ohms; 80°F/27°C = 941 ohms.</p> <p>Make sure the discharge air sensor wiring harness is connected properly. The harness runs from the sensor on the supply air blower assembly to the DS and SC terminals on the terminal block (PSC) or the "Air" terminals on the low voltage circuit board (Variable Speed).</p> <p><b>5100 - NO AIR HANDLER:</b> Er04 on a 5100 Series with no air handler indicates an open or short in the resistor circuit. Verify resistance on the factory installed resistor (1.2k nominal) and verify connections at the DS and SC terminals on the terminal block (PSC) or the "Air" terminals on the low voltage circuit board (Variable Speed). If the resistance value is within range and connections are correct, the processor control board should be replaced.</p>
<p><b>Error 5 (Er05)</b></p>	<p>Outdoor sensor (direct wired) temperature reading is out of normal operating range. The sensor circuit may be shorted, the processor control board may be out of calibration, or there may be an incorrect value in L035/C004.</p> <ul style="list-style-type: none"> <li>• Power line carrier control, make sure values in L020/C003 and L035/C004 have been set appropriately.</li> <li>• Outdoor sensor hard-wired (connected to the heating system): <ul style="list-style-type: none"> <li>○ 2100 outdoor sensor connects to the gray wires</li> <li>○ 3100/4100/5100 <ul style="list-style-type: none"> <li>▪ <u>PSC motor</u> the outdoor sensor connects to OS and SC</li> <li>▪ <u>Variable speed motor</u> the outdoor sensor connects to the Outdoor terminals</li> </ul> </li> </ul> </li> </ul> <p>Compare the sensor reading to the value in L113 to verify proper calibration of the processor control board. <i>Approximate ohm readings are 5°F/-15°C = 7,646 ohms; 50°F/10°C = 2,024 ohms; 95°F/35°C = 646 ohms.</i></p> <p><b>NOTE: If using Pulse Width Modulation for outdoor temperature this error will be presented if the signal is flat for 2 or more minutes.</b></p>
<p><b>Error 6 (Er06)</b></p>	<p>Outdoor sensor temperature from the transmitting device (PLC system) is out of normal operating range. Check the outdoor sensor attached to the transmitting device and the transceiving device itself for proper operation.</p>

<b>Error 7 (Er07)</b>	Processor control board temperature sensor is out of normal operating range. Verify that none of the clearances have been violated and inspect the condition of the processor control board.
<b>Error 8 – 9 (Er08 – Er09)</b>	Currently not utilized.
<b>Error 10 (Er10)</b>	Discharge air temperature has exceeded maximum standard operating temperatures.
<b>Error 11 – 18 (Er11 – Er18)</b>	Currently not utilized.
<b>Error 19 (Er19)</b>	There is no communication occurring with the relay driver board. There is no relay driver board installed in 2100/3100/4100/5100 Series heaters. Verify values in L090, L091, L092.
<b>Error 20 (Er20)</b>	There is no communication occurring between the base I/O relay board and the processor control board. This may be caused by a defective interface cable or an unresponsive base I/O board.
<b>Error 21 (Er21)</b>	There is no communication occurring with the first relay expansion board.  <b>2100</b> – As the relay expansion board is not installed in the 2100 Series heaters, verify the values in L090, L091, L092.  <b>3100/4100/5100</b> - The interface cable may be defective, or the first expansion board may be unresponsive. Check the jumper configuration on the relay expansion board(s) and verify the values in L090, L091, L092.
<b>Error 22 (Er22)</b>	There is no communication occurring with the second relay expansion board.  <b>2100</b> – As the relay expansion board is not installed in the 2100 Series heater, verify the values in L090, L091, L092.  <b>3100/4100/5100</b> - The interface cable may be defective, or the first expansion board may be unresponsive. Check the jumper configuration on the relay expansion board(s) and verify the values in L090, L091, L092.
<b>Error 23 (Er23)</b>	There is no communication occurring with the Time Clock Module.  <b>2100</b> - Verify the value in L035. If the programming is correct, there may be a loose connection from the base I/O relay board to the time clock module, a defective interface cable, or a defective time clock module.  <b>3100/4100/5100</b> - Verify the value in L035. If the programming is correct, there may be a loose connection from the relay expansion board to the time clock module, a defective interface cable, or a defective time clock module.
<b>Error 24 (Er24)</b>	The processor control boards temperature sensor offset or reference is out of range.  <b>2100 Series:</b> This indicates that one of the sensors (i.e. direct wired outdoor temperature sensor, discharge air sensor, room temperature sensor, or the brick core temperature sensor) may be shorted to ground or the processor control board may be defective. When this occurs, any temperatures monitored by the processor control board will be unreliable.

<b>Error 24 (Er24)</b>	<b>3100/4100/5100 Series:</b> This indicates that one of the sensors (i.e. direct wired outdoor temperature sensor, discharge air sensor, or one of the brick core temperature sensors) may be shorted to ground or the processor control board may be defective. When this occurs, any temperatures monitored by the processor control board will be unreliable.
<b>Error 25 (Er25)</b>	See PLC Fail.
<b>Error 26 (Er26)</b>	Indicates the processor control board had an error on start-up. Reset power to the heating system at the breaker panel. If error persists, replace processor control board.
<b>Error 27 (Er27)</b>	Indicates the processor control board has an insufficient permanent memory error. Verify the software version on the heater and if 149 or lower, replace the processor control board as older software would be more susceptible to memory errors. Heaters built with Version 150 or higher, generally do not display an Er27; however, can display an Er27 in place of an Er20.
<b>Error 28 (Er28)</b>	Permanent memory change has been made. Press and release the <b>M</b> button twice to clear the error. This error message indicates a change has been made to the software program or that the memory has been corrupted; therefore, it is important to verify that all location settings are correct for the application. If the error will not clear or becomes a repeat failure, replace the processor control board.
<b>Error 29 (Er29)</b>	On-board communication system is not fully operable. Reset power to the heating system. If the error persists, contact Steffes Technical Support.
<b>Error 30 (Er30)</b>	Base I/O relay board is in test mode. J1 and J2 jumper should both be off in normal operation.
<b>Error 31 – 37 (Er31 – Er37)</b>	Currently not utilized.
<b>Error 38 (Er38)</b>	See Core Fail.
<b>Error 39 (Er39)</b>	The start charge temperature as set in L012/C001 is set to a value lower than the full charge temperature as set in L013/C002. The system will not charge properly when these values are reversed. Set the temperature in L012/C001 to a value greater than the temperature in L013/C002.
<b>Error 40 (Er40)</b>	Indicates memory corruption has occurred. Press and release the “M” button to clear the error. After clearing the error, it is important to verify that all location settings are correct for the application. If the error will not clear or becomes a repeat failure, replace the processor control board.
<b>Error 41 (Er41)</b>	An attempt was made to write to the flash memory a second time. This is not permitted unless the system is reprogrammed at the factory. Reference L098 and L099.

<b>Error 42 (Er42)</b>	The processor control board is unable to load the flash configuration. Replace the processor control board.
<b>Error 43 (Er43)</b>	An attempt to load a saved configuration using L098 has failed. Any changes to locations values will need to be set manually. Press and release the “M” button to clear the error. Er43 is only applicable to processor control boards with a revision level of G or lower.
<b>Error 44 (Er44)</b>	The check sum of the chip memory (flash) checksum is corrupt. Replace the processor control board.
<b>Error 45 (Er45)</b>	An attempt was made to load memory from an unsaved configuration using L098. Any changes to locations values will need to be set manually. The error code will clear after a few minutes. Er45 is only applicable to processor control boards with a revision level of H or higher.
<b>Error 46 (Er46)</b>	The MA signal or Pulse Width Modulation has timed out indicating the max load percentage has not been received from any active source for at least 30 minutes. If max load percentage has timed out, the system will revert to normal operation with no load limits applied. If the MA command or Pulse Width Modulation are not being used, verify that L053 and L055 are set correctly for the application.
<b>Cold Core</b>	<p><b>2100 Series</b> - The temperature reading of the brick core temperature sensor, L110, is 40°F/5°C or lower. This may indicate cold brick that were just installed or an open or defective brick core temperature sensor. If the bricks were installed cold, the error code will disappear once the core reaches a temperature higher than 40°F/5°C. If the brick core is at a temperature higher than 40°F/5°C, verify wiring of the brick core temperature sensor. Verify the values in L090, L091, and L092 are correct for the application.</p> <p><b>3100/4100/5100 Series</b> - The temperature reading of the brick core temperature sensor(s), L110-L111, is 40°F/5°C or lower. This may indicate cold brick that were just installed or an open or defective brick core temperature sensor. If the bricks were installed cold, the error code will disappear once the core reaches a temperature higher than 40°F/5°C. If the brick core is at a temperature higher than 40°F/5°C, verify wiring of the brick core temperature sensor(s). Verify the values in L090, L091, and L092 are correct for the application.</p>
<b>Core Fail</b>	<p><b>2100 Series</b> – A Core Fail error message often has multiple causes. The core charging high limit switch and/or the clearance violation limit switch may be open. Press the manual reset button on each limit, if applicable, to reset the limit switch. If the limit opens repeatedly, use the Core Fail Check List for 2100 Series to troubleshoot the root cause of the error message.</p> <p><b>3100/4100/5100 Series</b> – Line voltage power to at least one of the relay expansion boards is not present. This may be caused by an open core charging high limit switch, an open across Limit 1 and Limit 2 on the base I/O relay board, an open fuse on one of the relay expansion boards, or a defective relay expansion board.</p>

<b>PLC Fail</b>	The heating system is configured for power line carrier (PLC) control and has not received a valid PLC communication signal from the transmitting device for more than 9 minutes when using a fast channel (Channel 3-11) or more than 37 minutes when using a slow channel (Channels 1-2 and 12-15). If the system is showing PLC Fail on the display, it can be a programming issue, a problem with the transmitting or receiving device, or it can be something interfering with the communication signal between the transmitting device and the receiver.
<b>LoAd CAP</b>	All controllable loads have been shed and Maximum Load Capacity is still exceeded. This may be caused by freeze protection when using the MA signal or Pulse Width Modulation for load management. If the MA command or Pulse Width Modulation are not being used, verify that L053 and L055 are set correctly for the application.