



## ECJC Error Explanations and Solutions for the Series 96 Controller

The error message, **ECJC**, is referred to as the Cold Junction Compensation error. This error message is not documented in the Series 96 user's manual at this time. Upon the occurrence of the error, the controller will use the **FAIL** prompt to determine what should happen with the output: bumpless transfer, fixed manual percentage, or off. The **Err** prompt will determine whether the error is latching or non-latching.

In order to perform a measurement using a thermocouple, the temperature of one end of the thermocouple must be known. Watlow uses a temperature sensor internal to the Series 96 controller located near to the terminals where the thermocouple connects to the controller. The "ECJC" message is intended to indicate a failure of this internal temperature sensor or its related circuitry. However, it is possible to get a false triggering of this error message under some conditions. In fact, on the rare occasions this error will occur, it is most likely going to be a false alarm.

The most common cause of this error is a false alarm involving the input signal. If the input signal goes to a level significantly beyond the operation range of the controller, either in a positive or negative direction, this error can occur. This is most likely to happen when using the process input types. Process input types available on the Series 96 controller include: 0-5VDC, 1-5VDC, 0-10VDC, 0-20mA and 4-20mA. These signals are produced by some device that has its own power source. The power source is capable of producing voltages and currents that can exceed the controller's input range. When thermocouples and RTDs are wired directly to our controller, the power source is internal to the controller. The internal power source does not use voltage or current levels that will produce this error.

Here are some typical scenarios that have been known to cause this alarm:

- **Reverse polarity of a process input signal.** The reversing of the polarity places a higher magnitude "negative" signal on the input than it was designed for. This is mostly an issue that occurs during installation, but could occur anytime re-wiring is done to the controller input circuit. Simply re-wiring the system correcting to solve the problem.
- **Failure of a process input source.** If a process input device such as a transmitter were to "short out", it could place the full source voltage (typically 24VDC) across the controller input. This would overload the input possibly triggering the error. This problem could occur at anytime including installation. Repair your input source to correct the problem.
- **Ground loops.** Failure to observe the isolation limitations of the Series 96 could cause a ground loop. A ground loop is simply the accidental creation of a new circuit by failure to account for common reference points. Ground loops can occur on the Series 96 if you have multiple controllers where both input 1 and input 2 are connected to the devices that are not isolated from one another. This is mostly an issue that occurs during installation, but could occur anytime re-wiring is done to the controller input circuits. Check the isolation block diagrams in the Series 96 manual and provide isolation as needed.

In the event the error is not a false alarm, there is no field method of correcting the problem. The controller must be returned for repair. Follow the instructions on your Series 96 user's manual for return procedures.