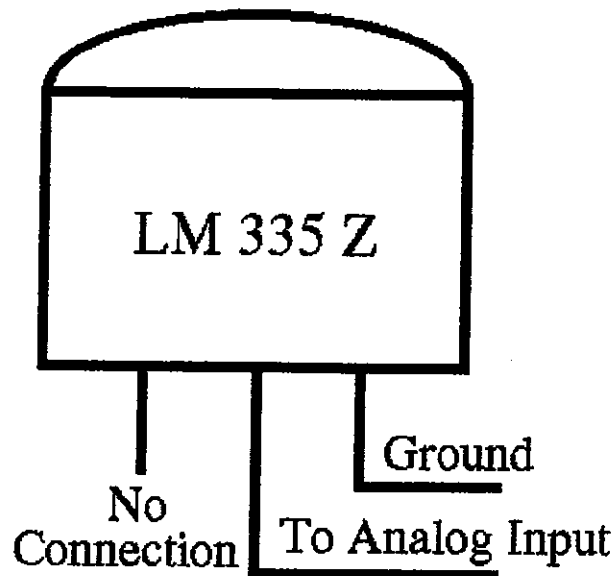


## ***Appendix H: Using the LM335 Temperature Sensor***

The RLC-3 supports the National Semiconductor LM335Z temperature sensor. The sensor converts temperature into voltage. This voltage is read by the controller's ADC (Analog-Digital Converter) which allows the controller to read a voltage. When using the LM335Z sensor, the sensor needs to be powered in order for the temperature to be read. Powering the sensor is accomplished by turning the appropriate dip switch 'ON' on the I/O board. There are two packs of 8 switches, one pack for power and one for the voltage dividers. The power switch must be on and the voltage divider switch off for the temperature sensor to work.



### ***LM335Z Temperature Probe Connections Diagram***

#### **Troubleshooting:**

- The voltage across the sensor should be between 2.7 and 3.0 V in most cases (Temperature Celsius = (voltage\*100)-273).
- If the voltage across the sensor measures about 0.6V, the temperature sensor may be hooked up backwards (OUT switched with GND).
- If the voltage across the sensor is near 0V, make sure that the sensor is powered (as described at the top of this page) and that the wires aren't shorted out.
- If the voltage across the sensor is near 5V, there is either a bad connection to the sensor, the wrong pins are being used, or the sensor is blown out (possibly by nearby lightning).