NI USB Data Acquisition

In this experiment, the National Instruments USB-6003 Data AcQuisition (DAQ) unit will be used with some of the transducers that we will be using later in the semester. The LM34CZ semiconductor temperature sensor will be used to measure various temperatures in the room. The plunger position of a resistive position sensor will be acquired and displayed as well. All of this data will be obtained and displayed using LabVIEW software and the DAQ unit. All of the software can be found in the location provided by the laboratory instructor.

The LM34CZ semiconductor temperature sensor is a 3-leaded device. It is contained within a piece of copper tubing and has three connection wires as shown below. These wires are connected to the DAQ terminals as shown in Figure 1. (Don't connect them yet.)

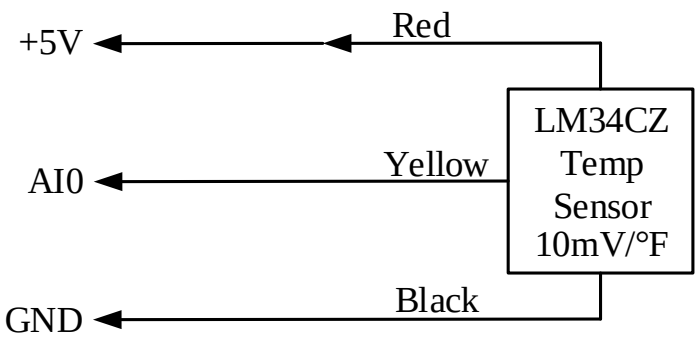

Figure 1. LM34CZ Connections to DAQ

The position of the plunger in the resistive position sensor can be determined by connecting the sensor as a potentiometer as shown in Figure 2. The wiper and supply voltages are measured by the DAQ and used to compute the plunger position.

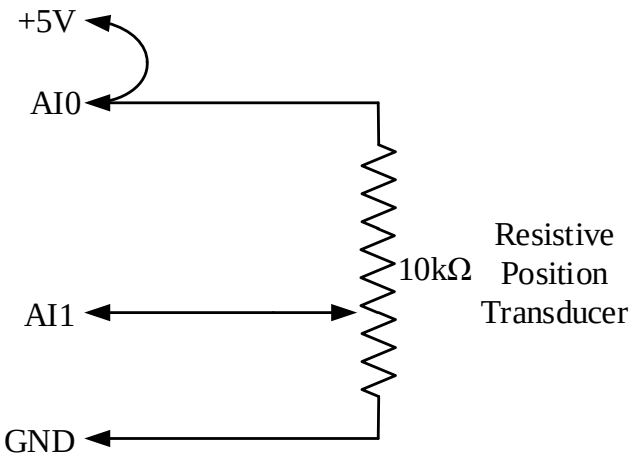

Figure 2. Resistive Position Transducer and DAQ Connections

Why does the +5V supply need to be measured in the second circuit but not in the first circuit? (Each team needs to provide an answer to the lab instructor before leaving this lab session.)