Frank Martino - Q2.2 Experimental Measurements and Personal Instrumentation

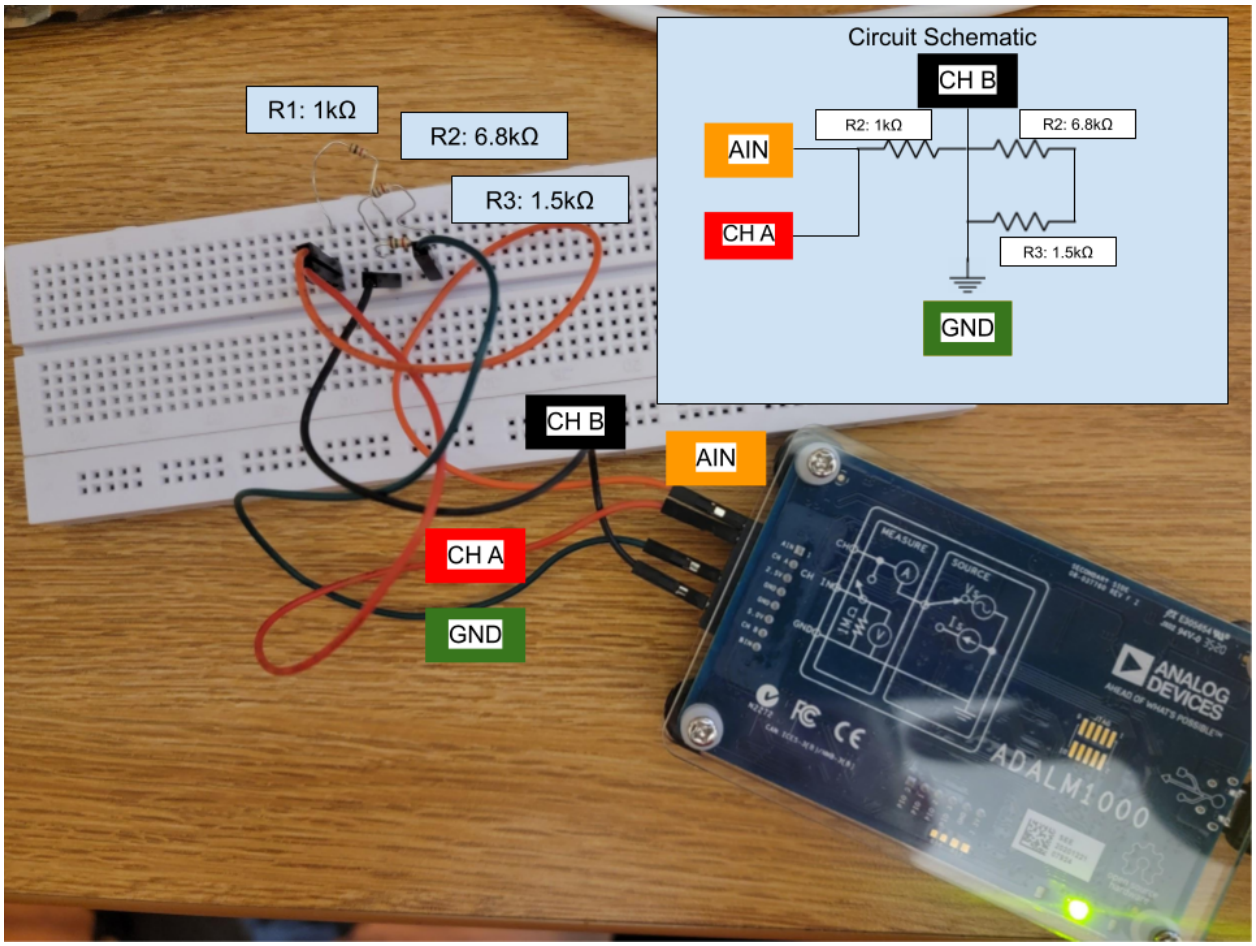
Prove your skill set using ONE of the following: M1K board, Analog Discovery Board, or M2K board.

Q2.2 Measuring DC voltage across a resistor in a resistive circuit

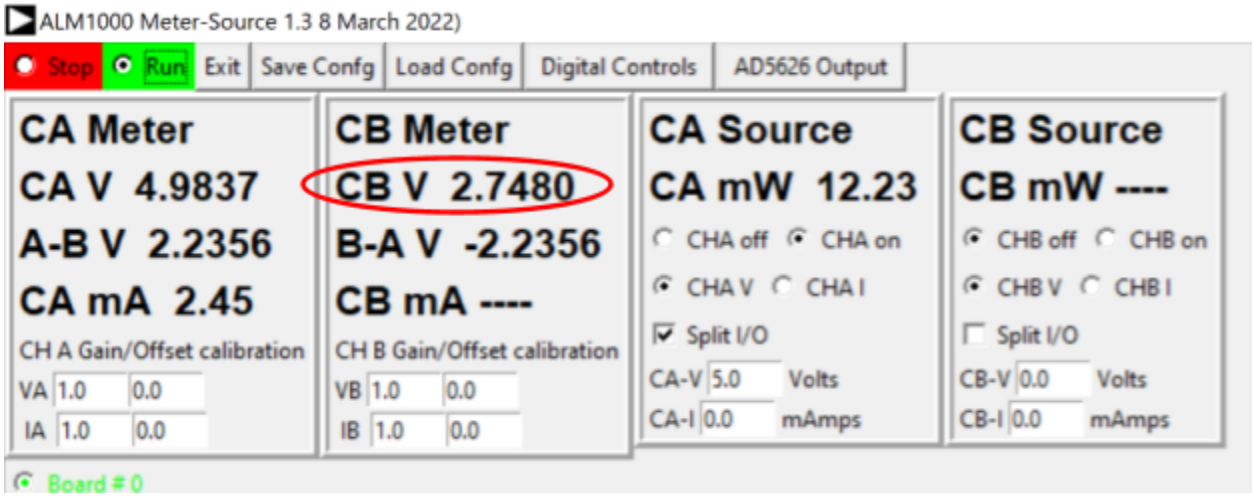
I can build a resistive circuit and measure dc voltage across ONE resistor using a dc input source and vary dc voltage at least 3 times (-5,+5 and any voltage in between).

I first made a circuit on the breadboard that had a 1kΩ resistor that connected to two resistors in a parallel formation, one 6.8kΩ resistor and the other 1.5kΩ resistor. Once I finished this I connected the AIN lead and A channel to the first pin on the 1kΩ resistor. Then, I connected the ground pin to the joint where all of the resistors connect to. Finally, I connected the Channel B pin to the end of the circuit as labeled below. I then used the ALICE M1K meter-source to set the voltage from AIN to 5.0 volts which recorded data shown in figure A1, and then changed the voltage to 2.5 volts shown in figure A2.

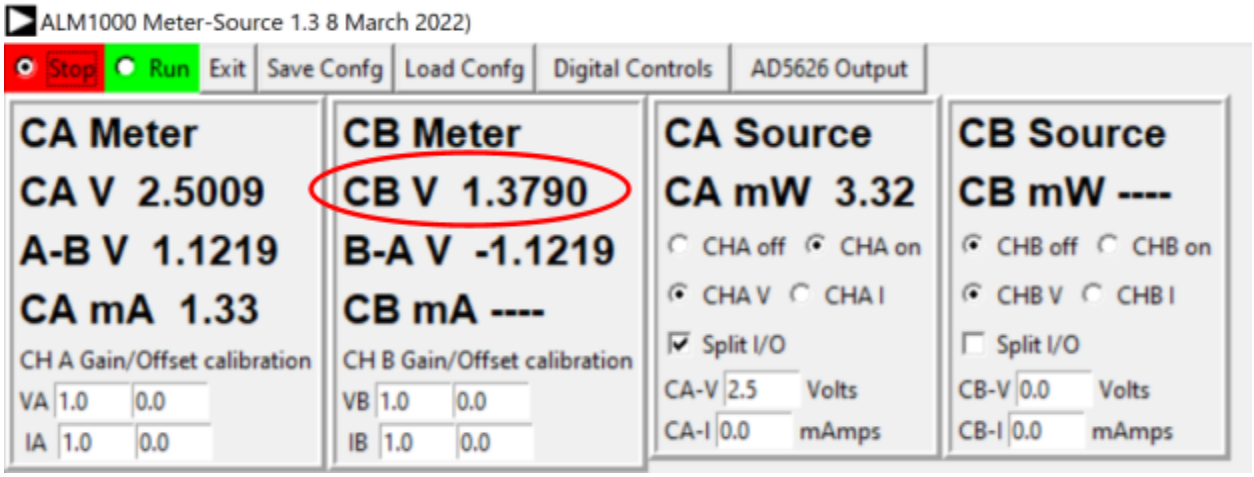
ADALM1000 with Breadboard:



A1: (Across the 1kΩ resistor)



A2: (Across the 1kΩ resistor)



When trying to measure -5.0 volts the program would not recognize any negative values, so I used the accessory board or the ANALOG2 which connects into all of the pins and used one of the two ground pins as a channel to store -5.0 volts. From there I swapped the AIN pin to the ground pin that holds -5.0 volts. Since the program could not recognize the -5.0 volts I used the voltmeter provided which seemed to recognize it.

(Across the 1kΩ resistor)