



DAC CALIBRATION FOR MODEL 200A WITH 4-20 mA OPTION

NOTE: In order to calibrate the DACs using this procedure, you must have the 4-20 mA option installed on the NO_x channel. If you have the 4-20mA option installed on only the NO or NO₂ channel, follow the procedure in the Model 200A manual for DAC calibration.

1. Verify that the jumpers on the motherboard are set as follows:

JP1 and JP2 jumpered to A and B if the NO channel has the 4-20mA.
JP3 and JP4 jumpered to A and B.
JP5 and JP6 jumpered to A and B if the NO₂ channel has the 4-20mA.
All channels without 4-20mA jumpered to B and C (see note above).

A and B is the jumper set toward the front of the analyzer. B and C is the jumper set toward the rear of the analyzer.

2. Make sure the V/F jumpers are set as follows:

B7 of V/F card jumpered to 3, 5 and 7.
B6 of V/F card jumpered to 3, 5 and 7 if NO channel is 4-20mA.
B9 of V/F card jumpered to 3, 5 and 7 if NO₂ channel is 4-20mA.

3. Set a DVM to 300 mA scale and set the leads for measuring current (see the instruction manual for the DVM to find out how to set up the DVM). Install a resistor between 200-600 ohms in series with a DVM across the recorder output pins 3 and 4 on the rear panel.

4. Press SETUP-MORE-DIAG. Press NEXT until DAC CALIBRATION is displayed on front panel. Press ENTR to start procedure.

5. The Model 200A display will read "DAC #0:60mV". 60mV is the voltage which is programmed into the DAC. Press the up/down buttons on the front panel until the DVM displays the target current of 4.192mA \pm .01mADC. Press ENTR.

NOTE: The value of 60 mV on the analyzer front panel will not change. Only the reading on the DVM will change.

6. The Model 200A display will now show a new voltage in the format shown in step 5. This voltage will be 90% of the full scale DAC output voltage, (4500mV). Press the up/down buttons on the front panel of the analyzer until the DVM reading is 18.4mA \pm 003mA DC. Press ENTR on the analyzer front panel. DAC #0 is now calibrated to a known good DVM and will be used as a voltage reference to calibrate the V/F circuit.

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7. The display will now read ZR:60=XXmV. Where 60=the voltage being output from the DAC and input to the V/F and XX is the voltage being read from the V/F circuit. Adjust the zero pot on the V/F card (R27) until the two values are the same and press ENTR.
8. The display will now read GN:4500=XXXXmV. Where 4500 is the voltage being output from the DAC and input to the V/F and XXXX is the voltage being read from the V/F circuit. Adjust the span pot on the V/F card (R31) until the two values are the same and press ENTR. The analyzer will now calibrate the remaining three DAC channels, indicating in percent how close to done it is. When it finishes, press EXIT to return to the upper level menus.