

THERMAL INSTRUMENT CO.

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FIELD CALIBRATION CHECK 9200 ELECTRONICS

The 9200 electronic signal conditioner output can be checked by simulating the voltage output of the flow transducer with an external DC voltage source.

1. Turn power off at the 9200.
2. Disconnect flow transducer cable from electronics terminal "3" & "4" on the NEMA 4 version or "common" & "4-20V" on panel mount version. Note the wiring labeling and/or colors for placing back on correctly later.
3. Connect an external variable DC voltage source to terminals "3" (negative) and "4" (positive) for the NEMA 4 version or "common" (negative) and "4-20V" (positive) for the panel mount version.
4. Apply power to the 9200.
5. Locate calibration data sheet in the instruction manual "Component Values Determined at Calibration"
6. Turn on variable DC source and set DC voltage for 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, and 100% output and check mA DC output and Display. **Note:** The full scale rate on the data sheet may not be the same full scale mA output the 9200 is programmed for. The factory set full scale is labeled on the 9200 itself or next to the 9200 but could have been changed at the site to the desired full scale. To check the programmed mA full scale, follow the "Programming the full scale 20 mA into the Model 9200 Electronics" Procedure.
7. If the output is satisfactory, continue to step 11, otherwise continue to the next step.
8. Follow the "Programming a curve into the Model 9200 Electronics" procedure to check the 20 data points compared to the 20 data points on the calibration data sheet and to check that the full scale 20 mA is set to the correct full scale. If any corrections were done then go back to step 6 to check the output again.
9. If step 8 did not correct the output error, then follow the "9200 4V and 20V calibration" procedure. Go back to step 6 to check the output again.
10. If the output is still in error then contact Thermal Instrument Co. for further instructions, otherwise continue to the next step.
11. Turn off power to the 9200.
12. Remove the DC Voltage source and reconnect the transducer cable.
13. Apply power to the 9200. The 9200 should now be in normal operation.

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Programming a Curve into the Model 9200 Electronics

1. Press the Left and Right Arrow keys at the same time. The Display should read "PROGRAM?"
2. Press the Up Arrow key.
3. Press the Right Arrow key.
4. Press The Up Arrow key. The Display should read
 1 R 0.00 V XX.XX
 (Data Point #) (Flowrate) (Transducer Voltage)
5. Press the Right Arrow key. The R will start flashing.
6. Press the CLR key.
7. Key in the new Flowrate number.
8. Press the HELP/ENT key.
9. Press the Right Arrow key. The V will start flashing.
10. Press the CLR key.
11. Key in the new Transducer Voltage for that Flowrate.
12. Press the HELP/ENT key. Now the first point has been entered.
13. Press the Up Arrow key. The Data Point # will increase by 1.
14. Now follow steps 5 through 13 for the rest of the data points. There are a maximum of 20 data points that can be entered in. If there are data points not used at the end then key in zeros.
15. After completing the data entry process, press the Left and Right Arrow keys at the same time. The Display should read "PROGRAM?"
16. Press the Up Arrow key.
17. Press the Left Arrow key. The Display should read "4MA RATE 0"
18. Press the Up Arrow key. The Display should read "20MA RATE XXXXX"
Here is where you can change the full scale flowrate for the 20 mA output. If you do not need to change this then proceed to step 22.
19. Press the CLR key.
20. Key in the new full scale flowrate.
21. Press the HELP/ENT key.
22. Press the Left and Right Arrow keys at the same time. The Display should read "PROGRAM?"
23. Press the RESET key. The Display should resume to normal operation. If you have further questions or concerns please give us a call.

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9200 FULL SCALE 20mA PROGRAMMING

The 9200 electronic signal conditioner full scale 20 mA can be set by the programming mode of the 9200.

1. On the keypad, press the Left and Right arrow keys at the same time. You should see "PROGRAM ?" on the display.
2. Press the Up arrow key. You should see "PROG. CALIBRATE" on the display.
3. Press the Left arrow key. You should see "4MA RATE 0"
4. Press the Up arrow key. You should see "20 MA RATE XXXX"
5. Press the CLR key.
6. Using the keypad, type in the new full scale 20mA rate. **Note:** The full scale 20 mA rate cannot be set higher than the highest programmed data point. If set higher, the mA will never reach full scale.
7. Press the ENT key.
8. Press the Left and Right arrow keys at the same time. You should see "PROGRAM ?"
9. Press the RESET key. The 9200 will now be in normal operating mode.

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9200 4V and 20V CALIBRATION

The 9200 electronic signal conditioner 4V and 20V can be calibrated by a DC Voltage source that can be set to 4.00 VDC and 20.00 VDC.

1. Turn power off at the 9200.
2. Disconnect flow transducer cable from electronics terminal "3" & "4" on the NEMA 4 version or "common" & "4-20V" on panel mount version. Note the wiring labeling and/or colors for placing back on correctly later.
3. Connect the DC voltage source to terminals "3" (negative) and "4" (positive) for the NEMA 4 version or "common" (negative) and "4-20V" (positive) for the panel mount version.
4. Apply power to the 9200.
5. On the keypad, press the Left and Right arrow keys at the same time. You should see "PROGRAM ?" on the display.
6. Press the Up arrow key. You should see "PROG. CALIBRATE" on the display.
7. Press the Right arrow key 2 times. You should see "HI FLOW 4V END?"
8. Adjust the DC voltage source to 4.00 VDC.
9. Press the RESET key to set the 4.00 VDC on the 9200.
10. Press the Up arrow key. You should see "HI FLOW 20V END?"
11. Adjust the DC voltage source to 20.00 VDC.
12. Press the RESET key to set the 20.00 VDC on the 9200.
13. Press the Left and Right arrow keys at the same time. You should see "PROGRAM ?"
14. Press the RESET key. The 9200 will now be in normal operating mode.
15. Turn power off at the 9200.
16. Remove the DC voltage source and reconnect the transducer cable.
17. Turn power on at the 9200. The meter should now be in normal operation.