Mark 2 Temperature Calibration and Check

1.0 Description

1.1 An internal temperature sensor (1000 ohm platinum RTD) is located within the Mark 2 heating chamber in close proximity to the infrared quartz heating elements. This sensor is used by the microprocessor to maintain the desired chamber temperature under all conditions. The purpose of this procedure is to calibrate the internal temperature sensor to a known reference.

2.0 Calibration Setup Procedure

2.1 Clean the reflective surfaces inside the heating chamber with a cleaner such as Windex. These surfaces must be clean in order to obtain correct temperature readings.

2.2 Go to the Setup 1 menu and select the Develop menu. Set the Standby temperature to 80°C, Temp 1 to 180°C, and Time 1 to 25 minutes.

2.3 Exit the Develop menu by pressing the ***"ENTER"*** key, then the ***"2"*** key for use, not saved.

2.4 Open the heating chamber hood and remove the tray support and breeze shield.

2.5 Install the temperature calibration bowl in place of the breeze shield and tray support and connect the leads to a digital ohmmeter. Select the 2K range on the meter. Close the hood. The Mark 2 should begin heating to the 80°C standby temperature.

3.0 Verification Procedure

3.1 Allow the standby temperature to equilibrate for 25 minutes.

3.2 Verify the ohm measurement equals the 80°C ohm reading from the temperature table, plus or minus 20 ohms.

3.3 Press the "***Start/Stop"*** key **a total of 3 times** in order to initiate a test with no sample added. Allow the test to progress for 25 minutes.

3.4 Just prior to the test ending at 25 minutes, Verify the ohm measurement equals the 180°C ohm reading from the temperature table, plus or minus 20 ohms.

3.5 If the 80°C and 180°C readings are both within the 20 ohm tolerance, calibration is not required and you do not need to proceed further. If either reading is not within the 20 ohm tolerance, then proceed to 4.0.

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4.0 Calibration Procedure

4.1 From the Setup 1 menu, press the ***"."*** Key. The screen will change to a security screen.

4.2 Enter the code "RTD" followed by ***"ENTER"*** to access the RTD CAL screen.

4.3 Close the hood and allow the Mark 2 to equilibrate to the 80c standby temperature for 25 minutes.

4.4 From the RTD CAL screen press the ***"1"*** key for LOW TEMP.

4.5 Read the ohmic value from the ohmmeter and cross-reference the temperature from the ***Low Temp Table***.

4.6 After 31 seconds the display will prompt "Enter Low Temp". Enter the low temperature and press the ***"ENTER"*** key.

4.7 From the RTD CAL screen press the ***"2"*** key. The Mark 2 will heat to a high temperature. Allow to equilibrate for 25 minutes.

4.8 Read the ohmic value from the ohmmeter and cross-reference the temperature from the High Temp Table.

4.9 From the RTD CAL screen press the ***"3"*** key for HIGH TEMP.

4.10 After 31 seconds the display will prompt “Enter High Temp”. Enter the high temperature and press the ***"ENTER"*** key. After high temp is entered the “m” and “b” coefficients on lines 7 and 8 will change. Record these for future reference.

4.11 Press the ***"4"*** key to save the new coefficients, then press ***the "ENTER"*** key to exit to the Setup 1 screen.

5.0 Verification Procedure

5.1 Open the hood and allow the temperature to cool to approximately 80^{o}C. Close the hood and allow the standby temperature to equilibrate for 25 minutes.

5.2 Verify the ohm measurement equals the 80^{o}C ohm reading from the temperature table, plus or minus 20 ohms.

5.3 Press the***"Start/Stop"*** key a total of 3 times in order to initiate a test with no sample added. Allow the test to progress for 25 minutes.

5.4 Just prior to the test ending at 25 minutes. Verify the ohm measurement equals the 180^{o}C ohm reading from the temperature table, plus or minus 20 ohms.

6.0 Non Conformance of Unit

6.1 If the ohm measurements do not fall within the specified ranges, please call Omnimark Instrument Corporation at 1-800-835-3211 for assistance.