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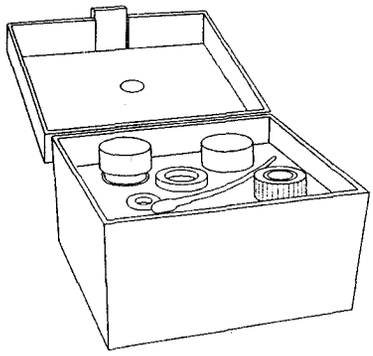
CT485B-CAL-KIT

Calibration Kit for CT485B Chart Recorder



INSTRUCTION SHEET

M2131/0295
12039A1-99

Unpacking Instructions

Remove the Packing List and verify that you have received all equipment, including the following (quantities in parentheses):

Bottle containing approximately 15g of ACS reagent-grade Magnesium Chloride ($MgCl_2$) to produce 33% RH (1)

Bottle containing approximately 15g of ACS reagent-grade Sodium Chloride (NaCl) to produce 75% RH (1)

Foam block to hold bottles upright, for testing, and to stabilize the temperature (1)

Fitter Cap (2)

Nylon washer (2)

O-Ring (2)

Liquid dropper (1)

Instruction sheet (1)

If you have any questions about the shipment, please call the OMEGA Customer Service Department.

When you receive the shipment, inspect the container and equipment for signs of damage. Note any evidence of rough handling in transit. Immediately report any damage to the shipping agent.

NOTE

The carrier will not honor damage claims unless all shipping material is saved for inspection. After examining and removing contents, save packing material and carton in the event reshipment is necessary.

Introduction

The RH Calibration Kit provides an accurate method for calibrating the relative humidity sensor. The procedure is based on using selected saturated salt solutions to produce a known RH. The method is described in detail in the ASTM standard E104-85 "Standard Practice For Maintaining Constant Relative Humidity by Means of Aqueous Solutions".

Preparation of Salt Solutions

NOTE

Follow all instructions very carefully. Allow 12 hours before calibrating the recorder.

NOTE

Prepare solutions with pure distilled water only (may be purchased at local supermarket).

1. Using the liquid dropper, add distilled water to the Magnesium Chloride ($MgCl_2$) bottle, stirring after each addition until the salts can absorb no more liquid, as will be evidenced by a film of free liquid. Excess water should be suctioned off by using the liquid dropper.
2. Replace the cap on bottle and insert the bottle in the foam block for temperature stabilization.
3. Follow the same procedure for the bottle containing Sodium Chloride (NaCl). The solutions should be prepared at least 12 hours prior to first-time use only. Thereafter, prepare solutions a minimum of one hour prior to use. (Preparation, at this time, will consist of either adding or pouring off liquid).

The relative humidity values of 33% and 75% are valid at 25°C (77°F). The following table lists the values at various room temperatures and should be used as the RH values in the actual calibration procedure.

Temperature	10°C (50°F)	15°C (59°F)	20°C (68°F)	25°C (77°F)	30°C (86°F)	35°C (95°F)	40°C (104°F)
Magnesium Chloride ($MgCl_2$)	33.5%	33.3%	33.1%	32.8%	32.4%	32.1%	31.6%
Sodium Chloride (NaCl)	75.7%	75.6%	75.5%	75.3%	75.1%	74.9%	74.7%

(These values are published by NIST, Vol 81A, 1977, p 89-96, "Humidity Fixed Points of Binary Saturated Aqueous Solutions" by L. Greenspan).

NOTE

The sensor and solutions should be at the same uniform stable temperature before starting calibration.

Calibration Setup for the CT485B Sensor

1. First, read Section 5 of the CT485B manual starting on Page 5-1. Connect the sensor to the CT485B recorder as shown on Page 2-12 of the manual.
2. Insert the sensor through the fitter cap and then position the O-ring on the sensor tube approximately 1-1/4" from the end, as shown in Figure 1 (at the right).
3. Position the nylon washer so that the O-ring lies between the washer and the fitter cap as shown.
4. Screw the fitter cap assembly to the 33%RH magnesium chloride salt solution bottle in the foam block as shown. The sensor should **not** touch the salt solution.
5. Refer to the CT485B manual for the calibration procedure (Section 5.3.1 - Steps 1 through 3) starting on Page 5-6.
6. After completing Step 3 (in Section 5.3.1), unscrew the fitter cap assembly from the 33%RH solution. Re-cap the solution with the white cap.
7. Screw the fitter cap assembly to the 75%RH sodium chloride salt solution bottle in the foam block.
8. Complete the calibration procedure starting with Step 4 of Section 5.3.1 in the manual (Page 5-6) and ending on Page 5-7.
9. Remove the fitter assembly from the 75%RH salt solution and re-cap the bottle with the white cap.

End of procedure.

NOTE: if you desire NIST traceability, it is suggested that you call our Sales Department and send the recorder to OMEGA for calibration.

FOR CT485B
Use smaller
O'ring
ID washer
ID cap

CT485B-220V
Uses larger
O'ring
ID washer
ID cap

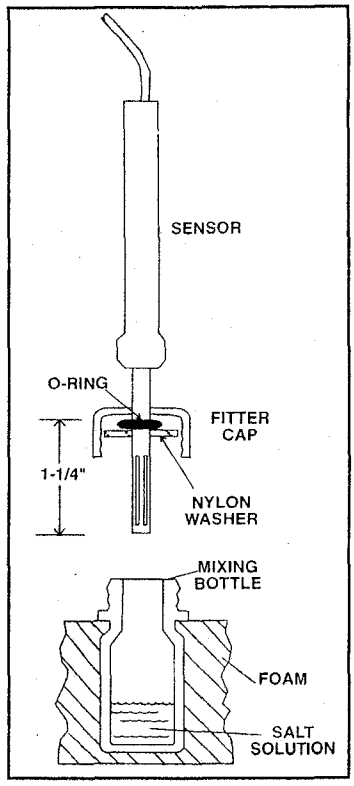


Figure 1. Parts of the Cal Kit

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OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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