

CONTHERM SCIENTIFIC LTD

TECHNICAL MEMORANDAM

PRODUCT : PLCS

No : 0004

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FROM : Russell Kirkwood

DATE : 19/9/90

TO : All Agents

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SUBJECT : Calibration of ZP10a PCB.

The following procedure should be used when calibrating a ZP10a humidity PCB.

- 1) Equipment required:
Digital voltmeter with 0 - 2 volt DC range or similar.
1% tolerance capacitors 120pF & 160pF

The capacitors are used to set the bottom end calibration and the span calibration of the ZP10a PCB.

- 2) Procedure:
- a) Replace the Humidity sensor on the ZP10a PCB with the LOW capacitor (120pF)
 - b) Using the DVM, measure the voltage at output #1 on the PCB and using the CENTRE calibration pot on the PLCS controller (%rh cal pot) adjust the reading on the PLCS to agree with the reading on the DVM.

NB: A DVM reading of 0.17 volts = 17% RH on the PLCS unit.

- c) Adjust the green trimmer capacitor on the ZP10a PCB to obtain the LOWEST possible reading (this can now be monitored by looking at the PLCS display) usually comes down to about 0.10 volts (10% RH). - use a non-metallic screwdriver to avoid false readings due to stray capacitance.
- d) Replace the LOW capacitor (120pF) with the HIGH capacitor (160pF) on the ZP10a PCB.
- e) Adjust the 10K Ohm potentiometer on the ZP10a PCB to obtain a reading of 0.99 volts (99% RH) - Clockwise increases reading.
- f) Replace the HIGH (160pF) capacitor with the PHILIPS solid state capacitive sensor probe on the ZP10a PCB.
- g) Using the green trimmer capacitor on the ZP10a PCB adjust it until the PLCS unit indicates the CORRECT ACTUAL %RH (as measured with an independent instrument). - Allow to fully stabilise and then recheck and adjust as necessary.

- h) Breathe GENTLY on the sensor probe - The indicated %RH should INCREASE.
- i) Close up the sensor box and put the sensor into normal operation, any VERY MINOR (MAX +/-10%) calibration of the final indicated %RH can now be done using the centre potentiometer on the PLCS unit, BUT any larger amounts MUST be corrected by the green trimmer capacitor on the ZP10a PCB.

The solid state sensor is fairly accurate ($\pm 5\%$ RH) over the mid range of humidities (20 - 90 % rh) but becomes VERY nonlinear above 95% RH.