

## Pharmatherm the Calibration Specialists 'Temperature'

### PharmaTherm Temperature Probe Calibration Standard Operating Procedure



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#### Revision History

This is the first issue of this document.

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PharmaTherm Temperature Probe Calibration Standard Operating Procedure, this section must be signed-off for approval of the document before the document can be distributed for use.

Report Approval:

Approved By - \_\_\_\_\_ [Date]

Validation Engineer Andrew Varley

### **Temperature Probe Calibration:**

Check the calibration equipment calibration certificates have a valid date and that they are traceable to a national standard.

Calibrating Temperature probes RTD, Thermocouple Type T and Type K.

### **Equipment:**

1. PC Laptop interface device
2. Laptop (with RS232 connection)
3. Heat bath
  - a) AMETEK Jofra heat bath suitable for temperature range 50.0C to 200.0C
  - b) Haven Heat Bath suitable for temperature range –20.0C to 140.0C
4. KAYE IRTD Independent temperature reference D0217
5. Temperature probe bath insert

### **Method:**

Kaye Validator provides thermocouples calibration and calibration verification. Specify all calibration parameters on the Calibration Parameters screen.

(The initial set-up file could be copied to set-up a validation cycle and its important to have the calibration set-up correct, as it will be used for post verification.)

1. Specify a three-point calibration, which can be defined using the Kaye software, a check set point chosen close to the operating temperature.
2. Temperature set points for calibration verification to verify that each thermocouple is still within the calibration criteria. You must select at least one set point for calibration verification.

3. Temperature stability, specify the maximum allowable temperature variation for each thermocouple, all thermocouples that have been specified must meet these criteria before the calibration process continues. Default values are 0.2C for 2 minutes.
4. Specify deviation criteria, Deviation is the difference between the reading reported by a thermocouple and the reading reported by the temperature standard during the calibration process. Default values are 0.5C for 5 minutes.
5. Save the configuration file as calibration files.
6. Insert the selected temperature probe into the heat bath check that the temperature probe is inserted to the maximum insertion depth.
7. Using the Kaye software. Select from the main menu, calibration and open the saved file. Then select the temperature probe to be calibrated.
8. Set the heat bath to the temperature low set point 90.0C.
9. Allow a minimum of ten minutes for the heat bath to stabilize before calibration set point measurements are taken. Document the instrument temperature reading and the Kaye IRTD independent probe reading.
10. The Independent probe is used to verify the heat bath temperature adjust the temperature of the heat bath according to the IRTD standard value. Enter the probe standard value temperature into the accept criteria on the temperature probe calibration certificate.
11. Repeat steps 8, 9 and 10 for the high set point value of 140.0C.
12. Allow a minimum of ten minutes for the heat bath to stabilize before calibration set point measurements are taken. Document the instrument temperature reading and the Kaye IRTD independent probe reading.
13. Repeat steps 8, 9 and 10 for the calibration verification set point of 121.0C.
14. Allow a minimum of ten minutes for the heat bath to stabilize before calibration set point measurements are taken. Document the instrument temperature reading and the Kaye IRTD independent probe reading.
15. Print the calibration report certificate and sign and date the certificate.

Contact Pharmatherm for further advice on temperature calibration setups, contact us for quotation however large or small the project maybe. We aim to provide a competitive validation service. Please 'don't delay and contact PharmaTherm today' email: [info@pharmatherm.ie](mailto:info@pharmatherm.ie)

See the Pharmatherm website please log onto [www.pharmatherm.ie](http://www.pharmatherm.ie) technical/training page



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