

Standard Operating Procedure Calibration Procedure for Chart Recorder	SOP No. 6.018
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- 1 Purpose
 - 1.1 The purpose is to provide guidelines for field calibration on chart recorder after its installation.
- 2 Scope
 - 2.1 This procedure shall cover all chart recorders that will be commissioned by Therma's Calibration Department.
- 3 Reference
 - 3.1 Manufacturer's Instruction Manual for Chart Recorder.
- 4 Responsibility
 - 4.1 Field calibration technician shall coordinate with user to avoid disruption of plant facilities or operations before performing calibration.
 - 4.2 Field calibration technician shall perform calibration as per the following procedures.
- 5 Tools and Test Standards
 - 5.1 Resistance Decade Box: Model RTD 100; 10-1111 ohms range; $\pm 0.01\%$ accuracy setting
 - 5.2 Thermocouple Calibrator: Transcat 5102 RTC; $\pm 1\%$ accuracy
 - 5.3 Current/Voltage Calibrator: Unomat/Druck UPS-II; $\pm 1\%$ accuracy
 - 5.4 Small hand tools
 - 5.5 Temperature unit conversion table

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6 Procedures

- 6.1 Gather all necessary tools and test standards. The test standards include resistance decade box, thermocouple calibrator and current/voltage calibrator. Make sure that the test standards have been calibrated and within the calibration period.
- 6.2 Before performing calibration, perform the following maintenance for the chart recorder.
 - 6.2.1 Inspect the chart recorder for any physical defects.
 - 6.2.2 If dust has been accumulated on the external surface, clean the surface with clean cloth.
 - 6.2.3 Check all electrical connections for tightness.
 - 6.2.4 Replace back up batteries (if one is installed).
- 6.3 Remove sensor wires from the input terminals and connect to the test standards.
- 6.4 Apply 0 to 100% of range values to the chart recorder and correct span on both pen arm and digital indicator (if present).
- 6.5 Apply 10%, 50% and 90% of range values to the chart recorder. Record the three point values in "As Found Data" section on form FN 6.018.1 (Calibration Sheet for Relative Humidity & Temperature Chart Recorder).
- 6.6 Perform Calibration Adjustment
 - 6.6.1 Simulate 0 to 100% of input signals to the chart recorder. Correct zero and span for both pen arm and digital indicator (if present).
 - 6.6.2 Apply 10%, 50% and 90% of range values to the chart recorder. Record the three point values in "As Found Data" section on form FN 6.018.1 (Calibration Sheet for Relative Humidity & Temperature Chart Recorder).
- 6.7 Place Therma's calibration sticker on the chart recorder upon completion of calibration.
- 6.8 If the transmitter did not meet the calibration tolerances and adjustments, contact the customer.

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- 6.9 The field calibration technician shall fill in the calibration data including test standard data on form FN 6.018.1 (Calibration Sheet for Relative Humidity & Temperature Chart Recorder) before submitting to project manager.
- 7 Review and Approval
 - 7.1 The field calibration technician shall submit the form FN 6.018.1 (Calibration Sheet for Relative Humidity & Temperature Chart Recorder) to the project manager.

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Document Approval

Robert McCammond
Field Calibration

8/4/03
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Quality Assurance Manager

8/4/03
Date

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