FLUKE®

80T-IR

INFRARED TEMPERATURE PROBE

Calibration Procedure

INTRODUCTION

This procedure covers the following topics relating to the calibration of the Fluke 80T-IR Infrared Temperature Probe, hereafter referred to as the UUT (Unit Under Test):

- Service Information
- Required Test Equipment
- Calibration Verification

SERVICE

To obtain service in the U.S.A., call 1-888-99 FLUKE (1-888-993-5853). Outside the U.S.A., contact your nearest Fluke Service Center.

REQUIRED EQUIPMENT

Table 1 lists the equipment required to perform the calibration verification procedure. Refer to Figure 1 for equipment configuration.

Table 1. Calibration Equipment

INSTRUMENT TYPE	RECOMMENDED MODEL
Infared Temperature Sensor (0-1000°F, ±0.5%)	Raytek PM3-DCI Transfer Standard
Blackbody (0- 500°F, 1% ±1 digit)	Raytek BB4000
DMM. 1% Basic Accuracy	Fluke 87

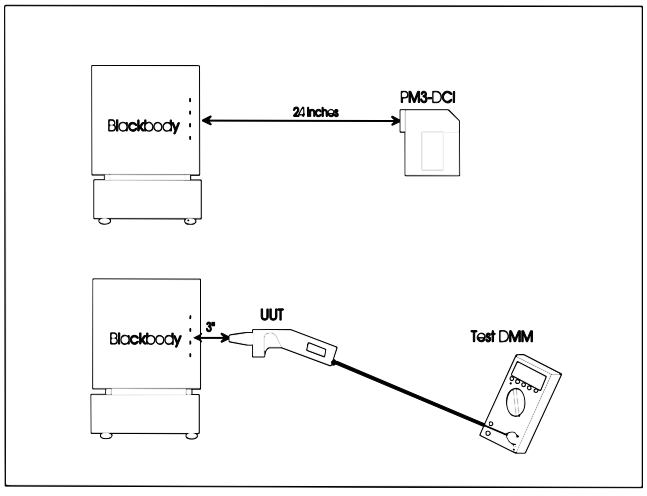

Figure 1.

INITIAL SETUP

Each of the measurements listed in the following procedure assumes that the temperature of the UUT has stabilized in a test environment with an ambient temperature of 18 - 28°C and relative humidity of < 95%. Accuracy figures are valid for a period of one year.

1. With the UUT powered on, check that the battery voltage is at least 7.0V. Replace the battery if necessary.

2. Verify that the UUT is in the °F mode.

3. Power up the UUT and allow it to stabilize for five minutes.

4. Connect the output of the UUT to the VΩ⇥ and COM input of the Test DMM.

CALIBRATION VERIFICATION

To verify calibration of the Fluke 80T-IR, complete the following performance test. If your instrument fails to pass any performance specifications, return it to the Fluke Factory or Service Center for repair.

1. Set the set point temperature of the Blackbody to the temperature called out in Table 2 and allow it to stabilize.
2. Set the emmissivity of the PM3-DCI transfer standard to 0.95.
3. Set the DMM to the 400 mVdc range.
4. Position the PM3-DCI so that its aperture is 24 inches from the Blackbody aperture.
5. Point and aim the PM3-DCI at the center of the Blackbody plate keeping it perpendicular to both axes.

NOTE

Do not expose the transfer standard to the heat source for extended periods of time as it can cause inaccuracies due to "Stare". Remove the unit from the area immediately after establishing the Blackbody temperature or provide adequate heat shielding or thermal insulation

6. Record the temperature displayed by the PM3-DCI.

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7. Place the UUT aperture three inches from the center and perpendicular to both axes of the Blackbody plate.

NOTE

To avoid inaccuracy, only expose the UUT to the heat source long enough to complete the measurement (<15 sec). Between measurements, move the UUT to an environment not affected by the heat source.

8. Record the reading displayed on the Test DMM.
9. The reading in step 8 must be within 3% or 5°F, whichever is greater, of the reading obtained in step 6.
10. Repeat steps 1 through 9 for the remaining verification points called out in Table 2.

NOTE

The UUT will shift into sleep mode after 10 minutes. Reactivate by switching the UUT off and on again.

This completes the calibration verification for the Fluke 80T-IR.

Table 2. Verification Points

BLACKBODY SETPOINT TEMPERATURE
Blackbody off
(Ambient)
175°F
275°F
375°F
475°F