

FLUKE®

80T-IR/E

Infrared Temperature Probe

Calibration Procedure

Introduction

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

- Service Information
- Required Test Equipment
- Calibration Verification

Service

To obtain Service Information in the U.S.A. call 1-888-893-5853. Outside the U.S.A., contact your nearest Fluke Service Center.

Recommended 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
Blackbody (-20 – 150 °C) ¹ Required Accuracy = +/- 0.75 % W/Cert. @ 0.95 Emissivity	Mikron M340
Blackbody (100-650°C) ¹ Required Accuracy = +/- 0.75 % W/Cert. @ 0.95 Emissivity	Mikron M305X
DMM 0.1% Basic Accuracy	Fluke 87
1. May substitute less accurate blackbody if using in conjunction with transfer standard of equivalent accuracy, i.e.; Raytek PM3-DCI	

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 less than 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 7.0 V. 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 $\rightarrow$ and COM input of the DMM.

Calibration Verification

To verify calibration of the 80T-IR/E, 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. Adjust the setpoint of the Blackbody to output each of the temperatures in Table 2 at 0.95 emissivity.
2. Set the DMM to the 3.000 V dc range.

Note

To avoid inaccuracy, only expose the UUT to the heat source long enough to complete the measurement (<10 sec). In between measurements move the UUT to an environment not affected by the heat source.

3. Place the UUT aperture three inches from the center and perpendicular to both axes of the Blackbody plate.
4. Record the reading displayed on the DMM.
5. The reading in step 4 must be within 3% or 5° F (whichever is greater) of the Blackbody output or transfer standard measurement at 0.95 emissivity in step 1.
6. Repeat steps 1 through 5 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 calibration verification for the
80T-IR/E.

Table 2. Verification Points

Model	Blackbody Temperature at 0.95 Emissivity
M340	77 °F
M340	175 °F
M340	275 °F
M305X	375 °F
M305X	575 °F
M305X	975 °F

Figure 1.

