

The right calibration makes all the difference

If you know the importance of a good calibration, then you expect the calibrator you use to produce results you can trust. Trustworthy results come from a calibrator with impeccable metrology behind it. And that's just what you get with the new Fluke 4180 Series Precision Infrared Calibrators. They are given NVLAP-accredited (NVLAP Lab Code 200348-0) radiometric calibrations by professionals from Fluke Calibration so their results are fully traceable.

Application note:

The technical note, "IR calibration 101" is a great resource for improving calibration results.

The 4180 Series of Precision Infrared Calibrators for infrared thermometers and thermal imagers is fast, accurate, and easy to use. They are the choice of professionals who are dedicated to quality and want to get up and running quickly.

The large 152 mm (6 in) target on the 4180 Series is an important feature. IR thermometers have "peripheral vision" that can affect the measurements they make. Smaller IR targets can't capture this peripheral vision, but the 4180 can, as illustrated in Figure 1.

4180 Series Precision Infrared Calibrators

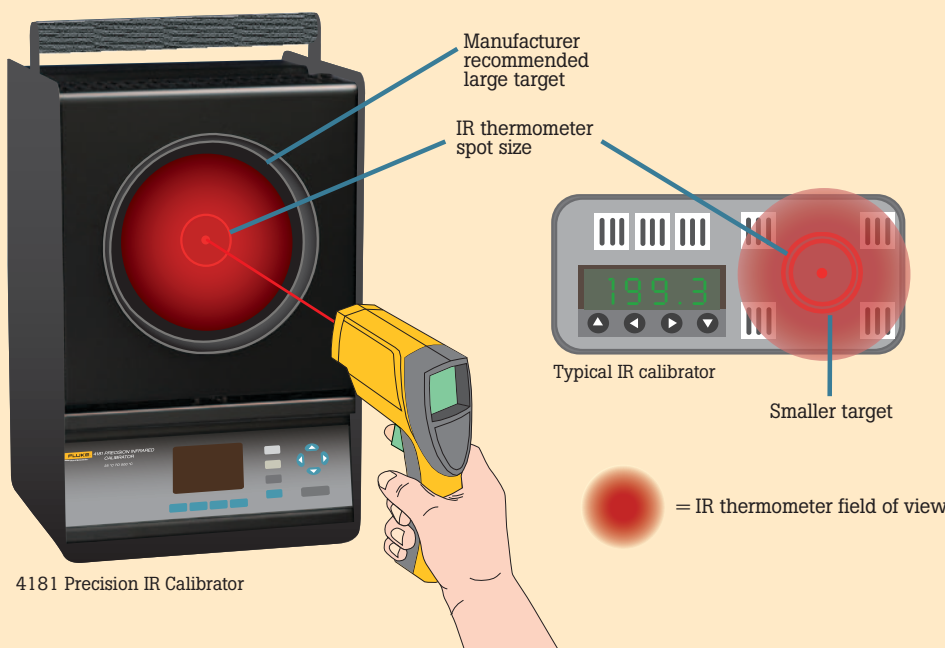


Figure 1. Infrared thermometers have peripheral vision

High performance, designed for industrial use

- Large 152 mm (6 in) target captures peripheral vision of IR thermometer for more accurate measurements
- Light weight and convenient handle make it easy to transport
- Reaches temperature set-point fast for efficient field operation
- Guaranteed accuracy specifications
- Radiometric calibration included for *traceable* best practice results
- Excellent stability and uniformity

Easy to use

- Simulates individual IR thermometer emissivity settings
- No difficult emissivity-related calculations
- Calibration information for Fluke and Raytek thermometers can be loaded directly into the calibrator for convenience

Calibrate with confidence

- The 4180 Series is calibrated in an accredited (NVLAP lab code 200348-0) radiometric process for complete infrared traceability
- Significantly reduces the risk of falsely accepting or rejecting devices under test
- The 4180 series compensates for infrared thermometer emissivity settings so no extra calculations are required

Applications

- Accredited temperature calibration
- Verifying stability and evaluating drift
- Certifying infrared thermometers
- Onsite/insitu infrared sensor calibration

Specifications

	4180	4181
Temperature range (@ 23 °C ambient and 0.95 emissivity)	-15 °C to 120 °C	35 °C to 500 °C
Display Accuracy(1)	± 0.40 °C at -15 °C ± 0.40 °C at 0 °C ± 0.50 °C at 50 °C ± 0.50 °C at 100 °C ± 0.55 °C at 120 °C	± 0.35 °C at 35 °C ± 0.50 °C at 100 °C ± 0.70 °C at 200 °C ± 1.20 °C at 350 °C ± 1.60 °C at 500 °C
Stability	± 0.10 °C at -15 °C ± 0.05 °C at 0 °C ± 0.10 °C at 120 °C	± 0.05 °C at 35 °C ± 0.20 °C at 200 °C ± 0.40 °C at 500 °C
Uniformity (5.0 in dia of center of target)(2)	± 0.15 °C at -15 °C ± 0.10 °C at 0 °C ± 0.25 °C at 120 °C	± 0.10 °C at 35 °C ± 0.50 °C at 200 °C ± 1.00 °C at 500 °C
Uniformity (2.0 in dia of center of target)(2)	± 0.10 °C at -15 °C ± 0.10 °C at 0 °C ± 0.20 °C at 120 °C	± 0.10 °C at 35 °C ± 0.25 °C at 250 °C ± 0.50 °C at 500 °C
Heating time	15 min: -15 °C to 120 °C 14 min: 23 °C to 120 °C	20 min: 35 °C to 500 °C
Cooling time	15 min: 120 °C to 23 °C 20 min: 23 °C to -15 °C	100 min: 500 °C to 35 °C 40 min: 500 °C to 100 °C
Stabilization time	10 minutes	10 minutes
Nominal target emissivity(3)	0.95	0.95
Thermometer emissivity compensation	0.9 to 1.0	
Target Diameter	152.4 mm (6 inches)	
Computer interface	RS-232	
Power	115 V ac (±10 %), 6.3 A, 50/60 Hz, 630 W 230 V ac (±10 %), 3.15 A, 50/60 Hz, 630 W	115 V ac (±10 %), 10 A, 50/60 Hz, 1000 W 230 V ac (±10 %), 5 A, 50/60 Hz, 1000 W
Fuse(s)	115 V ac 6.3 A, 250 V, slow blow 230 V ac 3.15 A, 250 V, T	115 V ac 10 A, 250 V, fast blow 230 V ac 5 A, 250 V, F
Size (HxWxD)	356 mm x 241 mm x 216 mm (14 in x 9.5 in x 8.5 in)	356 mm x 241 mm x 216 mm (14 in x 9.5 in x 8.5 in)
Weight	9.1 kg (20 lb)	9.5 kg (21 lb)
Safety	EN 61010-1:2001, CAN/CSA C22.2 No. 61010.1-04	

- (1) For 8 um to 14 um spectral band thermometers with emissivity set between 0.9 and 1.0
 (2) The uniformity specification refers to how IR thermometers with different spot sizes both focused at the center of the target will measure the same temperature.
 (3) The target has a nominal emissivity of 0.95, however it is radiometrically calibrated to minimize emissivity related uncertainties.

Ordering information

Model

4180 Precision Infrared Calibrator, -15 °C to 120 °C

4181 Precision Infrared Calibrator, 35 °C to 500 °C

4180-CASE Carrying Case, 4180, 4181

4180-DCAS Carrying Case with wheels, 4180, 4181

Included accessories

- Accredited radiometric calibration report
- Target cover
- User Guide
- Getting Started Guide

Fluke Calibration.

Precision, performance, confidence.™

Electrical
RF
Temperature
Pressure
Flow
Software

Fluke Calibration
PO Box 9090, Everett, WA 98206 U.S.A.

Fluke Europe B.V.
PO Box 1186, 5602 BD Eindhoven, The Netherlands

For more information call:
 In the U.S.A. (877) 355-3225 or Fax (425) 446-5116
 In Europe/M-East/Africa +31 (0) 40 2675 200 or Fax +31 (0) 40 2675 222
 In Canada (800)-36-FLUKE or Fax (905) 890-6866
 From other countries +1 (425) 446-5500 or Fax +1 (425) 446-5116
 Web access: <http://www.flukecal.com>

©2008-2011 Fluke Corporation.
 Specifications subject to change without notice.
 Printed in U.S.A. 4/2011 3081955B B-EN-N
 Pub-ID 11319-eng

Modification of this document is not permitted without written permission from Fluke Corporation.