TECHNICAL DATA

Fluke Calibration 4180/4181 Precision IR Calibrators



Key features

The 4180 Series of Precision Infrared Calibrators for infrared thermometers and thermal imagers is fast, accurate, and easy to use. It comes with an accredited calibration from one of the world's most trusted temperature calibration laboratories, sample calibration procedures for Fluke thermometers built right in and everything you need to get started making high-quality infrared thermometer calibrations. This is the perfect solution for any infrared thermometer or thermal imager within its temperature range.

The 4180 reaches temperatures from –15 °C to 120 °C and the 4181 has a temperature range from 35 °C to 500 °C. Uniformity is important in infrared temperature calibration work because an infrared thermometer will "see" as much as the entire target when placed at the appropriate calibration distance.

In addition, with accuracies as good as ±0.35 °C the 4180 Series can meet its specifications without additional emissivity-related corrections, leading to legitimate test uncertainty ratios (TUR) as good as 4:1.

Product overview: Fluke Calibration 4180/4181 Precision IR Calibrators

Accuracy and traceability for infrared measurements

Now it's easy to increase your IR temperature measurement accuracy with the new 4180/81 Hart Scientific Precision Infrared Calibrators from Fluke Calibration. These calibrators give more consistent, accurate and reliable calibrations because emissivity is radiometrically calibrated, and the target size minimizes size of source effect errors. In addition, these

calibrators simplify calibration because they uniquely compensate for errors caused by thermometer emissivity settings.

New accredited performance for point-and-shoot calibrations

- Calibrated radiometrically for meaningful, consistent results.
- Accredited calibration included
- Accurate, reliable performance from −15 °C to 500 °C
- Large target size of 152 mm (6 in) is required for calibrating most thermometers.
- Light instrument weight of 8.6 kg (19 lbs) makes it easy to lift and carry.
- Intuitive, easy-to-read display that indicates when temperature is stable.

Specifications: Fluke Calibration 4180/4181 Precision IR Calibrators

Specifications	4180	4181
Temperature range (@ 23°C ambient, 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 250°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	45 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 emissivity[3]	0.95	0.95
Thermometer emissivity compensation	0.9 to 1.0	0.9 to 1.0
Target diameter	152.4 mm (6 in)	152.4 mm (6 in)
Computer interface	RS-232	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 (H x W x D)	356 x 241 x 216 mm (14 x 9.5 x 8.5 in)	356 x 241 x 216 mm (14 x 9.5 x 8.5 in)

Weight	9.1 kg (20 lb)	9.5 kg (21 lb)

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 targer 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



Fluke 4180

Fluke Calibration 4180 Precision IR Calibrators
IR Calibrator, 152 mm (6 in), -15°C to 120°C

Includes:

- 4180 IR calibrator
- Report of calibration (NVLAP accredited)
- Power cord
- User's guide
- Documentation CD
- Target cover
- Serial cable

Fluke 4181

Fluke Calibration 4181 Precision IR Calibrators
IR Calibrator, 152 mm (6 in), 35°C to 500°C

Includes:

- 4181 IR calibrator
- Report of calibration (NVLAP accredited)
- Power cord
- User's guide
- Documentation CD
- Target cover
- Serial cable

Fluke. *Keeping your world up and running.®*

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

For more information call:
In the U.S.A. (800) 443-5853
In Canada (800) 36-FLUKE
From other countries +1 (425) 446-5500
www.fluke.com

©2022 Fluke Corporation.
Specifications subject to change without notice.
10/2022

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