MIKRON M316

Ultra-portable, low temperature blackbody calibration source available for sale in the US only. Ambient 5 to 300°C (41 to 572°F).

The Mikron® M316 two-piece portable blackbody calibration source is an ideal unit for field calibration or verification of infrared temperature sensors. The calibration source is contained within a compact, hand-held housing weighing only 2 pounds. A flexible cable connects to the 1.5 pound indicating controller, which can be carried via the handle. The small size of the calibration source alows the operator to easily position it to read the sensor—even in hard to reach locations. Consequently, there is no need to remove the sensor from its position.

PRODUCT HIGHLIGHTS

- Superior accuracy within ±0.5% of reading ±1°C
- Large 57 mm (2.25”) aperture diameter
- Rugged housing designed for fixed installation in a laboratory or test department
- Manufactured and tested to meet rigid quality control standards
- Furnished with certificate of calibration traceable to NIST
- RS232 (standard) or RS485 (option) serial communication output

TYPICAL APPLICATIONS

- Infrared temperature sensors
- Infrared thermal imaging systems
- Spectrographic analyzers
- Spectral radiometers
- Heat flux meters

AT A GLANCE

Temperature Range

5 to 300°C (41 to 572°F)

Measurement Uncertainty

±0.5% of reading ±1°C

Emissivity

1.0 effective @ 8 to 14 µm

Heated Emitter Shape

Flat plate

Aperture Diameter

57 mm (2.25")

Average Warm-Up Time

~10 minutes from room temperature to 200°C

OVERVIEW

Blackbody calibration sources are infrared radiators used for calibrating and verifying the output signals of infrared thermometers (pyrometers), thermal imaging systems, heat flux measurement systems, or spectrographic analysis systems. Advanced Energy supplies a unique selection of very precise calibration sources that are traceable to national standards. Quotations for custom designs and variations are available upon request.

Mikron calibration sources have long been the gold standard to calibrate the instruments that keep your operations up and running. These blackbodies are superior because of the emissivity values, homogeneous emission areas, and a wide range of different sized apertures to adapt to the desired target area. In addition, fast heat-up times and high temperature stability are guaranteed. The quality of our calibration sources is guaranteed by tests, burn-in times, and radiometric calibrations. On most models, a certificate is provided to document the traceability to the international temperature scale ITS90 and NIST.

TECHNICAL DATA

Measurement Specifications	
Temperature Range	Ambient 5 to 300°C (41 to 572°F)
Temperature Uncertainty[1]	±0.5% of reading ±1°C
Display Accuracy vs. NIST Calibration	See supplied NIST calibration report
Temperature Resolution	0.1°C
Stability[2]	±0.5°C per 8-hour period
Source Non-Uniformity	Approximately ±2°C @ 250°C
Heated Cavity Shape	Flat plate
Exit Port Diameter	57 mm (2.25")
Emissivity ε	1.00 effective emissivity @ 8 to 14 µm
Standard Calibration Method	Radiometric
Temperature Sensor	Precision platinum RTD
Warm-up Time[3]	~10 minutes from room temperature to 200°C
Slew Rate to 1°C Stability[3]	~18° per min T < 250°C
	~14° per min T > 250°C
Slew Rate to 0.1°C Stability	~Approximately 12 minutes between Δ 50 °C setpoints

Communication and Electrical Specifications	
Method of Control	Digital PID Controller
Power Requirements	14499: 115 VAC @ 50 and 60 Hz 300 W max
	14499-2: 230 VAC @ 50 and 60 Hz 300 W

1 Accuracy calibration performed radiometrically, the uncertainty of emissivity and transfer standard are already included.
2 Provided stable AC mains voltage and minimum air flow across the exit port or emitter plate.
3 Typical. Can vary from unit to unit.

TECHNICAL DATA (CONTINUED)

Environmental Specifications	
Operating Ambient Temp	0 to 50°C (32 to 122°F)
Cooling	Self-convection
Operating Humidity	<90% non-condensing
Dimensions (H x W x D)	Blackbody Source: 203 mm x 89 mm x 98 mm (8” x 3.5” x 3.86”)
	Controller: 102 mm x 178 mm x 127 mm (4” x 7” x 5”)
Weight	Blackbody Source: 0.9 kg (2.0 lbs)
	Controller: 0.70 kg (1.5 lbs)
CE Certified	No

REFERENCE NUMBERS

PN	Description
14499	M316, Ambient 5 to 300°C, 57 mm, 115 VAC @ 50 and 60 Hz
14499-2	M316, Ambient 5 to 300°C, 57 mm, 230 VAC @ 50 and 60 Hz

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

AE's power solutions enable customer innovation in complex semiconductor and industrial thin film plasma manufacturing processes, demanding high and low voltage applications, and temperature-critical thermal processes.

With deep applications know-how and responsive service and support across the globe, AE builds collaborative partnerships to meet rapid technological developments, propel growth for its customers and power the future of technology.

PRECISION | POWER | PERFORMANCE

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