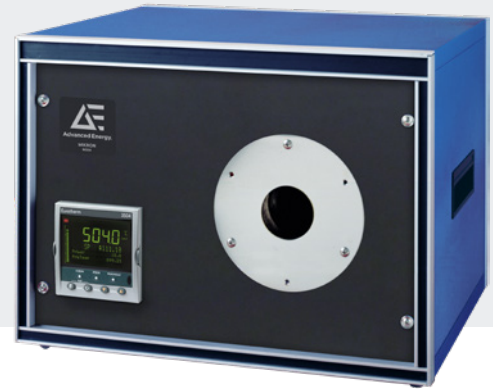


MIKRON M305

Compact, general purpose blackbody calibration source for medium temperatures of 100 to 1000°C (212 to 1832°F).



The Mikron® M305 blackbody calibration source uniquely combines portability with wide temperature range, high emissivity, and high accuracy. It is an ideal calibration unit where portability is required or where installation space is limited. Its spherical metal cavity design yields an emissivity of 0.995 over the temperature range of 100 to 1000°C (212 to 1832°F) with an aperture of 25 mm (1"). An integrally mounted PID controller adds to the unique versatility of this calibrator.

PRODUCT HIGHLIGHTS

- Highly mobile due to small form factor and weight (only 25 kg or 55 lbs)
- High accuracy $\pm 0.2\%$ of reading $\pm 1^\circ\text{C}$
- 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

- Sapphire probe optical pyrometer calibrations
- Infrared temperature sensors
- Infrared thermal imaging systems
- Spectrographic analyzers
- Radiometers
- Flux meters

AT A GLANCE

Temperature Range

100 to 1000°C (210 to 1832°F)

Measurement Uncertainty

$\pm 0.2\%$ of reading $\pm 1^\circ\text{C}$

Emissivity

0.995 ± 0.0005
(calculated from cavity shape)

Effective Emissivity

1.00 @ 8 to 14 μm $T < 230^\circ\text{C}$
1.00 @ 0.7 to 1.8 μm $T > 230^\circ\text{C}$

Heated Emitter Shape

Spherical

Aperture Diameter

25.4 mm (1.0")

Average Warm-Up Time

60 min from ambient (to 700°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	100 to 1000°C (210 to 1832°F)
Temperature Uncertainty ¹	±0.2% of reading ±1°C
Temperature Resolution	0.1°C
Stability ²	1°C per 8-hour period
Source Non-Uniformity	±0.2°C typical @ T < 230°C
	±1°C typical @ T > 230°C
Heated Cavity Shape	Spherical
Exit Port Diameter	25.4 mm (1.0")
Emissivity ε	0.995 ±0.0005 (calculated from cavity shape)
Effective Emissivity	1.00 @ 8 to 14 μm T < 230°C
	1.00 @ 0.7 to 1.8 μm T > 230°C
Standard Calibration Method	Radiometric
Temperature Sensor	Thermocouple
Warm-up Time	60 minutes from ambient to 700°C
Slew Rate to 1°C Stability	~11°C per min for Amb < T < 200°C
	~20°C per min for Amb < T < 800°C
	~10°C per min for T > 900°C
Slew Rate to 0.1°C Stability	1 hour between setpoints

Communication and Electrical Specifications	
Remote Set Point	Via serial port
Method of Control	Digital self tuning PID controller
Power Requirements	115 VAC @ 50 and 60 Hz
	230 VAC @ 50 and 60 Hz, 1000 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.

TECHNICAL DATA (CONTINUED)

Environmental Specifications	
Operating Ambient Temp	0 to 44°C (32 to 110°F)
Cooling	Fan cooled, air inlet on rear panel
Operating Humidity	90% RH max, non-condensing
Dimensions (H x W x D)	270 mm x 430 mm x 370 mm (10.6" x 16.9" x 14.6")
Weight	25 kg (55 lbs)
CE Certified	Yes

REFERENCE NUMBERS

PN	Description
14430-1	M305, 100 to 1000°C, 25 mm, RS232, 115 VAC @ 50 and 60 Hz
14430-2	M305, 100 to 1000°C, 25 mm, RS232, 230 VAC @ 50 and 60 Hz

ACCESSORIES

PN	Description
14002-1	Cold aperture wheel assembly, 6 apertures 25.4 to 2.54 mm, for M300, M305, M330, M335, M390
14002	Cold aperture wheel assembly, 6 apertures 50 to 1.56 mm, for M300, M305, M330, M335, M390
19140-485	Optional: Serial Communication Output RS485 (built-in ex works) for M300, M305, M315X, M335, M345X, M360, M360A, M390
3840810	IGA 12-TSP, 1570 nm, 200" 1020°C, through-lens-sighting, laser targeting, focusable Optics 2



For international contact information,
visit advancedenergy.com.

sales.support@aei.com
+1 970 221 0108

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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