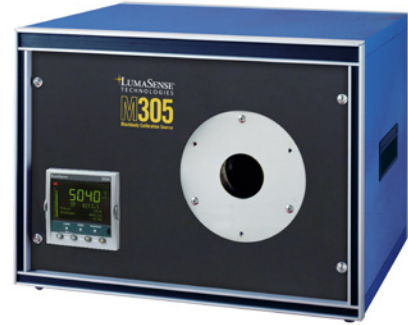


**Compact, general purpose blackbody calibration source for medium temperatures.
Temperature range: 100 ... 1000 °C (212 ... 1832 °F).**

M305

- Highly mobile due to small form factor and weight (only 25 kg or 55 lbs)
- High accuracy $\pm 0.2\%$ of reading ± 1 °C
- High emissivity 1.0 effective @ 0.7 ... 1.8 μm
 $T \geq 230$ °C, 1.0 @ 8 ... 14 μm $T < 230$ °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



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. LumaSense supplies a unique selection of very precise calibration sources that are traceable to national standards.

The 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.

Quotations for custom designs and variations are available upon request.

LumaSense 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.

Typical Applications

- Sapphire Probe Optical Pyrometer Calibrations
- Infrared Temperature Sensors
- Infrared Thermal Imaging Systems
- Spectrographic Analyzers
- Radiometers
- Flux Meters

Technical Data

Measurement Specifications

Temperature Range:	100 ... 1000 °C (210 ... 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 at T > 230 °C
Heated Cavity Shape:	Spherical
Exit Port Diameter:	25.4 mm (1.0")
Emissivity:	0.995 ± 0.0005 (calculated from cavity shape) Effective Emissivity: 1.00 @ 8 ... 14 µm T < 230 °C, 1.00 @ 0.7 ... 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 / min for Amb < T < 200 °C ~ 20 °C / min for Amb < T < 800 °C ~ 10 °C / min for T > 900 °C
Slew Rate to 0.1 °C Stability:	1 hour between setpoints

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.

Communications/Interface

Remote Set Point:	Via serial port
Method of Control:	Digital self tuning PID controller

Environmental Specifications

Operating Ambient Temp:	0 ... 44 °C (32 ... 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

Electrical

Power Requirements:	115 V AC @ 50 & 60 Hz or 230 V AC @ 50 & 60 Hz, 1000W
---------------------	---

Reference Numbers

14430-1	M305, 100 ... 1000 °C, 25 mm, RS232, 115 V AC @ 50 & 60 Hz
14430-2	M305, 100 ... 1000 °C, 25 mm, RS232, 230 V AC @ 50 & 60 Hz

Accessories

14002-1	Cold aperture wheel assembly, 6 apertures 25.4 ... 2.54 mm, for M300, M305, M330, M335, M390
14002	Cold aperture wheel assembly, 6 apertures 50 ... 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 target., focus. Optics 2

LumaSense Technologies | An Advanced Energy Company

Temperature and Gas Sensing Solutions

Americas, Australia, Asia
Sales & Service
Santa Clara, CA
Ph: +1 800 631 0176
Fax: +1 408 727 1677

Europe, Middle East, Africa
Sales & Service
Frankfurt, Germany
Ph: +49 69 97373 0
Fax: +49 69 97373 167

India
Sales & Support Center
Mumbai, India
Ph: +91 22 67419203
Fax: +91 22 67419201

China
Sales & Support Center
Shanghai, China
Ph: +86 133 1182 7766
Ph: +86 21 5899 7915

info@lumasenseinc.com

LumaSense Technologies, Inc., reserves the right to change the information in this publication at any time.

www.lumasenseinc.com

©2019 LumaSense Technologies - M305 Blackbody Datasheet-EN - Rev. 01/28/2019
All rights reserved. LumaSense Technologies, Inc., a subsidiary of Advanced Energy Industries, Inc.