

ON-SITE BLACKBODY CALIBRATION

FIELD SERVICE 



Achieving Sustainable Results with Advanced Energy Services

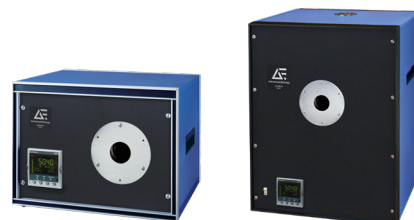
The mission of Advanced Energy is to deliver consistent value-added service so you can focus on your business. Our highly trained and dedicated Field Service Engineers (FSEs) are ready to partner with you to deliver the right sensing solutions with the best performance and longest-life.

You expect the highest quality from your investments in our technology; therefore, our promise is to:

- Deliver high-value customer care.
- Keep your assets reliable and working.
- Provide you the knowledge and expertise required to solve complex problems quickly.
- Service to prevent unplanned downtime and keep you running safely.

Mikron® blackbody calibration sources have long been the gold standard to calibrate the instruments that keep your operations up and running.

Our blackbody calibration support services are designed to keep your blackbody calibration sources performing with minimal downtime for the long-term.



Mikron Blackbody On-site Calibration

for models M300, M305, M330, M335, M360, M390



Advanced Energy can schedule to have an experienced and dedicated Field Service Engineer come out to your site to perform the field commissioning and inspection. This includes troubleshooting and verification of calibration of various Mikron Blackbody Sources.

Introduction

This document provides an overview of our field calibration service for various models of Mikron Blackbody Sources.

As the calibration source for all your operational temperature instruments, keeping your blackbody calibration source in spec is vital to ensuring optimal performance, maintaining product quality, and avoiding costly shutdowns.

Our blackbody calibration service ensures there is accurate temperature read-out and that the blackbody unit adheres to original factory specifications.

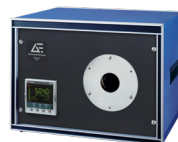
Blackbody calibration services are ideally suited for larger blackbody units where shipping is difficult such as the M300, M305, M330, M335, M360, and M390.

Advanced Energy field engineers will arrive on-site with to calibrate your blackbody source to a NIST traceable transfer standard. Upon completion of the service, a report will be provided for customer acceptance.

Models applicable for field calibration



M300



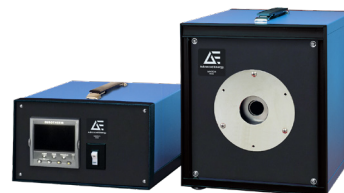
M305



M330



M335



M360



M390

Product Description

Blackbody calibration sources are infrared radiators with fixed or adjustable temperatures which are used for the calibration or verification of the correct temperature. Blackbodies are typically used to calibrate infrared thermometers (pyrometers), thermal imaging systems, heat flux measurement systems, or spectrographic analysis systems. Depending on the model of the calibration source, single temperature points or temperature curves of an infrared measurement device can be monitored and recorded. Advanced Energy supplies a unique selection of very precise calibration sources that are traceable to national standards. Mikron 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.

Do blackbody sources require periodic calibrations?

Yes, because thermocouples and RTD's drift over time. These devices are used to control the blackbodies (except for the M390, which has a control pyrometer). If these drifts are not corrected in a timely manner, they will transfer to your other devices and eventually your production line where it may affect product quality.

Typical services performed on-site for these models:

- Calibration is checked against a NIST traceable transfer standard in the temperature range of customer interest or several points within the full range of the blackbody.
- Adjustment of the temperature controller to bring the controller display back into factory specifications. If not possible due to some older controller models, a table of corrections will be provided.
- On-site training on how to get the most out of your blackbody source in terms of reducing your calibration uncertainties as much as possible by proper interpretation and use of error tables displayed in the calibration reports.

On-Site Radiometric Calibrations with Transfer Standard Pyrometers

Periodic checking of the standard calibration sources against the primary source is achieved through the use of a "transfer standard," which can be our M190, IS/IGA 12-TSP or IS/IGA 8 Pro series pyrometers that have calibrations with NIST traceability.



Calibration time

Typical calibration times required for various models depend upon the scope of work needed to avoid repetition

M390, M330, M335

1 day is typical for calibration only.
2 days are typical if detailed repair work is required.

M300, M305, M360

2-4 days are typical due to slower response time of these models and repair work that may be required.



Summary

On-site calibration reduces the risk of blackbody damage due to shipping while providing traceable calibration with minimal down time. Regularly scheduled calibrations protect your devices and production line from long-term temperature measurement drift.



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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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