

BBS500-EX12

HIGH-TEMPERATURE LARGE 12" EXTENDED AREA BLACKBODY CALIBRATION RADIANCE SOURCE



Compact, Highly Accurate Infrared Radiator for Calibrating Thermal Imaging Cameras, FLIR Detectors, and Similar Devices

OVERVIEW

The high-temperature model BBS500-EX12 provides the gold standard for infrared sensing calibration. The BBS500-EX12 has a flat plate emitter surface with special high emissivity coating to provide 0.97 (± 0.01) average emissivity. The extended source provides a large target with highly uniform radiant intensity for applications where a cavity blackbody's aperture is too small.

The high-temperature BBS500-EX12 is essential for applications requiring a large IR emission field of view, enhanced emissivity, and temperature uniformity. The BBS500-EX12 is used for on-site or laboratory calibrations for a variety of infrared sensing systems and thermal imaging cameras.

APPLICATIONS

- Target acquisition, tracking, night vision, and IR weapon systems.
- Heat-seeker missile and remote reconnaissance field calibration for target simulation.
- IR radiance emission calibration of spectrophotometers, spectroradiometers, FLIRs, thermal imaging cameras, radiometers and heat flux meters.
- Thermal imager and non-contact infrared sensor and airborne imaging system calibration for space exploration.
- Research and development application requirements.
- Laser systems, thermal monitoring, process inspection and for quality control.

INDUSTRIES

- Defense and surveillance
- Military and subcontractors to the military
- Electro-optical calibration laboratories and collimator test stations
- Aerospace
- Calibration standards laboratories and universities
- Industrial



BBS500-EX12 FEATURES

- Temperature range: Ambient to 500°C (932°F)
- Temperature uniformity: Includes a high thermally conductive emitter plate to ensure uniform temperature distribution across the emitter surface
- High emissivity: 0.97 (± 0.01) and 0.1°C (± 0.2) stability, which is crucial for accurate spatial radiation measurement
- Large IR emitting surface area: aperture size 304 mm x 304 mm (12 in x 12 in)
- Traceability: Provides temperature certificates traceable to calibration standards laboratories (e.g., NIST)
- Optional rack mount for stationary equipment rack
- Compact portable design
- One year warranty

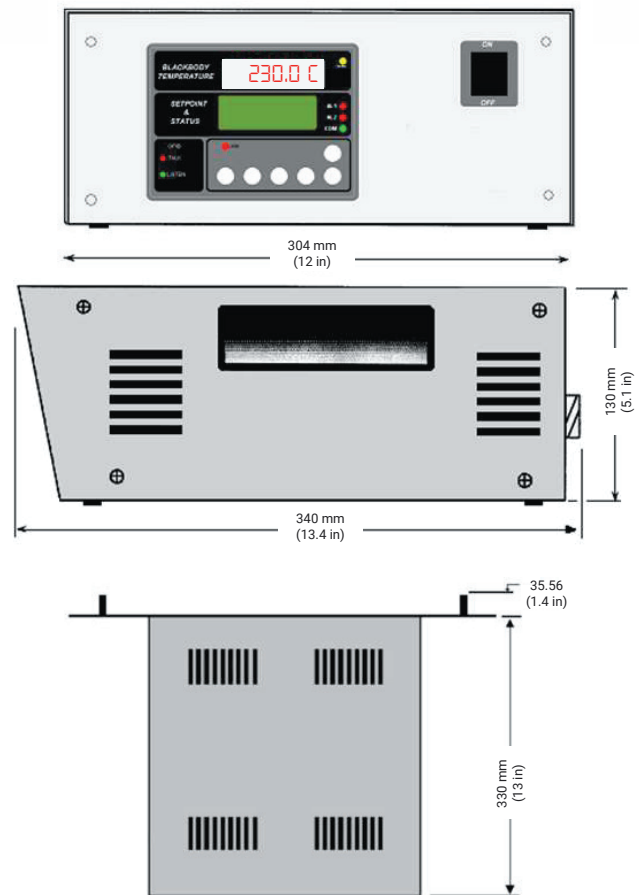
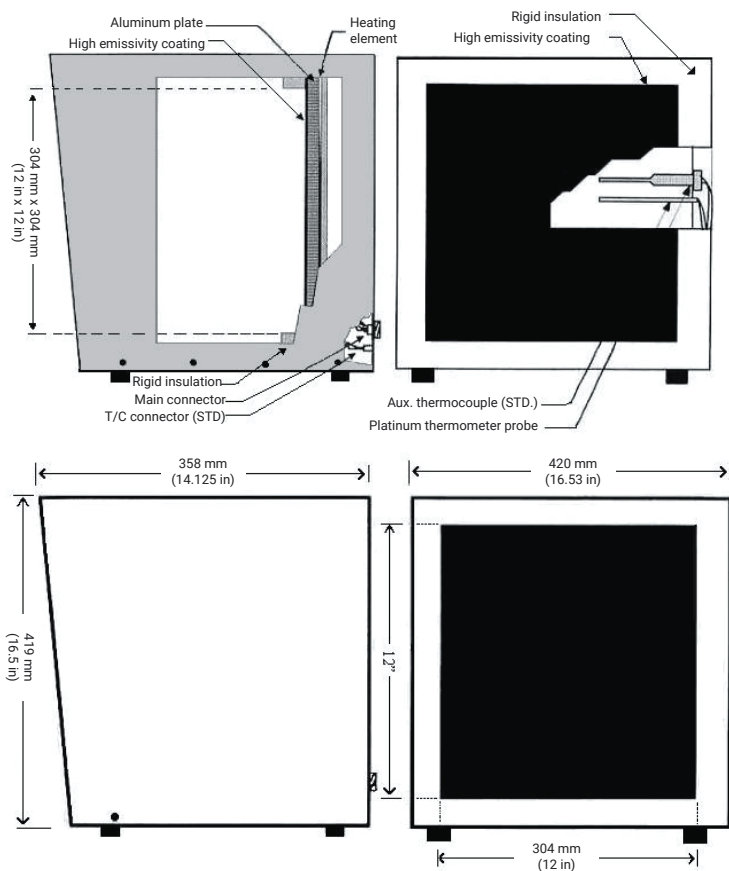


PRECISION OPERATION

The Process Sensors IR model BBS500-EX12 blackbody is used with collimators and signal simulators to measure parameters like resolution (MTF, MRTD), sensitivity, noise, linearity, and alignment for defense, aerospace, and industrial applications. It involves precise calibration and automated testing of thermal imaging cameras, IR sensors, and laser systems to ensure they function correctly in various conditions.

TESTS MADE WITH BLACKBODY CALIBRATION RADIANCE SOURCES

- **Image Quality:** Modulation Transfer Function (MTF), Minimum Resolvable Temperature Difference (MRTD).
- **Performance Metrics:** Signal-to-Noise Ratio (SNR), Dark Noise, Quantum Efficiency.
- **Calibration:** Non-uniformity, (NUC) linearity, dynamic range.
- **Spatial:** Field of View (FOV).



Optional rack mount

EASY TO USE

The BBS500-EX12 is easy to operate. Simply adjust the Blackbody Source set point temperature on the temperature controller and aim the IR sensing device at specified distance to the center of Blackbody IR emitting surface. Check, verify and calibrate as necessary.

The BBS500-EX12 is a semi-portable infrared calibrator, particularly suited for calibration of thermal imaging cameras and FLIR detectors. The blackbody calibration source offers a large diameter aperture, enabling a wide range of infrared instrumentation to be tested/calibrated.

As a secondary temperature verification, there is a hole located directly behind the IR emitting surface so that a thermometric measurement can be made with a contact RTD probe.

ORDERING INFORMATION

Part Number	Description
BBS500-EX12	PSC Model BBS500-EX12 Large Extended Area Blackbody Calibration Radiance Source

SPECIFICATIONS

Temperature Range	Ambient to 500°C (932°F)
Emittance Watts/cm ² (Watts)	2.02 (1876)
Wavelength Range	1 to 99 µm
Emissivity	0.97 ± 0.01
Emitter Size/Aperture	304 mm x 304 mm (12 in x 12 in)
Source Type	Extended area
Temperature Resolution	0.1°C
Calibration Accuracy	± 0.2°C to NIST Standard
Stability: Short/Long Term	± 0.1°C / ± 0.2°C
Response Time	Ambient to Max. Temperature < 50 Minutes
Temperature Sensors	Platinum RTD & Type T
Control Type	Active Multi-Band P.I.D.
Line Voltage	208-240 VAC 50-60 Hz
Power Requirements	4500 Watts Max
Cable Length	2.4 m (8 ft)
Source Dimensions	432 mm H x 432 mm D x 432 mm W (17 in H x 17 in D x 17 in W)
Controller	130 mm H x 240 mm D x 304 mm W (5.1 in H x 13.4 in D x 12 in W)
Warranty	1 year
Remote Interface	RS-232 or IEEE-488/GPB
Weight Emitter	27.2 kg (60 lbs)
Weight Controller	4.1 kg (9 lbs); optional rack mount 4.5 kg (10 lbs)