

# Model 5000 FEL Lamp Source System



The 5000 FEL 1000-Watt tungsten-halogen Lamp Source System provides absolute calibration of spectral irradiance from 250 to 2500 nm. The system can be configured simply as a lamp (bearing the ANSI designation of FEL & calibrated to the 2000 NIST irradiance scale), or to include accessories such as a lamp holder, alignment jig, lamp housing, power supply and shunt box.

Lamp calibration is directly traceable to NIST, employing the 2000 NIST scale from 250 to 2400nm. Uncertainty is better than  $\pm$  1% over most of its spectral range.

The precise techniques of transfer calibration at Gamma Scientific result in estimated accuracies of 1.94% at 250nm, 0.8% from 450 to 1600 nm and 2% from 1700 to 2400nm. Minimum degradation of accuracy occurs as a result of our transfer calibration process.

## **Features**

- Quartz halogen, ANSI type FEL, 1000 Watt lamp
- Spectral range from 250 to 2500 nm
- Operating current ranging from 1.0 to 8.3 A
- 193 tabulated spectral irradiance points, consisting of 34 direct transfer and 159 derived points
- Available in both calibrated and uncalibrated configurations
- ISO/IEC 17025 accreditation by NVLAP (NVLAP lab code 200823-0)

Accuracy Values		Typical Irradiance Values	
Spectral Irradiance Uncertainty (NIST standards – see Tech note 262)	± 1.94% at 250 nm ± 0.8% from 450 – 1600 nm ± 2% from 1600 – 2400 nm ± 5.0% at 2500 nm ± 3%	250 nm	1.55E-08 W/cm <sup>2</sup> - nm
		350 nm	7.44E-07 W/cm <sup>2</sup> - nm
		555 nm	1.05E-05 W/cm <sup>2</sup> - nm
Illuminance and Luminous Intensity		1100 nm	2.09E-05 W/cm <sup>2</sup> - nm
Chromaticity Coordinates	± 0.2%	1700 nm	1.09E-05 W/cm <sup>2</sup> - nm
Correlated Color Temperature (CCT)	± 5° K	2500 nm	4.17E-06 W/cm <sup>2</sup> - nm

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#### Model 5000-17 Lamp Alignment Jig

- Allows precise alignment of lamp to optical axis of instrument to be calibrated
- Rod-mounted plane glass with Intersection scribe marks at  $\pm$  0.0005-in with respect to base
- Laser-aligned to 5000-18 lamp holder for better than 0.3% repeatability in optical axis alignment

#### Model 5000-18 Lamp Holder

- Per original NIST design (Tech Note 594-2), a true 4-wire Kelvin socket
- Kinematic mount permits precision positioning of lamp standard when used with the 5000-17 lamp alignment jig
- Once aligned, lamps can be readily interchanged with high accuracy
- Baseplate allows for easy integration into the 5000-6 lamp housing



### Model 5000-6 Lamp Housing

- Compact and portable
- Shields users from collateral light
- Eliminates stray light from ambient reflections
- Proprietary thermal exhaust design and integrated fans maintain constant lamp temperature
- Integrated elapsed timer for tracking of lamp usage



#### Model 5000-2C 2000W DC Single Output Power Supply

Line Regulation	0.05%	
Output Current	0 to 18A	
Output Voltage	0 to 120 V	
Programming Accuracy	120 mV, 12 mA	
Noise from 20 Hz to 20MHz	1.9 mV rms, 16 mV peak-to-peak, 12 mA rms	
Long-term Accuracy	0.05% per 8 hours 0.1% per 1000 hours	
Dimensions	426 mm x 133 mm x 640 mm 28.2 kg	
Other Features	Failsafe circuit, circuit breaker	

**Also available:** Model 5000-6B Precision Shunt – featuring high precision dual-monitoring of lamp current, 6.5-digit meter for current monitoring and NIST traceable calibration.

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Specifications are subject to change without notice.

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