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SpectralLED® RS-7-1 Benchtop Uniform Light Source



For the ultimate in resolution and accuracy, the SpectralLED® Tunable VIS source incorporates 35 discrete wavelengths for synthesis of commercially available light sources or based on spectra that you import.

The platform is easily adaptable for automated test systems and production line integration, with integrated optical feedback and temperature control to ensure rock-solid stability and consistent results.

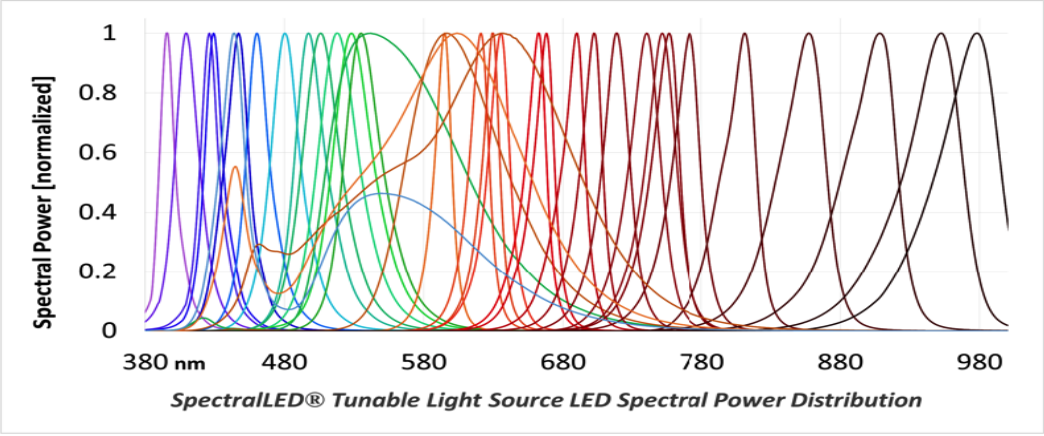
Unprecedented Resolution and Accuracy
For Camera & Image Sensor Calibration

Key Features

- Constant current drivers & built-in optical feedback
- Accurate & flicker-free output in real time
- All solid-state design for rapid start-up, repeatable performance
- ISO/IEC 17025 Accredited by NVLAP (NVLAP lab code 200823-0) for Calibration Accuracy

Application Areas

- Camera and image sensor calibration
- Photodiode detector responsivity characterization
- Spectrum / illuminant simulation
- Diagnostic medical imaging
- Technical and industrial photography



SpectralLED® Tunable Light Source LED Spectral Power Distribution

SpectralLED® RS-7-1 Benchtop Uniform Light Source

GAMMA SCIENTIFIC

Measurement Applications

- White Balance
- Quantum Efficiency
- Spatial Non-uniformity
- Pixel Defects
- Crosstalk
- Vignetting Correction
- Sensitivity
- Responsivity
- Signal to noise
- Linearity
- ISO Speed
- Saturation Exposure
- Dynamic range

Gamma Scientific is ISO/IEC 17025 accredited by NVLAP (NVLAP lab code 200823-0) and performs LM-79 / LM-80 LED testing.

RS-7-1 Optical Specifications		
Spectral Range	380 nm to 1,000 nm (Custom ranges available on request)	
Spectral Output	32 discrete LED channels, 3 broadband LED channels Visible resolution ~ 15nm, NIR resolution ~ 50 nm (typical channel spacing)	
Spectral Bandwidth	Typical VIS of 20nm and NIR of 50nm FWHM	
Source Geometry	75mm dia, Lambertian radiant source (see RS-7-2 models for exit ports up to 600 mm dia)	
Spatial Uniformity	≥ 97% over 8° field of view	
Radiance Range	Typical maximum of 15,000 µW / cm² / sr	Typical minimum of 15 µW / cm² / sr
Luminance Range	Typical maximum of 30,000 cd / m² (spectrum dependent) Typical minimum of 30 cd / m² (0.03 cd/m² with ND filter option)	
CCT Range	1,900K to 40,000K	
Preset Spectra	CIE illuminants A, B, C, D50, D55, D65, D75, E, F1-F12, Macbeth™ / X-Rite ™ patches	
Accuracy Specifications		
Illumination Stability	≥ 99.99% after 50 ms for radiance or after 2,000 ms for spectrum	
Illumination Accuracy	± 1% Absolute, NIST traceable	
Spectral Accuracy	± 1 nm centroid wavelength	
Color Accuracy	CIE 1931 x,y ± 0.003	
Linearity	< 0.1 % RMS of full scale	
Temperature Stability	Within ± 1° C via active TEC	
Long-term Drift	Output ≤ 2% Spectral ≤ 1 nm (typical, channel dependent)	
Electrical Specifications		
Electrical Resolution	16 bit DAC for channel current drivers 24 bit ADC for internal radiance monitor feedback	
Dynamic Range Adjustment	4-5 decades typical (spectrum dependent)	
LED Control	Pure DC constant current with floating differential sensing	
General Specifications		
Software	Firmware includes full spectral calibration with spectral fitting, preset storage, real-time optical feedback, radiometric units supported	
Interface Connectors	USB 2.0 type B and DB-9	
Interface Protocol	Simple ASCII commands with optional binary block transfer	
Supported Operating Systems	USB drivers for Windows, OSX and Linux via FTDI virtual COM port Legacy RS-232 serial port for integration (no OS required)	
Input Voltage & Power	110 to 240 VAC at 50-60Hz, 600W maximum	
Dimensions (H x W x L)	405mm (16 in) x 460mm (18.1in) x 305mm (12in). Weight 17.5 kg (38.6 lbs)	
Operating Temperature	Minimum: 0°C (32°F)	Maximum: 35°C (95°F)
Operating Humidity	Minimum: 20%	Maximum: 80%
Optional Upgrades		
RS-7 Wavemon™	Multi-channel photodiode system with amplitude feedback and real-time λ measurements	
RS-7-IRIS	Integrated IRIS w/ stepper motor control & additional API commands for easy adjustment	

Specifications are subject to change without notice.

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Rev. 11.01.21

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