

SpectralLED® RS-7-940 Benchtop Uniform Light Source



For the ultimate in resolution and accuracy, the SpectralLED® 940-SWIR source incorporates 16 discrete LED devices, all with a center wavelength of 940 nm. The output is directly coupled into a 38mm diameter homogenizing rod, with a length of 190 mm, having a diffuser optically bonded to the output surface.

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.

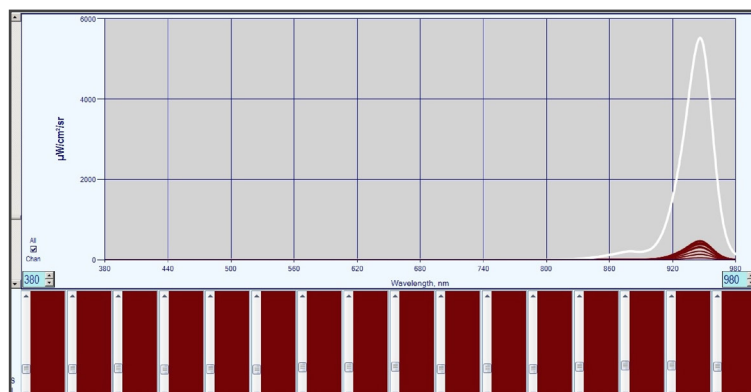
High Resolution and Accuracy for Facial Recognition System Test and Calibration

Key Features

- Constant Current Drivers and Built-in Optical Feedback
- Accurate and 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
- Facial Recognition System Test and Calibration
- Spectrum/Illuminant Simulation
- Diagnostic Imaging



RS-7 Family - 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.

Optical Specifications

Spectral Range	940 ± 10 nm (Custom ranges available on request)
Spectral Output	16 discrete LED channels
Spectral Bandwidth	Typical 50nm FWHM
Source Geometry	38mm diameter homogenizing rod, with a length of 190 mm, having a diffuser optically bonded to the output surface.
Spatial Uniformity	≥ 97%
Calibration	Irradiance (μW / cm ²) at the plane of the diffuser output surface

Accuracy Specifications

Illumination Stability	≥ 99.99% after 50 ms
Illumination Accuracy	± 1% Absolute, NIST traceable
Spectral Accuracy	± 1 nm centroid wavelength
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)

Optional Upgrades

RS-7 Wavemon	Multi-channel photodiode system provides amplitude feedback and real-time wavelength measurements
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The RS-7 SpectralLED® family of products includes tunable light sources from 380 to 1700nm. Specifications are subject to change without notice.