RedBullet™ NIR Spectrometer

A compact, high-performance NIR spectrometer for portable, OEM, and embedded integration

The RedBullet™ spectrometer delivers high-performance near-infrared spectral analysis using InGaAs array sensors in an ultra-compact optical platform. Its concave mirror Czerny–Turner design provides strong sensitivity, low stray light, and reliable performance while maintaining low power consumption. Designed for fast acquisition and seamless integration, the RedBullet supports portable, OEM, and embedded analytical applications.

APPLICATIONS

- NIR spectroscopy and optical metrology
- Food, pharmaceutical, and polymer analysis
- Agricultural, textile, and material sensing
- Portable and handheld analytical instruments
- Process and quality control monitoring
- OEM and embedded system integration

KEY PERFORMANCE

Wavelength Range: 900-1700 nm

Optical Resolution: <15 nm (RB4524), <12 nm (RB4564)

Signal-to-Noise Ratio: up to 6700 (model/gain dependent)

Dynamic Range: up to 9500 (model/gain dependent)

Integration Time: 6 µs – 24 s

Stray Light: <0.2%

Interface: USB 2.0, programmable digital I/O

RedBullet™ Specifications

		RB4524	RB4564
Wavelength Range		900 nm – 1700 nm	
Sensor Type		InGaAs (uncooled)	
Pixels		128	256
SNR	**High Gain**	2500	3000
	Low Gain	6500	6700
Dynamic Range	**High Gain**	6500	7300
	Low Gain	8200	9300
Stray Light		<0.15%	
Dark Noise (avg)	**High Gain**	10	9
	Low Gain	8	7
A/D Converter		16 - bits	
Integration Time		6 µs – 24 s	
Operating Temperature		0°C to +50°C	
Grating		Various grating options	
Dimensions / Weight		50 (L) × 36.4 (W) × 28.4 (H) mm 60g	