

thinkforward

Designed specifically for process control environments, the **SENTINEL®** combines accuracy, precision and stability into a compact, rugged and a cost efficient system.



SENTINEL

- Sure_Cal® Automated Calibration
- High sensitivity
- Rugged design
- 532 or 785 nm excitation
- Low cost of ownership
- Process ready
- Redundant laser

SENTINEL® is a Raman spectrometer developed for process control and automated lab applications. The system utilizes an On-Axis spectrograph, optimized for Raman spectroscopy and one standard grating covering the most widely used Raman signature range. The patent pending slit curvature correction technique for aberration free imaging, low noise CCD and innovative technology in signal processing result in excellent signal to noise ratio and maximum performance.

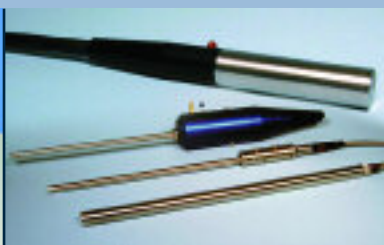
The instrument has no moving parts, being free from mechanical wear it requires low maintenance. The integrated diode laser provides 532 nm or 785 nm with various power levels available. The system comes equipped

with a Class 3 light-tight safety enclosure with interlocks in 19" rack configuration. The *SENTINEL®* is compatible for a choice of laboratory, siteglass and process immersion probes, allowing real time process monitoring from a remote location.

The *SENTINEL®* utilizes *Sure_Cal®* calibration technology, a method for achieving a standard Raman spectrum that has both short and long term precision and accuracy. The *Sure_Cal®* technology allows for the collection of the standard spectrum independent of any instrument instabilities. The Raman spectrum of the sample, the excitation laser spectrum, and the calibration neon spectrum are all collected simultaneously.



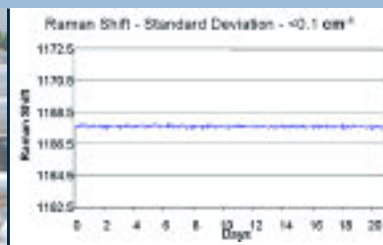
SENTINEL® is a high sensitivity system, built on a f/2 sampling platform with no moving parts



Customized fiber optic probes for site-glass window or immersion sampling



SENTINEL® is designed to easily fit into standard 19 inch racks and enclosures.



SENTINEL® has an excellent long and short term precision performance

SENTINEL®

Standard Features and Specifications

Calibration	<i>Sure_Cal</i> ® (*) Realtime Frequency and Intensity Calibration
Spectral Range	785 nm: 100 - 3200 cm ⁻¹ , 532 nm: 100 - 4500 cm ⁻¹ <i>SENTINEL</i> ® can be configured within these spectral range limits. The standard system is configured with a 200 cm ⁻¹ spectral range lower limit.
Stability	Frequency < 0.1 cm ⁻¹ RMS, Intensity < 2%
Excitation	785 nm and 532 nm laser
Detector	CCD TE cooled, < 0.1 e-/pixelsec
Enclosure	Rack mount or table top Class IIIb light tight safety enclosure with interlocks
Dimensions	Weight: 30 lbs (13.6 kg)base configuration. Size (LxWxH): 20.5" x 17.5" x 10.4" [~ 52 cm x 45 cm x 26 cm]
Power	110/230V, 250W
Spectroscopy Software	OPUS™: easy-to-use, fully GMP, GLP and 21 CFR Part 11 compliant

Options

- Unilab laboratory probe
- Process probes and enclosures
- Redundant backup lasers
- Multi-channel upgrade
(available for 300mW and 500mW systems)
- HTS-XT High throughput screening accessory
- AFR (Automatic Fluorescence Removal) by SERDS™ (**)
(Available for 9500110)
- Power conditioner/UPS.

Part Number	Wavelength	Laser Power	Range	Resolution	Fiber Optic Ports	Redundant Laser	Sequential Multiplexer
95000110	785 nm	100 mW	2100 cm ⁻¹	5 cm ⁻¹	1 channel standard	-	-
95000120	785 nm	300 mW	2100 cm ⁻¹	5 cm ⁻¹	1 channel standard Optional 2 channels	Optional	Optional
95000130	785 nm	500 mW	2100 cm ⁻¹	5 cm ⁻¹	1 channel standard Optional 4 channels	Optional	Optional
95000140	785 nm	500 mW	2100 cm ⁻¹	3 cm ⁻¹	1 channel standard	-	-
95000150	785 nm	500 mW	3100 cm ⁻¹	5 cm ⁻¹	1 channel standard Optional 4 channels	Optional	Optional
95000160	532 nm	50 mW	2600 cm ⁻¹	6 cm ⁻¹	1 channel standard	-	-

For more information contact us:

* *Sure_Cal* Patent # 6,141,095 | ** AFR-SERDS Patent # 6,281,971B1



North America
+1 978 439 9899
info@brukeroptics.com

Europe
+49 7243 504 600
info@brukeroptics.de

Asia
+852 2796 6100
asiapacific@brukeroptics.com.hk