All-In-One System

SIERRA™

Raman Spectrometer with Ultra-narrow SureLock™ Laser

Attalon's SIERRA™ Raman Spectrometer with Surelock™ laser is engineered to be ultra-compact, durable, and easy to use, making it an ideal choice for any Raman spectroscopy applications. Featuring the Attalon SureLock™ Laser, it ensures steady, high-power, and spectrum-narrowed performance while maintaining low power consumption. Our SureLock™ lasers provide precise, ultra-stable centre wavelengths with narrow spectral bandwidth. This stability is maintained across the full power range, from 0% to 100%, ensuring consistent spectral performance, making these lasers highly reliable for demanding applications. Attalon's SIERRA™ extends the range of traditional Raman spectroscopy into the THz/low-frequency domain, revealing the same range of energy transitions as terahertz spectroscopy without limiting the ability to measure the Raman "Chemical Fingerprint" region. Patented ultra-narrowband notch and ASE clean-up filters, combined with built-in thermal compensation and a wide range of sample accessories, deliver robust, stable performance for virtually any application.

SIERRA™ comes equipped with easy-to-adjust local manual controls, a standard FC/PC connectorized fiber output, and a user-friendly touchscreen interface. Designed for both laboratory and OEM use, SIERRA™ delivers exceptional temperature insensitivity, making it perfect for Raman spectroscopy applications where stability and reliability are crucial.

FEATURES

- Analysis without sample preparation, delivering Raman spectral results in real time
- Easy setup and deployment by non-spectroscopists
- Non-destructive workflows to protect precious samples
- Non-invasive handling to minimize contamination of samples
- Small footprint for convenient deployment
- Factory calibration for hardware stability and portability

APPLICATIONS

- Raman Spectroscopy
- Metrology
- Bioinstrumentation
- Sensing
- Analytical Instrumentation

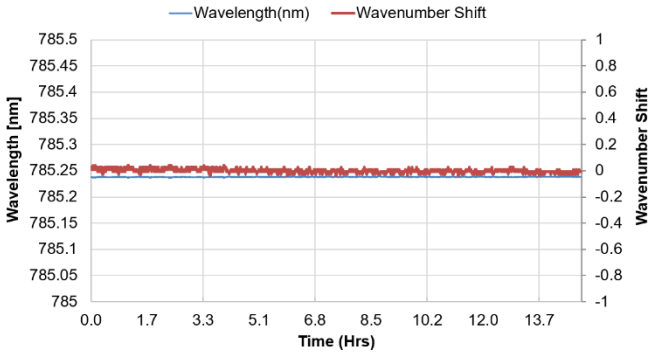
Attalon

Performance	
Excitation Wavelength	785 nm
Excitation Power	100–450 mW
Detector Type	Thermally stabilized CCD (1-stage TEC)
Spectral Range	-150 to +3,250 cm^{-1}
Resolution	6.5 cm^{-1} average across spectral range
RMS Dark Noise	≤16.5 counts at 10 sec integration
Physical Properties	
Dimensions (W x H x D)	190 x180 x 152 mm
Weight	Main Unit ~7.6 lbs (~3.4 kg)
Fiber Conditions	FC/PC (excitation) and SMA (collection)
Probe	Fiber Probe Sampling Optic – TR-PROBE or N-RAM
Mounting Options	Stackable
Operating Temperature Range	15°C to 30°C
Operating Humidity Range	10% - 85%, non-condensing
Product Safety	
Safety Features	Keyed laser interlock switch, electronic laser trigger
Laser Certification	Class 3B laser device, Reported to the FDA
Electrical Properties	
Input Voltage	90–264 VAC, 50–60 Hz
Operating Voltage	12 VDC, 2 A
Onboarding Control System	
Software	Attalon Proprietary Software (YETI and OSX)

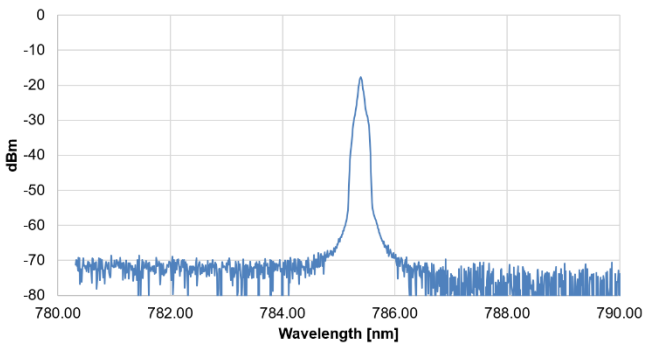
All specifications are at rated power with a case temperature of 25°C unless otherwise noted. Wavelengths specified are vacuum referenced. Ex: 632.991nm vacuum referenced is equivalent to 632.816nm standard air referenced for HeNe

Typical Laser Performance

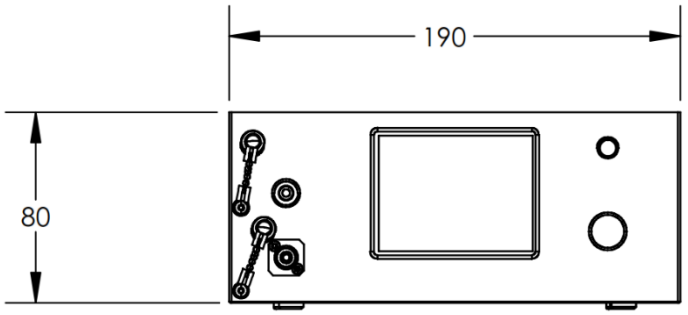
Wavelength Stability (Typical example)

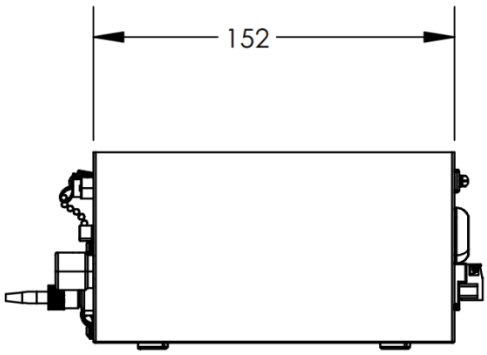


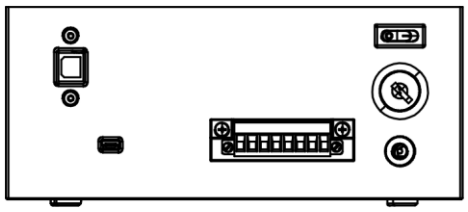
Optical Spectrum (Typical example)



Outline Drawing (all dimensions in mm)







Pin	Description
1	Digital M+
2	Signal GND
3	Analog M+
4	N/C
5	5-12V DC
6	DC GND
7	Interlock
8	Interlock

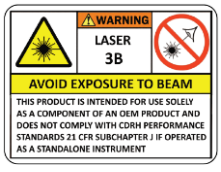
Optional Accessories
118-90000-414; FC/UPC to FC/UPC Connectors, 105um 0.22NA Fiber, Step Index, 3mm OD SS Jacket, 3 Meters Long
118-90000-415; FC/UPC to SMA905 Connectors, 105um 0.22NA Fiber, Step Index, 3mm OD SS Jacket, 3 Meters Long
118-90000-350; E2000-UPC to FC/PC, 105um 0.22NA Fiber, Step Index, 3mm OD SS Jacket, 3 Meters Long

Warnings:

Fiber Tip Cleanliness: Inspect and clean all fibre tips before mate. Dirty or contaminated fibre tips could cause permanent damage to fibre connector. Cover all fibre tips when not in use. Damage to fibre connector is not covered by warranty.

Laser Eye Safety: Use protective eyewear and follow local regulatory requirements for use of laser diodes.

Environmental Conditions: Units are intended for use in laboratory environments with reasonable airflow for thermal dissipation. Allow reasonable clearance around the unit for air flow.



Remote Control Limitations: Values entered via USB are not limit or type checked. Improper use may result in permanent damage to the laser diode.