Burleigh DA-100

Detector Amplifier

$650.00

In Stock

Qty Available: 2

Used and in Excellent Condition

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Laser Spectrum Analyzer
SA^{Plus} Series

Most precise laser spectral analysis available

- High spectral resolution with finesse greater than 300
- Choice of FSR for optimum performance with a variety of lasers
- Interchangeable mirrors for operation from 450 nm to 1.8 µm
- Programmable ramp generator to maximize measurement precision
- Automatic spectral analysis with optional Nuνiew software
- Optional fiber-optic coupling

The power of precision
in laser spectral analysis

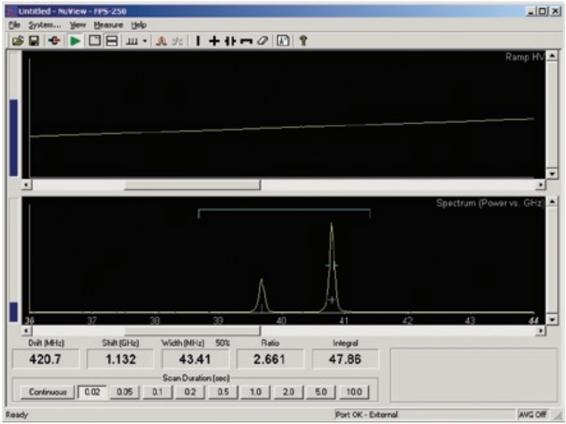
EXFO

High-Performance and Unparalleled Convenience

EXFO's SAPlus Laser Spectrum Analyzer combines high performance laser spectral characterization and user-friendly design for the utmost precision, ease of use and convenience. The SAPlus Laser Spectrum Analyzer is the best system available to measure the linewidth, longitudinal mode structure and frequency stability of narrow-band lasers.

Highest Finesse Available

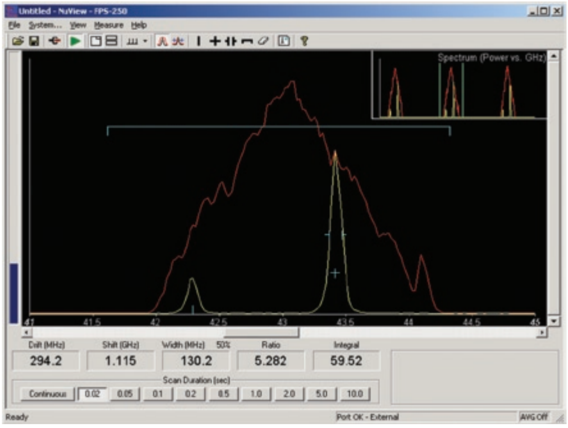
The SAPlus Laser Spectrum Analyzer employs a piezoelectrically scanned confocal mirror Fabry-Perot interferometer to provide the finesse necessary to achieve high-resolution measurements. For wavelengths greater than 1000 nm, the SAPlus is the only laser spectrum analyzer of its kind to guarantee a finesse of over 300. At shorter wavelengths, a finesse greater than 200 can be expected. The free spectral range of the SAPlus system can be configured for either 2 or 8 GHz, depending on the application. The system can be reconfigured to a different free spectral range by simply changing the mirror set.



NuView spectrum display shows the spectral characteristics of a HeNe laser.

Unique Interchangeable Mirrors

The SAPlus Laser Spectrum Analyzer easily adapts as research interests change or expand to different spectral regions. Its unique mirror sets are easily replaced for operation anywhere between 450 nm and 1.8 µm. The confocal mirrors are supplied in Invar cells. Mounting is easy and requires no special tools. A high reflectivity (nominally 99.7%) multi-layer dielectric coating is applied to the concave surface of the mirrors. Hard coatings are used to maintain peak performance over the long lifetime of the mirrors.



The storage feature is an effective method of measuring the frequency jitter of a laser.

Easy to Use

The most exacting customers want optimal performance and ease of use. The SAPlus Laser Spectrum Analyzer meets these standards with unique features that provide precise measurements with easy, straightforward adjustments. Accurate alignment is simple using a four-axis mount (X-Y-Θ-Φ) to position the interferometer's optical axis to the incoming laser beam. In addition, a convenient adjustment precisely sets the mirrors to their confocal separation, with the system completely assembled, so that finesse can be optimized by viewing the output signal. Features like these provide maximum performance within minutes, even after changing mirror sets.

Since 1972, EXFO Burleigh Products Group (formerly Burleigh Instruments) has pioneered and refined Fabry-Perot technology resulting in interferometers for the most demanding applications that require extremely high spectral resolving power.

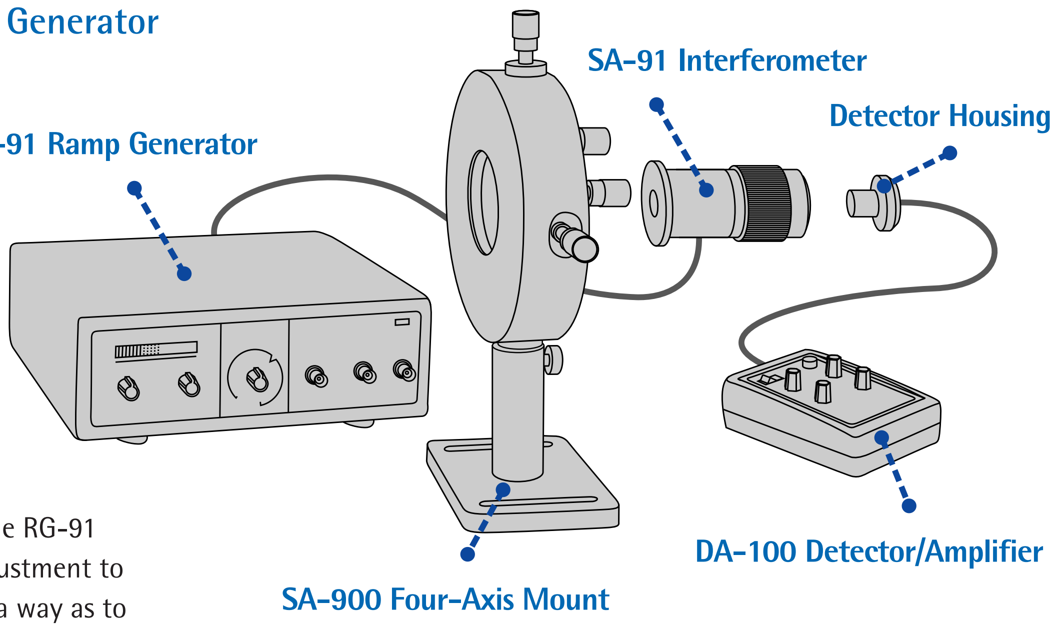
The Fabry-Perot interferometer is a simple device that relies on the interference of multiple beams. It consists of two partially transmitting mirrors that are precisely aligned to form a reflective cavity. Light enters the Fabry-Perot cavity and undergoes multiple reflections between the mirrors. If the frequency of the incident light is such that constructive interference occurs within the Fabry-Perot cavity, the light will be transmitted. Otherwise, destructive interference will not allow any light through the Fabry-Perot interferometer. The constructive interference condition for a confocal mirror Fabry-Perot interferometer is defined by the equation

$$nd = m\lambda/4$$

where **m** is an integer termed the order of interference, **n** is the refractive index of the medium between the two mirrors, and **d** is the mirror separation.

High Performance Ramp Generator

The RG-91 is a single-channel ramp generator that provides the voltage required to piezo-electrically scan the interferometer of the SA Plus Laser Spectrum Analyzer. This system provides convenient controls to adjust the range, zero offset and rate of the ramp voltage. In addition, the RG-91 Ramp Generator includes an adjustment to shape the ramp voltage in such a way as to correct for the inherent non-linear motion of the piezoelectric transducer. An external input also can be accepted for custom control of the interferometer in special applications.



High Sensitivity Detector/Amplifier

The DA-100 Detector/Amplifier detects the laser light transmitted through the interferometer of the SA Plus system, and then amplifies the signal for display. The photodetector is interchangeable for operation with the visible to the infrared wavelength ranges. Its superior low noise performance detects signals as low as 1 nW in order to minimize the laser intensity required for laser spectral analysis. Convenient packaging and self-explanatory controls result in straightforward operation.

SA Plus Laser Spectrum Analyzer Accessories

- FPS-250 NuView Laser Spectral Analysis Software
- SA-610 Fiber-Optic Coupler
- BC-1 Input Beam Coupler
- PC-F-1300 Fiber Patchcord
- SA-550 Beamsplitter

Specifications

SA^{Plus} Interferometer

Cavity design	Confocal mirror geometry
Free Spectral Range (FSR)	2 GHz or 8 GHz
Finesse	> 200 (for λ < 1000 nm) or > 300 (for λ ≥ 1000 nm)
Minimum resolvable bandwidth	FSR/Finesse
Wavelength range	Standard ranges from 450 nm to 1.8 µm
Mirror reflectivity	99.7% nominal
Transmission	> 10%
Input aperture	1 mm
PZT scan distance	1.2 µm/1000 V
PZT non-linearity	< 1%
Scan non-linearity	< 0.1% with electronic compensation provided by the RG-91 Ramp Generator
Construction	Thermally stable Invar

RG-91 Ramp Generator

Ramp voltage	
Amplitude	0 to 1000 V (continuously variable)
Bias	0 to 1000 V (continuously variable)
High voltage output	Amplitude + bias (1000 V maximum)
Current	4 mA maximum
RMS noise	< 30 mV
Duration	20 ms to 10 s (switch selectable)
Output slew rate	1 V/µs
Retrace	20 ms duration
External input	0 to 10 V (gain variable from 0 to 100)
Ramp non-linearity	≤ 0.25% (10 - 90%)
Output signals	
Blanking	0 V during ramp, -10 V during retrace
Output ÷ 100	0 to 10 V
Dimensions and weight	
Dimensions (H x W x D)	8.9 cm x 24.8 cm x 26.7 cm (3.5" x 9.75" x 10.5")
Weight	2.25 kg (5 lbs)
Power requirements	90 to 260 VAC, 50/60 Hz

How to Order

SA^{Plus} - ☐00 - ☐ System

Choose: Free Spectral Range
- 2: 2 GHz
- 8: 8 GHz

Choose: Wavelength Range
- 6: 450 - 550 nm
- 7: 550 - 650 nm
- 8: 650 - 750 nm
- 9: 750 - 890 nm
- 10: 850 - 990 nm
- 11: 980 - 1145 nm
- 12: 1150 - 1345 nm
- 13: 1300 - 1550 nm
- 14: 1425 - 1675 nm
- 15: 1550 - 1800 nm

SA-9 ☐ - ☐ Mirror Set

DA-100 Detector Amplifier

Bandwidth	0.3 to 100 kHz (0.3 to 20 kHz @ maximum gain)
Sensitivity	0.1 V/mW to 1 V/µW, continuously variable
Minimum detectable power	Silicon - 1 nW @ 633 nm, Germanium - 2 nW @1.5 µm
RMS noise	< 1 mV
Offset adjust	± 1 V
Output signal	0 to ± 6 V, 200 Ω impedance (polarity is invertible)
Dimensions and weight	
Dimensions (H x W x D)	5.7 cm x 8.9 cm x 15.2 cm (2.25" x 3.5" x 6.0")
Weight	0.45 kg (1 lb)
Power requirements	9 V battery

To discuss how the SA^{Plus} Series Laser Spectrum Analyzer will facilitate your laser spectral analysis, contact the experts at EXFO Burleigh Products Group: **1-585-924-9355** or **info@burleigh.com**

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