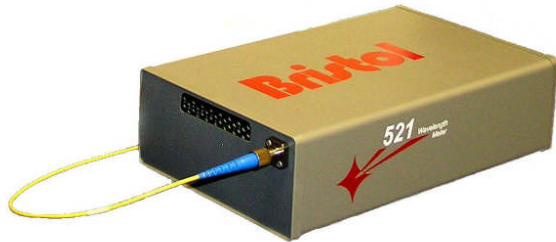




It's Our Business To Be Exact!

LASER WAVELENGTH METER 521 SERIES

A low-cost and compact alternative for laser wavelength measurement



The 521 Series Laser Wavelength Meter from Bristol Instruments is for scientists and engineers who need to know the absolute wavelength of their CW laser, but do not need to know it to the highest accuracy available. The model 521 is a unique instrument that couples accurate laser wavelength measurement and affordability in a compact system.

FEATURES

- Absolute wavelength measured to an accuracy of ± 10 parts per million
- Built-in reference for continuous calibration
- Operation from 400 nm to 1.7 μm
- Measurement rate of 10 Hz
- Input power requirement as low as 5 μW
- Convenient, pre-aligned fiber-optic input
- Easy to integrate into experiment for automatic wavelength reporting

PROVEN INTERFEROMETER TECHNOLOGY

The 521 Series Laser Wavelength Meter measures absolute wavelength of CW lasers to an accuracy of ± 10 parts per million (± 0.01 nm at 1000 nm). The model 521 uses Michelson interferometer-based technology that is similar to that used by the Bristol Instruments' 621 system, the most precise laser wavelength meter available. It differs only by using a Moiré scale as its built-in reference. This high-resolution scale provides the continuous calibration that is necessary to guarantee the accuracy of the wavelength measurement. For even greater confidence, the Moiré scale can be calibrated periodically using a simple procedure with any red HeNe laser input.

BROAD WAVELENGTH COVERAGE

Two versions of the model 521 are available to satisfy the needs of most experiments. The 521-VIS operates over the wavelength range of 400 to 1100 nm, and the 521-NIR has an operational wavelength range of 500 to 1700 nm.

STRAIGHTFORWARD OPERATION

The 521 Laser Wavelength Meter operates with a PC running under Windows Vista or XP. Wavelength is calculated and then transferred to the PC using a convenient USB interface. Software for a simple Windows-based display is provided to report data and to control measurement parameters. Units of wavelength (nm), wavenumber (cm^{-1}), as vacuum or standard air values, or frequency can be chosen. Every measurement can be displayed, or a running average can be calculated. In addition, wavelength can be collected and saved to a file using a *.csv format.

The laser under test enters the 521 system through a convenient, pre-aligned fiber-optic input connector to ensure optimum alignment and uncompromised accuracy. For free beam lasers, Bristol Instruments offers the LC-1 Fiber-Optic Input Coupler, a simple way to launch a laser beam into fiber.

INTEGRATES DIRECTLY INTO AN EXPERIMENT

Real-time wavelength measurement is achieved by integrating the model 521 directly into an experiment. Only a small portion of a laser needs to be diverted to the 521 system because as little as 5 μW is all the optical power that is required. Electronic gain control automatically adjusts for minor power fluctuations, which is especially useful when scanning a tunable laser. A measurement rate of 10 Hz results in virtually instantaneous wavelength information. Options for data transfer include a convenient library of commands for custom or LabVIEW programming.

SPECIFICATIONS

521-VIS

521-NIR

LASER TYPE	CW only	
WAVELENGTH		
Range	400 - 1100 nm	500 - 1700 nm
Absolute Accuracy	± 10 parts per million ± 0.005 nm @ 500 nm ± 0.2 cm ⁻¹ @ 20,000 cm ⁻¹ ± 6.0 GHz @ 600,000 GHz	± 10 parts per million ± 0.01 nm @ 1,000 nm ± 0.1 cm ⁻¹ @ 10,000 cm ⁻¹ ± 3.0 GHz @ 300,000 GHz
Repeatability (1)	± 2.5 parts per million	
Calibration	Continuous with built-in Moiré scale	
Display Resolution	6 digits	
Units	nm or cm ⁻¹ (vacuum or standard air), GHz	
OPTICAL INPUT SIGNAL		
Maximum Laser Bandwidth (2)	100 GHz 0.08 nm at 500 nm 3 cm ⁻¹	100 GHz 0.3 nm at 1000 nm 3 cm ⁻¹
Minimum Input (3)	10 µW at 400 nm 5 µW at 650 nm 30 µW at 1100 nm	65 µW at 500 nm 5 µW at 1100 nm 15 µW at 1700 nm
Maximum Input	10 mW	
MEASUREMENT RATE	10 Hz	
OPTICAL INPUT	Pre-aligned FC/PC connector (9 µm core diameter) - optional free beam-to-fiber coupler	
COMPUTER REQUIREMENTS	PC running Windows Vista or Windows XP with 1 GHz or higher microprocessor, at least 128 MB of available RAM, USB 1.1/2.0 port, VGA monitor, mouse or other pointing device	
INSTRUMENT INTERFACE	High-speed USB 2.0 interface with Windows-based display program Library of commands for custom and LabVIEW programming	
ENVIRONMENTAL		
Warm-Up Time	None	
Temperature	+15°C to +30°C (-10°C to +70°C storage)	
Pressure	500 - 900 mm Hg	
Humidity	≤ 90% R.H. at + 40°C (no condensation)	
DIMENSIONS AND WEIGHT		
Dimensions (H x W x D)	2.5" x 5.5" x 9.0" (64 mm x 140 mm x 229 mm)	
Weight	3.5 lbs (1.6 kg)	
POWER REQUIREMENTS		
Voltage and Frequency	90 to 260 VAC, 50/60 Hz	

- (1) Standard deviation for a 5 minute measurement period after the instrument has reached thermal equilibrium.
- (2) Bandwidth is FWHM. When bandwidth is greater, wavelength accuracy is reduced.
- (3) Sensitivity at other wavelengths can be determined from a graph that is available upon request.

CLASS 1 LASER PRODUCT
COMPLIES WITH
21 CFR 1040.10 AND 1040.11

Bristol Instruments reserves the right to change the detail specifications as may be required to permit improvements in the design of its products. Specifications are subject to change without notice.



Call: (585) 924-2620 for more information or visit our website at : www.bristol-inst.com

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