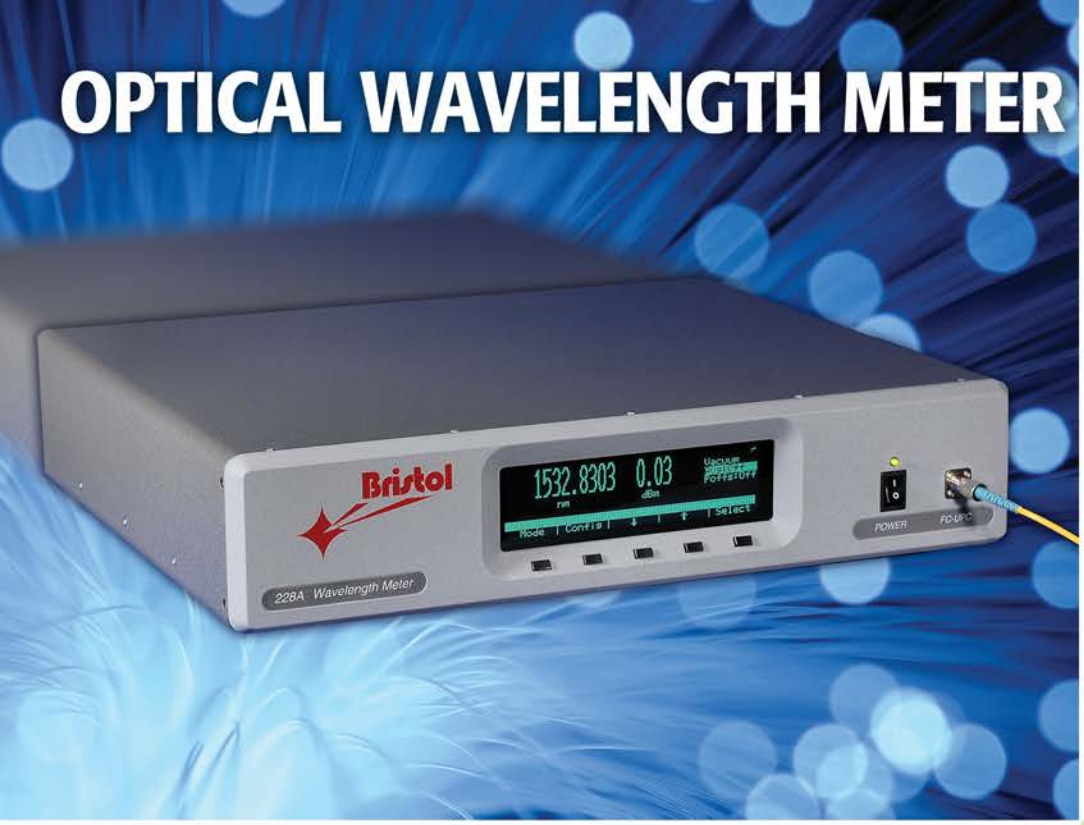
OPTICAL WAVELENGTH METER



228 Series

Reliable accuracy gives you greater confidence in your DWDM wavelength test results.

Bristol Instruments, a leader in wavelength measurement technology, offers a family of optical wavelength meters specifically designed for the precise characterization of DWDM lasers. The ***228 Series*** **Optical Wavelength Meter** combines high accuracy and exceptional repeatability to achieve the most meaningful test results. What's more, features such as short measurement time, straightforward operation, and rugged design satisfy the needs of both the R&D scientist and the manufacturing engineer.

Highest guaranteed wavelength accuracy

The 228 Optical Wavelength Meter uses a proven optical interferometer-based design to measure absolute wavelength of CW lasers to the highest accuracy available. Two versions are offered. The model 228A is the most accurate, measuring wavelength to an accuracy of ± 0.3 pm. For less exacting test requirements, the model 228B is a lower-priced alternative with a wavelength accuracy of ± 1.2 pm.

Continuous calibration and exceptional repeatability

The accuracy of the 228 Optical Wavelength Meter is maintained over long periods of time because it is continuously calibrated with a built-in HeNe laser wavelength standard. In order to achieve the highest accuracy, the model 228A uses a single-frequency HeNe laser that is stabilized using a precise balanced longitudinal mode technique. A standard HeNe laser is used as the wavelength reference in the model 228B. A unique Michelson interferometer design minimizes the variation between consecutive wavelength measurements resulting in a repeatability that supports a confidence level of 3-sigma. To verify this performance, every 228 system is rigorously tested with laser sources that are traceable to NIST standards.

Designed for productivity and convenience

The 228 Optical Wavelength Meter is the most efficient way to analyze the wavelength characteristics of DWDM lasers. A measurement cycle time of 0.1 seconds is the shortest available. The optical signal enters the 228 system through an FC (UPC or APC) fiber-optic connector on the front panel. The system's high sensitivity results in a minimum input requirement of only 1 µW. Automatic electronic gain control instantly adjusts the photodetector signal for optimum performance. The controls of the model 228 are user-friendly and conveniently located on the front panel along with the measurement display. The measured wavelength and power, maximum and minimum values, and total drift over time are reported in various formats. These results can also be sent to a PC using a standard USB or Ethernet interface, or an optional GPIB interface. Finally, the 228 system is packaged in a rugged chassis (bench top or rack-mounted) for use in typical laboratory or manufacturing environments.

FEATURES

- Absolute optical wavelength measured to an accuracy as high as ± 0.3 pm
- Continuous calibration with a built-in wavelength standard
- Measurement confidence level of 3σ
- Traceable to NIST standards
- Simultaneous measurement of total optical power
- Measurement time as short as 0.1 s
- Rugged design for manufacturing environments

Bristol Instruments

The Power of Precision

585-924-2620
www.bristol-inst.com
info@bristol-inst.com

SPECIFICATIONS

		228A	228B
OPTICAL SIGNAL		CW only	
WAVELENGTH			
	Range	1250 – 1650 nm (182 – 240 THz)	
	Absolute Accuracy [1]	± 0.2 parts per million (± 0.3 pm at 1550 nm)	± 0.75 parts per million (± 1.2 pm at 1550 nm)
	Repeatability [2]	± 0.1 part per million (± 0.15 pm at 1550 nm)	± 0.3 parts per million (± 0.5 pm at 1550 nm)
	Calibration	Continuous with built-in stabilized single-frequency HeNe laser	Continuous with built-in standard HeNe laser
	Display Resolution	0.00001 nm	0.0001 nm
	Units	nm or cm^{-1} (vacuum), THz	
POWER			
	Calibration Accuracy	± 0.5 dB, at ± 30 nm from 1310 and 1550 nm	
	Linearity [4]	± 0.3 dB (1250 – 1600 nm)	
	Polarization Dependence	± 0.5 dB (1250 – 1600 nm)	
	Display Resolution	0.01 dB	
	Units	dBm, mW, µW	
OPTICAL INPUT SIGNAL			
	Maximum Laser Bandwidth [3]	1 GHz (8 pm at 1550 nm)	10 GHz (80 pm at 1550 nm)
	Sensitivity	-30 dBm (1 µW)	
	Maximum Power Displayed level Safe level	+ 10 dBm (10 mW) + 18 dBm (63 mW)	
	Return Loss UPC connector APC connector	35 dB 50 dB	
MEASUREMENT TIME (RATE)		0.25 s (4 Hz)	0.1 s (10 Hz)
MEASUREMENT MODES		Wavelength and power Wavelength maximum, minimum, total drift over time Power maximum, minimum, total drift over time	
INPUTS/OUTPUTS			
	Optical Input	9/125 µm single-mode fiber (FC/UPC or FC/APC)	
	Instrument Interface	SCPI via USB 2.0, Ethernet, and optional GPIB (LabVIEW examples provided)	
ENVIRONMENTAL [4]			
	Warm-Up Time	< 15 minutes	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)	3.5" x 17.0" x 15.0" (89 mm x 432 mm x 381 mm)	
	Weight	17 lbs (7.65 kg)	
POWER REQUIREMENTS		90 - 264 VAC, 47 - 63 Hz, 80 VA max	

(1) Confidence level of 3σ (≥ 99.6%) and traceable to an NIST standard.
(2) For a 10 minute measurement period given at 3σ. Standard deviation is one-third of the value given.
(3) Bandwidth is FWHM. When bandwidth is greater, wavelength accuracy is reduced.
(4) Typical.

CLASS 1
LASER PRODUCT

CE