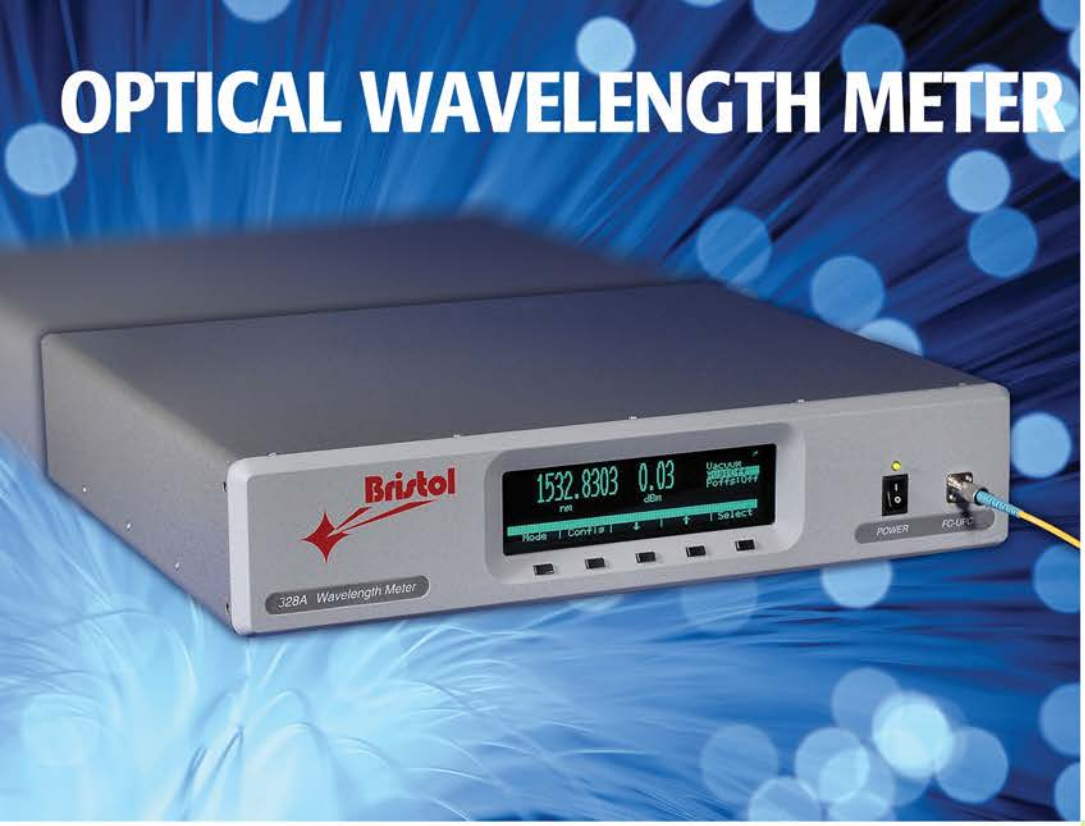
OPTICAL WAVELENGTH METER



328 Series

Reliable accuracy gives you greater confidence in your WDM 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 WDM lasers. The ***328 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 328 Optical Wavelength Meter combines proven Michelson interferometer-based technology with fast Fourier transform analysis. This results in the ability to measure the absolute wavelength of CW and modulated lasers to the highest accuracy available. Two versions are offered. The model 328A is the most accurate, measuring wavelength to an accuracy of ± 0.3 pm. For less exacting test requirements, the model 328B is a lower-priced alternative with a wavelength accuracy of ± 1.0 pm.

Continuous calibration and exceptional repeatability

The accuracy of the 328 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 328A 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 328B. 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 328 system is rigorously tested with laser sources that are traceable to NIST standards.

Designed for productivity and convenience

Operation of the 328 Optical Wavelength Meter is straightforward. The optical signal enters the 328 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 0.1 µW. Automatic electronic gain control instantly adjusts the photodetector signal for optimum performance. The controls of the model 328 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 328 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
- Operation with CW and modulated signals
- Rugged design for manufacturing environments

Bristol Instruments

The Power of Precision

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SPECIFICATIONS

		328A	328B
OPTICAL SIGNAL		CW and modulated	
WAVELENGTH			
	Range	1270 – 1650 nm (182 – 236 THz)	
	Absolute Accuracy [1]	± 0.2 parts per million (± 0.3 pm at 1550 nm) (± 0.3 pm at 1310 nm)	± 0.65 parts per million (± 1.0 pm at 1550 nm) (± 0.9 pm at 1310 nm)
	Repeatability [2]	± 0.1 part per million (± 0.15 pm at 1550 nm) (± 0.1 pm at 1310 nm)	± 0.3 parts per million (± 0.5 pm at 1550 nm) (± 0.4 pm at 1310 nm)
	Calibration	Continuous with built-in stabilized single-frequency HeNe laser	Continuous with built-in standard HeNe laser
	Display Resolution	0.0001 nm	
	Units [3]	nm, cm^{-1}, THz	
POWER			
	Calibration Accuracy	± 0.5 dB (± 30 nm from 1310 and 1550 nm)	
	Linearity [4]	± 0.3 dB (1270 – 1600 nm)	
	Polarization Dependence	± 0.5 dB (1270 – 1600 nm)	
	Display Resolution	0.01 dB	
	Units	dBm, mW, µW	
OPTICAL INPUT SIGNAL			
	Maximum Laser Bandwidth [5]	1 GHz (8 pm at 1550 nm)	10 GHz (80 pm at 1550 nm)
	Sensitivity	-40 dBm (1270 – 1600 nm), -30 dBm (1600 – 1650 nm)	
	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)	
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) Data in units of nm and cm^{-1} are given as vacuum values.
(4) Characteristic performance, but non-warranted.
(5) Bandwidth is FWHM. When bandwidth is greater, wavelength accuracy is reduced.

CE

CLASS 1
LASER PRODUCT

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.

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