Bristol Instruments

The Power of Precision in WDM Wavelength Testing

HIGH-SPEED OPTICAL WAVELENGTH METER 828 Series

The fastest wavelength measurement available for WDM testing applications.

Bristol Instruments, the leader in optical wavelength measurement instrumentation, offers an interferometer-based wavelength meter that is designed to revolutionize WDM testing applications. The 828 Optical Wavelength Meter employs a unique Fizeau etalon design that results in the ability to measure wavelength to an accuracy as high as ± 0.3 pm at an unmatched measurement rate of 1 kHz. This enables greater efficiency in the production of WDM components by reducing test times from hours to minutes. What's more, a time resolution of 1 ms results in the most detailed wavelength characterization of tunable lasers.

KEY FEATURES

- Wavelength measured to an accuracy as high as ± 0.3 pm.
- Automatic calibration with a built-in wavelength standard.
- Measurement confidence level of ≥ 99.7%.
- Traceable to NIST standard.
- Simultaneous measurement of optical power to ± 0.5 dB.
- High sensitivity of -40 dBm (0.1 µW).
- Operates with CW and modulated signals.
- Fastest measurement rate of 1 kHz for reduced testing times.
- Time resolution of 1 ms for the most detailed wavelength characterization.
- Convenient touch-screen display reports measurement data in a variety of formats.
- Interfacing via SCPI using USB, Ethernet, or GPIB.
- Data streaming available using RS-422 serial interface.
- Internal data storage for up to one million measurements.
- Rugged design for manufacturing environments.

It's Our Business to be Exact!

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SPECIFICATIONS — 828 Series

MODEL	828A	828B
OPTICAL SIGNAL	CW and modulated	
WAVELENGTH		
Range	1250 – 1650 nm (182 – 240 THz)	
Accuracy [1, 2]	± 0.2 parts per million (± 0.3 pm at 1550 nm)	± 0.65 parts per million (± 1 pm at 1550 nm)
Repeatability [3, 4]	± 0.02 parts per million (± 0.03 pm at 1550 nm)	± 0.07 parts per million (± 0.1 pm at 1550 nm)
Calibration [5]	Automatic with built-in wavelength standard	
Display Resolution	0.00001 nm	0.0001 nm
Units [6]	nm, cm^{-1}, THz	
POWER		
Calibration Accuracy	± 0.5 dB (± 30 nm from 1310 and 1550 nm)	
Linearity [4]	± 0.5 dB (1250 – 1600 nm)	
Polarization Dependence	± 0.5 dB (1250 – 1600 nm)	
Display Resolution	0.01 dB	
Units	dBm, mW	
OPTICAL INPUT SIGNAL		
Maximum Laser Bandwidth [7]	1 GHz (8 pm at 1550 nm)	10 GHz (80 pm at 1550 nm)
Sensitivity [8]	1 kHz: -20 dBm (10 µW) 500 Hz: -25 dBm (3 µW) 250 Hz: -29 dBm (1.25 µW) 100 Hz: -33 dBm (0.5 µW)	1 kHz: -25 dBm (3 µW) 500 Hz: -30 dBm (1 µW) 250 Hz: -35 dBm (0.3 µW) 100 Hz: -40 dBm (0.1 µW)
Maxiumum Power — Displayed level Safe level	+ 10 dBm (10 mW) + 18 dBm (63 mW)	
Return Loss [4]	35 dB	
MEASUREMENT RATE/TIME [9]	1 kHz streaming over RS-422 serial interface 5 ms (SCPI commands)	
INPUTS/OUTPUTS		
Optical Input	9/125 µm single-mode fiber (FC/UPC or FC/APC)	
Instrument Interface	Streaming via RS-422 (internal or external TTL trigger) Library of commands (SCPI) via USB 2.0, Ethernet, GPIB (optional) Internal data storage for up to 1 million measurements	
ENVIRONMENTAL [4]		
Warm-Up Time	< 15 minutes	
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 (7.7 kg)	16 lbs (7.2 kg)
POWER REQUIREMENTS	90 - 264 VAC, 47 - 63 Hz, 50 VA max	
WARRANTY	5 years	

(1) Defined as measurement uncertainty, or maximum wavelength error, with a confidence level of ≥ 99.7%.
(2) Traceable to NIST standard (SRM 2517a).
(3) Standard deviation for a 10 minute measurement period.
(4) Characteristic performance, but non-warranted.
(5) Laser diode locked to acetylene absorption (NIST Special Publication 260-133).
(6) Data in units of nm and cm^{-1} are given as vacuum values.
(7) Bandwidth is FWHM.
(8) Dependent on frame rate of the photodetector array.
(9) Measurement time using SCPI commands dependent on PC/network timing.

CLASS 1
LASER PRODUCT

CE

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.