

OPTICAL WAVELENGTH METER

828 Series



The fastest wavelength measurement available for optical transceiver testing.

The 828 Series Optical Wavelength Meter from Bristol Instruments is designed to revolutionize the production of tunable transmitter lasers used in WDM applications. This system uses a unique design to provide an unmatched measurement rate of 1 kHz. This enables greater efficiency in the production of WDM transceivers by dramatically reducing the time needed for wavelength testing.

Two versions of the 828 Optical Wavelength Meter are available. The model 828A is the most precise, providing an accuracy of ± 0.3 pm. For less exacting test requirements, the model 828B is a lower-priced alternative with a wavelength accuracy of ± 1.0 pm. Automatic calibration with a built-in wavelength standard ensures the utmost confidence in the test results.

The rugged design of the 828 Optical Wavelength Meter provides long-term reliable operation, backed by a five-year warranty on all parts and labor. This results in less downtime and the lowest cost of ownership available.

Key Features:

- Fastest measurement rate of 1 kHz.
- Wavelength accuracy as high as ± 0.3 pm.
- Automatic calibration with a built-in wavelength standard.
- Measurement confidence level of $\geq 99.7\%$.
- Traceable to NIST standards.
- Power measured to an accuracy of ± 0.5 dB.
- 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.
- Five-year warranty covers all parts and labor.

SPECIFICATIONS

828 Series

MODEL	828A	828B
OPTICAL SIGNAL	CW only	
WAVELENGTH	1250 – 1650 nm (182 – 240 THz)	
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	± 0.5 dB (± 30 nm from 1310 and 1550 nm)	
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, μW	
OPTICAL INPUT SIGNAL	1 kHz streaming over RS-422 serial interface 5 ms (SCPI commands)	
Maximum 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)
Maximum 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	9/125 μm single-mode fiber (FC/UPC or FC/APC)	
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	< 15 minutes	
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	3.5" x 17.0" x 15.0" (89 mm x 432 mm x 381 mm)	
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 (parts and labor)	

- (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.



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