

OPTICAL WAVELENGTH METER

338 Series



Fast and cost-effective wavelength meter for optical transceiver testing.

The 338 Series Optical Wavelength Meter from Bristol Instruments combines speed and affordability to address the most important requirements of optical transceiver manufacturers. The model 338 has a high measurement rate of 25 Hz that results in reduced testing times and greater production throughput. And, its price, along with a five-year warranty, provides a lower cost of ownership compared with similar systems.

The 338 Optical Wavelength Meter uses proven Michelson interferometer-based technology with fast Fourier transform analysis to measure the wavelength of CW and modulated signals to an accuracy as high as ± 0.3 pm. Continuous calibration with a built-in wavelength standard ensures the utmost confidence in the test results.

Operation of the 338 Optical Wavelength Meter is straightforward. A convenient touch-screen display controls the system and displays the wavelength and power measurements in a variety of formats. The data can also be sent to a PC using a library of SCPI commands via USB, Ethernet, or GPIB.

Key Features:

- Fast measurement rate of 25 Hz.
- Wavelength accuracy as high as ± 0.3 pm.
- Continuous 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.
- Wavelength range from 1270 to 1680 nm.
- Operates with CW and modulated signals.
- Convenient touch-screen display reports measurement data in a variety of formats.
- Interfacing via SCPI using USB, Ethernet, or GPIB.
- Rugged design for manufacturing environments.
- Five-year warranty covers all parts and labor.

SPECIFICATIONS

338 Series

MODEL	338A	338B
OPTICAL SIGNAL	CW and modulated	
WAVELENGTH	1270 – 1680 nm (179 – 236 THz)	
Range	1270 – 1680 nm (179 – 236 THz)	
Accuracy ^{1,2}	± 0.2 parts per million (± 0.3 pm at 1550 nm)	± 0.65 parts per million (± 1.0 pm at 1550 nm)
Repeatability ^{3,4,5}	± 0.03 parts per million (± 0.05 pm at 1550 nm)	± 0.1 parts per million (± 0.15 pm at 1550 nm)
Calibration	Continuous - built-in stabilized single-frequency HeNe laser	Continuous - built-in standard HeNe laser
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 ³	± 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	10 GHz (80 pm at 1550 nm)	
Maximum Bandwidth ⁷	10 GHz (80 pm at 1550 nm)	
Sensitivity	-30 dBm (1270 nm to 1650 nm), -25 dBm (1650 nm to 1680 nm)	
Maximum Power	+ 10 dBm (displayed level), + 18 dBm (safe level)	
Return Loss	35 dB	
MEASUREMENT RATE (TIME)	25 Hz (0.04 s)	
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	Library of commands (SCPI) via USB 2.0, Ethernet, and optional GPIB	
ENVIRONMENTAL³	< 15 minutes	
Warm-Up Time	< 15 minutes	
Temperature Pressure Humidity	+15°C to +30°C (-10°C to +70°C storage) 500 – 900 mm Hg ≤ 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) 17 lbs (7.65 kg)	
POWER REQUIREMENTS	90 - 264 VAC, 47 - 63 Hz, 80 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 an NIST standard (SRM 2517a).
- (3) Characteristic performance, but non-warranted.
- (4) For 338A, standard deviation for a 10 minute measurement period.
- (5) For 338B, standard deviation for a 1 minute measurement period. Maximum long-term measurement variation < ± 0.4 ppm.
- (6) Data in units of nm and cm⁻¹ are given as vacuum values.
- (7) Bandwidth is FWHM.



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.