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burleigh
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Multi-line WAVEMETER Optical Channel Analyzer

WA-7600/7100



Recent advances in Dense Wavelength Division Multiplexing (DWDM) technology have resulted in the need for more sophisticated test and measurement instrumentation. The ability to accurately measure optical wavelength is necessary in order to characterize and optimize DWDM components and DWDM transmission systems.

While the wavelength performance of DWDM components can be characterized using conventional means such as Burleigh's WA-1650/1150 and WA-1100 WAVEMETER® optical wavelength meters, analysis of DWDM transmission systems requires instrumentation capable of measuring the discrete wavelengths of the many optical carriers present on a single fiber. Such demands are addressed by the WA-7600 and WA-7100 Multi-line WAVEMETER Optical Channel Analyzers.

Features

- Simultaneous measurement of up to 256 optical channels
- Wavelength measurement to a guaranteed accuracy of ± 0.3 pm
- Individual peak and total optical power measurement
- Automatic calculation of OSNR and channel spacing
- Monitor and graph wavelength and power over time

Monitor DWDM system performance with unprecedented accuracy and reliability

The WAVEMETER Advantage

WA-7600 and WA-7100 Optical Channel Analyzers employ Burleigh's proven scanning Michelson interferometer-based WAVEMETER technology to determine the absolute wavelength of an optical signal under test by comparing its interference fringe pattern with that of a built-in HeNe laser wavelength standard. Unlike other wavelength meters, all factors that can affect wavelength measurement are accounted for, ensuring the highest possible accuracy. The absolute wavelength specification has a confidence level of 3σ, meaning $\geq 99.6\%$ of measurements fall within specification limits. To ensure accuracy, all WAVEMETER systems are traceable to NIST recognized standards.

Simultaneous wavelength and power measurement

Combining Burleigh's proven scanning Michelson interferometer-based technology with advanced digital processing results in the ability to measure and differentiate the absolute wavelengths of up to 256 discrete optical signals. The accuracy of these measurements is ± 0.3 pm. What's more, the WA-7600 can simultaneously measure the individual powers of the optical signals. In addition to the WA-7600, Burleigh also offers the WA-7100 Multi-line WAVEMETER Optical Channel Analyzer. Identical to the WA-7600, it offers an absolute wavelength accuracy of ± 1.5 pm, providing a lower cost alternative.

High resolution optical spectral analysis

Unlike other multi-wavelength meters, the WA-7600 / WA-7100 provide the full optical spectrum on a clear, easy-to-read display for the most precise DWDM channel analysis. Spectral resolution is as high as 30 pm, resulting in a narrow, sharp-edged spectral response. Discrimination between closely spaced DWDM channels is easily achieved for current 100 GHz and 50 GHz channel spacing and future 25 GHz channel spacing.

Automatic calculation increases productivity

The WA-7600 / WA-7100 automatically process measurement data, providing critical DWDM system performance information. In addition to resolving the individual optical carriers and accurately confirming their wavelengths and powers, the WA-7600 / WA-7100 calculate parameters such as channel spacing and OSNR.

Stable measurement with rugged design

Stability of all measurements is ensured with the WA-7600 / WA-7100 systems' rugged bench-top or rack-mounted package.

Features and Performance Summary

	WA-7600	WA-7100
Wavelength		
Range	1270 to 1680 nm (178 to 236 THz)	
Absolute accuracy (3σ)	± 0.3 pm	± 1.5 pm
Minimum resolvable separation**	30 pm	
Display resolution	0.0001 nm	0.001 nm
Units	nm (vacuum), THz	
Power		
Absolute accuracy (2σ)	± 0.5 dB (at ± 30 nm from 1310 and 1550 nm)	
Linearity	± 0.3 dB	
Display resolution	0.01 dB	
Units	dBm, mW, µW	
Optical Input Signal		
Sensitivity, single line input	-40 dBm (0.1 µW), 1270 - 1600 nm -30 dBm (1.0 µW), 1600 - 1680 nm	
Maximum input level (sum of all lines)	+ 10 dBm (10 mW)	
Maximum safe level (sum of all lines)	+ 18 dBm (63 mW)	
Optical Dynamic Range		
Signal-to noise ratio (lines above -25 dBm)*	> 35 dB, channel spacing ≥ 100 GHz > 27 dB, channel spacing ≥ 50 GHz	
Number of Laser Lines Input		
Maximum*	256	
Measurement Cycle Time		
Time (rate)	1.25 s (0.8 measurements/s)	
Inputs/Outputs		
Optical input	9/125 µm fiber FC/UPC or FC/APC SC/UPC or SC/APC ST/UPC	
Instrument interface	GPIB (IEEE-488.2), RS-232, floppy disk drive VGA monitor port, parallel printer port	
Environment		
Nominal warm-up time	7 minutes	N/A
Temperature*	+10˚ to +30˚C (-10˚ to +70˚C storage)	
Pressure*	500 – 900 mm Hg	
Humidity*	≤ 90% R.H. at +40˚C (no condensation)	
Dimensions and Weight		
Dimensions (HxWxD)	5.25" x 17.0" x 16.50" (133.4 mm x 431.8 mm x 419.1 mm)	
Weight	23 lbs (10.5 kg)	
Power Requirements		
Voltage and frequency	90 to 260 VAC, 50/60 Hz	

* Characteristic
** Minimal resolvable separation is 30, 35 or 40 pm depending on upon wavelength range selected

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Burleigh 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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SPWA7600/7100.1AN

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