

# WA-1100

## Wavemeter

R&amp;D MANUFACTURING—OPTICAL



### The recognized standard for absolute wavelength measurement

- Characterize active components
  - Accurate wavelength analysis of transmitters (DFB lasers, tunable lasers and VCSELs)
- Calibrate component test equipment and test stations
  - Accurate wavelength calibration of optical spectrum analyzers (OSAs)
  - Accurate wavelength calibration of discretely tunable and swept wavelength tunable lasers

### Features

- Absolute optical wavelength measured to a guaranteed accuracy of  $\pm 1.0$  ppm
- Continuous calibration with built-in wavelength standard
- Fast update rate of 10 Hz

To meet the growing demand for access to larger volumes of digital information, telecommunications operators increase system capacity using dense wavelength-division multiplexing (DWDM). Both active DWDM components such as transmission lasers, and passive components such as multiplexers, demultiplexers and add/drop filters, thin film filters and fiber gratings, must be accurately characterized with respect to absolute wavelength.

### The most precise wavelength characterization of DWDM components

Since first being introduced in 1980, Wavemeter wavelength meters have continually provided the most technically advanced optical wavelength measurement capability available. The WA-1100 Wavemeter Optical Wavelength Meter provides the highest accuracy wavelength measurement and is designed specifically for the precise characterization of DWDM components in manufacturing environments.

### The Wavemeter advantage

These systems employ proven scanning Michelson interferometer-based Wavemeter technology to determine the absolute wavelength of a laser 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 in order to achieve the absolute wavelength uncertainty of  $\pm 1.0$  ppm.

### Total optical power measured simultaneously

To provide a more complete analysis of an optical source, these Wavemeter systems simultaneously measure the total power of an optical input signal. The absolute uncertainty of this power measurement is  $\pm 0.5$  dB and can be reported in units of dBm or watts.

### Special design for manufacturing environment

Several design considerations specific to the needs of DWDM component manufacturers have been incorporated into these optical wavelength meters. With a built-in HeNe laser wavelength standard, each system's accuracy is maintained over long periods of time. A rugged benchtop or rack mounted package minimizes any detrimental effects from a typical manufacturing environment.

## SPECIFICATIONS

<b>Model</b>	<b>WA-1100</b>
<b>Wavelength</b>	
Range	700 nm to 1650 nm (181 THz to 428 THz)
Uncertainty (ppm) <sup>a, b, c</sup>	±1 (±1.5 pm at 1500 nm)
Display resolution (nm)	0.001
Units	nm (vacuum), GHz
<b>Power</b>	
Uncertainty (dB)	±0.5 (at ±30 nm from 1310 nm and 1550 nm)
Resolution (dB)	±0.05
Linearity (dB)	±0.3
Display resolution (dB)	0.01
Units	dBm, mW, µW
<b>Optical Input Signal</b>	
Sensitivity (1200-1600 nm) <sup>d</sup>	-30 dBm (1 µW)
Sensitivity (700-1650 nm) typical <sup>e</sup>	-20 dBm (10 µW)
Maximum input level	10 dBm (10 mW)
Maximum safe level	18 dBm (63 mW)
<b>Measurement Update</b>	
Time (rate)	0.1 s (10 measurement/s)
<b>Inputs/Outputs</b>	
Optical input	9/125 µm fiber FC/UPC or FC/APC SC/UPC or SC/APC ST/UPC
Instrument interface	GPIO (IEEE-488.2), RS-232, LabVIEW, LabWindows
<b>Environmental</b>	
Nominal warm-up time	N/A
Temperature	operating 15 °C to 30 °C storage -10 °C to 70 °C
Pressure (mm Hg)	500 to 900
Relative humidity	≤ 90 % R.H. at 30 °C (no condensation)
<b>Dimensions and Weight</b>	
Dimensions (H x W x D)	89 mm x 431.8 mm x 419.1 mm (3 1/2 in x 17 in x 16 1/2 in)
Weight	7.5 kg (16.5 lb)
<b>Power Requirements</b>	
Voltage and frequency	90 to 260 VAC, 50/60 Hz

### Notes

- For linewidths < 10 GHz.
- For CW measurements.
- For all wavelengths above 1200 nm.
- Measurement repeatability is reduced when input < -35 dBm.
- Measurement repeatability is reduced when input < -20 dBm.

## ORDERING INFORMATION

### WA-1100-XX

#### Connectors ■

- EA-EUI-89 = APC/FC
- EA-EUI-91 = APC/SC
- EI-EUI-89 = UPC/FC
- EI-EUI-90 = UPC/ST
- EI-EUI-91 = UPC/SC

Example: WA-1100-EI-EUI-89

### SAFETY

21 CFR 1040.10 and IEC 60825-1:1993+A2:2001  
CLASS 1 LASER PRODUCT

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EXFO is certified ISO 9001 and attests to the quality of these products. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. EXFO has made every effort to ensure that the information contained in this specification sheet is accurate. However, we accept no responsibility for any errors or omissions, and we reserve the right to modify design, characteristics and products at any time without obligation. Units of measurement in this document conform to SI standards and practices. In addition, all of EXFO's manufactured products are compliant with the European Union's WEEE directive. For more information, please visit [www.EXFO.com/recycle](http://www.EXFO.com/recycle). Contact EXFO for prices and availability or to obtain the phone number of your local EXFO distributor.

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