



## Applications

- Real-Time alignment of WDM components
  - Monitor and control FBG process parameters
  - Measure transmission and reflection characteristics simultaneously
  - Align optics and measure in real-time
- Final characterization of WDM components
  - Measure device performance with wavelength high accuracy
- Quality inspection of WDM components
  - Set-up Pass/Fail inspection criteria, save traces, and compare data
- Automated testing of WDM modules
  - Integrate sm125T into an Automated MFG station
  - Combine sm125T with a sm041 (Channel Expansion Unit) for complete WDM Swept Laser Solution

## Description

The **sm125T Wavelength Component Test System** meets the growing demand for an inexpensive component test system, that can be distributed easily throughout manufacturing facilities and be networked to provide a complete automated test solution for the component manufacturer. Using standard Ethernet interfaces, several **sm125T**'s can provide current on-demand results on the status of the component production line. This on-demand capability allows the manufacturing manager to quickly respond to anomalies, thereby reducing expensive output of defective product. The speed of the **sm125T** also provides greater control over the individual steps of the component manufacturing process. It is an ideal tool for the component manufacturer.

The small, accurate, powerful and economical **sm125T** combines an industrial PC with Micron Optics' robust, high-power, low-noise swept laser source, available NIST traceable calibration reference materials, and high sensitivity detection circuitry. This combination of powerful high performance devices results in a product fully capable of real-time testing of fiber Bragg gratings, arrayed wave guides, optical filters, and a wide variety of other fixed and tunable components.

**Specifications****sm125T-500****sm125T-200****Optical**

<sup>a</sup> Number of Optical Channels	4 (Up to 16)	1 (Up to 16)
Wavelength Range	1510-1590 nm	1520-1570 nm
<sup>b</sup> Wavelength Accuracy	1 pm	10 pm
<sup>c</sup> Wavelength Stability	1 pm	5 pm
<sup>d</sup> Wavelength Repeatability	0.5 pm at 1 Hz, 0.2 pm at 0.1 Hz	
<sup>e</sup> Dynamic Range	50 dB	40 dB
Scan Frequency	1 Hz (2 Hz available)	
Optical Connectors	FC/APC	

**Mechanical**

Dimensions	114 mm x 234 mm x 132 mm
Weight	2 kg (4.5 lbs.)

**Environmental**

Operating Temperature	10° to 35° C
Storage Temperature	0 to 50° C

**Electrical**

Input Voltage	+5 VDC
AC/DC Converter	Included (100-240 VAC, 47-63 Hz)
Power Consumption	18 W typ, 30 W max
Interfaces	Ethernet (TCP-IP) (USB, RS-232, RS-485, and wireless Ethernet available)
Protocols	Custom MOI protocol via Ethernet (MODBUS and others available)

**Data Management**

On-Board Firmware	Full spectrum and peak detection modes
Remote Software	Spectral analysis, peak detection, data logger, peak tracking, and instrument control
LabVIEW™ Source Code	Allows for customization of remote software

**Options**

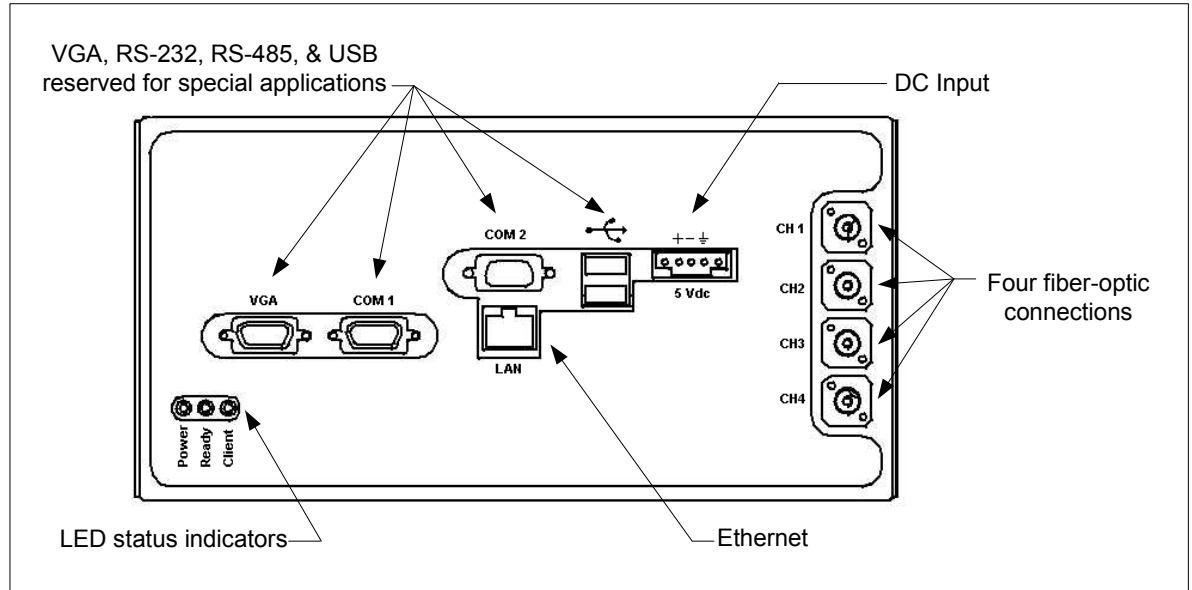
Wireless PDA Kit	Wireless Ethernet communication (802.11b), USB adapter, PDA, and PDA utilities
PDA Utilities Software	Data display, data logger, and instrument control
Channel Expansion	Please see our 8 or 16 channel sm041 multiplexers

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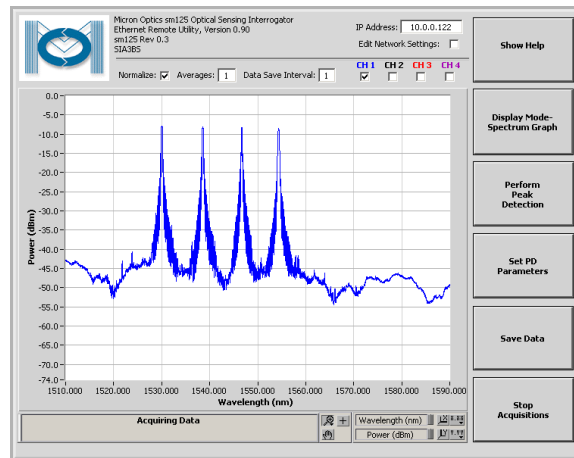
**Notes:**

- <sup>a</sup> sm125T accommodates up to 4 integrated optical channels. Max of 16 ch possible when combined with sm041 multiplexer.
- <sup>b</sup> Per NIST Technical Note 1297, 1994 Edition, Section D.1.1.1, definition of "accuracy of measurement."
- <sup>c</sup> Captures effects of long term use over full operating temperature range of the instrument.
- <sup>d</sup> Per NIST Technical Note 1297, 1994 Edition, Section D.1.1.2, definition of "repeatability [of results of measurements]."
- <sup>e</sup> Defined as laser launch power minus detection noise floor.

**Connections**

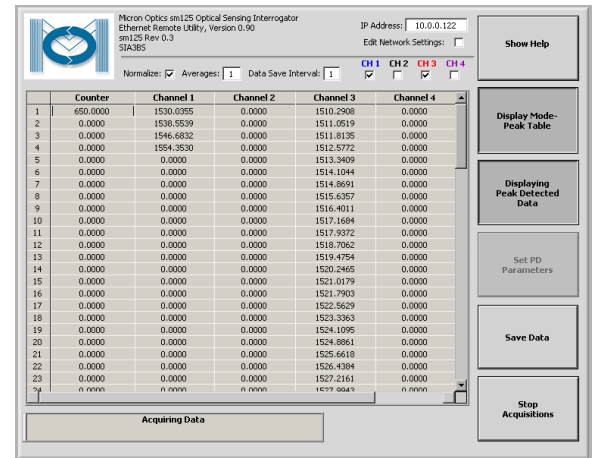


**Data Analysis Using LabVIEW™ Remote Utility**



**sm125T Full-Spectrum View**

The sm125T produces a complete set of spectral information every second for every device under test (DUT) on every fiber. The complete spectrum contains the most information possible regarding the condition at each DUT. This can be displayed as wavelength vs. optical power (as above) or peak wavelength vs. time.



**sm125T Peak Table View**

This is another example of the LabVIEW™ Remote Utility included with standard sm125T instruments. User-configurable peak detection parameters allow customization for various applications. All LabVIEW™ source code is provided for fully-custom user-interface development. Interfaces can also be written in VisualBasic, C++, or your favorite programming environment.



**Benefits**

**No Calibration** - The sm125T never needs calibration. Wavelength is calibrated automatically on every scan. Some models include an internal NIST-traceable gas cell for applications where tight absolute measurements are needed.

**Robust Operation** - The sm125T survives harsh environments. Tests at professional facilities, meticulous customer evaluations, and tests at Micron Optics headquarters prove how well Micron Optics products are designed and built.

**Full Spectrum Flexibility** - Some components in special applications can produce unique spectral profiles. The sm125T's full-spectral data allows the user to get a complete picture of how the component is performing under all conditions.

**Fast Peak Detection** - Using the full-spectrum data, on-board peak detection capabilities are included and can be customized for each application.

**Compact Size** - The sm125T weighs a mere 2kg, is smaller than a shoebox, and all ports are accessible from one side allowing integration into existing control panels.

**Verifiable Performance** - The performance we quote is the performance you'll get. Some manufacturers boast fantastic numbers for accuracy, resolution, and repeatability, but how will they perform in your application?

**Modular Design** - The sm125T is offered in three standard models. Custom configurations allow optimization of unit costs and feature sets for volume customers. sm125T instruments use Ethernet to network to external PCs for data analysis. OEM units may include MODBUS, RS-232, USB, local data storage, etc., and can leverage the powerful internal processor for customized component analysis and status alerts. Test capacity expansion is also available via a sm041T Channel Expansion Unit.

**Automatic 16 Channel Test System**

