The TERA K15 fiber-coupled terahertz spectrometer provides a complete solution for fast broadband time-domain THz spectroscopy, offering maximum flexibility for scientific THz applications.

The system includes our latest figure 9° femtosecond laser source at 1.5 μm emission wavelength, fiber-coupled optical light path with delay line, a THz wave path with THz Emitter, THz detector and TPX THz optics, control electronics and a PC with data acquisition and evaluation software. The delay line offers flexibility by covering a standard scan window of >850 ps enabling a high spectral (THz) resolution below 1.2 GHz. Customers demanding superior spectral resolution (<0.7 GHz) can opt for the long scan range (>1600 ps). The dual detector option offers simultaneous measurements in transmission and reflection geometry. For THz imaging applications our extension unit TERA Image can be integrated into the setup, including image acquisition and reconstruction software.

Optionally, the system’s laser source is synchronizable to an external source, and can be extended by additional laser output ports at 780 nm and 1560 nm. To perform THz-TDS with optical sample excitation at those wavelengths, the TERA K15 setup can be upgraded with our THz-Pump-Probe add-on.

**KEY SPECIFICATIONS**
- >6 THz Bandwidth
- >95 dB Dynamic Range
- Scan Range >850 ps
- Spectral Resolution <1.2 GHz
- Additional 780 nm Laser Output
- Modular, Breadboard-based THz-TDS Platform

**APPLICATIONS**
- Testbed for THz Components
- Characterization of Solid State THz Sources
- Investigation of Charge Carrier Dynamics
- Characterization of Quantum Cascade Lasers
- THz Plasmonics
- Investigation of Synchrotron Radiation

**FEATURES**
- Broadband THz Spectroscopy
- Simultaneous Operation of THz setup and fs Laser
- Turnkey Operation
- Supports Stand-Alone fs Laser Applications
- All-fiber Flexibility

**OPTIONS**
- Dual-Detection/Multi-Channel
  Suitable for parallel transmission and reflection measurements
- TERA Image
  Hyperspectral Imaging & Analysis Platform
- THz Pump-Probe
  Second Delay Line for Optical Pump – THz Probe Spectroscopy
- High Resolution
  Spectral Resolution of <0.7 GHz and >1600 ps Scan Window
- SYNC
  Synchronizable Menlo Oscillator, suitable for ASOPS-Upgrade or Optical Pump – THz Probe measurements
- Reflection Head
  Compact Sensor Unit with Integrated THz optics
- TeraLyzer
  Advanced Software for THz Data Analysis
- Polymer Lens Optics
- Custom Fiber Length

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*Settings: 50 ps scan window measured at 11 Hz scan speed to achieve >6 THz and >95 dB
## TERA K15

**THz Time-Domain Spectrometer**

### THZ SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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<tbody>
<tr>
<td>Spectral Range</td>
<td>&gt;6 THz</td>
</tr>
<tr>
<td>Dynamic Range</td>
<td>&gt;95 dB</td>
</tr>
<tr>
<td>Total Scan Range</td>
<td>&gt;850 ps (Long range variant: &gt;1600 ps)</td>
</tr>
<tr>
<td>THz Frequency Resolution</td>
<td>&lt;1.2 GHz (High resolution variant: &lt;0.7 GHz)</td>
</tr>
<tr>
<td>Laser Output Ports for THz*</td>
<td>2 fiber-coupled ports, 1560 nm, FC/APC, PM fiber, &lt;90 fs after 2.5 m patch cord</td>
</tr>
<tr>
<td>Laser System Repetition Rate</td>
<td>100 MHz*, synchronizable to external source on request</td>
</tr>
</tbody>
</table>

*Optional multichannel extension (up to 4 laser ports).

### OPTICAL OUTPUT SPECIFICATIONS (OPTIONAL)

<table>
<thead>
<tr>
<th>Specification</th>
<th>1560 nm</th>
<th>780 nm</th>
</tr>
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<tbody>
<tr>
<td>Wavelength</td>
<td>1560 nm</td>
<td>780 nm</td>
</tr>
<tr>
<td>Average Output Power</td>
<td>&gt;500 mW</td>
<td>&gt;250 mW **</td>
</tr>
<tr>
<td>Pulse Duration</td>
<td>&lt;90 fs</td>
<td>&lt;100 fs</td>
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<tr>
<td>Auxiliary Output Ports</td>
<td>Free space port, fiber-coupled port on request</td>
<td>Free space port</td>
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</table>

** Menlo Systems' C-Fiber 780: freely tunable power ratio between 780 nm and 1560 nm port.

### SYSTEM DIMENSIONS AND WEIGHT

<table>
<thead>
<tr>
<th>Component</th>
<th>Dimensions</th>
<th>Weight</th>
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</thead>
<tbody>
<tr>
<td>Optomechanical Setup</td>
<td>900 x 600 x 200 mm³, 34 kg</td>
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</tr>
<tr>
<td>THz Control Electronics</td>
<td>448 x 132 x 550 mm³, 8 kg</td>
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<tr>
<td>Laser Control Unit</td>
<td>448 x 132 x 437 mm³, 12 kg</td>
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</tr>
</tbody>
</table>

### SYSTEM COMPONENTS

**Optical Components**

- Femtosecond laser source: C-Fiber or C-Fiber 780
- Fiber-coupled optomechanical delay line
- Fiber-coupled THz emitter and receiver modules TERA15-FC
- Compact THz optics with parabolic mirrors

**Control Electronics**

- Transimpedance amplifier
- PC and software package for measurement and data analysis
- TCP socket remote control interface
- 19" screen, keyboard and mouse

### ORDERING INFORMATION

**Product Code**

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<tbody>
<tr>
<td>T+49 89 189 166 0</td>
<td>T+1 973 300 4490</td>
<td>T+1 973 579 7227</td>
</tr>
<tr>
<td><a href="mailto:sales@menlosystems.com">sales@menlosystems.com</a></td>
<td><a href="mailto:ussales@menlosystems.com">ussales@menlosystems.com</a></td>
<td><a href="mailto:sales@thorlabs.com">sales@thorlabs.com</a></td>
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Please call for pricing. Specifications are subject to change without notice. Custom modifications are available, please inquire.