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.

**PERFORMANCE DATA**

**THz pulse measured in ambient air**

**THz spectrum showing absorption lines of atmospheric water vapor**

- **THz Bandwidth**
  - >4.5 THz in 0.04 sec.
  - >6 THz in 5 sec.

- **Peak Dynamic Range**
  - >60 dB in 0.04 sec.
  - >80 dB in 5 sec.
  - >95 dB in 60 sec.
  - >100 dB in 300 sec.

*Settings: 50 ps scan window measured at 24 Hz scan speed to achieve >6 THz and >95 dB in 60 sec.*
# TERA K15

**THz Time-Domain Spectrometer**

## THz Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectral Range</td>
<td>&gt;6 THz</td>
</tr>
<tr>
<td>Dynamic Range</td>
<td>&gt;100 dB</td>
</tr>
<tr>
<td>Total Scan Range</td>
<td>&gt;850 ps, flexible scan range and speed, customizable THz path length &gt; 3 m</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>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength</td>
<td>1560 nm, 780 nm</td>
</tr>
<tr>
<td>Average Output Power</td>
<td>&gt;500 mW, &gt;250 mW **</td>
</tr>
<tr>
<td>Pulse Duration</td>
<td>&lt;90 fs, &lt;100 fs</td>
</tr>
<tr>
<td>Auxiliary Output Ports</td>
<td>Free space port, fiber-coupled port on request, Free space port</td>
</tr>
</tbody>
</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 (mm³)</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optomechanical Setup</td>
<td>900 x 600 x 200</td>
<td>34</td>
</tr>
<tr>
<td>THz Control Electronics</td>
<td>448 x 132 x 550</td>
<td>8</td>
</tr>
<tr>
<td>Laser Control Unit</td>
<td>448 x 132 x 437</td>
<td>12</td>
</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
- 22” screen, keyboard and mouse
- TCP socket remote control interface
- .NET remote control interface
- External analog/digital triggering

## Ordering Information

**Product Code**  
TERA K15

*Please call for pricing. Specifications are subject to change without notice. Custom modifications are available, please inquire.*