

# TERA K15

The ultimate all-fiber-coupled Terahertz Spectrometer: powerful, fast, and versatile



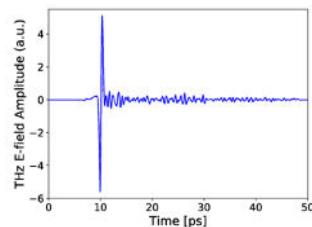
We introduce our next-generation terahertz time-domain solutions, setting new standards in speed and power to redefine THz applications. With speeds above 125 waveforms/s @ 50 ps and a bandwidth of 6.5 THz, our latest scanning unit is faster than ever/second to none — achieving >100 dB dynamic range in less than 5 seconds.

Meet the New TERA K15: an all-fiber-coupled spectrometer leading the market in versatility, scanning speed, and THz power. Featuring our high-power TERA15 antenna modules, and ultra-fast optical delay unit. In addition to options like dual-detection, new TERA Image linear stages, and intuitive software, the TERA K15 is tailored for scientific exploration. With a modular design allowing synchronization with external lasers and available output ports at 780 nm and 1560 nm, it will meet your every needs for pump and probe THz experiments.

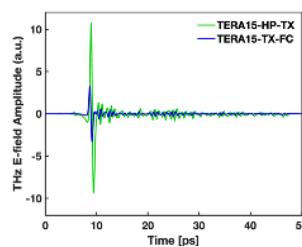
Powered by Menlo Systems' fiber-based femtosecond laser technology with figure 9® mode-locking, the TERA K15 offers customizable THz optics, a flexible delay line (up to 1700 ps), and data acquisition software for spectral resolutions down to 0.6 GHz. This customer-centric improvements are designed to meet all your experimental and application needs.

## PERFORMANCE DATA

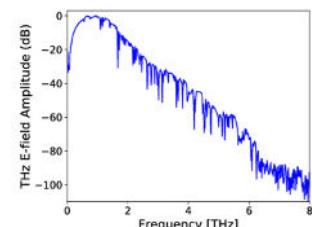
### Time domain data:



### New! Comparison of our emitters



### Frequency domain data:



- TERA15-HP-TX measurement settings: 200 V bias with 50 mW optical powers at 126 Hz scan speed to achieve >6 THz and up to 110 dB in 1.5 sec
- All measurements were conducted under ambient conditions without purging

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## KEY SPECIFICATIONS

- >330 Hz Scan Speed
- >6 THz (up to 6.5 THz)
- >100 dB (up to 110 dB) Dynamic Range
- > 300  $\mu$ W Average THz Power
- Scan Range: 1700 ps, Flexible Setting of Range and Speed
- High Spectral Resolution < 0.6 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 Standalone fs Lasers Applications

## OPTIONS

- **Dual-Detection/Multi-Channel**  
Suitable for parallel transmission & 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 <0.6 GHz and >1700 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
- **THz Purge Box**  
Enables Water-Line-Free THz Spectroscopy
- **TeraLyzer & TeraLyzer pro**  
Software for THz Data Analysis
- **Polymer Lens Optics**
- **Custom Fiber Length**
- **THz Path Length Adaptation**  
>3 m on request

# TERA K15

## THz Time-Domain Spectrometer

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### THz SPECIFICATIONS

Fast Scanning Speed	125 traces/s @ 50 ps
Spectral Range	>6 THz (up to 6.5 THz)
Dynamic Range	>100 dB (up to 110 dB)
Average Power	>300 µW
Total Scan Range	1700 ps flexible scan range and speed, customizable THz path length
THz Frequency Resolution	<0.6 GHz
Antenna models	TERA15-HP/TERA15-FC
Laser System Repetition Rate	100 MHz, with optional synchronization to an external source upon request

### DETAILED SPEED SPECIFICATIONS

Scan length (ps)	Scan frequency (Hz)
5	>335
10	>260
25	>170
50	>125
100	>85
150	>70
200	>10

### OPTICAL OUTPUT SPECIFICATIONS (OPTIONAL)

Wavelength	1560 nm	780 nm
Average Output Power	>500 mW	>250 mW *
Pulse Duration	<90 fs	<100 fs
Auxiliary Output Ports	Free space port, fiber-coupled port on request	Free space port

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

### SYSTEM DIMENSIONS AND WEIGHT

Optomechanical Setup	900 x 600 x 200 mm <sup>3</sup> , 34 kg
THz Control Electronics	448 x 132 x 550 mm <sup>3</sup> , 8 kg
Laser Control Unit	448 x 132 x 437 mm <sup>3</sup> , 12 kg

### 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
Laser Control Unit	

### ORDERING INFORMATION

Product Code	TERA K15
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Please call for pricing. Specifications are subject to change without notice. Custom modifications are available, please inquire.

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Invisible laser radiation  
avoid exposure to beam  
Class 3B laser

