

TERA K15

Fiber-Coupled THz Time-Domain Spectrometer Based on 1560 nm Femtosecond Fiber Laser



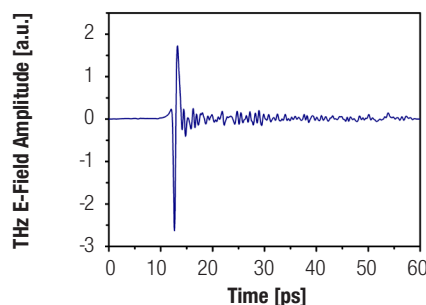
The TERA K15 fiber-coupled Terahertz spectrometer provides a complete solution for fast broadband time-domain THz spectroscopy, offering maximum flexibility for scientific THz applications.

The system includes our latest figure 9[®] femtosecond laser source at 1.5 μm emission wavelength, a 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 total range of >850 ps, and performs fast scanning up to 50 Hz. 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.

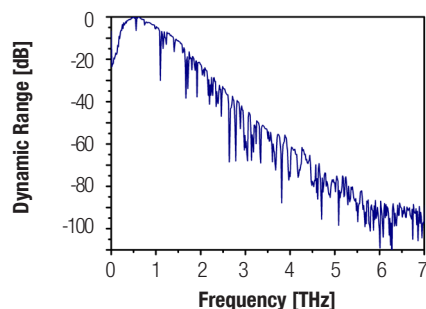
Optionally, the system's laser source can be synchronized to an external source, and can be extended by additional laser output ports at 780 nm and 1560 nm. To perform THz-TDS with optical sample excitation at those wavelengths, the TERA K15 setup can be upgraded with our THz-Pump-Probe add-on.

Measured THz pulse

(in ambient atmosphere)
Averaging time: 1000 s
Scanning rate: 10 Hz



Calculated THz spectrum



MenloSystems

KEY SPECIFICATIONS

- Fiber-Coupled THz System
- >5 THz Bandwidth
- >90 dB Dynamic Range
- Scan Range >850 ps
- >50 Hz Scan Rate
- Scientific Laser Platform
- figure 9[®] Mode Locking
- Multicolor Laser Outputs Available

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

OPTIONS

- **TERA Image**
Automated XY Translation Stage for THz Imaging
- **THz Pump-Probe**
Optical-Pump THz-Probe Spectroscopy
- **DUAL DETECTOR**
Simultaneous Transmission and Reflection Measurements
- **Reflection Guide**
Quick Manual Adjustment of Transmission and Reflection Geometry
- **TeraLyzer**
Advanced Software for Thin Sample Analysis
- **Custom Fiber Patch Cord Length**
- **Synchronizable Laser Source**
- **Second Harmonic Generation**
for 780 nm Laser Output
- **RRE-SYNCRO**
Feedback Electronics for Repetition Rate Stabilization
- **Parabolic Mirrors**
Au-Coated Off-Axis Parabolic Mirrors

TERA K15



THz Time-Domain Spectrometer

THZ SPECIFICATIONS

Spectral Range	>5 THz (typically 5.5 THz)
Dynamic Range	>90 dB (typically 95 dB)
Total Scan Range	>850 ps (1.6 ns on request)
THz Frequency Resolution	<1.2 GHz
Laser Output Ports for THz	Two fiber coupled ports, 1560 nm, FC/APC, PM fiber, <90 fs after 2.5 m patch cord
Laser System Repetition Rate	100 MHz*, synchronizable to external source on request

*Other on demand

OPTICAL OUTPUT SPECIFICATIONS (OPTIONAL)

Wavelength	1560 nm	780 nm
Average Output Power	>500 mW	>250 mW
Pulse Duration	<90 fs	<120 fs
Auxiliary Output Ports**	Free space port	Free space port

** User can switch between 780 nm and 1560 nm port (arbitrary splitting ratios possible)

SYSTEM DIMENSIONS AND WEIGHT

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

SYSTEM COMPONENTS

Optical Breadboard	Femtosecond laser source: C-Fiber*** or C-Fiber 780***
	Fiber coupled optomechanical delay line
	Fiber coupled THz emitter and receiver modules TERA 15-FC***
	THz TPX polymer lenses
TERA-C Control Electronics	Controller for delay line
	Transimpedance amplifier
	Data acquisition platform, 18 Bit, 625 kS/s
	PC and software package for measurement and data analysis
Laser Control Unit	

***See product data sheet for technical specifications

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.



Invisible laser radiation
avoid exposure to beam
Class 3B laser

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