

TeraSmart

Compact Industry-Proven THz-TDS System



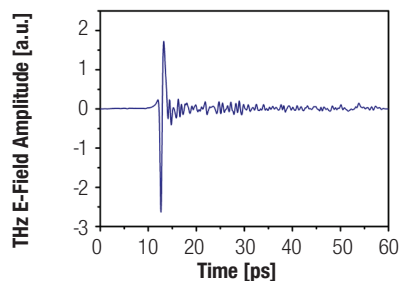
The new compact terahertz spectrometer TeraSmart integrates the latest achievements in broadband Terahertz Time Domain Spectroscopy (THz-TDS) into an easy-to-use turnkey solution. It combines Menlo Systems' latest fiber-based femto-second laser sources featuring our figure 9[®] mode locking technology with our industry-proven THz components. The modular design based on our OEM laser platform ELMO ensures a flexible configuration of the system to meet the needs for integration in any industrial or scientific environment. Custom fiber lengths to THz emitter and THz detector are available upon request. Moreover, multibranch configurations are possible, enabling simultaneous measurements of several emitter/detector pairs using only one fs fiber laser oscillator.

Rounding off the product, a smart TCP socket interface allows platform-independent remote control over ethernet connections for seamless integration in existing experiments or in industrial nondestructive testing (NDT) environments. In short: A turnkey, OEM integrable THz spectrometer engineered for 24/7 operation.

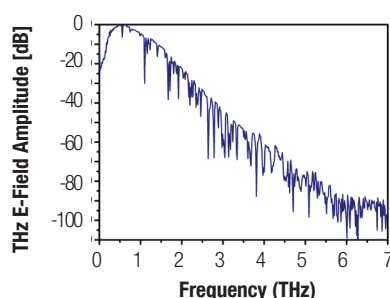
PERFORMANCE DATA

THz pulse measured in ambient air

Averaging time: 1000 s
Scanning rate: 10 Hz



THz spectrum showing absorption lines of atmospheric water vapor



MenloSystems

HIGHLIGHTS

- Turnkey System Operation
- Compact 19" Rack Solution
- Industry-Proven Delay Unit
- Industry-Proven fs Fiber Laser
- figure 9[®] Mode Locking
- No Lock-In Amplifier
- Fiber Coupled Configuration
- Ethernet Based Remote Control Engine

KEY SPECIFICATIONS

- >5 THz Bandwidth
- >90 dB Dynamic Range
- Large Scan Range >850 ps, Flexible Setting of Range and Speed
- Up to 50 Hz Scan Rate

APPLICATIONS

- Inline Thickness Measurements
- Time Resolved THz Spectroscopy
- Material Characterization
- Non-Destructive Testing (NDT)
- Forensic Paint Analysis

FEATURES

- Turnkey Operation
- Broadband Application
- Transmission and Reflection Geometry
- Fiber Coupled THz Antennas for Arrangement Outside the Spectrometer Housing
- Real-Time Measurements
- OEM Integration-Capable
- Modular Platform

OPTIONS

- **TERA Image**
Automated XY Translation Stage for THz Imaging
- **Reflection Guide**
Quick manual adjustment of transmission and reflection geometry
- **Custom Fiber Patch Cord Length**
- **TeraLyzer**
- **Parabolic Mirrors**
Off-Axis Parabolic Mirrors for Highest THz Bandwidth
- **MULTIBRANCH**
Ask for additional optical port configuration

Compact Industry-Proven THz-TDS System

THZ SPECIFICATIONS

Spectral Range	>5 THz (typically 5.5 THz)
Dynamic Range	>90 dB (typically 95 dB)
Total Scan Range	>850 ps, flexible setting of scanning range and speed
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

*Allows for optional multichannel extension

SYSTEM DIMENSIONS AND WEIGHT

Enclosure	19" x 3U (448 x 132 x 495 mm ³), 30 kg
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SYSTEM COMPONENTS

Optical Components	Integrated femtosecond laser source ELMO**
	Integrated fiber coupled optomechanical delay line
	External fiber coupled THz emitter and receiver modules TERA15-FC**
	THz polymer optics
Control Electronics	Transimpedance amplifier
	Integrated PC and software package for measurement and data analysis
	TCP Socket Remote Control Interface

**See product data sheet for detailed specifications

REQUIREMENTS

Operating Voltage	100/115/230 VAC
Frequency	50 to 60 Hz
Power Consumption	<200 W
Cooling Requirements	No water-cooling is required
Operating Temperature	15-35°C
Storage Temperature	0-40°C
Humidity	80% RH noncondensing

ORDERING INFORMATION

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

