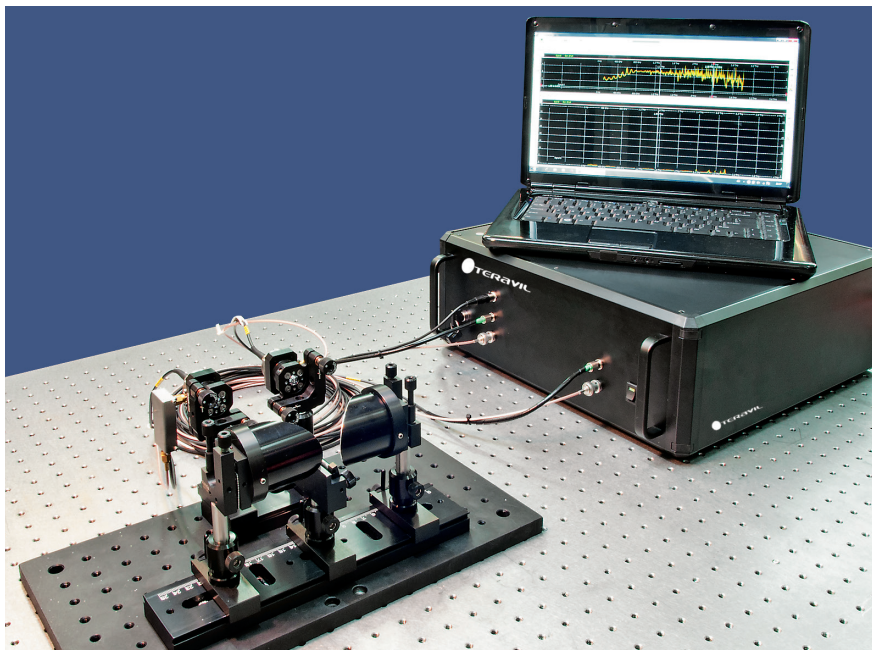


# Fiber-coupled Terahertz Spectrometer

# T-FIBER series



### FEATURES

- ▶ Pump pulse fiber delivery
- ▶ Real-time measurements
- ▶ Unlimited lifetime of delay line
- ▶ Flexible design
- ▶ THz imaging capability
- ▶ Complete PC control
- ▶ Excellent value for money

### APPLICATIONS

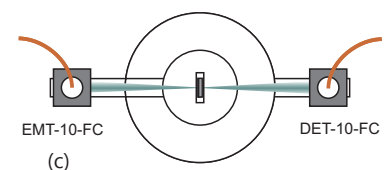
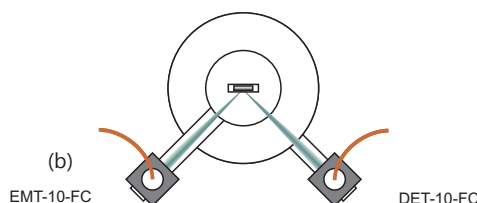
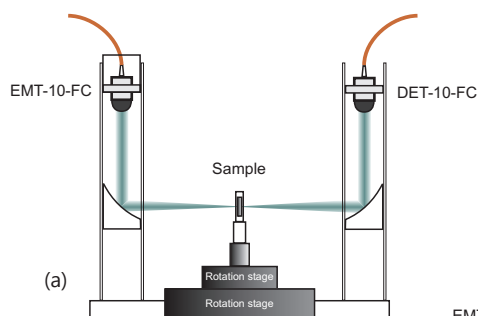
- ▶ Time-resolved broadband THz spectroscopy
- ▶ Production processes monitoring
- ▶ Hazardous substances detection
- ▶ Paint and coatings layers thickness measurements
- ▶ Food and agricultural products quality inspection
- ▶ Medical imaging

Fiber-coupled Terahertz Spectrometer T-FIBER, offered by TERAVAL, features flexible and robust design. It has integrated femtosecond fiber laser with two fiber output ports. Comparing to common Ti:S oscillators, fiber lasers are smaller, cheaper, more reliable and feature parameters that are perfect for terahertz generation.

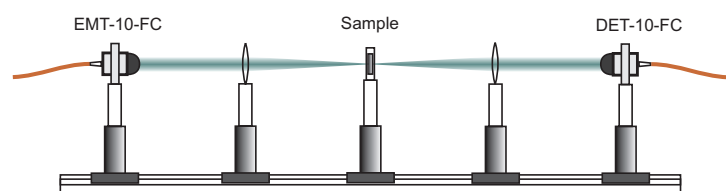
Femtosecond laser, delay line and signal registration electronics are integrated in a single compact housing with footprint only 40×40 cm. Minimal set of free space optics used in spectrometer allows stable long time operation. Special “no bearing” design of fast delay line makes its

lifetime practically unlimited. Delay line allows real time data acquisition with 10 spectra/s speed and 116 ps time window.

Fiber-coupled THz emitter and detector make switching between experiment geometries easier than before. Due to its compact size and reliability during transportation, T-FIBER spectrometer is dedicated for laboratory use as well as for real field applications. We are also happy to customize it according to special OEM customer requirements.



Goniometer schematic layout: side view (a), top view in reflection geometry (b), top view in transmission geometry (c)

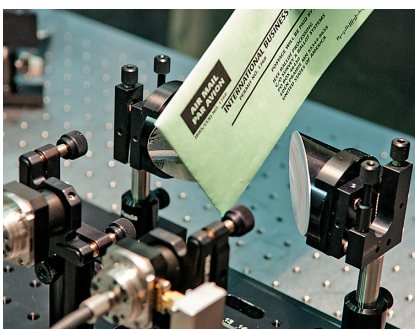
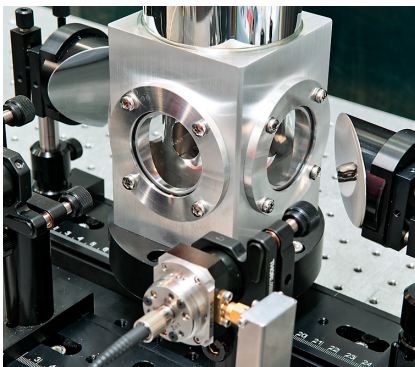


Sample area schematic layout (basic version)

Basic setup of T-FIBER spectrometer includes optical rail, with fiber-coupled THz emitter, detector, two PE lenses and sample holder. This setup provides transmission geometry and it is extremely simple in alignment.

As an option goniometer stage can be supplied. This inexpensive module allows operation in multiple most common geometries, including transmission and tunable angle reflection from approx. 18.5° up to 90°. It also can be used for unique THz scattering experiments, because sample and detector angles can be changed independently. This module gives also better focusability of THz beam.

**WE ARE HAPPY  
TO TAILOR OUR PRODUCTS  
FOR YOUR APPLICATION**



**SPECIFICATIONS**

Model	T-FIBER basic version	T-FIBER with goniometer
<b>GENERAL SPECIFICATIONS</b>		
Spectral range	>3 THz	
Dynamic range	>60 dB @ 0.4 THz	>65 dB @ 0.4 THz
Acquisition rate	10 scans/s	
Spectral resolution	8.6 GHz	
Scan range	116 ps	
Configurations	Transmission	Transmission / tunable angle reflection / scattering
Incidence angles range (in reflection mode)	–	18.5 – 90°
Detection angles (in scattering mode)	–	37 – 286°
Computer interface	USB	
Main unit dimensions	400 × 400 × 158 mm	
Spectroscopy setup footprint	670 × 70 mm	450 × 300 mm
<b>PUMP LASER</b>		
Model	LightWire FF50	
Laser output type	Fiber	
Wavelength	1064 nm	
Pulse duration	<160 fs	
Output power	>40 mW	
Pulse repetition rate	40 MHz	

