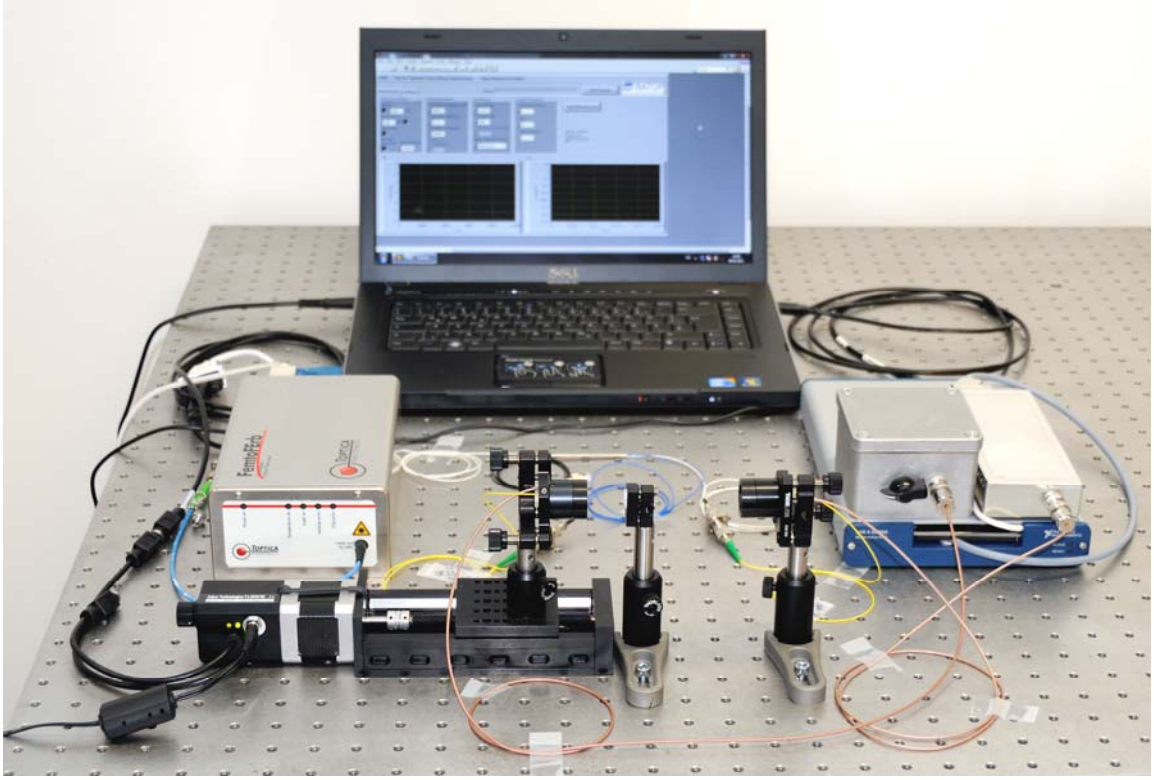
THz time-domain spectrometer

BATOP GmbH
Wildenbruchstrasse 15
07745 Jena, Germany

Phone: +49 3641 634009 - 0
Fax: +49 3641 634009 - 20
URL: http://www.batop.de
e-mail: info@batop.de

- for transmission measurements up to 3 THz
- with software for measurement and data analysis
- for use with femtosecond fiber laser systems
- optional with housing for nitrogen purging



THz time domain spectrometer for transmission measurements using a fs fiber laser source

Spectrometer description:

- fiber coupled THz emitter and detector photoconductive antennas with one collimating and one focusing aspheric THz lens
- optical delay line for a time delay of 500 ps (<5 GHz resolution)
- Laptop with software T3DS, complete electronics with pulse generator, amplifier and lock-in detector. The software allows measurement of the THz pulse and calculates in-situ the THz spectrum. It includes the calibration procedures for 100 % transmittance and the calculation of the spectral transmittance and absorbance of a sample.
- Instruction manual for the THz spectrometer and test report

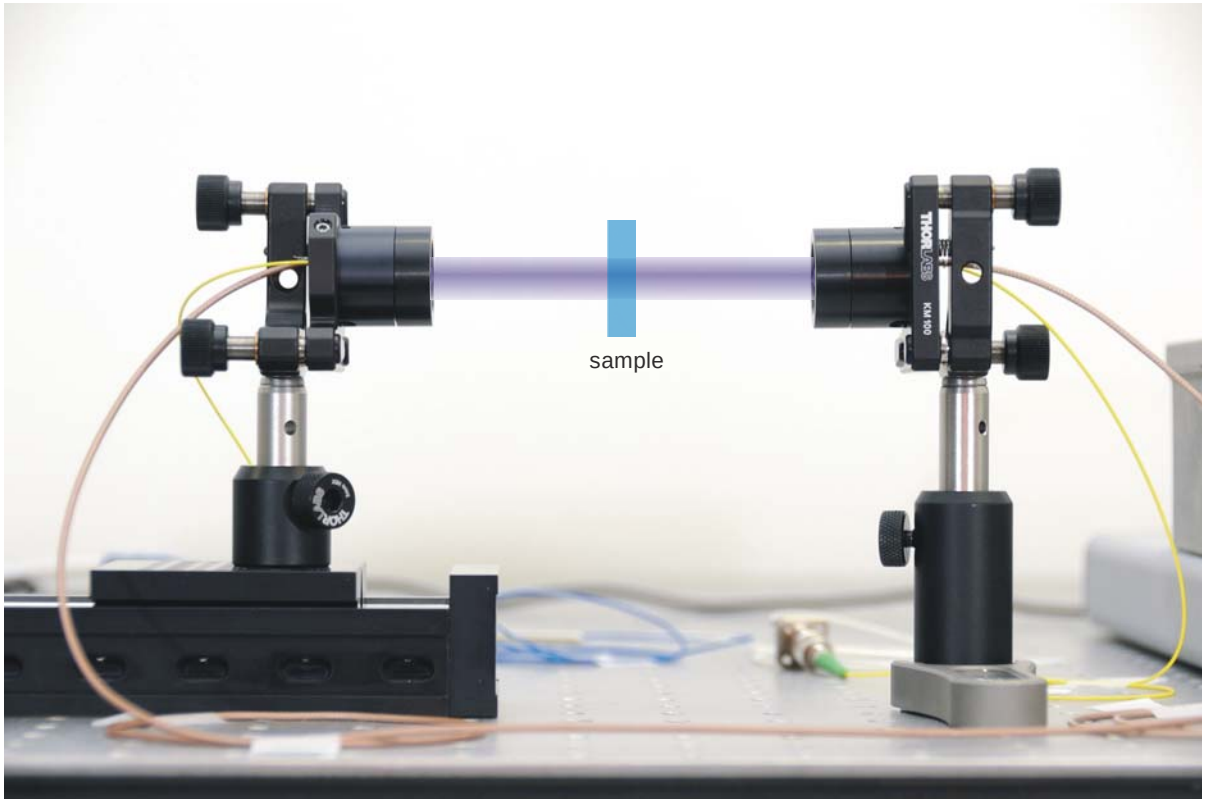
Main spectrometer data:

Supply voltage	115 .. 230 V
dynamic range	> 60 dB
useful spectral region	0.05 to 3 THz
scan range	500 ps (< 3 GHz resolution)
THz beam diameter	12 mm
Fast scan duration	0.5 s
Slow scan duration	8 min

Laser requirements:

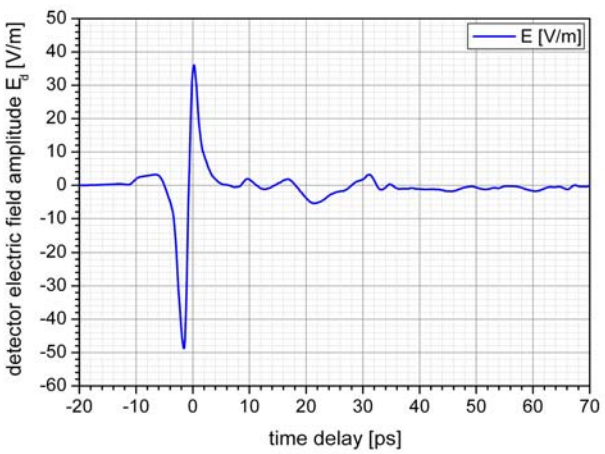
- wavelength of ~ 1 µm or ~ 1.55 µm
- pulse duration of < 120 fs
- repetition rate ~ 100 MHz
- mean optical power of > 60 mW

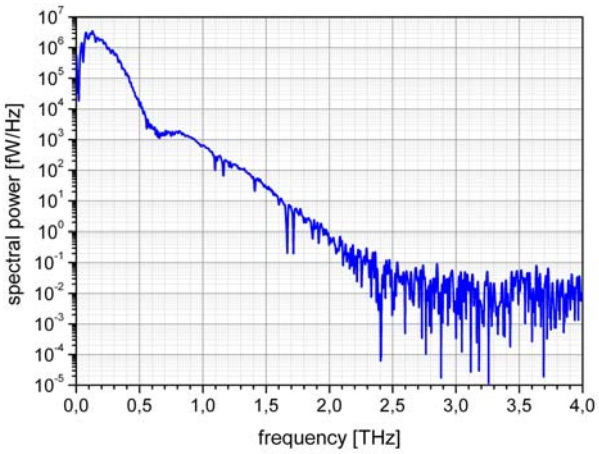
Optional: spectrometer housing with closed sample box for nitrogen gas purging



setup with two fiber coupled antennas with collimating aspheric silicon substrat lenses, THz beam ∅ 12 mm

THz-spectrum:





Emitter: parallel line antenna PCA 40-05-10-1060 / Detector: butterfly antenna PCA 44-06-10-1030 /
laser: 1064nm, 120 fs, 100 mW