

T-SWEEPER REALTIME CONTINUOUS WAVE TERAHERTZ SYSTEM



AT A GLANCE

All-fiber terahertz spectrometer operating at 1.5 μm optical wavelength

Features

- Turnkey operation
- Fully fiber-coupled
- No moving parts
- Realtime data acquisition

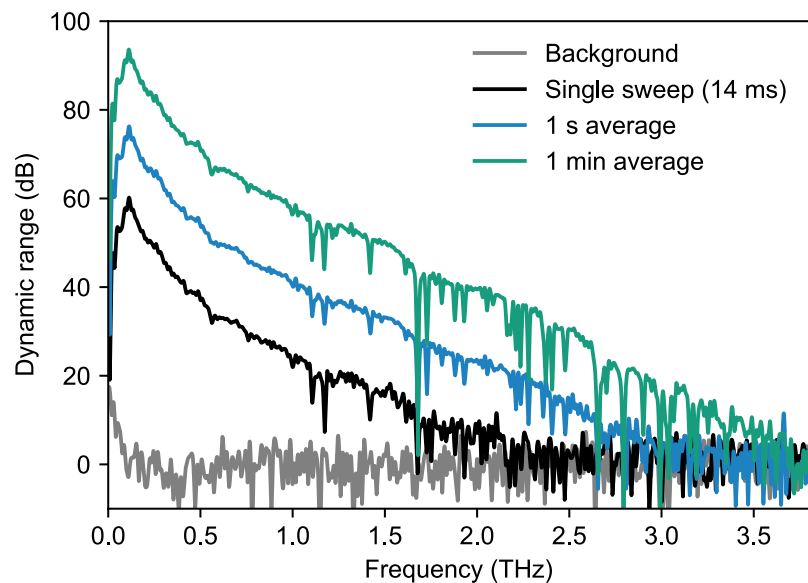
Applications

- High-resolution terahertz spectroscopy
- Industrial process control
- Non-contact thickness measurement

Technical background

Robust and agile terahertz (THz) systems are the prerequisite for transferring THz technologies from research facilities to industrial environments. The T-Sweeper real-time continuous wave THz system is based on mature telecom components, operating at an optical wavelength of 1.5 μm . Utilizing HHI's fiber-coupled continuous wave THz emitter and detector modules, the T-Sweeper provides an unique combination of flexibility, high performance and high speed. This enables the adaptation of the T-Sweeper to your specific application.

Kutz et al., "A Terahertz Fast-Sweep Optoelectronic Frequency-Domain Spectrometer: Calibration, Performance Tests and Comparison with TDS and FDS", Appl. Sci. 12(16), 8257 (2022).



Spectral dynamic range of the T-Sweeper realtime cw terahertz system. The dynamic range is shown for different averaging times.

Specifications

- Power at 1 THz > 1 μ W
- Frequency resolution 1 GHz
- Peak dynamic range > 55 dB single sweep (14 ms)
> 90 dB 1 min. average
- Size 19", 2U (11 x 48 x 36 cm³)
- Weight 5 kg

Broadband mode

- Sweep range > 4 THz
- Acquisition time per spectrum 14 ms
- Effective bandwidth 1.6 THz in single shot
> 3 THz in 1000 averages

1.3 THz mode

- Sweep range 1.3 THz
- Acquisition time per spectrum 5 ms
- Effective bandwidth 1.3 THz in single shot

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