

Rigel 1550 Terahertz Spectrometer



Key Features

- Modular, fast, reconfigurable, compact, and portable
- Fiber coupled and movable transmitter and receiver heads
- High speed scan
- Built-in data acquisition, data processing, and data display software
- Adjustable scan speed, scan range, and averaging time
- Transmission, reflection, and attenuated total reflection measurement modules
- Turn-key and easy to operate
- Nitrogen purge option
- Intuitive user interface

Product Overview

The TeTechS Rigel™ 1550 is a portable, modular, fast, reconfigurable, and compact terahertz time-domain spectrometer system for analysis of solids, liquids, powders, and gases. The fiber coupled movable transmitter and receiver heads can be mounted around the sample under test, for the cases where bringing the sample/process under test inside the spectrometer head is not feasible. The distance between the transmitter and receiver heads can be adjusted to create working space needed for different measurement settings.

Rigel 1550 provides considerably higher performance and flexibility than the state of the art today in fiber coupled 1550 terahertz time-domain systems, allowing better discrimination, less complex signal analysis, and enabling applications which cannot be robustly achieved with previous terahertz spectrometry technology.

The TeTechS Rigel 1550 is an innovative and reliable turnkey system with a built-in 1550 nm femto-second fiber laser, a fiber laser beam distribution chassis with fast and slow scan modules, and built-in lock-in and low-noise amplifiers, with a controlling and operation software.

The system is permanently aligned to provide a collimated terahertz beam between the transmitter and the receiver heads. The user has access to the collimated terahertz beam inside the spectrometer head where the interchangeable and easy to use transmission, reflection, and attenuated total reflection (ATR) measurement modules can be placed.

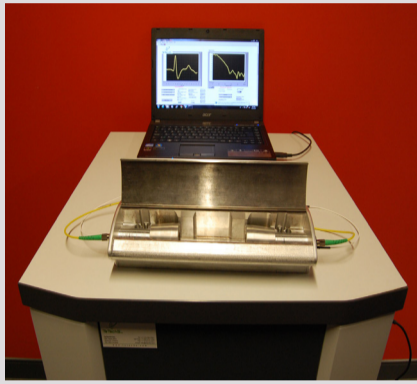
Product Specifications

Scanning Mode	Slow and Fast Scan
Slow Scan Range	up to 1.3 ns
Fast Scan Range	up to 65 ps
Slow Scan Speed	10 $\mu\text{m/s}$ to 0.5 mm/s
Fast Scan Rate	up to 20 waveforms/s
Terahertz Bandwidth	>1 THz
Spectrum Dynamic Range	> 55 dB slow scan; > 40 dB fast scan
Laser Wavelength	1559 nm
Size (W X L X H)	60 cm X 60 cm X 105 cm
Weight	250 lbs

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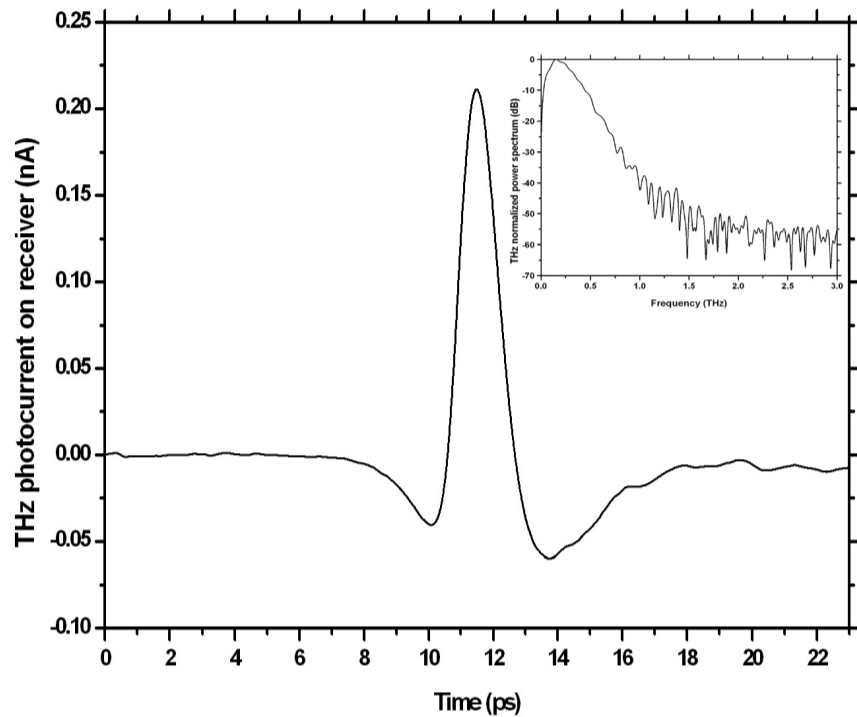
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Applications

- Material characterization
- Material sensing
- Non-destructive test
- Terahertz spectroscopy
- Hidden object detection
- Product inspection
- Manufacturing quality control
- Material identification, such as: plastics; pulp and paper; gels organic powders; adhesives
- Thickness measurement and uniformity analysis
- Coating and thin film analysis
- Additives analysis
- Electronic chip fault analysis

A typical terahertz pulse response of Rigel-1550



Rigel 1550 User Interface



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