

Impulse Excitation Technique a technology for non-destructive materials characterization and quality control



Surin Azma Energy
Laboratory Instruments

SIET 1010

Impulse Excitation Technique

The SIET1010 instrument is designed for Impulse Excitation Technique (IET) measurements at room temperature. The apparatus works based on the analysis of resonance frequencies on a wide range of materials. The mass, geometry, and stiffness are the main items determining the resonance frequencies of objects. Moreover, the SIET1010 instrument can measure the damping or internal friction based on the analysis of amplitude reduction due to the energy absorption.



According to ASTM E1876, ISO 12680-1 and EN 843-2, it is possible to analyze the materials characteristics of homogeneous and isotropic objects with the standard shapes such as bars, rods, or discs.

Technical information

- Frequency range of 20Hz - 48KHz
- Real-time analysis
- Acoustic detector
- Supply 100 - 240 VAC / 50-60 Hz
- USB Interface port
- Touch-screen Panel

Applications

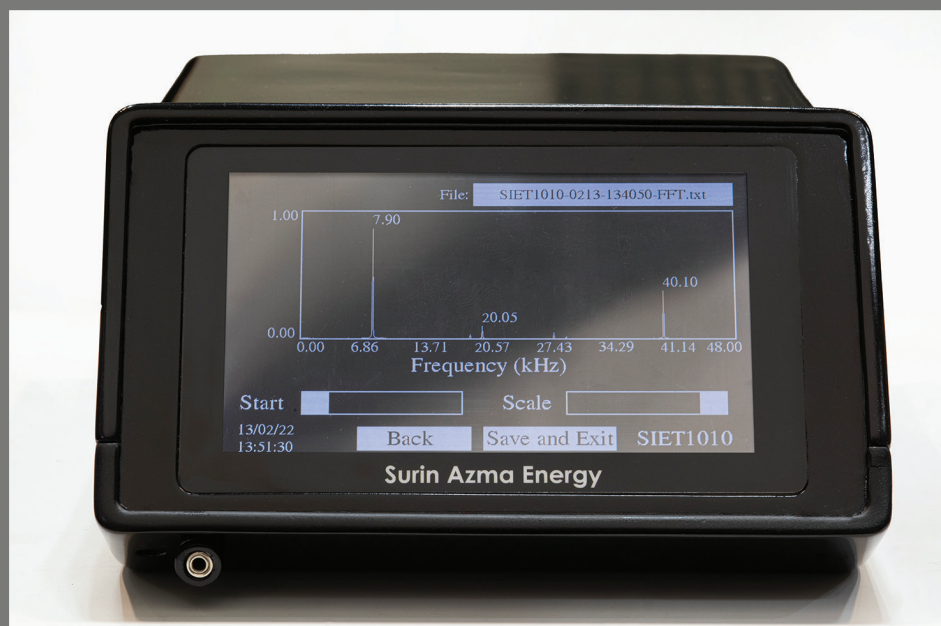
- Materials characterization (E, G, V, and Q-1)
- Damage analysis such as fatigue, crack propagation, thermal shock, and
- process monitoring for quality control

Highlights

- Non-destructive measurement of E- and G-modulus and Poisson's ratio
- Non-destructive measurement of internal friction or damping factors
- Suitable for industrial use and academic research
- Precise, fast and reliable
- Applicable to a wide range of materials
- An alternative to some destructive tests
- Immediate frequency analysis and FFT calculation
- Graphic visualization of frequency domain and FFT calculations
- Manual settings

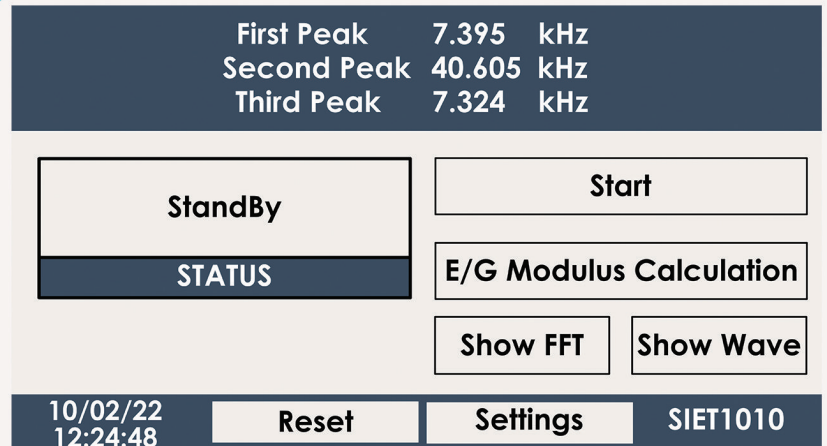
Materials

- Metals and alloys
- Building materials
- Ceramics and refractories
- Cement and concrete
- Composites and plastics
- Woods and timber
- Polymers
- Glasses
- Coatings



User Interface

- Elastic modulus and Poisson ratio calculation
- Frequency visualization
- Fast Fourier Transform Spectroscope
- Settings menu



Accessories

- Sample support for the placement of objects
- Manual Impulser
- Microphone with a wide range frequency response

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