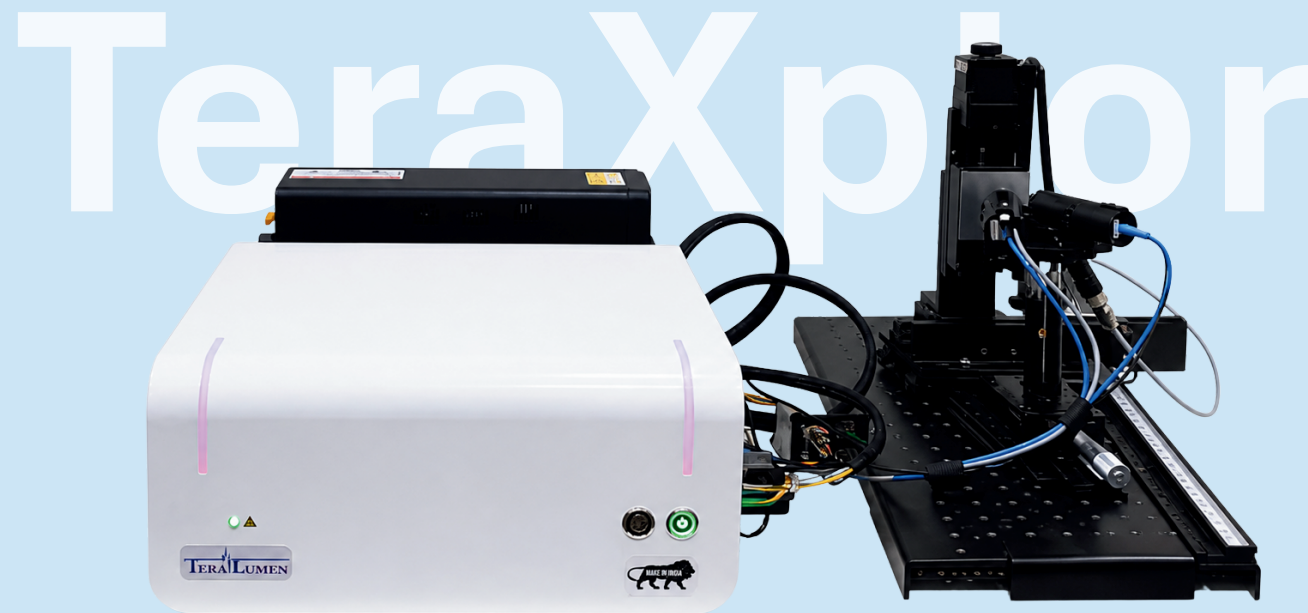


SYSTEM SPECIFICATIONS

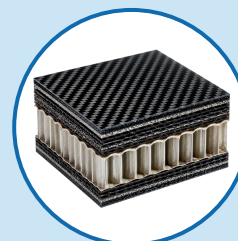
Laser Source	1550 ± 10 nm femtosecond laser
Laser Repetition Rate	100 MHz
THz Technology Type	Time Domain Signal
Spectral Range	0.1 to > 5 THz
THz Emitter / Receiver	InGaAs photoconductive emitter and detector
Standard Probe Setup	Transmission
Sensor Integration	Camera/Depth Sensor/Laser
THz Focal Type	Collimated, Focused
THz Focal Spot	6 mm, 2 mm
Working Mode	Transmission and Reflection
Dynamic Range	70 to 80 dB
Average Power	100 µW
Standard Scan Range	330 ps, 600 ps, 1000 ps and 2000 ps
Scan Speed	20 Hz
THz Frequency Resolution	< 1.2 GHz
Computer Interface	USB
Integrated Camera	8MP Camera on THz sensor
Computer Software	Lumen Lite
Optional Accessories	• 45° Reflection Probe setup • 2-axis Motorized Stage for Imaging • 180° semi-circular manual stage • Nitrogen Purging Setup • 300 mm x 150 mm Bread board • THz Polarizer • Optical Fiber Cleaning kit • TPX Terahertz Lens



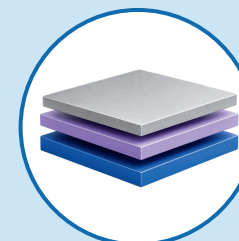
RESEARCH AREAS



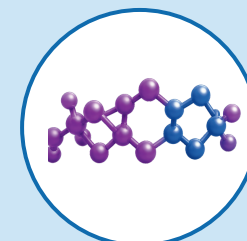
Ceramics
dielectric behavior



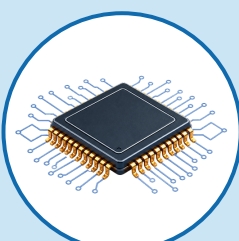
Composites
internal structure



Coatings & Thin Films
thickness, layer analysis



Polymers
spectroscopy



Semiconductors
defect imaging



Biomaterials
spectral signature



Pharmaceuticals
material fingerprint



Paper / Packaging
quality and moisture

scan me for



data sheet

THz Spectroscopy

Revealing the spectral fingerprint of materials

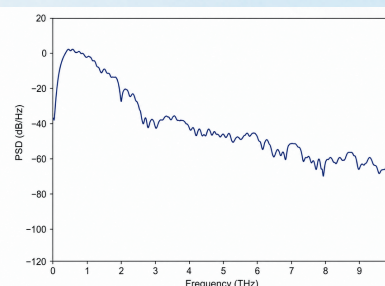
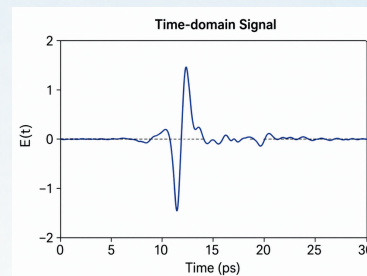
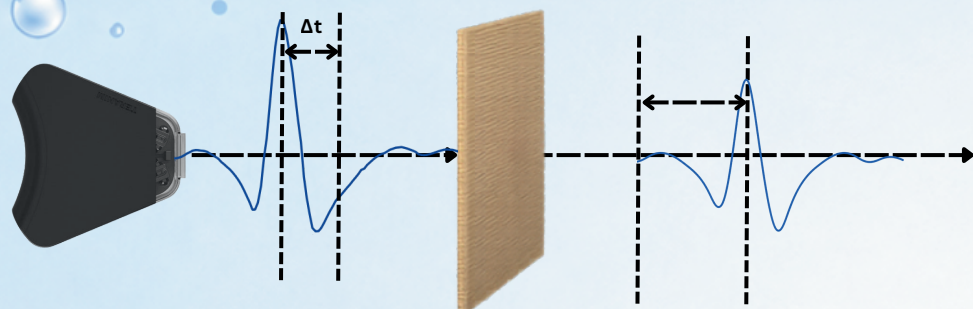
THz Probe

Sample Interaction

Time-Domain Signal

Frequency Spectrum

Material Properties



n
Refractive Index

α
Absorption Coefficient

ϵ
Dielectric Properties

σ
Conductivity

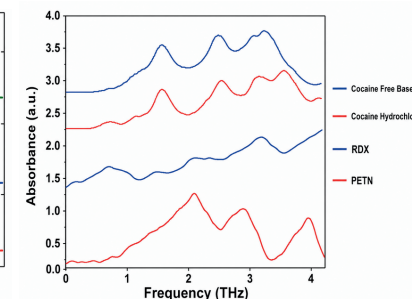
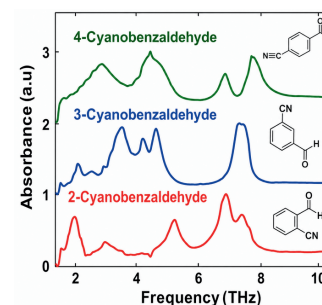


What is THz Spectroscopy?

THz spectroscopy studies how materials absorb, transmit, and respond to terahertz waves. The resulting spectrum reveals unique information about molecular structure, composition, and physical properties.

A Spectral Signature

Different materials exhibit different THz spectral responses, enabling comparison and classification.



Key Material Properties



Refractive Index
(n)



Absorption Coefficient (α)



Dielectric Properties
(ϵ)



Conductivity
(σ)



Thickness
/Optical Delay



Spectral
Fingerprint



Broadband
0.1 - 5.0 THz
Spectral range



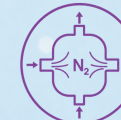
Dynamic Range
70 to 80 dB



Optical delay line
upto 2000 ps



Customizable
Through transmission
and reflection.



Nitrogen Purging