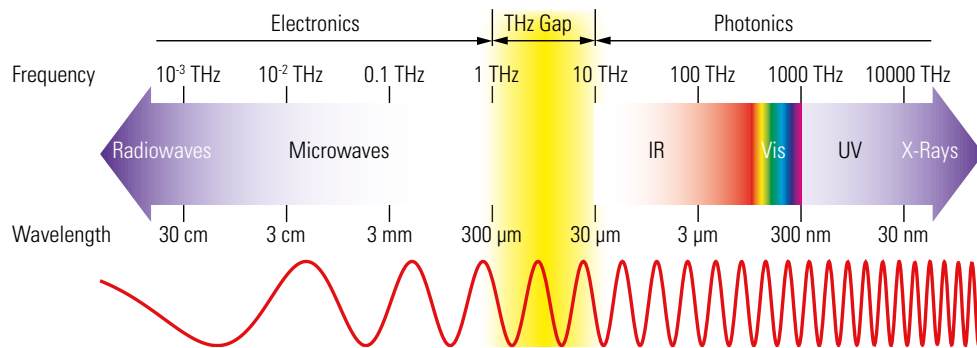


TERAHERTZ DETECTORS

Overview of the different models

WHAT IS TERAHERTZ RADIATION?

The THz portion of the electromagnetic spectrum fills the gap between the far infrared and the microwaves. More precisely, it is nestled between the high-frequency edge of the microwave band, 300 GHz (3×10^{11} Hz), and the long-wavelength edge of far-infrared light, 3000 GHz (3×10^{12} Hz or 3 THz). In wavelengths, this range corresponds to 0.1 mm (or 100 μm) infrared to 1.0 mm microwave. The THz band is set in the region where electromagnetic physics can best be described by its wave-like characteristics (microwave) and its particle-like characteristics (infrared).



WHAT IS IT USED FOR?

THz radiation is interesting because of the way it interacts with matter:

- It can penetrate things like wood, plastics, clothing, and other materials.
- It is also absorbed by water, or a material that contains water, like human skin.
- It is non-ionizing and therefore not harmful to humans like X-rays can be.

One of the first uses is the “full body scan” used at airports. It also has uses in medical applications for early detection of cancer cells.

HOW IS IT MEASURED?

THz sources range in power from nW to mW and in energy from nJ to mJ. Like most electromagnetic sources, they must be characterized for performance and/or control.

Older THz detection methods include:

- Golay cells
- Microbolometers
- Electronic antennas

Newer THz detection methods include:

- Pyroelectric detectors
- Schottky diode detectors
- Photoacoustic detectors

WHY ARE GENTEC-EO PRODUCTS BETTER?

Golay cells are large, fragile, costly and have a limited measurement range.

Pyroelectric detectors (like the ones used in our THz detectors) are small, sensitive, durable and less costly. Some of their advantages are:

- High performance in a small package
- Broad spectral response (from 0.25 to 3000 μm)
- Wide dynamic range (from nW to mW)
- Rugged and durable
- Very cost-effective

TERAHERTZ DETECTORS

Overview of the different models

We have a unique line of sensors and meters for the terahertz region. You can choose either a standalone device with on-board electronics or go with our T-Rad meter and a separate sensor. We also have small terahertz detectors that come as discrete pyroelectric units for integration.



THZ-B

- Large apertures: 5 mm and 9 mm \varnothing
- Wide dynamic range: 50 nW to 200 mW
- Choice between analog and digital versions
- User-friendly software (when used with the T-Rad module)

■ WORKS WITH OUR T-RAD AND T-RAD-ANALOG MODULES



THZ-I-BNC

- Sensitive 5-mm detector integrated with low-noise amplifier
- Wide dynamic range from nW to μ W
- Battery or AC powered
- Compatible with an oscilloscope or lock-in amplifier

■ INTEGRATED BNC MODULE

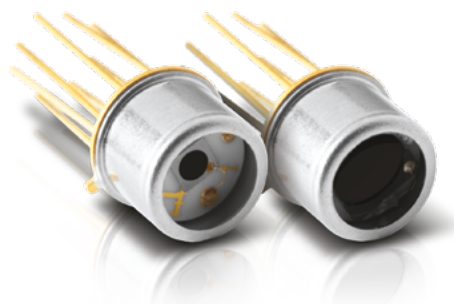


THZ-D

- Flat spectral response: Get the best precision across the entire THz range
- Works with our standard universal displays & PC interfaces.
- Large apertures of 9 and 12 mm \varnothing

■ FLATEST SPECTRAL RESPONSE IN THE THZ

■ WORKS WITH OUR STANDARD DISPLAYS & PC INTERFACES



QS-THZ

- Easily integrated into a THz measurement instrument or set-up
- Small TO5/TO8 packages
- Available in 2 sizes: 5 and 9 mm \varnothing apertures
- Wide dynamic range from nW to mW
- Plug-and-play with QS-I-TEST evaluation test box

■ DISCRETE PYROELECTRIC DETECTORS