

TERA Overview - Sensing The Invisible

TERA is a science-based, deep technology company, fueled by cutting-edge engineering.

For nearly two decades, TERA has been researching and developing its unique Terahertz (THz) technology platform. We focus on developing and providing technological enhancements in multiple industries and markets such as Food, Medical, Pharma and Energy. The company branched out of the distinguished Weizmann Institute of Science from Israel in 2003.

TERA WAVES TECHNOLOGY

The THz frequency band (300-3,000GHz) is situated between microwaves and infra-red in the electromagnetic (EM) spectrum.

THz waves are highly desirable due to their exceptional sensing and diagnostic capabilities, when illuminated on many biological or chemical materials. They are human-safe and offer unparalleled opportunities and information unavailable until today.

TERA is also producing TeraWater with unique characteristics, intended for multiple use cases and industries. The process involves molecular resonance at various EM frequencies, to alter standard water properties.

AT A GLANCE

Founded: 2003

Headquarters: Herzliya, Israel

Employees: ~75 FTE*

Total Patent Applications: 90**

Total Investments: +\$110M

Total Investors: 400

Intro Video on TERA: [Link](#)

* Excluding ~20 outsourced employees/advisors
 ** 49 Granted; 41 in process; and ~100 additional applications in various stages

Human-Safe (Non-Ionizing waves)	Special Interactions with Water (H ₂ O) Molecules & Hydrogen Bonds	Unique Detection of Bio- Chemical Compounds, Viruses, Bacteria & Gases	Penetrates Differently than RF & Infra-Red (IR)
Molecular Radar Capabilities	Extreme Signal Accuracy & Resolution	Improve Bio-Availability in Food & Pharma Industries	Located between Microwaves and Infra Red

PRODUCTS & SOLUTIONS

TERA primarily develops customized THz products and solutions for its strategic partners under its B2B platform. Its main product is the TeraSystem.

TeraSystem® – THz spectrometer that can detect and obtain new, valuable and unprecedented information from any gas, chemical, biological and organic material (including in water) for customized solutions. The TeraSystem operates as a diagnostic molecular radar/scanner.



 **TERA BioStation**

BioStation Non-Invasive Rapid Tests,
 Providing COVID-19 Results to
 Individuals Tested as Clear/Not-Clear



 **TERA Egg**

Egg Scanner Preventing 6.5B Male
 Chick Killing + Adding 41B/year
 Infertile Eggs (10% of eggs)



 **TERA SYSTEM**

TeraSystem Scanner
 Customizable to multiple
 THz Solutions & Products

Rapid Breath Tests for COVID-19 Using THz

TERA, via its fully owned subsidiary, TERA.Bio, introduces a rapid breath test to determine if an individual is *Negative* to COVID-19 (*Clear* to Continue). Comprised of the proprietary TeraSystem molecular scanner, this rapid, non-invasive test, uses the sensitivity of THz waves to provide accurate and reliable results, including for COVID-19 variants. Its intended use is primarily to perform mass screening rapid tests for the general population (mostly asymptomatic or pre-symptomatic) to COVID-19, complementary to RT-PCR tests.

More than 1,000 types of Volatile Organic Compounds (VOCs) and other microscopic aerosols, are found in every breath we exhale (~10²¹ molecules in room temperature). These particles are captured through the personal and disposable TeraTube, including proteins associated with infectious viruses, such as COVID-19, and scanned by the BioStation.

Following training sites conducted in Israel, Latin America, Asia, USA, UAE and Europe (CE Mark approved), TERA has begun selling its rapid breath tests to clients worldwide, while continuing to apply and receive regulatory approvals from countries worldwide, in a collective efforts to fight COVID-19 and mobilize the global economy.

HOW DOES IT WORKS

Step 1

Individual exhales 3 times into a TeraTube that collects Volatile Organic Compounds (VOCs) found in breath.

Step 2

The TeraTube is sealed and placed inside the BioStation. It is easily disposable after tests.

Step 3

A technician monitors the scanning of the TeraTube.

Step 4

A test result of either "Clear" or "Not-Clear" is displayed on the BioStation's screen, within ~1 minute.

SCANNING EQUIPMENT



BioStation T101 & T202

Internal TeraSystem + scanner. Used to analyze breath aerosols and VOCs. The BioStation T202 has also a Biowaste container to collect used TeraTubes



TeraTube

Individual and consumable breath testing tube. Integrated with a proprietary membrane that captures the breath aerosols

BENEFITS

- Real-Time Results
- Easy to Operate
- Non-Invasive
- Safe & Sterile
- Portable
- High Detection Rate
- Cost Effective
- High Throughput
- Machine Learning/AI/DSP
- Software Updates for other Viruses, Diseases, Variants and Bacteria (in the future)

50

Tests Per Hour/BioStation

Exhaling 3 times

Collecting Breath Aerosols

~1 minute

Total Test Duration on Average
(from sample to result)

30 kg / 66 lbs.

BioStation Specifications

0.4-1.2 THz

Dynamic Range

~200,000*

Annual Tests Per BioStation

* Assuming an average working time of 14 hrs. per Station, 7 days a week, and a downtime of 20%. If the working time is more or less than 14 hrs, or in case the BioStation will be operating less than 7 days a week, the total number of daily/monthly/yearly tests may vary.

How Does TERA.Bio's Rapid Breath Test Compare with other COVID-19 Diagnostics Solutions?

These days, we are all subjected to information on the COVID-19 pandemic, from every direction. While most of it is true, some of it is based on popular science, inaccurate interpretation of scientific publications, and social media influences. For those reasons, it is important for us at TERA to provide you with our view of the current COVID-19 status:

- Throughout history, pandemics resurface every few years. The COVID-19 pandemic simply reminded humanity that collectively we have an *Unseen Enemy* in the form of viruses, as well as bacteria and other diseases (i.e., nano size pathogens).
- We believe that the only way to prevent a pandemic is by breaking the chain of transmission as early as possible, in addition to vaccination and masks protection. The most effective method to do so, is by performing mass screening testing for the general population in public areas (e.g., shopping malls, schools, events, etc.), Clearing individuals who test *Negative* for COVID-19, or Not Clearing the pre-symptomatic, asymptomatic or *Positive* for COVID-19 individuals. It also allows for safer and smoother international travel (cruise lines, airports, etc.), large gatherings in sports arenas and other entertainment venues, as well as large office buildings, among others.
- Unlike Rt-PCR tests (currently considered the gold standard) which are invasive tests, expensive, slow to generate a result, and intended to detect symptomatic to COVID-19 individuals only (days 3-7 from infection), TERA.Bio's COVID-19 rapid breath test offers a quick, non-invasive, inexpensive, accurate, real time screening tool (can be administered by non-medically trained personnel) and easily updated with software updates, including for variants of COVID-19.
- Since TERA.Bio's THz technology can detect the associated bio-markers and proteins of SARS-COV-2 in breath, as opposed to DNA/RNA-based solutions (Antigen/Rt-PCR), it can provide an accurate reading across the entire spectrum, including other and newer COVID-19 variants as they come up (unlike PCR-based tests that might require amended chemical reagents for such detections).
- TERA.Bio plans to use the same installed base of BioStations to screen for other pathogens (e.g., viruses, bacteria, and other diseases) via a downloadable software update, following clinical trials.

TERA.Bio App (in development)

The 1st generation TERA.Bio App, once fully developed, will include the following benefits:

- Push notifications with test results via mobile app and general info of nearby test locations.
- Provide digital health instructions of TERA.Bio's rapid breath test for COVID-19.

