



Robotic Paint Inspection System

An Automated Multi-layer Coating measurements systems with Terahertz Technology



Automated

Non-Destructive

Non-Contact

Automotive – Paint Shop Production Process



The Industry Challenge

Every year, automotive paint shops face a **1–5% rejection rate** due to:

- Poor surface adhesion
- Peeling or delamination
- Corrosion under coatings
- Uneven coating thickness

Now with THz Technology:

- Non-contact, non-destructive
- Capable 24x7 working conditions
- Enables better control in paint process
- Real-time, inline inspection during paint process
- Measures all layers (primer, base, clear)

Why?

Conventional tools like DFT gauges measures only overall coating thickness manually.

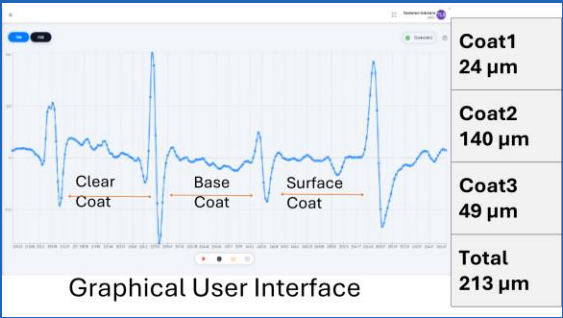
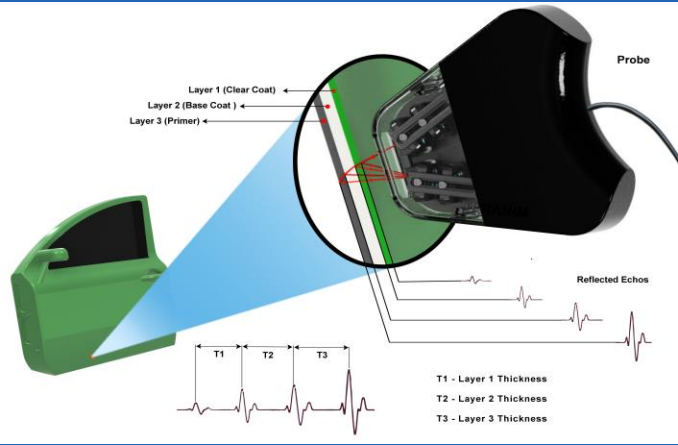
What is Terahertz (THz) Waves?

Terahertz (THz) is an optical wave frequency which lies between microwave and infrared in the electromagnetic spectrum, covering frequencies from **0.1 to 10 THz**.

It can **penetrate materials** like plastics, paint, and fabric **without causing damage**, making it ideal for **non-invasive inspection**.

Industry Benefits

- Reduction of reworks
- Reduce CO2 Emissions
- Reduction of the environmental impact
- Material savings thanks to thickness optimization
- No need for cost extensive calibrations



MEASURABLE COATING CONFIGURATIONS

| | |
|-------------------|---|
| Substrates | Ferrous and non-ferrous metals, fiber composite materials (CFRP/GFRP) and polymers (thermoplastic, elastomers...) |
| Base coats | Solid, metallic, pearlescent, two-phase, trilayer and paints with magnetic particles, among others |
| Clear coats | Matt and gloss |
| Surfaces | Flat and curved surfaces (, concave and convex) Temperature from 10 to 150°C |
| Wetness condition | Dry, wet and cured coating |

OPERATIONAL REQUIREMENTS

| | |
|-----------------------|--|
| Robotic system | Compatible with any conventional robot: any model and Brand |
| Operating temperature | 15°C (59°F) – 35°C (95°F) |
| Operating humidity | Relative humidity < 75% |
| Operating atmosphere | Non-condensing atmosphere |
| Power requirements | 110 / 240 VAC, 4 A-line power, 50-60 Hz Single phase, two-wire plug |

*Note: Tumkey system is customizable based on application requirements.



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Our mission is to design, develop, and deliver state-of-the-art Terahertz Imaging products and solutions that meet the exacting demands of Non-invasive Inspection across sectors such as Bio-Medical, Aerospace, Automotive, Defense, Energy, Pharma, Semiconductor, and Electronics.

-----MAKING TERAHERTZ ACCESSIBLE AND AFFORDABLE-----

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