Optical Transmission Scanner - OptiView™

OTS-1000

Non-destructive evaluation (NDE) techniques that can measure both surface and subsurface defects are of critical importance in evaluating the integrity of composites and plastics. The OTS-1000 is a high resolution (lateral), rapid, and non-contact optical transmission scanning system specifically designed for quantitative NDE of such components. Materials with low attenuation in either ultraviolet (FUV to NUV), visible, or infrared (NIR to FIR) spectra are suitable for inspection. Unlike ultrasonic testing (UT) methods, the OTS-1000 has a simpler system design and does not require coupling or sophisticated electronics, thus allowing for rapid scanning and significant cost reduction. The system comes with integrated software, which provides more detailed information about defects, such as the number of delaminations in the cross-section of the sample.

Making Light Work Lighter
General Photonics Corporation

Specifications

Inspection Wavelength[1]	IR: 1060 nm, 1310 nm, or 1550 nm VI: 400 nm – 700 nm
Collimated Beam Diameter	<1mm
Laser Output Power[2]	≥5 mW
Sample Thickness[3, 4]	Up to 7 cm
Lateral Resolution[4]	100µm
Scanning Speed	200 mm/s
Scanning Range (Gantry Movement Range)	24: 20.32 × 40.64 cm 44: 40.64 × 40.64 cm 48: 40.64 × 81.28 cm
Communication Interface	USB 2.0
System Dimensions	24: 72.1 × 61.0 × 36.1 cm 44: 113.7 × 61.0 × 36.1 cm 48: 113.7 × 102.2 × 36.1 cm
Operation Temperature	10 to 50° C
Storage Temperature	−20 to 60° C
Power Supply	100 - 240 VAC, 50 - 60 Hz

Notes:
1. Wavelength will be selected based on customer requirements.
2. Lasers with higher power may be available, depending on customer requirements
3. Dependent on transparency of sample material.
4. With diameter of pinhole = 100µm, wavelength = 640nm, rear face of sample flat, and sample transmission > 10%.

Applications:

Quantitative NDE:
- Cracks and delaminations (e.g., impact damage)
- Fatigue degradation
- Thermal damage

Quality Control
- Detection of inclusions
- Curing quality control
- Thickness/dimensional stability measurements
- Coating inspection
- Bonding quality inspection
- Porosity estimation

Range of Evaluated Materials
- Fiber reinforced polymer composites (e.g., glass-and aramid-based)
- Plastics
- Amorphous solids (e.g., glass, quartz)
- Semiconductors
- Crystals

Features:

- Non-contact
- High Speed Scanning
- Suitable for thick samples
- Cost Effective
- High Lateral Resolution

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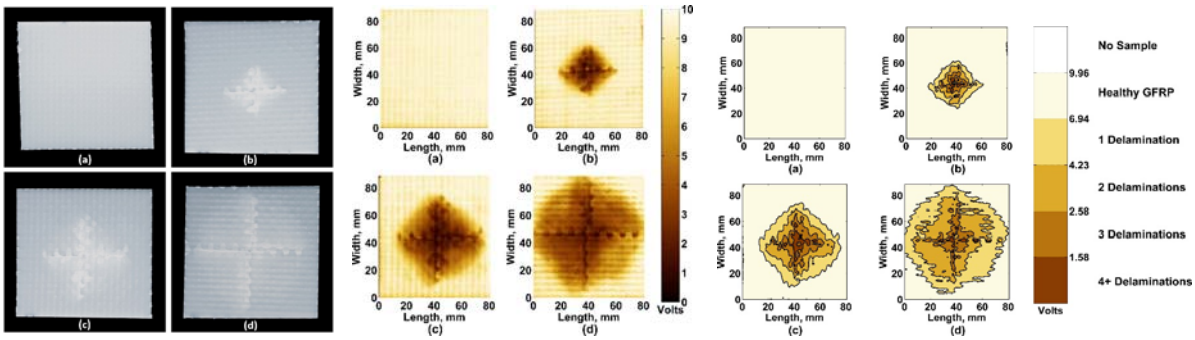
Impact damage example: advanced image processing

Impacted GFRP Samples | **Raw OT-scans** | **Processed OT-scans**



Ordering Information:

OTS – 1000 – □□ – □ – □

Fiber Type:
SS = SM

Scanning Range:
24: 20.32 × 40.64 cm
44: 40.64 × 40.64 cm
48: 40.64 × 81.28 cm

Wavelengths*:
15 = 1550 nm
13 = 1310 nm
10 = 1060 nm
64 = 640 nm
45 = 450 nm*

* Combinations available

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