



technologies for extreme applications™



Prime Photonics creates value for its customers, shareholders, employees and partners, by developing impactful sensor and materials technologies and products for test and measurement, inspection, control and health monitoring of commercial and military equipment, structures and turbomachinery.

Guiding Principles

The Prime Photonics Guiding Principles form the fundamental basis of our company and culture.

Integrity

We believe the underlying principle governing all of our actions must be integrity

- » Honesty
- » Fairness
- » Accountability

Performance

We believe that to be successful, we must differentiate ourselves from our competitors through exceptional

- » Innovation
- » Teamwork
- » Focus
- » Learning

Commitment

We are committed to delivering value to all Prime Stakeholders: Customers, Shareholders, Partners and Employees

- » Deliver a Return on Investment
- » Create Value
- » Provide a Safe Workplace
- » Value Diversity
- » Financial Discipline

Core Competencies

Prime Photonics is focused on developing and maintaining competencies that allow us to deliver best-in-class technology solutions for both military and commercial systems and applications.

Optical Sensors

Prime Photonics personnel possess in-depth expertise of optical sensing technologies, optical fibers, cables, connectors, opto-electronic devices, and component and probe packaging.

Rapid Design, Prototyping and Test

We have a comprehensive test capability for environmental, mechanical, electrical, thermal and spin tests.

Small Business Innovative Research (SBIR) Program

Prime Photonics excels at formulating intelligent SBIR technology development and transition strategies with partner businesses and universities, and in the successful execution of SBIR/STTR projects from concept to transition/commercialization.

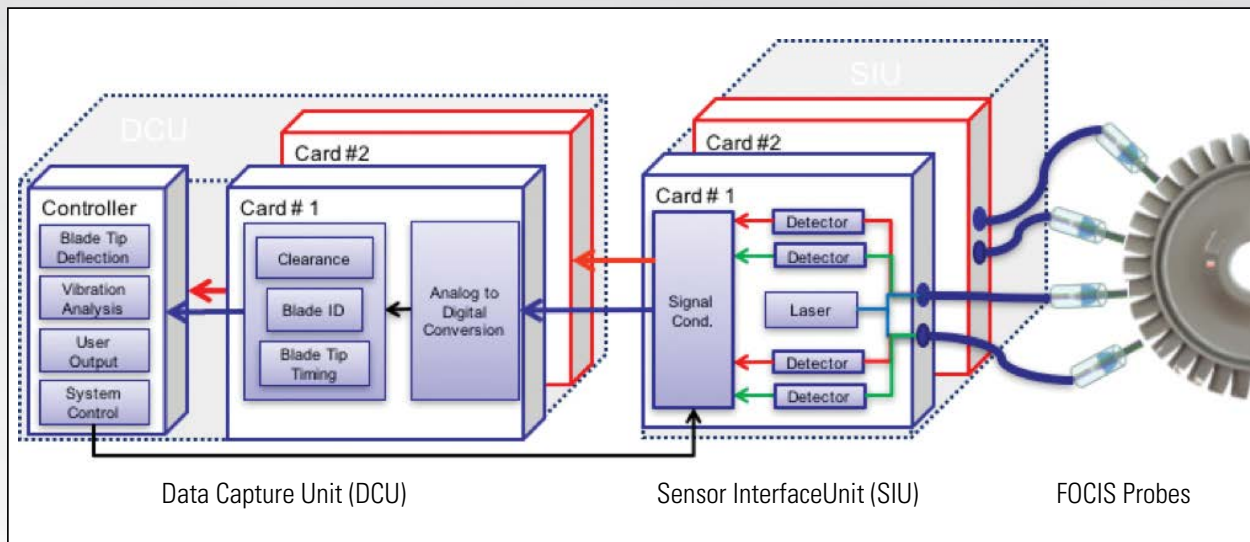
Harsh Environment Sensor and Device Packaging

Since its creation, Prime Photonics has specialized in sensor and device packaging for harsh, high temperature environments and has significant technology and know-how relating to high temperature materials, bonding of metals, ceramics and glass, and sensor package designs.

FOCIS™ Fiber Optic Clearance and Identification Sensor System

Prime Photonics' FOCIS™ System provides precise measurement of turbomachine blades, allowing the measurement of blade speed, timing, clearance, vibration, flutter, stall, FOD impact, and condition to verify design modifications, confirm build quality and assure that blade health has not deteriorated during operation.

The Prime Photonics FOCIS system



FOCIS Probes Sensors



Prime Photonics Fiber Optic Clearance and Identification Sensor (FOCIS™) is a revolutionary high-temperature multi-function gas turbine sensor providing real-time blade-by-blade tip clearance (BTC), tip timing (BTT), and blade identification capabilities from a single probe package.

Prime Photonics FOCIS™ Blade tip timing and clearance probe

Sensor Interface Unit (SIU)



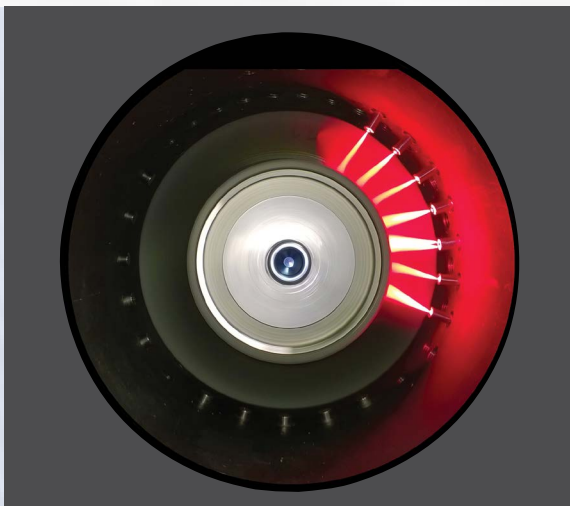
The FOCIST™ Sensor Interface Unit (SIU) includes the laser and detector instrumentation to operate up to 16 FOCIST™ Blade Tip Timing (BTT) probes or up to 8 FOCIST™ multi-function Blade Tip Timing / Blade Tip Clearance (BTC) probes. It features adjustable power output on lasers with a redundant safety lockout system, and can be fully remote controlled over Ethernet via its integrated web interface.

Data Capture Unit (DCU) and Data Capture Card (DCC)

FOCIST™ Data Capture hardware, up to 4 FOCIST™ BTC probes. The FOCIST™ SIU provides an independent analog output for each probe that may be acquired using standard DAQ hardware or our FOCIST™ Data Capture Card (DCC) and PXIe chassis for a fully integrated data acquisition and blade tip timing data solution.



Prime Photonics FOCIST™ Data Capture Card (DCC – foreground) with Data Capture Unit (DCU - rear)

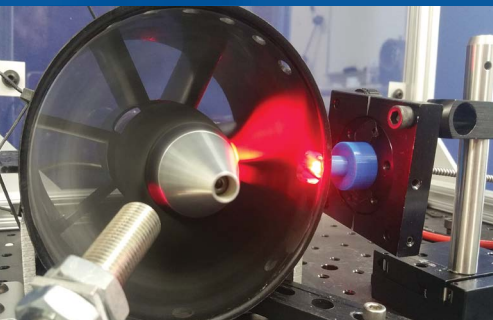


Engine Health Monitoring

Gas turbine blade health monitoring (BHM) enables users in the propulsion and power turbine industry to operate their machines with higher reliability, increased safety and lower ownership costs. Prime Photonics BHM technology integrates FOCIST™ rotor blade sensors with innovative signal processing algorithms to provide advanced monitoring capabilities.

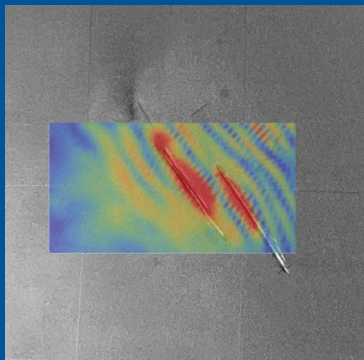
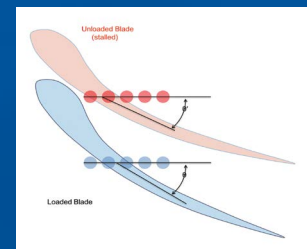
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Core Research Areas



In our Core Research development activities, Prime Photonics works at the forefront of new sensor and materials technology development that addresses turbomachinery control, test, inspection and monitoring needs.

Prime is developing new FOCIS™-based engine health monitoring capabilities such as gas turbine stall, surge and foreign object damage (FOD) detection, new technologies such as Filtered Rayleigh Scattering (FRS) for non-intrusive gas turbine inlet flow measurements, and new condition-based maintenance solutions for industrial and military turbomachinery aimed at reducing maintenance costs, increasing operator safety and improving operational readiness.



High performance material technologies have created exciting new opportunities in gas turbine design, but suitable non-destructive inspection techniques for these new materials are lagging. Synchronous Magnetic Imaging System (SMIS™) technology addresses the shortcomings of today's non-destructive inspection technologies with solutions being developed for ferrous and non-ferrous metals, composites and additively manufactured components. In addition to traditional surface scan inspections, SMIS™ performs sub-surface non-destructive inspection of parts and is being applied to manufacturing QC, repair inspections, lifing estimation and in-service equipment health checks.

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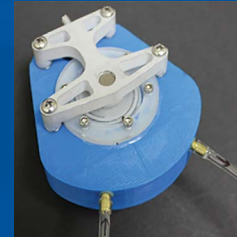
Emergent Research Areas

In our Emergent Research technology development, Prime Photonics performs applied research and development of sensor, advanced material and energy harvesting technologies which have the potential to lead to new disruptive products in energy, transportation, military, and communications market areas.

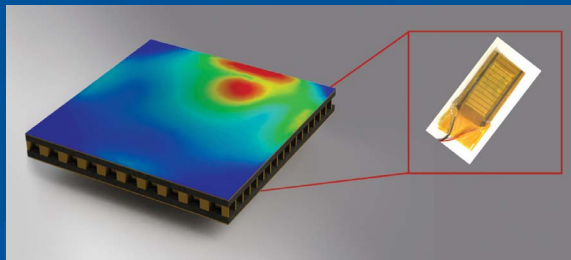


Prime Photonics is developing a novel Acoustic Emission-based structural health monitoring technology for composite structure lifetime estimation.

We are researching magnetodielectric materials which may allow new opportunities in electromagnetic device design, such as miniature antennas.



Prime Photonics is using magnothermal energy harvesting for solar panel thermal management, thermal energy scavenging and as the basis of magnetothermal pump technology.



extreme applications™



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