



Sentek Instrument Awarded STTR Contract to Develop Robust Multi-Parameter Sensor for Rotating Detonation Engine Applications

Blacksburg, VA – September 8, 2025 – Sentek Instrument, a global leading manufacturer of high-performance optical sensing technologies, has been awarded a Small Business Technology Transfer (STTR) Phase I contract for the development of a *Robust Multi-Parameter Sensor for Rotating Detonation Engine (RDE) Applications*.

In this program, Sentek Instrument will collaborate with the Engines and Combustion Laboratory (ECL) at the University of Alabama (UA) to design, build, and demonstrate minimally invasive sensors capable of withstanding the extreme conditions of the RDE environment. These advanced fiber-optic sensing systems provide time-resolved measurements of channel pressure as well as instantaneous temperature and wall heat flux — critical data for advancing the next generation of propulsion technologies.

The innovative system leverages high-frequency interrogation of a monolithic single-crystal sapphire optical element, enabling a small form factor and robust operation in harsh environments. Once integrated, the sensor suite will deliver simultaneous measurements of total and dynamic pressure, temperature, and heat flux, with multiplexing capabilities for distributed installation throughout an RDE.

Ultimately, the technology will be seamlessly integrated into a fully operating Rotating Detonation Engine at UA, equipping operators and researchers with a powerful diagnostic tool that is currently unavailable in the market. This breakthrough will not only support the United States Air Force's propulsion research initiatives but also provide a cost-effective, high-performance solution for monitoring detonative flow and validating computational models.

"We are proud and excited to partner with the University of Alabama on this groundbreaking project," said Anbo Wang, CEO of Sentek Instrument. "Our innovative fiber-optic sensing technology is uniquely suited for the challenges of the RDE environment, and this effort represents a major step forward in providing the Air Force with advanced diagnostic capabilities."

This STTR award further strengthens Sentek Instrument's position as a leader in high-performance optical sensing technologies for demanding aerospace and defense applications. More information on Sentek Instrument's extreme environment sensors and interrogators can be found at <https://www.sentekinstrument.com/ept/>

About Sentek Instrument

Sentek Instrument is a technology leader in advanced optical sensing solutions for aerospace, energy, infrastructure and defense applications. By combining innovative design with precision engineering, Sentek delivers high-performance measurement systems that thrive in extreme environments.

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