

October 2024

## New State-of-the-Art Manufacturing Facility for Thermal Sensors

Raptor Scientific is proud to announce the opening of our new, **state-of-the-art manufacturing facility**, designed to advance the engineering, development, and production of cutting-edge [thermal sensors](#). This facility marks a major milestone in our commitment to delivering precision-engineered and manufactured solutions for aerospace, defense, and high-tech industries.



Located in **Huntsville, AL** the new facility substantially increases the manufacturing footprint, allowing us to expand our product offerings, continue delivering high-performance thermal sensors, and provide quicker turnaround times on new orders. These sensors are critical to a range of applications, including aerospace testing, engine performance, and environmental control systems.

### Key Products Manufactured at the New Facility

#### Heat Flux Transducers

[Heat flux transducers](#) are essential for measuring heat transfer, making them indispensable for thermal management and predictive modeling in aerospace and defense systems. Our new facility is fully equipped to design and produce high-precision heat flux transducers capable of performing in extreme conditions. The new facility enhances our ability to offer:

- Customizable designs for specific applications.
- Superior sensitivity and accuracy, even in high-temperature environments.
- Durability and reliability, ensuring long-lasting performance in critical systems.

#### Thermocouples

[Thermocouples](#) are used extensively in temperature measurement for aerospace engines, environmental chambers, and defense applications. Our new facility enables us to innovate in thermocouple design, improving their performance and extending their lifecycle. Features of our new thermocouple features that include:

- Fast response times for dynamic temperature changes during short-duration tests
- Customizable Geometry allowing for the thermocouples to conform to nearly any control surface or required mounting conditions
- Rugged Junctions allowing for temperature measurement in extreme environments.

#### Infrared Radiometers

[Infrared radiometers](#) are critical tools for measuring electromagnetic radiation in various aerospace and defense applications. Our new facility enhances our ability to provide radiometers with:

- Enhanced sensitivity and accuracy in detecting infrared radiation across a broad spectrum.
- Compact and rugged designs that can withstand harsh environments.
- Custom calibration for specific use cases, ensuring the highest level of performance.

### Facility Highlights: A Hub of Innovation

The new facility features cutting-edge production technologies, ensuring the highest level of precision and quality control. It will house **engineering offices, manufacturing lines, and dedicated R&D spaces** for continual product innovation. Our investment in these resources allows us to scale production, reduce lead times, and provide more efficient and reliable delivery of high-performance thermal systems to our customers.

### Commitment to Excellence and Customer-centric Solutions

At Raptor Scientific, our goal is to exceed customer expectations by delivering precision-engineered solutions that meet the complex thermal management challenges faced by aerospace and defense industries. Our new facility not only enhances our manufacturing capacity but also reinforces our commitment to pushing the boundaries of innovation.

Through this investment, we will continue to:

- Offer customized thermal system solutions tailored to our customers' specific requirements.
- Deliver products with unmatched accuracy, reliability, and durability.
- Provide end-to-end support, from product design and development to manufacturing and after-sales service.

### Looking Ahead: Driving Future Innovations in Thermal Systems

As we expand our thermal systems product line, we remain committed to driving innovation and delivering the most advanced thermal measurement and management solutions in the industry. With this new facility, Raptor Scientific is well-positioned to meet the growing demands of our clients and to maintain our leadership position in providing thermal systems for aerospace, defense, and other high-tech sectors.

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## Product Spotlight - KSR Series

The KSR series is our flagship line of [center of gravity and moment of inertia measurement instruments](#). The line features four sizes of machines spanning payload mass ranges between a few lbs up to 23,000 lbs, and does so with unprecedented measurement accuracy. In most situations the measurement accuracy of the instrument is at least an order of magnitude better than the fixture and payload datums. Aside from making the basic measurements, our customers uniquely use this accuracy to their advantage to help diagnose and solve problems with the fixture and payload geometry.



The measurement dynamic range is another area where the KSR line excels. Because of this measurement accuracy, the instrument maintains usability well below the payload rating of the machine. An example would be where a KSR330 (max payload capacity of 330 lbs), is often used to measure payloads down to a few lbs while locating the CG within a few thousandths of an inch. There are not many, if at all, all-purpose mass properties instruments that can remotely approach this level of performance.

The KSR series measures two axes of CG and one axis of MOI simultaneously without unmounting the payload and reconfiguring the machine between CG and MOI. Also, the aforementioned high dynamic range satisfies almost all measurement uncertainty requirements without having to mechanically change

out “calibrated” springs and other components. Simply put, no modifications to the KSR instrument are needed to cover a wide range of test articles and to measure multiple mass properties in one set-up. The high-accuracy outlined above also provides for the ability to balance test objects. All measurement instruments can measure mass properties (to some degree) but not all mass properties machines are balancing machines. The extraordinary sensitivity of the KSR line allows for precise balancing in a way other providers cannot.

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## Summer Highlights

Raptor Scientific has been actively participating in a series of major industry events over the past few months, engaging with thought leaders, showcasing our latest innovations, and gaining insights to advance our mission of delivering precision test and measurement solutions. Here are some key takeaways from our participation:



### NCSLI Symposium, Denver, CO

The 2024 NCSLI Symposium provided a platform for metrology and calibration experts from around the world. Raptor Scientific highlighted our cutting-edge test and measurement systems, including:

- Showcasing our **Pressure and Temperature Testing Instruments** that are pivotal in maintaining equipment reliability in various applications.
- Discussing the integration and machine learning in test automation, providing more efficient and cost-effective testing methods.

The event allowed us to explore new calibration trends and reinforce our commitment to providing superior accuracy and reliability in critical testing environments.

### Space & Missile Defense Symposium, Huntsville, AL

At the Space & Missile Defense Symposium, Raptor Scientific engaged with key stakeholders from the defense community, discussing the evolving needs in missile defense systems and space operations.

Event highlights included:

- Showcasing our **Mass Properties Measurement Solutions**, which offer high accuracy for defense applications.
- Showcasing our **Thermal Couples and Heat Flux Transducers**, used to measure extreme conditions in aerospace applications.
- Participating in discussions on emerging threats and the role of advanced testing solutions in national defense.

We were thrilled to meet with defense contractors and military officials to discuss how our testing capabilities support critical defense programs.

### IEEE Autotestcon, National Harbor, MD

IEEE Autotestcon focused on the future of automated testing systems in aerospace and defense. Raptor Scientific featured our innovative solutions for streamlining and automating complex test environments.

Key highlights included:

- Showcasing our **Pressure and Temperature Testing Instruments** that are pivotal in maintaining equipment reliability in aerospace and defense applications.
- Showcasing **Air Data** which garnered significant interest from attendees for their precision in flight systems calibration.

This event reinforced the importance of automation in reducing testing time and enhancing precision across defense projects.

## AFA Air, Space & Cyber Conference, National Harbor, MD

At the AFA Air, Space & Cyber Conference, Raptor Scientific connected with top military and aerospace leaders to discuss the future of air dominance. We showcased:

- **Radar Cross Section (RCS) Testing Solutions**, essential for stealth technology development
- Participating in discussions on emerging threats and the role of advanced testing solutions in national defense.
- Engaged in discussions about the modernization of U.S. air, space, and cyber forces, and how our solutions can support the development of next-generation systems.

Our participation underscored Raptor Scientific's commitment to supporting the U.S. Air Force with reliable, cutting-edge test and measurement technologies.

## F-16 Technical Coordination Group (TCG) World Wide Review, Ogden, UT

The F-16 TCG World Wide Review brought together a global community of F-16 operators and maintainers. Raptor Scientific was proud to participate and showcase solutions vital to the sustainment and testing of the F-16 fleet:

- Demonstrating our **Air Data Testing and Calibration Systems**, which are used as Airspeed Indicators, to test and calibrate the airspeed indicators on the aircraft, they test and calibrate the altimeters on the aircraft providing critical data for the F-16 program.
- Engaging with global military representatives to discuss how our precision measurement tools contribute to F-16 operational readiness and fleet modernization efforts.

This event provided invaluable insight into the evolving needs of the global F-16 community and reaffirmed our role in ensuring long-term operational support for this iconic aircraft.

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