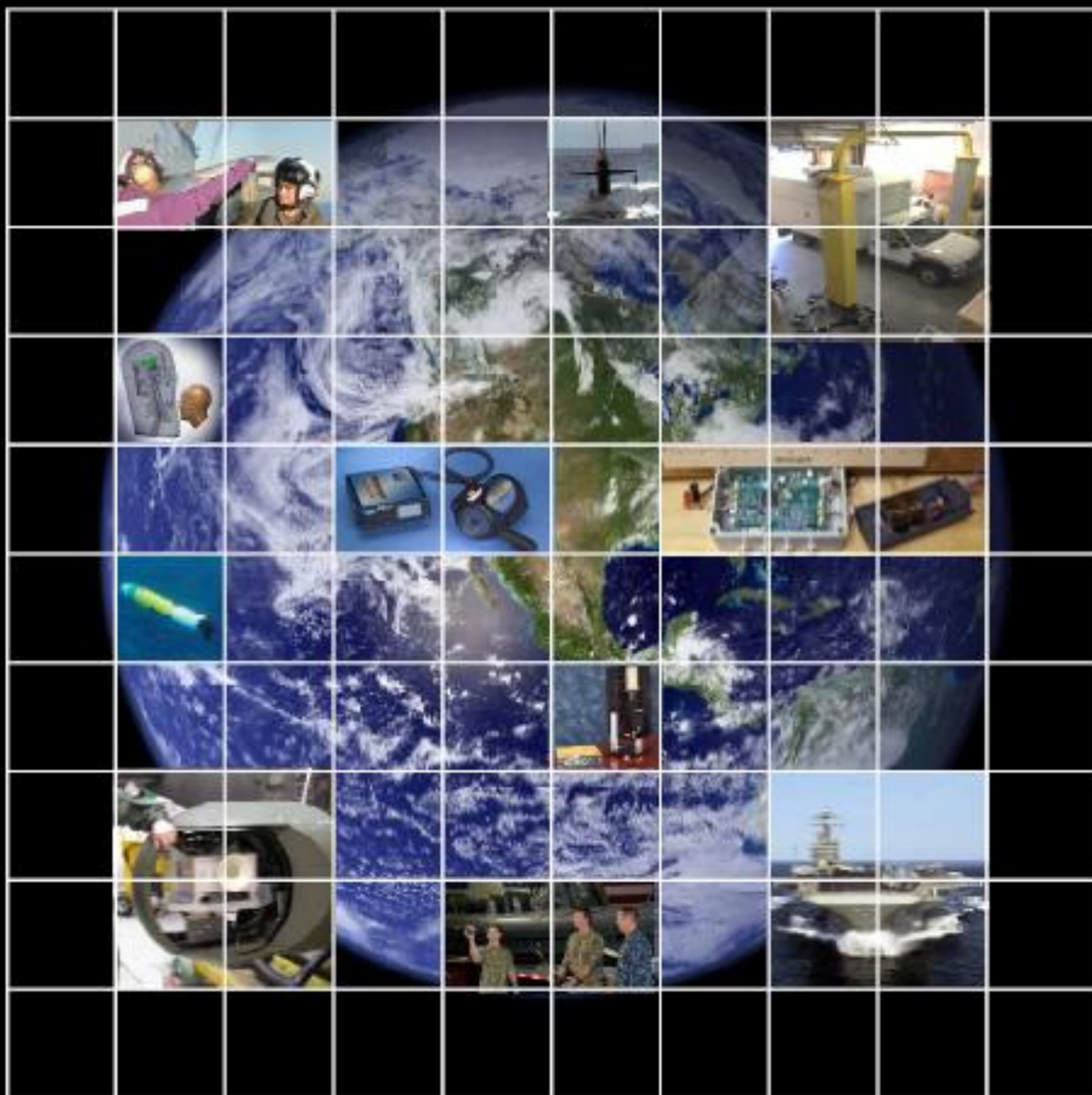


# ESI Physical Sciences Inc.



**WE MAKE SCIENCE WORK FOR YOU**



# Physical Sciences, Inc.

For over 40 years, PSI has provided integrated research and development services to deliver products and solutions to commercial and government customers. Areas of expertise include optics and imaging, sensors and instrumentation, advanced materials, batteries, chemistry, electronics, lasers, and the interdisciplinary fields of combustion systems, electrochemistry, electro-mechanics, optoelectronics, and photonics. PSI is a 100% employee-owned company with approximately 200 employees that uses its extensive laboratory and prototyping facilities as well as low rate production capabilities to enable rapidly transferring from concept to advanced prototype to manufacturing.

## Goal

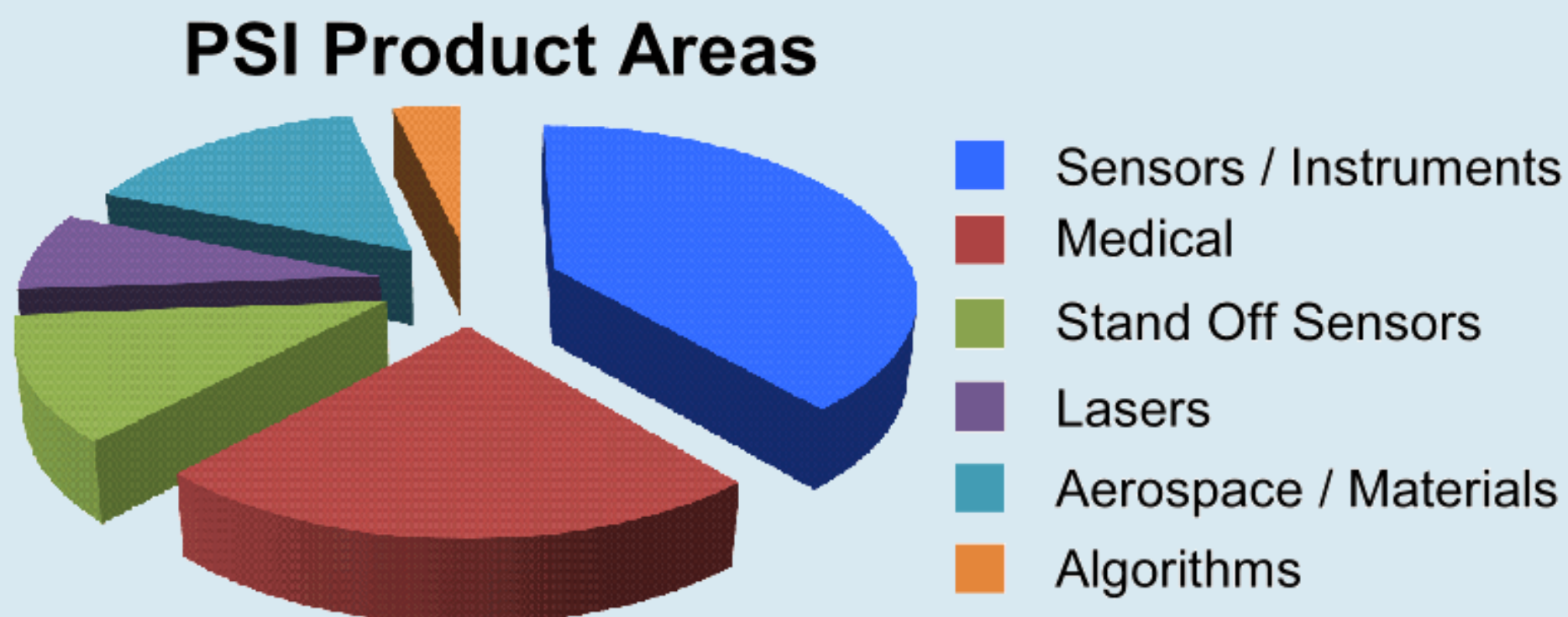
PSI bridges the gap between applied research and systems integration in the development and deployment of technology for our government and commercial customers.

## Leadership Statement

PSI has an international reputation for technical excellence and innovation. We have successfully developed and transitioned advanced technologies to support the missions of the Department of Defense, NASA, and many commercial partners. We are dedicated to the application of scientific and engineering innovation to solve technological problems. We perform product development to manufacturing prototype and ultimately transition it to the military and commercial market sectors through manufacturing or licensing.

## Core Competencies

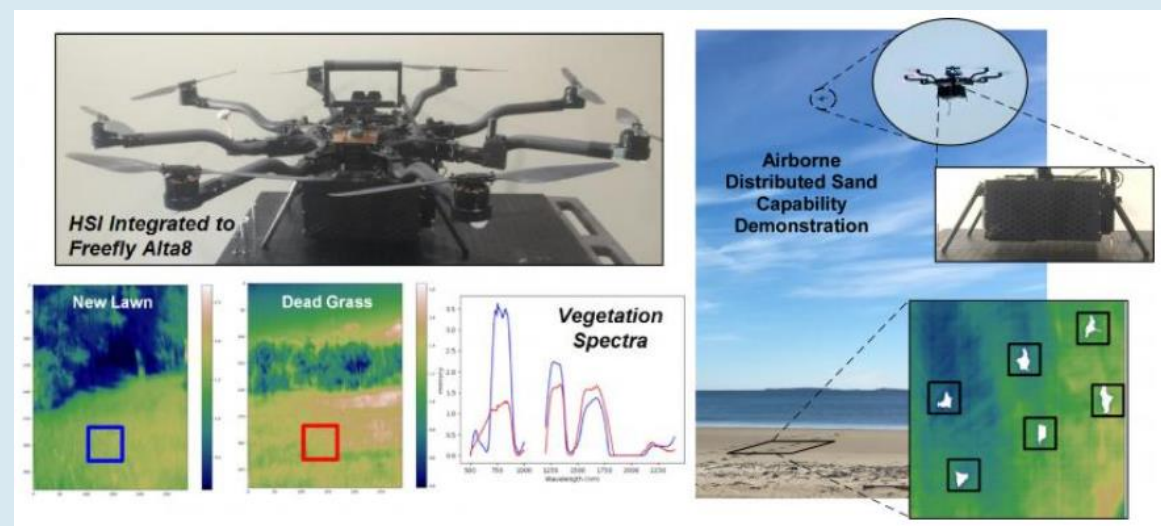
PSI has a highly interdisciplinary staff with advanced degrees in chemistry, biology, physics, applied physics, electrical engineering, aeronautical engineering, mechanical engineering, and materials science. We are structured to enable cross-disciplinary collaboration between our scientists and engineers and to manufacture solutions to our customers' technical problems. Specific core competencies include: passive remote sensing, active laser-based sensing, ISR systems, radiation sensors, and optical components.





## High Speed VNIR/SWIR Hyperspectral Imager

Compact VNIR/SWIR HSI sensor compatible with small rotary wing UAS operation enabling broadband, wide field of view, high quality hyperspectral imagery with application to disturbed earth detection and vegetation/mineral mapping.

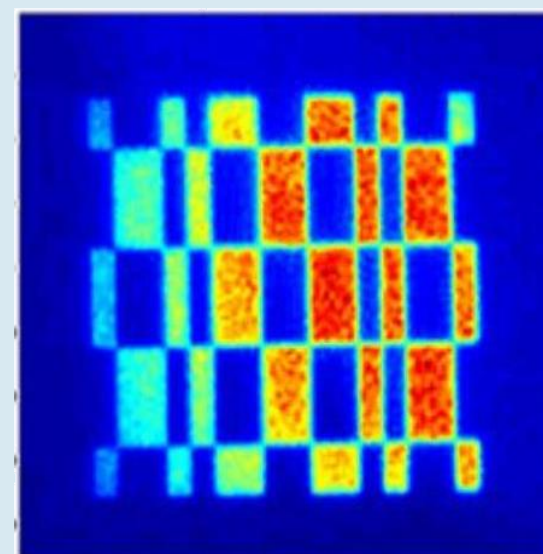


## Compressive Sensing LWIR HSI

PSI's longwave infrared hyperspectral imager employs compressive sensing and is based on a single-pixel architecture that enables low-cost, standoff wide area early warning of chemical vapor plumes at an order of magnitude cost reduction over current LWIR hyperspectral imaging sensors.

## Compressive Sensing Flash LIDAR

Compact IR 3D range imaging sensor employing compressive sensing for deployment on small ground and air robotic platforms, yielding higher point cloud density than commercial scanning LIDARs enabling higher fidelity obstacle detection at a comparable form factor and cost.

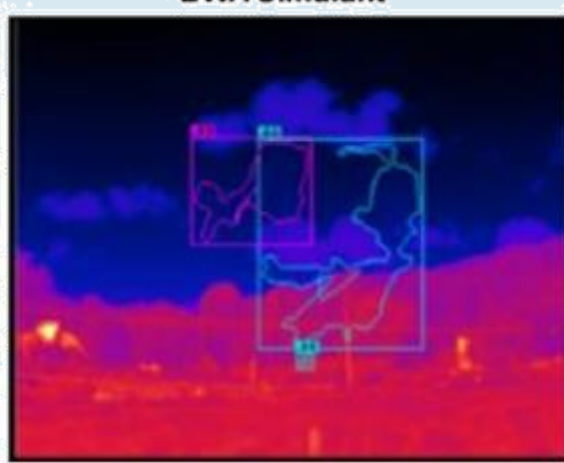
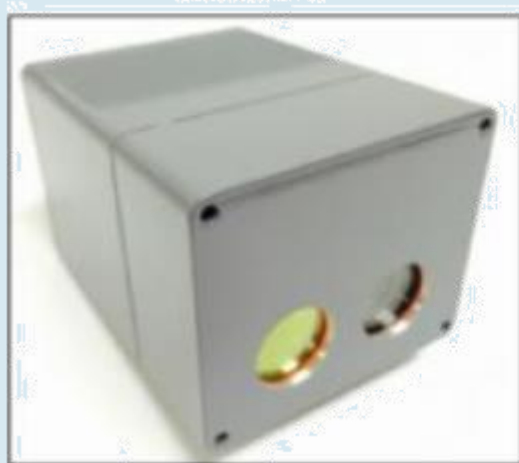


## Biological Wide-Area Aerosol Detector

BioWARD is a low cost standalone, weatherproof sensor that detects thermal objects with consistent appearance and behavior to bioaerosol plumes and determines a threat probability using informed physics-based models consistent with wide area persistent surveillance.

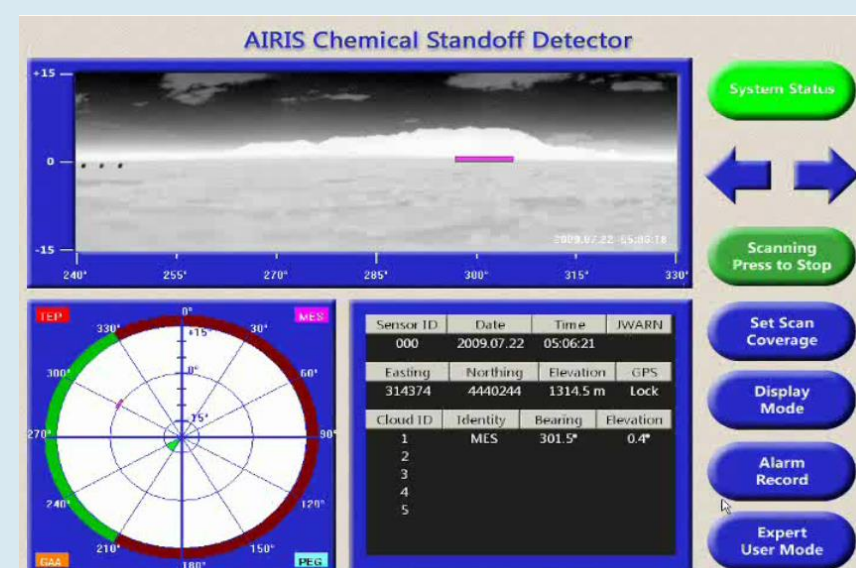
BioWARD

Image Overlay of Detected BWA Simulant



## Adaptive Infrared Imaging Spectroradiometer (AIRIS)

AIRIS has been developed for real-time standoff detection of chemical vapors and biological aerosols, liquids, and solids on surfaces including chemical agents and trace explosive residues.







## InstantEye®

InstantEye® produces tactical UASs that are used by military, law enforcement, first responders, and commercial users around the world, boasting affordability, ruggedness, ease of use, and a multitude of tactical and imaging payloads.

## Mobile Urban Radiation Search (MURS)

MURS is an advanced mobile radiation detection, identification, and source localization system with an exceptionally low false alarm rate and stability in complex and variable radiological backgrounds.

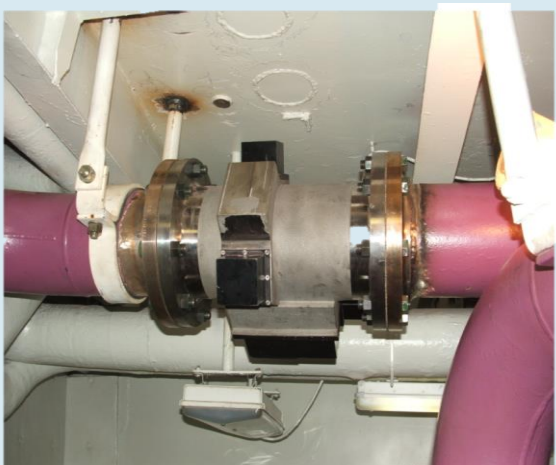


## Compact Adaptive Optics Retinal Imager (COARI)

COARI is a compact, multi-modal, high-resolution, adaptive-optics retinal scanner designed for fast cone-photoreceptor density mapping and precise imaging of retinal structures and blood flow equipped with an optical coherence tomography (OCT) channel for complimentary cross-sectional imaging.

## Tunable Diode Laser (TDL) Gas Sensors

PSI has developed a range of in situ TDL sensors, including oxygen, CO<sub>2</sub>, H<sub>2</sub>S, combustion products, and mass flux, that take advantage of robust and mature telecom components to offer high precision, high accuracy, and highly selective detection of trace gases with application to a variety of commercial, industrial, defense and environmental problems.



## In-Line Fuel Monitor

PSI has supplied approximately 100 In-Line Fuel Monitor to Navy aircraft carriers and littoral combat ships to provide real-time measurement of water and particulate contamination levels in fuel distributions using laser-based sensing.

## CONTACT

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