ICI Releases Multi-Sensor UAV Payloads for Industry

Infrared Cameras Inc. (ICI) is releasing a line of multi-sensor payloads specifically designed for the unmanned aerial inspection market. Working closely over the past few years with many industry leaders, ICI has developed the equipment and methods for efficiently inspecting critical assets via unmanned aerial vehicles (UAVs). These industries include petrochemical (upstream, midstream and downstream), power distribution, alternative energy, and infrastructure.

ICI has developed and integrated many sensors across several key regions of the electromagnetic spectrum including ultraviolet, visible, near-infrared, short-wave infrared, mid-wave infrared and long-wave infrared. By combining two or more sensors on a UAV gimbal, we can quickly collect the data necessary to ensure the safe and efficient operation of industry assets while meeting or exceeding regulatory requirements.

Petrochemical (Upstream/Downstream)

The ICI OGI Inspector and OGI Inspector Plus pair the Mirage HC optical gas imaging (OGI) camera, used in locating hydrocarbon-based fugitive emissions, with the Sony R10C high-res camera, which provides asset identification and visual inspection capability. An additional Tunable Diode Laser Absorption Spectrometer (TDLAS), tuned specifically to the spectral absorption of methane, can be bundled with the package, delivering methane identification and concentration data in real-time. The combination of the OGI and TDLAS increases the efficiency in locating even the smallest of leaks, saving time and money. This complete package is a game changer for the oil & gas industry as they learn to comply with the EPA’s OOOOa (“Quad Oa”) inspection requirements for upstream assets. It also allows for unique inspection techniques to be developed for difficult to reach downstream assets. As the EPA begins to allow optical gas imaging instead of sniffer based LDAR programs, thanks to proposed changes to the Method 21 Alternative Work Practice (AWP), this package will provide cost and time savings for the inspection of components that typically require scaffolding or rope access crews. Sample data including the operator’s point of view videos, post-processed videos, high-res visible images, and reports are available here.
Petrochemical (Mid-Stream)

The ICI Methane Mapper and Methane Mapper Plus pair the TDLAS with the Sony R10C high-res visible camera. Collecting concentration data at 2 Hz above buried gas pipelines gives clear indications to where underground leaks may be occurring. The data set from the TDLAS is instantly viewable as a KML file and can be color-coded based on threshold levels for easy analysis. The visible camera provides the end customer with an up-to-date visible mosaic of the right of way. A specialized polarized LWIR camera is included in the Methane Mapper Plus to differentiate ponding of produced water from naturally occurring rain or runoff water. Sample KML data files are available [here](#).

Power Distribution

The ICI Corona Inspector and Corona Inspector Plus pair ICI’s brand-new solar-blind UV camera, the UV640, with the Sony R10C high-res visible camera. This new UV camera clearly shows coronal discharge in direct sunlight with real-time gain control to ensure maximum sensitivity. The high-res visible camera provides infrastructure assessment and identifies possible vegetation encroachment. The Corona Inspector Plus includes the ICI 8640 LWIR Camera adding thermography capabilities where every pixel is also a non-contact thermometer. This multi-sensor payload is the most versatile aerial inspection package available to the power distribution market. Sample videos, images, and reports are available [here](#).

Alternative Energy/Infrastructure

The ICI IR Inspector and IR Inspector Plus pair the ICI 8640 LWIR Camera, used for performing remote aerial thermography, with the Sony R10C high-res visible camera, used for asset inspection and identification. In addition, the Plus version gives both cameras remote electronic focus and electronic zoom down to as narrow as six degrees HFOV. This package is used heavily in many industries for high-end thermography-based inspections of flare stacks, commercial and industrial buildings and roofs, solar panel farms, wind turbines, roads, and bridges. Sample images and reports from this package are available [here](#).
A complete integration with DJI industrial multi-rotor UAVs makes these packages the most versatile payloads on the market. The DJI Matrice 600 or any multi-rotor utilizing the A3/Light Bridge 2 avionics can easily be equipped to fly these payloads. ICI advises you to consider a multi-rotor with more than four props for redundancy and recoverability. Thanks to ICI’s patented US9880552B1 remote interface, the pilot and sensor operator have easy access to all of the sensor’s functions as well as a real-time video feed. All collected data is automatically geotagged and stored locally on the UAV via the ICI Sensor Control Module (SCM). Post-flight, import the data into ICI’s award-winning software, IR Flash Pro, to perform analysis, add annotations, and quickly build your deliverable.