SOLUTION BRIEF – BIOGAS & RNG

Reducing Biogas Losses from Unseen Leaks

Digesters, gas holders and upgrading plants contain methane at low pressure behind large membranes, hatches and relief valves. Laser OGI detects and quantifies leaks from a safe distance, and every inspection becomes a component-level record.





ASSETS	LEAK POINTS	DRIVERS	OUTPUTS
Digesters, double-membrane gas holders, upgrading units, CHP, flares, grid injection	Membranes, hatches, PRVs, flanges, valves, condensate traps	Lost product, CI score, permit leak checks, ATEX safety	Leak tags with g/hr rates, zero-emission tags, work orders

THE CHALLENGE	THE XPLOROBOT SOLUTION
Leaks at Height and on Large Surfaces Membrane roofs, digester covers, hatches and pressure relief valves are difficult to reach and slow to check by hand.	**Standoff Detection from Ground or Air** Components can be scanned from more than 50 m away, or by drone over digester roofs and gas holders.
Every Leak Is Lost Product Methane that escapes is gas that is not burned in the CHP or injected into the grid, and it also raises the plant's carbon-intensity (CI) score.	**Leak Rates for Prioritization** Each leak is assigned a g/hr emission rate, so repairs can be prioritized by the size of the loss.
Hazardous Areas Limit the Toolbox ATEX zones around digesters and upgrading units restrict both instruments and access.	**Suited to Hazardous Areas** The sensor is CE certified with an intrinsically safe / ATEX option and requires no specialist certification.
Inspections Are Difficult to Prove Permit and certification audits require evidence of what was inspected, what leaked and what was fixed.	**Component-Level Records** PRVs, hatches, flanges and valves are tagged once and reinspected on schedule, with one audit trail.

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The LDAR Workflow, Adapted to Biogas

Biogas and RNG plants follow the same detect → tag → repair → verify process as oil and gas LDAR, including component tagging and periodic reinspection.

1 Detect

Methane is visualized on the live image and the leaking component is pinpointed, from the ground or by drone.

2 Tag & Quantify

A Digital Emission Tag is created with the image, GPS and g/hr rate.

3 Verify Repair

The repair is confirmed with the same device and the work order closed before leaving the site.

4 Reinspect

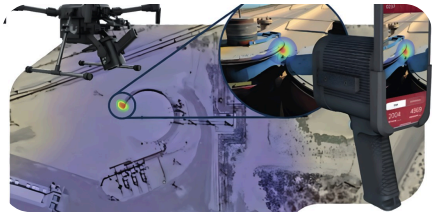
Tagged components are rechecked on the next round, with prior and current methane images side by side.

Drone-to-Ground for Roofs and Holders: the drone identifies hotspots across membranes and covers, and the same sensor, used handheld, then locates and tags each one at the component.

PROVEN PERFORMANCE

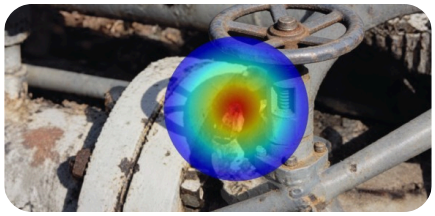
0.04 g/hr	1.45×	98%	>50 m
handheld limit of detection (GTI Energy)	factor uncertainty, 1σ, in leak-rate quantification (GTI Energy)	localization accuracy in METEC handheld blind testing	detection distance

Applications



Roofs and Gas Holders

Large membranes are screened by drone and confirmed by hand.



Flanges and Valves

Localization down to a single bolt on gas lines and skids.



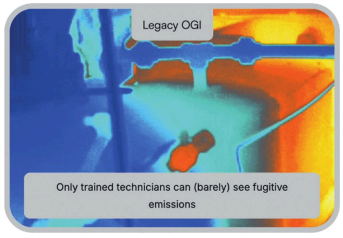
Records and Catalogue

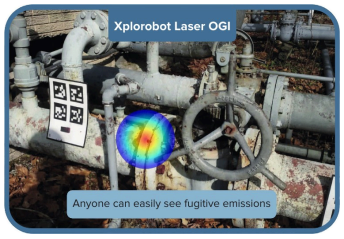
Automated component identification builds the plant inventory.

BUILT FOR ATEX option · CE certified · EU LDAR Type 2 (0.04 g/hr) · Permit leak checks · RNG certification audits

Why Not a Legacy OGI Camera?

Legacy OGI cameras are designed for specialists. They are expensive, difficult to operate and offer limited visibility, so small leaks are often missed. Laser OGI provides a clear, color image of the leak to any operator.





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