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Unlock live-asset inspections and streamline hot-work permitting with Voliro's integrated flammable gas sensor

The Voliro T flammable gas sensor enables remote atmospheric monitoring during robotic NDT inspections, providing real-time %LEL visibility and alerts to support safety awareness in hazardous and demanding industrial environments.

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Key Benefits

Monitor atmospheric safety in real time with %LEL readings

Designed to run effortlessly with all Voliro T NDT payloads for faster, combined inspections like material-thickness measurement.

Designed for assets in operation

Ideal for inspecting assets in operation where downtime is costly. The real-time gas monitoring also simplifies the process of obtaining hot-work permits in petrochemical classified hazardous zones.

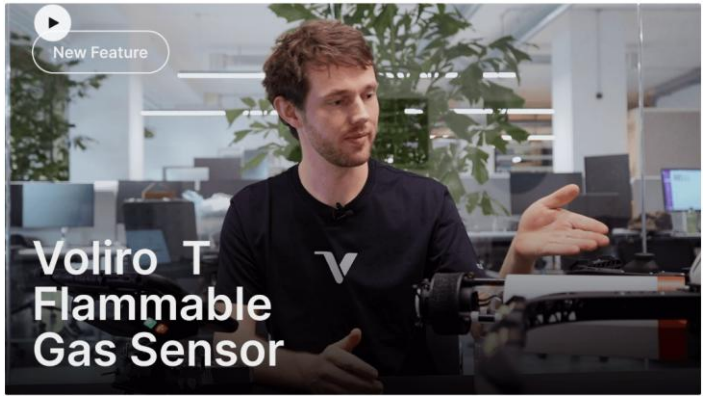
Peace of mind in hazardous environments

Operators receive on-screen alerts when readings exceed configurable thresholds, ensuring immediate awareness of changing atmospheric conditions.

Complimentary upgrade, available on request

Available as a complimentary upgrade to all Voliro T platform subscriptions, operating seamlessly alongside existing Voliro T NDT payloads.

How It Works: Voliro T Flammable Gas Sensor – Overview



(Click the link/picture for the video: https://voliro.com/voliro-solution/flammable-gas-sensor/)

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Tech Features

TrueLEL™ multi-gas detection

Detects over a dozen of the most common combustible gases, including Hydrogen and accurately reports 0-100% Lower Explosive Limit (LEL) resolution.

Real-Time Integration in Voliro App

Gas concentration data shown directly to the Voliro App in %LEL as soon as the drone powers up and the sensor is initialized. Operators receive on-screen alerts when readings exceed configurable thresholds.

Customizable Alert Parameters

Prevent false alarms while maintaining sensitivity to genuine hazards. Operators can adjust the LEL threshold before takeoff to match specific site conditions and operational requirements.

Molecular Property Spectrometer™

Powered by NevadaNano's advanced MPS™ detection platform, delivering market-leading accuracy without field calibration requirements.

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Reliably Detect 14+ Flammable Gases

Gas	Formula	Class	Accuracy* (0-50 %LEL)
Butane	C_4H_{10}	Class 4: Light Gas	±5
Ethane	C_2H_6	Class 4: Light Gas	±5
Hydrogen	H_2	Class 1: Hydrogen	±5
Isobutane	$HC(CH_3)_3$	Class 4: Light Gas	±5
Isobutylene	C_4H_8	Class 4: Light Gas	±5
Isopropanol	C_3H_8O	Class 4: Light Gas	±10
Methane	CH_4	Class 3: Methane/Natural Gas	±3
Methyl Ethyl Ketone	C_4H_8O	Class 5: Medium Gas	±5
Octane	C_8H_{18}	Class 6: Heavy Gas	±12
Pentane	C_5H_{12}	Class 5: Medium Gas	±5
Propane	C_3H_8	Class 4: Light Gas	±6
Propylene	C_3H_6	Class 4: Light Gas	±5
Toluene	C_7H_8	Class 6: Heavy Gas	±12
Xylene	C_8H_{10}	Class 6: Heavy Gas	±12

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FAQ

Does this make the Voliro T intrinsically safe or ATEX certified?

No. The aircraft remains non-intrinsically safe and is not ATEX certified. The gas sensor is a safety aid that supports hot-work permits and risk assessments but does not remove the need for standard procedures, area classification or external gas monitoring.

Which ATEX zones are relevant for the Voliro LEL monitoring solution, and why?

The Voliro T platform, when utilizing continuous LEL monitoring as its primary safety control, can be used in ATEX Zone 2.

- Zone 2 is the Optimal Zone: Zone 2 is defined by the unlikelihood of an explosive atmosphere occurring during normal operation, lasting for less than 10 hours per year. This low-risk profile provides the technical and administrative justification needed to approve the use of actively monitored, non-Ex certified equipment.
- The Safety Strategy: The continuous LEL sensor acts as the key technical control to ensure the Voliro T (the non-Ex ignition source) never encounters an explosive atmosphere. If gas is detected, the operator immediately halts the mission and withdraws the drone, satisfying the employer's duty under the ATEX Workplace Directive (1999/92/EC) to avoid ignition.
- Impractical Zones: Operation in Zone 0 is fundamentally prohibited, and Zone 1 is exceptionally challenging, because the high probability of hazard occurrence in these zones demands equipment certified to withstand internal faults (Category 1G or 2G), which continuous monitoring alone is insufficient to mitigate.

Can I use the gas sensor on the Voliro T to search for small gas leaks?

No. The sensor is intended to monitor flammability around the drone, not to locate small leaks. Drone airflow, outdoor wind and the approximately 20 seconds response time mean that small releases may be heavily diluted or completely missed. For leak detection, use OGI cameras, mass spectrometers or dedicated leak detection systems.

What is the benefit of continuous LEL monitoring on the Voliro T?

Continuous LEL monitoring gives:

- Real time knowledge of gas concentration along the drone flight path
- Early warning if gas starts to accumulate during the job

For permit issuers this means:

- Less reliance on single point gas tests done only before take-off
- A clear, documented response whenever gas is detected
- Stronger justification to allow hot work in areas where gas conditions can change

How often does the sensor need to be calibrated?

Factory calibration is sufficient for the specified gases, and the sensor does not require routine field calibration. Regular bump tests are strongly recommended before inspections to confirm that the system responds correctly and that alarms trigger at the configured thresholds, similar to handheld gas detectors. The sensor comes with a manufacturer-stated life expectancy of over 15 years.