

Nubo Sphere

Methane mitigation simplified



SENSIRION
connected solutions

Lead the way in emissions reduction

Reduce costs and total emissions

Repair the sources of emissions faster. Nubo Sphere provides real-time emissions data and actionable insights to reduce emissions, improve efficiency, and increase profitability. More insights, less emissions!

Comply with regulations and voluntary standards

The global regulatory environment is changing. Continuously and accurately detecting, localizing, and quantifying methane emissions allows operators to efficiently achieve compliance, meet ESG goals, reach OGMP 2.0 Level 5 and detect large emission events first—all while staying competitive. Get ahead, stay ahead!

Detect and qualify super emitters

Stay ahead of third-party monitoring. Regulatory agencies and NGOs increasingly track and publish large emission events. By detecting high-volume leaks first before they're discovered by others, you maintain control of the data, address issues proactively, and protect your reputation.

Improve operations and personnel safety

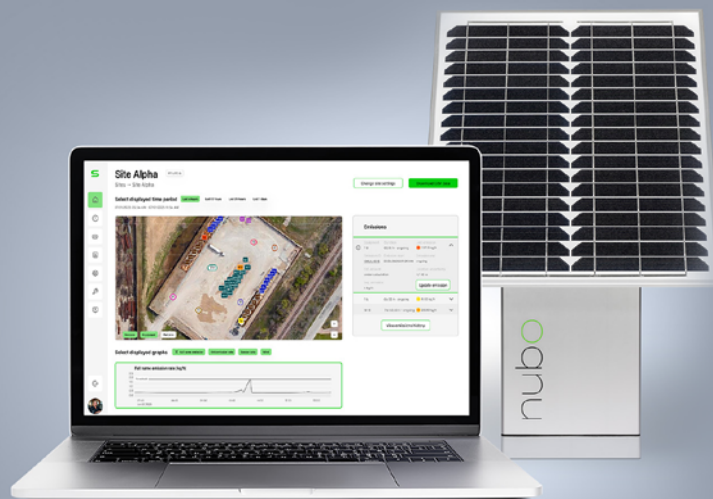
Detect emissions and access insights remotely. Nubo Sphere provides quick detection of emissions and real-time emissions data, allowing operators to optimize processes, minimize losses and enhance productivity. Take targeted action from afar!

Attract and retain financial stakeholders

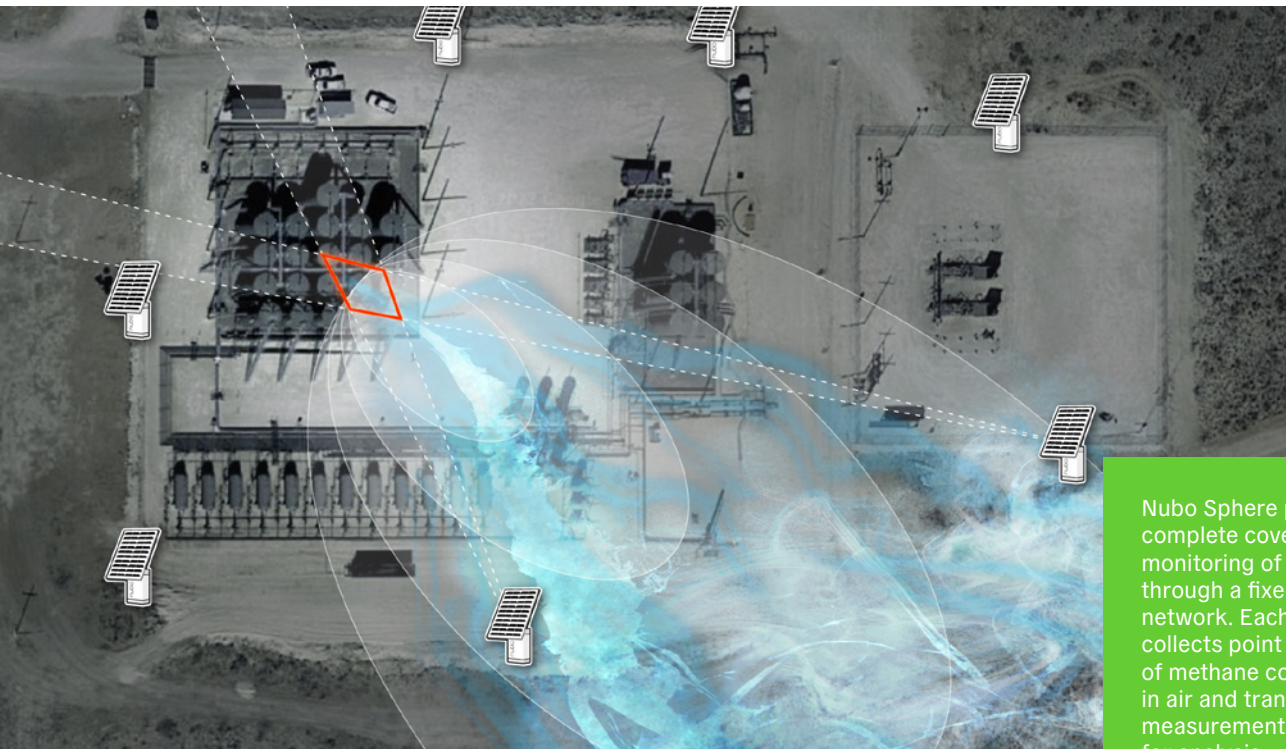
Create financially sound and socially responsible opportunities. Reducing methane emissions is not only environmentally responsible, it also presents a compelling case to investors and insurers based on reduced waste, regulatory compliance, a commitment to operational excellence, and increased profitability and shareholder value. Stand out among your competition!

Demonstrate your ESG commitment and reach net-zero goals

Make your environmental stewardship public. Nubo Sphere provides empirical data from operations, making ESG reporting verifiable, credible and trustworthy. Take the guess work out of meeting emissions reduction objectives!



Continuous monitoring: a powerful tool for methane mitigation



Nubo Sphere provides complete coverage and 24/7 monitoring of oil and gas sites through a fixed-point sensor network. Each sensor node collects point measurements of methane concentrations in air and transmits these measurements to the cloud for analysis.



Continuous emissions monitoring

Nubo Sphere constantly and autonomously monitors your assets without any need for human intervention. Sensirion's expertise ensures maximum data fidelity.



Detection, localization and quantification

For any detected emission, our physics-based models determine the most likely source location and emission size.



Fast alerting

Receive instant alerts of any new or changing emissions. Our dashboard helps you to quickly judge the situation, prioritize across your assets and initiate follow-ups.

How the Nubo Sphere solution works

1

Measure

Sensors collect and transmit data every five seconds, 24/7, through an LTE connection.

2

Assess

Proprietary algorithms process refined sensor data using a Gaussian plume model.

3

Inform

Automated processes with expert oversight deliver actionable emission alerts with minimal false positives.



Measurement with
global connectivity



Signal
refinement



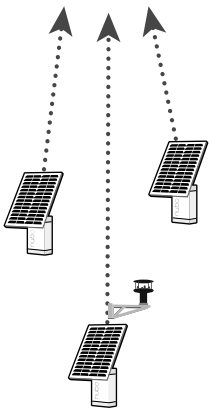
Continuous
physical modelling



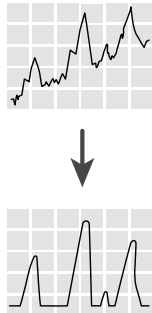
Automatic emission
localization & quantifica-
tion



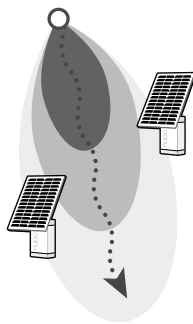
Visualization
& alerts



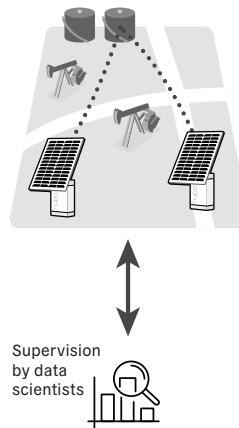
Data collected and transmitted every five seconds, 24/7, through an LTE connection.



Pre-processing to ensure the highest quality data from the start.



Proprietary algorithms run in the cloud.



Alerts are automated for maximum speed, but are reviewed by data experts where needed, to maintain high quality and minimal false positives.

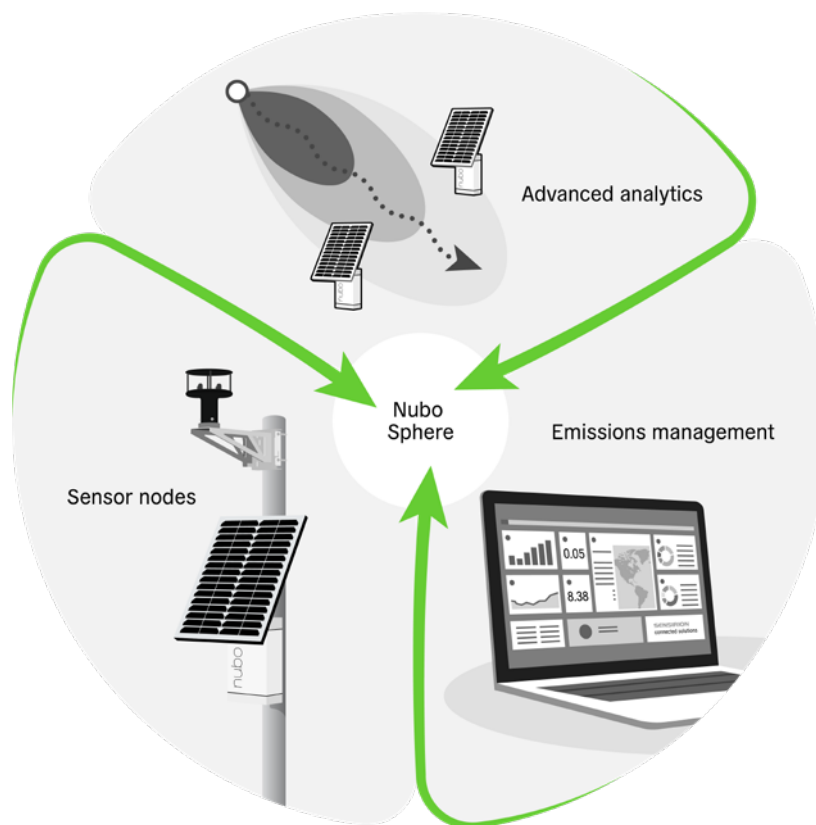


Emissions alerts, statistics and site health visualized on a user-friendly dashboard.

Complete solution for reliable 24/7 methane emissions monitoring

Advanced analytics

- Detection, localization and quantification of methane emissions
- 24/7 data collection through LTE connectivity
- Automated alerts supervised by data experts
- Continuous system health monitoring



Sensor node

- Designed for autonomous operation using solar power
- Proven uptime of >95 % even under harsh environments
- Fast and easy installation without the need for extensive training or special tools
- Optionally monitor H₂S, CO, and other gases continuously

Emissions management

- Manage all your sites at a glance and easily track emissions reductions
- Identify sites where urgent action is required and track the repair process
- Define customized notification thresholds and monitoring goals
- Filter and export past emissions alerts

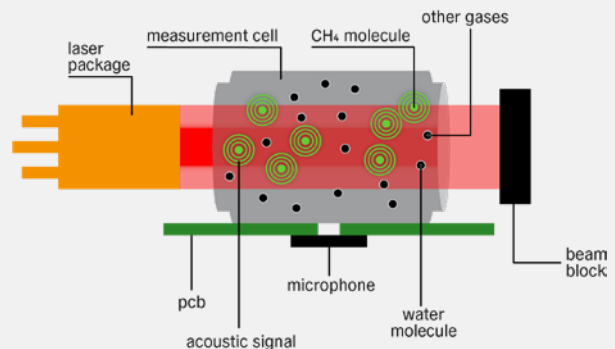
Purpose-built sensor technology, proven in the field

The best sensor for measuring methane emissions is built on an established principle, proven in peer-reviewed studies and performing on oil and gas sites.

Nubo Sphere's methane sensor uses mid-infrared laser spectroscopy based on photoacoustics. Leveraging 25 years of sensor expertise, Sensirion developed this proprietary sensor technology to meet the specific needs of the oil and gas industry. Like other laser spectroscopy sensors, it exploits the distinct absorption pattern of methane molecules in the mid-infrared range. Laser light absorbed by CH₄ molecules results in an increase in the translational energy of these molecules, which is reflected in an increase in pressure within the optical measurement cell. Modulation of the laser causes a periodic pressure change inside the optical measurement cell—the photoacoustic signal—with a microphone.

Combining Sensirion's patented photoacoustic sensor technology with traditional laser spectroscopy delivers many advantages over metal-oxide (MOx) solutions:

- **Low total costs of ownership** thanks to a 6-year lifetime with no maintenance and no need for in-field calibration
- **Improved detection and localization** due to fast response times on the order of seconds
- Minimal false positives due to a **high specificity to CH₄** (99 %)
- **Superior quantification accuracy** thanks to accurate and absolute gas concentration measurements



Smart cartridge system

Future-proof, flexible, upgradable and cost-efficient

The Nubo Sphere sensor node features a modular and future-proof sensor cartridge design. This feature, unique across fixed-point sensor solutions, allows for seamless on-site upgrades to the latest generation of methane sensor or for the easy and cost-effective deployment of additional gas sensor cartridges, accommodating customer-specific needs and changing regulatory requirements without the need to exchange the entire system.



Detect, act and reduce: a real-world example

Detect

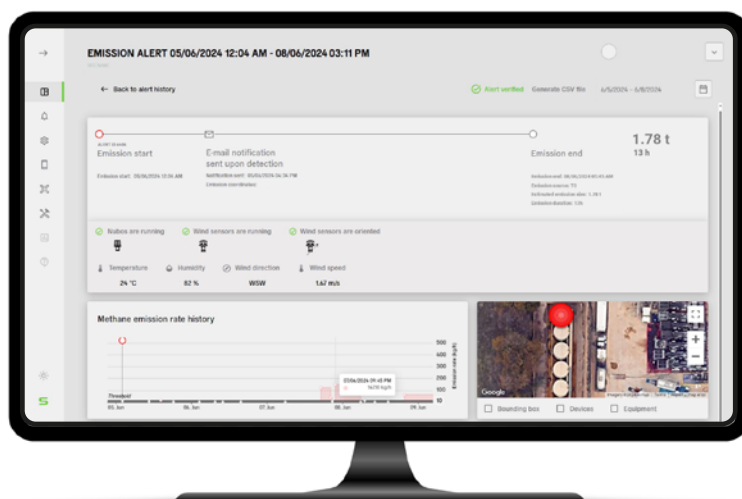
At one of our customers' sites, we received an alert showing an emission rate of 8 kg/h. This first alert reported operational emissions from the tank – expected from the thief hatches releasing pressure from the tanks. But later, Nubo Sphere detected a significant spike of methane at the same tanks, quantified at almost 150 kg/h. Our customer was notified immediately about the change in the emission rate.

Reduce

With data provided by Nubo Sphere, our customer was alerted within a day and was able to end the fugitive emission in no time. Without our continuous monitoring solution, the customer would have only found out about his leak much later, releasing large amounts of methane in the meantime.

Act

They concluded that a water hauler had been on site earlier and dispatched an OGI technician to identify the root cause of the emissions. The OGI technician was able to confirm that in total not one but even three thief hatches weren't fully latched.



Sensirion Connected Solutions: our heritage, your advantage



Sensor expert

More than 25 years' experience, innovation pioneer, globally leading sensor manufacturer



Quality at heart

ISO 9001 and ISO 27001 certified so you don't need to worry



Manufacturing prowess

Scalable solutions, state-of-the art production facilities with more than 1B produced sensors



Global

Worldwide subsidiaries, supply capability, seamless support and state-of-the-art service offering



Want to be an industry leader?

Reduce your methane emissions with Nubo Sphere. Contact us now.

