Oil & Gas: Gas Emission Monitoring for Regulatory Compliance

PRODUCT BROCHURE

Letter from Scentroid's CEO

Scentroid's mission is to empower our clients with vast in-depth knowledge, state-of-the-art instruments, and the most extensive customer support. To this end, we strive in every aspect of our operation to put our client first and to use our research expertise to develop the most innovative and effective products and services in the sensory industry. We envision a future where environmental impacts will be easily and accurately measured and mitigated.

Ardevan Bakhtari

Dr. Ardevan Bakhtari
CEO, Scentroid

Oil & Gas Overview

Petroleum refining remains one of the largest industries in the world and serves as a valuable component of the national economy. However, environmental hazards associated with Oil and Gas refineries have caused increased concern for communities in close proximity.

Provincial regulators and ministries are responsible for monitoring the impacts of oil and natural gas activities from Oil and Gas Facilities, from air quality to water use to land reclamation and more. Scentroid is here to help with your Gas Emission Monitoring!

About Petroleum

The process of refining oil involves a series of steps including the separation and blending of petroleum products. This could lead to a variety of fugitive emissions and uncontrolled air quality hazards.

Regulatory Compliance

Compliance with international oil & gas regulations is essential for businesses in the sector to operate responsibly. Every year, the regulator calculates an emissions limit for each company. If a company calculates that they have emitted in excess of that limit, they must pay a penalty for each ton emitted in excess.

In Ontario Canada, environmental penalties can range from $1,000 per day for less serious violations such as failure to submit a quarterly report, to $100,000 per day for the most serious violations, including a spill with a significant impact.

The data from our air monitoring equipment is highly accurate and will assist you in completing an emission inventory report.

How Can Scentroid Help?

Environmental Impact Assessment (Air and Odour)

A comprehensive site overview. Scentroid will formulate a sampling plan and, using a team of qualified engineers and technicians, take analytical and olfactometric measurements and samples at key locations. Scentroid analyzes samples on-site using portable analyzers and olfactometers before being shipped to a comprehensive analytical (ISO 17025) and stationary olfactometric laboratory (EN13725).

After analyzing the samples, the data experiences post-processing and is compared against pertinent regulations, guidelines and standards. If exceedance of pollutants is found, Scentroid will recommend suitable approaches in order to fulfill environmental compliance. Optional: atmospheric dispersion modelling can be included in the environmental impact assessment.

Atmospheric Dispersion Modelling

Determine the severity and extent of the pollutant/odour emissions from your facility. Simulations are processed using the US-EPA designed and approved, AERMOD modelling suite.

Odour Analysis

Send us your sample bags and our Olfactometric Laboratory will determine their odour concentration in accordance to EN13725:2003, ASTM E679-04, NVN2820, VDI 3881, GB/T14675-93 and/or AS 4323.3.
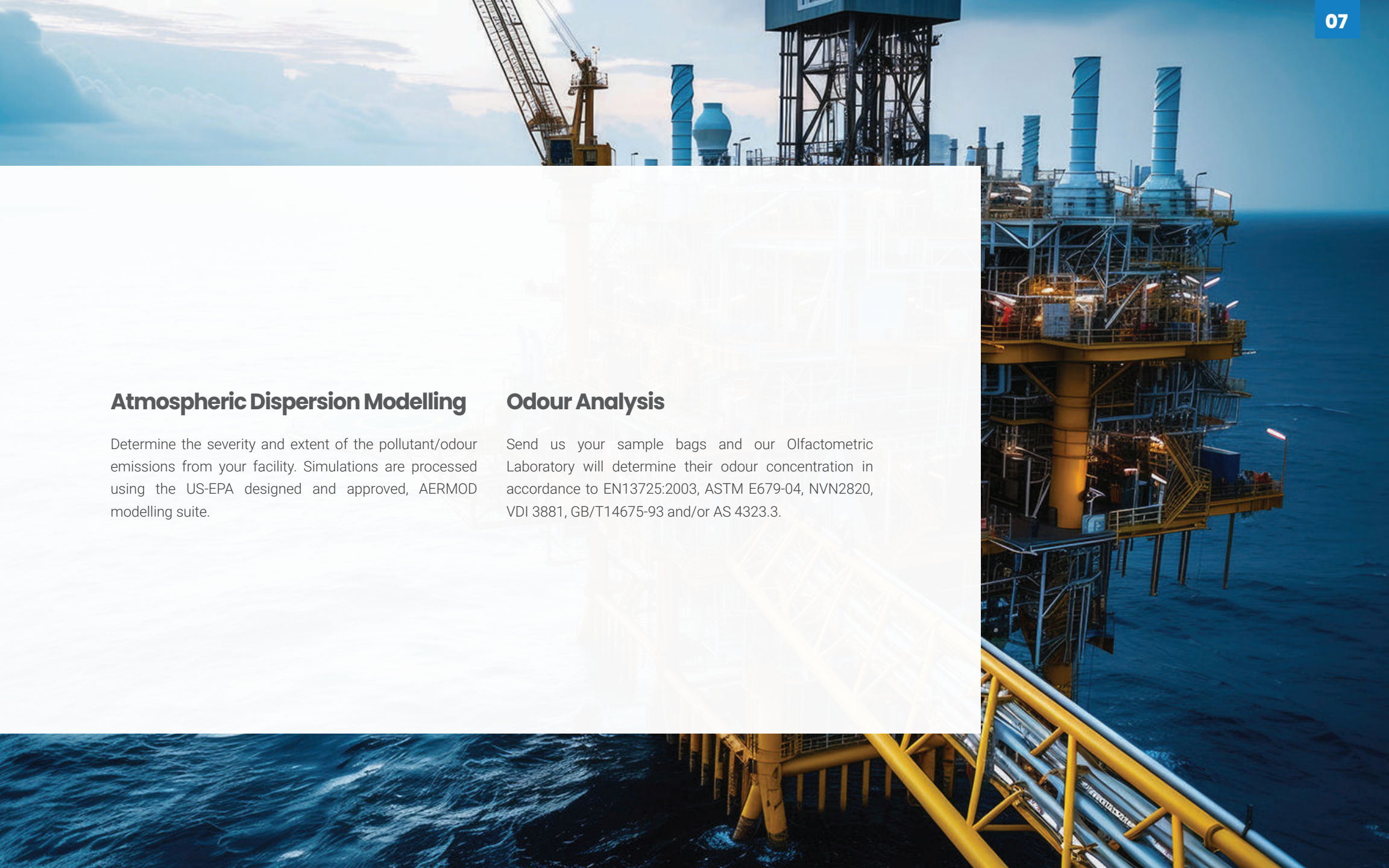
Quick Tip #1

Scentroid's Impact Assessment is a formal, evidence-based procedure that assesses the economic, social, and environmental effects of public policies.

Quick Tip #2

Be Proactive, Not Reactive! Failing to respond to Government imposed regulations could be costly.

Quick Tip #3

Our equipment will help you detect oil or gas leaks at an early stage to reduce costly damages.

Comprehensive Monitoring Program

We provide a comprehensive monitoring program to help you monitor gas emission so you can meet Oil & Gas Regulations in an effortless manner:

Stationary Equipment, Drone-Based Gas Leak Patrol, Personal Monitoring, and AI Powered Software.

Stationary Equipment

Scentroid's CTair and CTmini continuous monitoring of air quality in and around your facility, providing valuable data on the overall level and distribution of pollution. Sensors in the device collect common pollutants in Oil & Gas Facility such as Sulfur Dioxide, Nitrogen Oxides, Carbon Monoxide etc.

Drone-Based Gas Leak Patrol

Our Drone-Based mobile monitoring device DR2000 offers an additional layer of monitoring, enabling the detection of hot-spots in hazardous and hard-to-reach areas, to help you inspect any gas leak. The DR2000 is capable of finding the location of the gas leak and how far it may have travelled. For more advanced leak detection, the DR2000 can perform a full analysis of all potential leak sites.

Personal Monitoring

Personal safety air quality monitoring devices in a wastewater treatment facility are crucial for protecting the health and safety of individual workers. These devices can alert them to potential hazards and prompt them to take necessary precautions, such as utilizing respiratory protection or moving to a safer location. These devices can even be used to assess the overall effectiveness of pollution mitigation efforts.

Pollutants from Oil & Gas Facilities

- Methane (CH4)
- Benzene (C6H6)
- Volatile Organic Compounds (VOC)
- Hydrogen Sulfide (H2S)
- Sulfur Dioxide (SO2)
- Carbon Dioxide (CO2)
- Carbon Monoxide (CO)
- Nitrogen Dioxide (NO2)

- Particulate Matter (PM1, 2.5, and 10)
- Non- Methane Hydrocarbons (NMHC)
- Hydrogen Fluoride (HF)
- Hydrogen Chloride (HCl)
- Carcinogenic Air Pollutants
- Non-Carcinogenic Hazardous Air Pollutants
- Polycyclic Aromatic Hydrocarbons
- Plus more

SIMS3

Sensor Information Management System

SIMS3 sensor information management software, is our all-inclusive software used to view and analyze historical data, run diagnostics, make predictions, and configure various settings for your supported Scentroid device. It offers a complete and integrated suite for ambient air chemical analysis and air dispersion modeling.
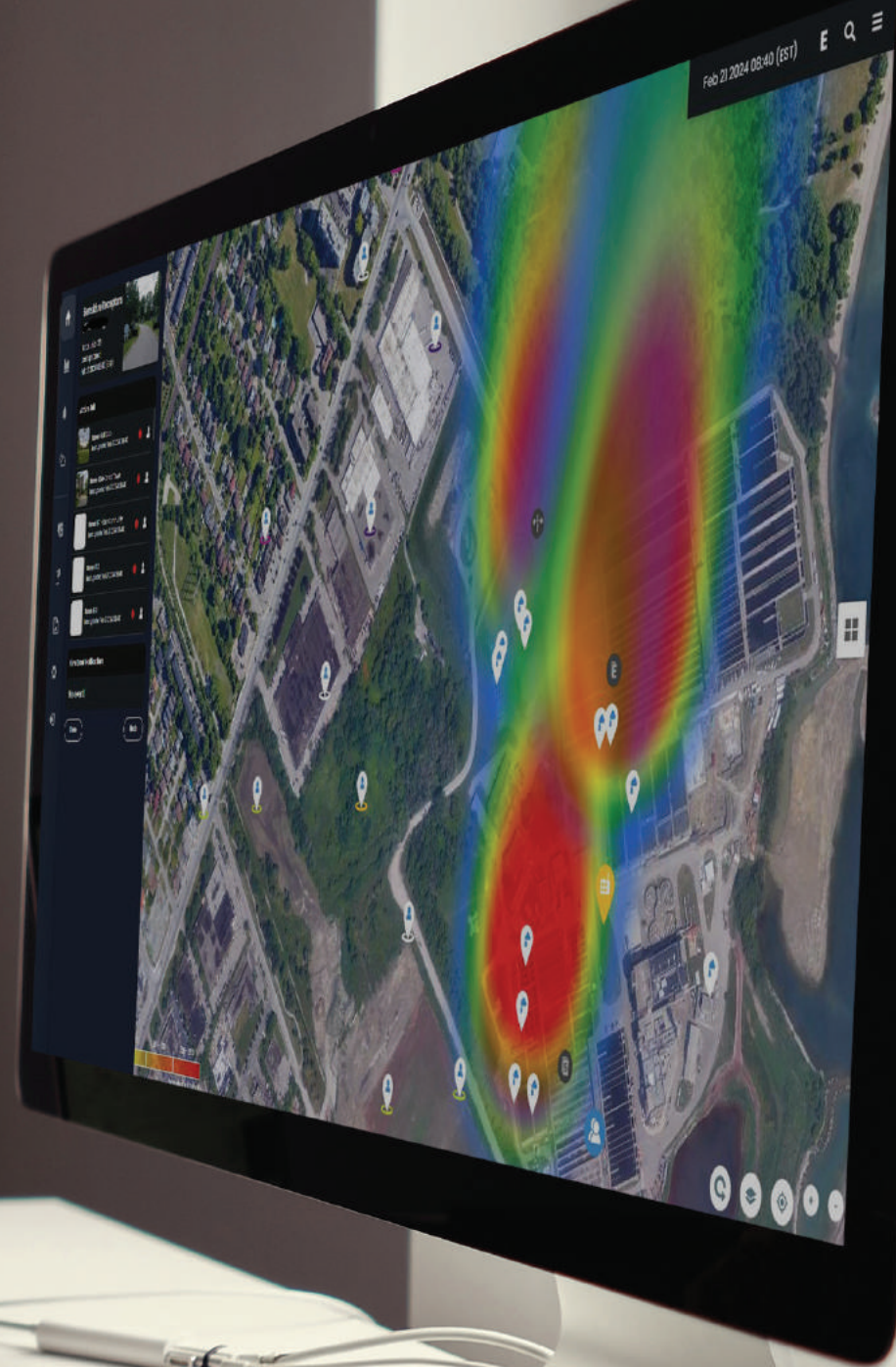
Powered by AI

SIMS3 transforms air quality monitoring and air dispersion modeling with the power of AI. Our user-friendly interface offers intuitive access to a range of features including pollutant threat assessment, air quality alerts, historical data analysis, sample tracking, plume detection, empowering users of all levels to conduct sophisticated data analytics effortlessly.

Mathematical simulation of how air pollutants disperse in the ambient atmosphere. It is performed with a computer simulation of a pollutant dispersion model.

Event Analytics

SIMS3 can collect data from thousands of devices covering an entire area, using a unique and highly intuitive facility control system. We have the database that lists, by source, the amount of air pollutants discharged into the atmosphere during a specific time period.

Take your analytic capabilities even further by analyzing your recorded events, event types, and overall event activity. In this module, you will be able to determine your most triggered event type and the days with the highest recorded activity.
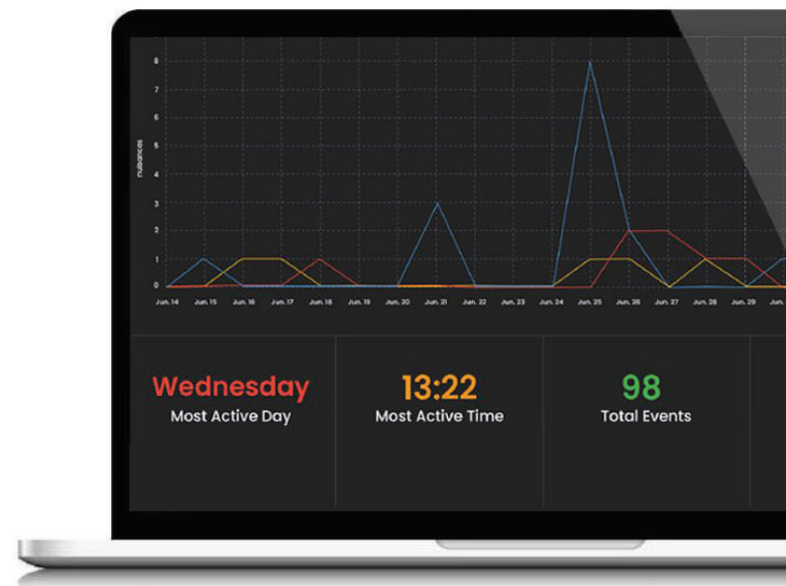
Achieve Your Gas Emission Goal

Benzene Testing

Safely determine the impact of benzene within and around Oil & Gas facilities. Continuous monitoring of Benzene around the facility perimeter provides real time and historical data.

Fugitive Emission Measurement

Emissions of gases or vapors from pressurized equipment due to leaks and other unintended or irregular releases of gases, mostly from industrial activities.

Sludge Process Testing

Sludge concentration, age, the dissolved oxygen concentration, the proper distribution of flow to parallel treatment units, and management of sludge.

Our Occupational Exposure Assessment is using US EPA and European standards to identify hazards in the workplace, conducting audits, risk assessments, and on-site analysis.

STATIONARY MONITOR:

CTmini Overview

The CTmini Particulate Matter Monitor is a continuous ambient pollutant and odor emission monitoring system which operates through high accuracy (ppb level) sensing technology. CTmini can accurately detecting and measuring a wide range of airborne particles, including PM1, PM4, PM2.5, and PM10. Additionally, it monitors the VOC (Volatile Organic Compounds) index and NOx (Nitrogen Oxides) index, ensuring a comprehensive understanding of air quality.

The CTmini Particulate Matter Monitor's sleek and compact design enables seamless integration into any environment without causing disruption. Its discreet presence allows for inconspicuous monitoring, making it suitable for both indoor and outdoor applications.

The CTmini Particulate Matter Monitor provides real-time data accessibility through easy Wi-Fi connectivity. The device communicates effortlessly once per minute, ensuring that you receive continuous updates on environmental conditions. View data from anywhere through our powerful Sensor Information Management (SIMS3) Software.

Specifications

Product Name	Scentroid CTmini Particulate Matter Monitor
Maximum # of Sensors	11 (4xEC, 1xCO2, 1xPID, 1xCH4, 1xPM, T, RH, Barometer)
Type of Sensors	PID, NDIR, EC, Laser Particulate counter, and MOS
Sampling rate	1 per minute
Geotagging	Available
Weight	400g
Size	160mm x 160mm x 40mm
Power Requirements	110 VAC, Rechargeable battery c/w Solar Panel and/or Wind Turbine for continuous operation
Battery Only Runtime	Up to 1 week of rechargeable battery life
Communication	WiFi standard, optional modem
On-board data Storage	16GB SD card, Long-term continuous monitoring
Cloud Server	SIMS3 Data Logging, Analysis, Alarms, Remote Management
On-Board Server	Included by Default
Data Usage	20 MB/month of Data when sending 1 min average
Ambient Temperature	–50 ºC to 50 ºC
Humid Range	0% – 95%
Design Rating	IP66 - ABS plastic, RAL 7035 light gray, screw cover
PM Sensor Detection	Max detection limit 1000 ug/m3; Lowest detection threshold 1 ug/m3
PM Sensor Resolution	1 ug/m3
Calibration	Factory calibration to fully documented procedures in accordance with our ISO 9001 quality management system
Warranty	24 months full warranty for all parts including sensors
Sensor Replacement	Sensor dependent – first 2 years covered by warranty
Mounting	Wall mount, pole mount, or tripod

STATIONARY MONITOR:

CTair Overview

Compact, cordless, easy to use, high accuracy sensing. The CTair revolutionizes the air quality monitoring network industry.

The CTair monitoring station is a fixed unit that collects information from a variety of sensors and presents the data in an easy to understand graphical interface. By applying information collected from multiple data points, the CTair allows the user to gain a complete understanding of the chemical compounds being monitored. It has been designed to be dispatched into a network of CTair units. Due to its lightweight design the CTair unit can easily be installed and mounted to a variety of fixtures.

CTair units work in tandem to predict and collect data for an accurate air quality assessment in a large space. Temperature and humidity compensation utilized by our AI modeler is able to predict pollutant levels to 96% of true concentration. The applications of a CTair unit in a wastewater treatment plant are limitless.

Specifications

Product Name	Scentroid CTair
Maximum # of Sensors	11 (4xEC, 1xCO2, 1xPID, 1xCH4, 1xPM, T, RH, Barometer)
Type of Sensors	PID, NDIR, EC, Laser Particulate counter, Temp, RH, Pressure
Sampling rate	Approximately 1 per minute
Weight	4.5 kg with solar panel
Size	19 x 29 x 14 cm for CTair, 37 x 34 cm for optional solar panel
Power Requirements	Solar power and AC power - 110 - 240 VAC
Battery Only Runtime	36 hours (base model)
LED Indicator	Color-changing LED light displaying unit status
Communication	WiFi, 3G, 4G, LoRa
On-board data Storage	64GB - SD Card for long term continuous logging
Cloud Server	Included by Default, data logging, analysis, alarms, & more.
Temp., Humidity Range	-40 to 40°C, 10 - 90% Relative Humidity (RH)
Device Health	Daily sensor health checks, provides replacement reminders
Design Rating	IP53 casing, securable by cable/pad lock
Calibration	Factory calibration to fully documented procedures in accordance with our ISO 9001 quality management system
Warranty	24 months full warranty for all parts including sensors
Sensor Replacement	Sensor dependent – first 2 years covered by warranty
Mounting	Configurable for wall or pole mount Custom mounting solutions can be created upon request

DRONE-BASED GAS LEAK PATROL:

DR2000 Flying Laboratory

The Scentroid DR2000 flying laboratory is a state-of-the-art drone-based air quality monitoring system that can be used to determine air quality concerns in mining operations. Equipped with a range of sensors, including particulate matter sensors, gas sensors, and meteorological sensors, the DR2000 can quickly and easily survey large areas of the mine and provide accurate, real-time data on air pollution levels.

This data can be used to identify pollution hot-spots, track the movement of pollutants, and evaluate the effectiveness of pollution control measures. The DR2000 is particularly useful for mining operations that cover large areas or have hard-to-reach areas, such as underground mines. The system is also highly flexible, allowing for customization to meet the specific needs of different mining operations.

By using the DR2000 flying laboratory, mining operators can obtain valuable data on air quality concerns in their operations, enabling them to make informed decisions and take effective action to protect the health and safety of workers and nearby communities.

Specifications

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Product Name	DR2000 Flying Laboratory
Maximum # of Sensors	11 (4xEC, 1xCO2, 1xPID, 1xCH4, 1xPM, T, RH, Barometer)
Type of Sensors	PID, NDIR, EC, Laser Particulate Counter, Temp, RH, Pressure
Sampling Rate	Approximately 1/s
Sampling Port	Single sampling port with probe > 1 LPM flow-rate
Probe Length	44 cm or 88 cm (switchable)
Weight	520 - 640g
Size	23 cm x 10.8 cm x 10.3 cm
Time in Flight	Drone dependent, optimal is 30 minutes
Communication	LoRa, GSM/WiFi
On-Board Data Storage	16 GB SD Card
Cloud Server	Included by Default
Ground Station	10" tablet with LoRa communication and DRIMS2 Software
Software	DRIMS2 system (ground-station + web client)
Temperature Range	5 ºC to 40 ºC
Operating Humidity	10 - 90%
Calibration	Auto-zero before flight. Can be optimized using GD600
Warranty	24 months full warranty to all parts including sensors
Sensor Replacement	Sensor dependent - first 2 years covered by warranty
Mounting Hardware	Customizable mounting lid - default mounting for Inspire 2 drone. Triple mounting safety redundancy to the drone (mounting screws, counter-weight ties, zip ties)sensors
Location and Altitude	GPS based with barometric pressure augmentation
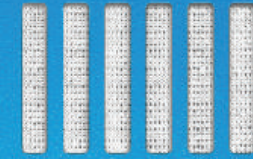
PERSONAL SAFETY MONITOR:

PMD100 Personal Safety Monitor

Using the Scentroid PMD100 personal safety air quality monitoring device equipped with a visual and an audible alarm system offers several benefits for workers in a a wastewater treatment facility. Firstly, the visual and audible alarm systems can alert workers when air quality levels are unsafe, helping them to take immediate action to protect themselves.

For example, if the device detects high levels of dust, gas, or other pollutants, it can trigger an alarm to warn the worker to move to a safer location or put on additional protective equipment.

Secondly, the device can provide workers with real-time data on their personal exposure levels, helping them to monitor their own safety and avoid exposure to harmful pollutants.

Finally, the Scentroid PMD100 can help facility operators to identify areas where air quality may be a concern and take action to improve conditions. By providing workers with a tool that allows them to monitor their own safety and take action when necessary, facility operators can promote a culture of safety and improve overall worker health and wellbeing.

Specifications

Product Name	Scentroid PMD100 Personal Monitoring Device
Maximum # of Sensors	2
Type of Sensors	2x EC, Temperature, Relative Humidity, Ambient Pressure
Sampling Rate	Continuous gas sampling, T & RH & P every 5 minutes
Weight	< 220 g
Size	6 x 7 x 3 cm
Screen Dimensions	24 x 47 mm
Communication	Bluetooth low energy
Power Requirement	Replaceable Lithium Battery
Typical Lifespan	1 working year
Ground Station	Included by Default
Cloud Server	SIMS3 - included by default
Alarm Equipped	Audio level 95 dB, Visual: LED RED strip surround
Haptic	Vibration feedback
Temperature Range	-20 ºC to 55 ºC
Relative Humidity	5 - 95%
Casing	IP54
Warranty	24 months full warranty to all parts including sensors
Sensor Replacement	Sensor dependent - first year covered by warranty
Back Clip	Mountable using mounting bracket/stand, alligator clip to connect to clothing
Features	SOS signal, administrator message broadcast and receipt, approximate localization within a facility (indoor and outdoor), fall detection with user intervention for false positive

Other Scentroid Services

Consultation

Seek advice from our odour monitor experts and environmental consultants to help you improve the accuracy and reliability of your monitoring projects.

Aerial Monitoring

Air quality mapping, model verification, and analysis of potentially dangerous sites have all now been made possible. While in flight, built-in chemical sensors can provide remote monitoring.

Perimeter Monitoring

We can assist with continuously monitoring the air quality around the boundary of your facility. This is typically used in settings where emissions and pollutants may potentially affect a community.

Indoor Air Quality Monitoring

Workers in the oil and gas industries face the risk of fire and explosion due to ignition of flammable vapors or gases. Our AQmini Monitor will detect whenever a particular room's air quality drops to below optimal levels.

Software Solutions

Scentroid offers a complete and integrated suite for ambient air chemical analysis and odor management, known as SIMS3.Our software utilizes a unique and highly intuitive facility control system, and powerful artificial intelligence to assist you with daily tasks.

Provide Regular Reports

Scentroid is capable of providing you and your facility with several reports ranging from SIMS3 outputs, to odour testing results based on your facility's requirements. Several report types can be autogenerated using our SIMS3 platform.

Automated Reporting

Our SIMS3 reporting auto-generated report module will generate visual reports at a user-defined frequency. Users will be able to schedule weekly, monthly, or annual reports. Once generated, reports will be sent to the user, and they can be downloaded within our reports module.

Training

Scentroid provides worldwide training programs for our clients and distributors. Training can be conducted by Scentroid or your local distributor. Scentroid training tools include: online training, videos, brochure, operation manual and on-site workshops. We also offer a hands-on training program using our high-tech simulation room. Scentroid's state of the art simulation room is located at our headquarters in Toronto, Canada. You are more than welcome to visit us and meet with the people behind these products

Warranty

We are so confident of the reliability of our products, that we are glad to offer our clients a comprehensive 24 month warranty for your equipment. Additionally, warranties can be extended for the 3rd, 4th and 5th year. For more information about our extended warranties, speak to us today.

Technical Support

We are responsible for any products that exit from our manufacturing warehouse! Our support team offers different ways to help you. Choose the one most convenient for you below!

Local Support
We have developed a vast growing network of distributors and repair facilities. To find your local support please check our distributors map.

Phone Support
Our highly professional customer services are here to serve you, for any technical issue reach them easily via phone: 416.479.0078 – Ext 210

SME Support
Connecting you to the Subject Matter Experts! Our customer support is unique in that you can talk directly to the designer or programmer of each product.

Live Chat
If you feel more convenient to solve your technical issue via chat, No problem! Reach our highly professional customer services through our website-hosted Live Chat.

Email Support
For any technical issue you our engineers are happy to assist via email. For fast and efficient support, simply email our team at   support@scentroid.com

Oil & Gas References

RasGas Qatar

Developed an Odour Management Plan, Odour impact study including sampling, dispersion modeling, and laboratory analysis. Covers the entirety of Ras Laffan and continuous Odour monitoring system design and implementation.

Saudi Kayan KSA

Provided Odour source Identification, Odour sampling and chemical plus olfactometric analysis, Odour dispersion modeling, Mitigation efficiency assessments.

Dolphin Refinery Qatar

Conducted a full odour monitoring project, Developed and established a technical team. Conducted on-going baseline odor measurements, Setup odor baseline levels, Chemical compound analysis using mobile GCMS. Investigation of chemical tracers and Odor impact assessment.

Qatar Gas Qatar

Established an Odour monitoring project, Conducted on-going baseline odor measurements, Setup odor baseline levels, Chemical compound analysis, Operations and process incident odor impact monitoring and Provided team with Scentroid equipment and training.

...Plus Many More! Visit our website www.scentroid.com