SCENTROiD

CTmini

Particulate Matter Monitor

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.

Dr. Ardevan Bakhtari
CEO, Scentroid

Why Choose CTmini?

Compact, cordless, easy to use, high accuracy sensing. The CTmini revolutionizes the air quality monitoring network industry. Understanding urban air pollution and the potential impact on health is fundamental to both city structure and planning.

The CTmini 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 CTmini 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 CTmini units. Due to its lightweight design the CTair unit can easily be installed and mounted to wall, pole or tripod.

The CTmini has been designed to monitor target gases (which can be specified at the time of ordering). A full list of sensors is available on our website.

Please contact us to learn more at
info@scentroid.com OR call us at **+1.416.479.0078**

CTmini Overview

Powerful Dust Analysis
High accuracy dust analysis (PM1, 2.5, and 10) using a patented multi-beam laser counter and heated sampler.

No Power? No Problem!
The CTmini features an optional battery and solar or wind turbine power generating system. Just set up your power supply and turn on your unit!

Compact Design
The CTmini is smaller than comparable analyzers minimizing cost and spatial real estate.

Smart Networking
CTmini units work in tandem to predict and collect data for an accurate air quality assessment in a large urban landscape.

AI Compensation
The temperature and humidity compensation utilized by our AI modeler is able to predict pollutant levels to 96% of true concentration.

Environmental Monitoring
In addition to PM, VOC, CO2, and NOx, choose up to 2 electrochemical sensors ideal for any environmental setting.

Easy to Install and Operate
Due to its light weight and mounting capabilities, the CTmini can be installed virtually anywhere! Ask about our mounting bracket or Tripod options.

Alarms and Notifications
Set multiple alarms for specified exceedance levels and receive immediate SMS notifications once they have been breached.

A New Method Of Sensing

The CTmini Particulate Matter Monitor employs state-of-the-art technology for 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.

This technology works so well, that independent studies have shown a 98% accuracy retention even in extreme weather conditions.

Compact & Discreet Design

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.

Quick & Effortless Installation

Setting up the CTmini Particulate Matter Monitor is a breeze, taking only minutes for installation. The device can be easily mounted on a pole or wall, allowing for rapid deployment. Its user-friendly interface ensures a hassle-free experience, making it accessible even to those without extensive technical expertise.

Specifications

Product Name	Scentroid CTmini
Maximum # of Sensors	11 (4xEC, 1xCO2, 1xPID, 1xCH4, 1xPM, T, RH, Barometer)
Type of Sensors	Electro-Polymer
Additional Electro-Polymer Sensors	All Gas/VOC, BR2, CH4S, SO2, O3, O2, NO2, H2S, HF, HCN, HCl, HCHO, H2, F2, CO, ClO2, CL2, NH3
Sampling rate	1 per minute
Weight	400g
Size	160mm x 160mm x 40mm
Geotagging	Available
Communication	WiFi, optional modem
Mounting	Wall mount, pole mount, tripod
Cloud Server	SIMS3 Data Logging, Analysis, Alarms, Remote Management
Internal Storage	16GB SD Card
Design Rating	IP66 - ABS plastic, RAL 7035 light gray, screw cover
Power Options	Battery, USB-C, Wind Turbine, Solar Panel
Device Health	Daily Sensor Health & Replacement Check and Reminders
Calibration	Factory Calibrated to Fully Documented Procedures in Accordance with ISO 9001 QMS
Warranty	24 Months Full Warranty (Parts, Including Sensors)

For a full list of sensors, visit us at www.scentroid.com

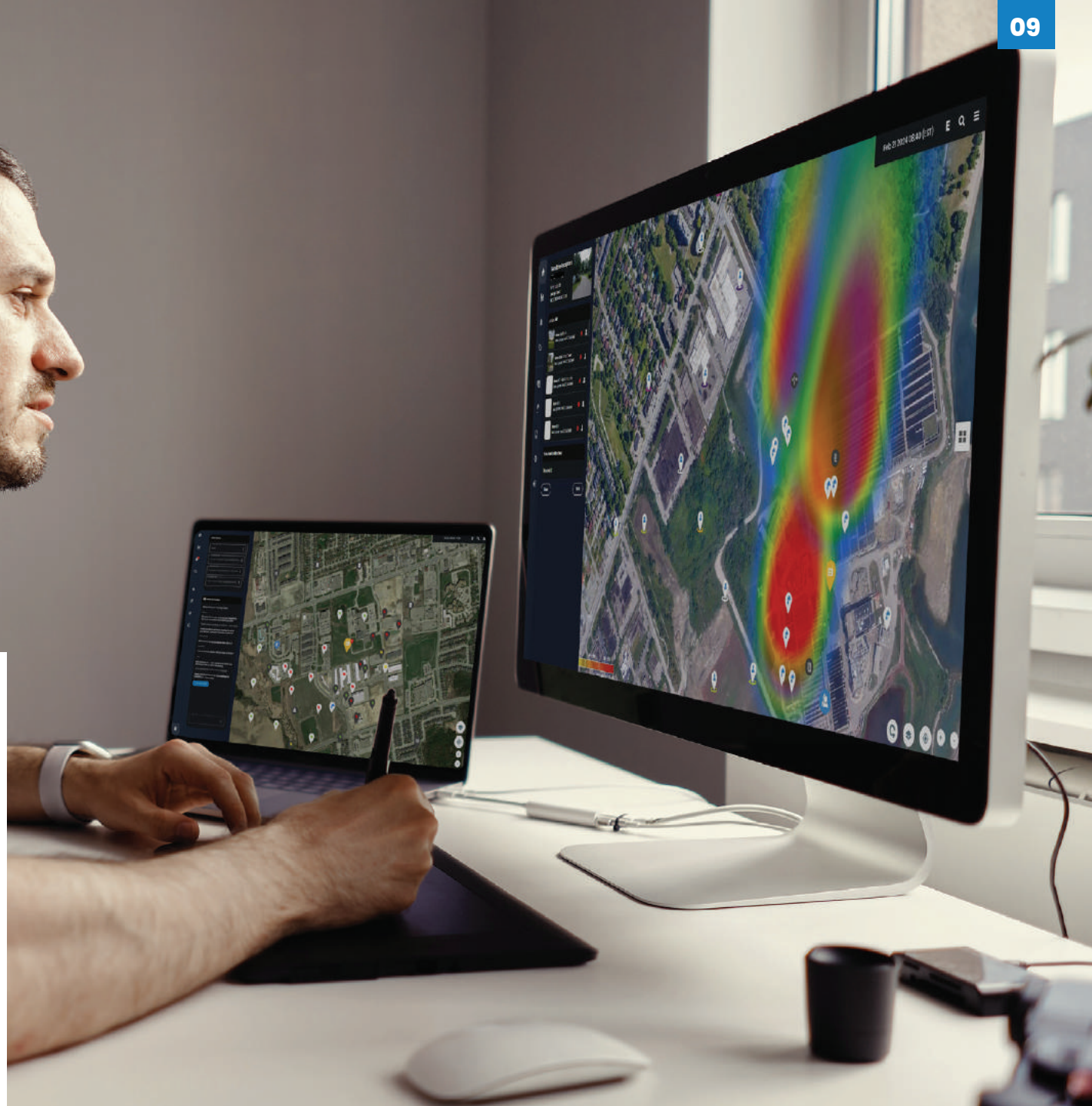# CTmini Features, Optional Components

Data Storage Reliability

The CTmini provides **2 levels** of data storage:

1. Storage of data on pre-installed SD card

2. Transmission and storage of data on the cloud / Localized server

Flexible Sensing & Modular Design

The CTmini can be equipped with up to 11 sensors from Scentroid's Electro-Polymer sensor list **(viewable at www.scentroid.com).**

Each CTmini can be customized with the specific sensors that are best suited for your industry. Our flexible pricing means you pay for exactly what you need. Based on pollutant concentrations or odor units - **All limits and activation conditions are set through the SIMS software.**

A Sensor for Every Situation

The CTmini can be equipped with up to 11 sensor varieties, including pressure, temperature, relative humidity, dust (PM1, 2.5, and 10), noise, radiation, traffic, wind, and more. As a matter of fact, you can create up to 300 million different sensor combinations! No application is too big or small. Scentroid has you covered!

AMMONIA	OXYGEN	ARSINE	TEMPERATURE
CARBON MONOXIDE	OZONE	TRAFFIC	RELATIVE HUMIDITY
HYDROGEN	SULFUR DIOXIDE	PARTICULATE MATTER 1	NOISE
FORMALDEHYDE	TOTAL VOLATILE ORGANIC COMPOUNDS	PARTICULATE MATTER 2.5	RADIATION
HYDROGEN SULFIDE	PHOSPHINE	PARTICULATE MATTER 10	TRAFFIC
NITROGEN DIOXIDE	ETHYLENE OXIDE	PRESSURE	WIND

...PLUS MORE! SEE OUR WEBSITE

Benzene Detection

Benzene is typically formed from both natural processes and human activities. A few common sources may include volcanoes, forest fires, crude oil processing, gasoline production, and cigarette smoke. It is widely used in several manufacturing processes including plastics, resins, synthetic fabrics, lubricants, rubbers, dyes, detergents, and pesticides. Exposure to Benzene can be incredibly harmful, and lead to many adverse health effects, even death.

Scentroid has developed a unique solution for monitoring Benzene. Create a detection perimeter around your facility by utilizing a network of our CTmini or Scentinal units.

- Ask about on-site support which involves the identification, labeling, and monitoring of all potential leak sources
- Use of infrared cameras enables the identification of large leaks
- A full report is provided upon completion of analysis

Alarms & Notifications

The Scentroid "Sensor Information Management System" (SIMS3) provides the capability for the CTmini to **set up alarms and notifications.** Alarm levels can be set up based on individual pollutants or on the odor concentration. Breaching the designated alarm thresholds will trigger SMS and/or emails alerts to be sent out to the authorized operators. Additionally, Scentinal can be setup to provide localized audible alarms. An authorized user can remotely configure each CTmini; providing it with the desired sampling rate, transmission rate, purging frequency and more. **CTmini units can also transmit data over WIFI or LAN networks to a local server running a client SIMS database – providing additional security**.

CTmini for Process Control

In addition to email and SMS alarms, **CTmini units can be used to control a variety of equipment.** For example, it can be used to:

- Provide audible alarms
- Engage odor control technologies (e.g. misting systems) when fence-line pollutants exceed designated thresholds
- Secondary polishing filter only when needed; reduce operating costs
- Activate external sampling pump for collecting an air sample using a PTFE or nalophan bag

The limits and conditions for engagement of each relay can be set based on pollutant concentrations or odor units. All limits and activation conditions are set through the SIMS software.
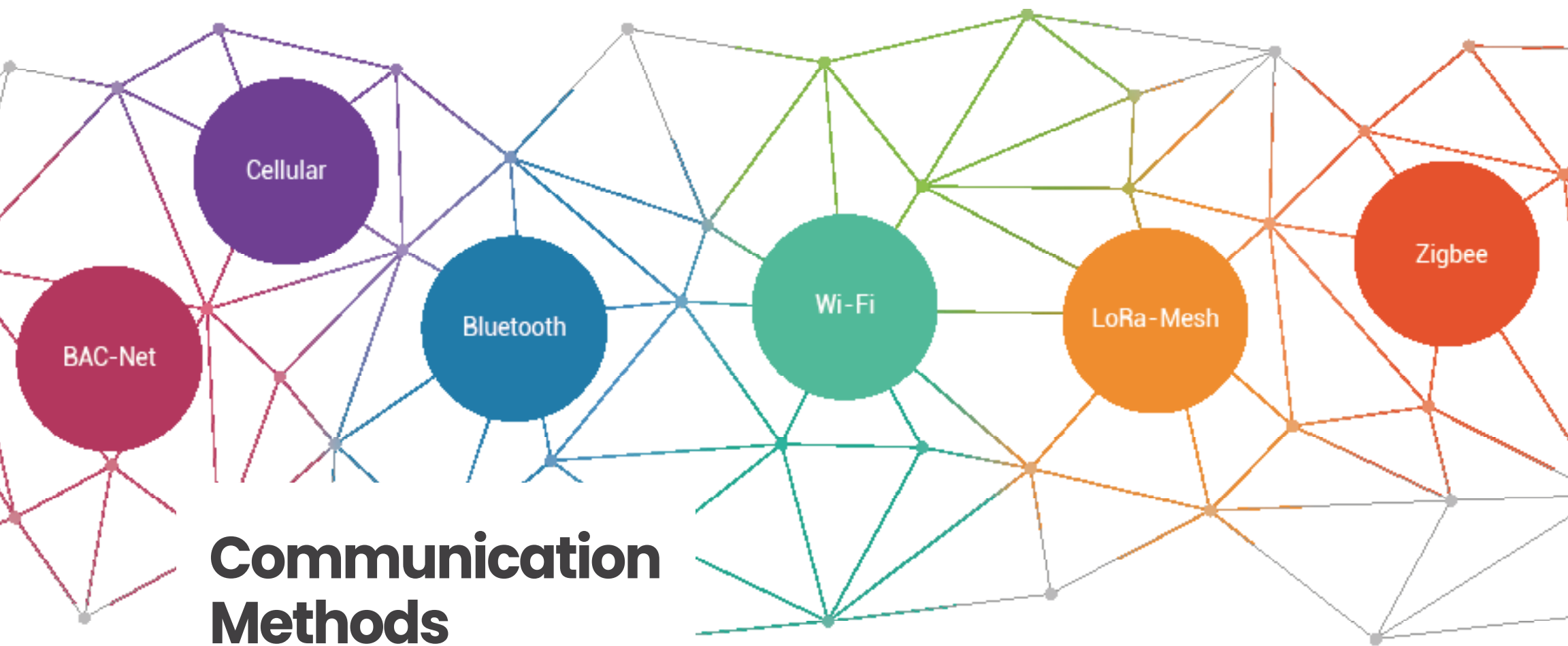
Data Server & Communication Protocol

Renewable Energy Connectivity

The CTmini Particulate Matter Monitor's battery-powered design allows for flexible deployment in remote locations, further enhanced by its capability to connect to solar panels or wind turbines, ensuring continuous operation even in areas lacking traditional power sources.

The limits and conditions for the engagement of each relay can be set based on pollutant concentrations or odour units.

Communication Methods

The Scentroid CTmini will arrive pre-configured to work with multiple communication protocols. We can easily integrate it into your system, whether it's through Bluetooth, cellular, or wifi. Cross product integration has never been easier! If you required a connection between multiple CTmini units, or if your facility required some form of communication between a different Scentroid Analyzer, for instance, the AQmini or the CTair, Scentroid has you covered!

Real-Time Data Accessibility

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.
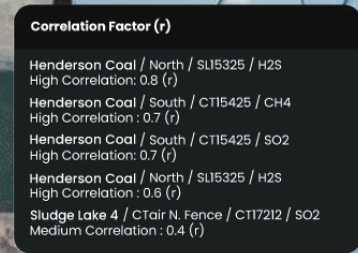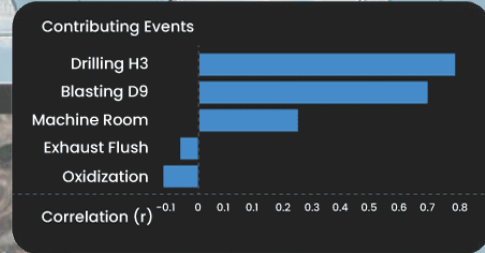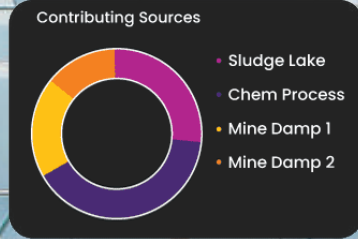
Cloud Based Hosting

The central monitoring station is hosted on a **secure cloud-based server;** allowing remote access with any smart device that is connected to the internet. The access is restricted, and the **data is encrypted for maximum security.** Users are given an identification and password combination which will define their permission level. For example, a standard user who accesses the platform is only able view and download the results, while a user with administrator access can reconfigure the system and redefine parameters.

The monitoring station is designed to collect all data from the sensors and present the sensor data in an **easy to understand graphical interface.**

Introducing SIMS3: Sensor Information Management System

The sensor information management software, SIMS3, 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 odor management. SIMS3 can collect data from thousands of devices covering an entire area, using a unique and highly intuitive facility control system.

Facility Organization

All facilities are separately organized so that the users of each will only see data from their own units. Regulators will have an overall view of all facilities within their monitoring scope.

SIMS3 AI

SIMS3 AI utilizes both continuous pollution monitoring and live weather data to calculate a real-time odor plume model, displaying an exact location and spread of odor emissions.

Complaint Designation

Nearby complaints are automatically assigned to facilities, and even sources within facilities, so that the system provides a perfect blend of real-time odor impact estimation, with the registration and further management of odor complaints from neighboring residents.

Modules

The map module itself displays a wealth of information including locations of your air quality monitoring devices, their live sensor readings, the location of sensitive receptors, odor complaint locations, and their justification status. The map module is complemented by a diverse series of user analytics to assist you with determining a wealth of parameters with the click of a button!

User Settings

The system is further supported by a robust settings component, allowing the quick change of user permissions, access privileges, notifications settings and more, all in one convenient window!
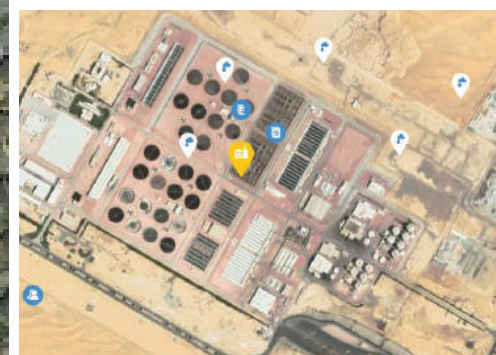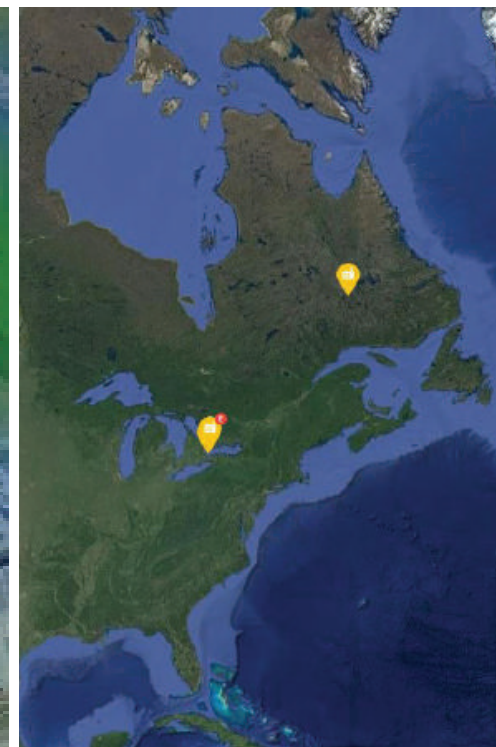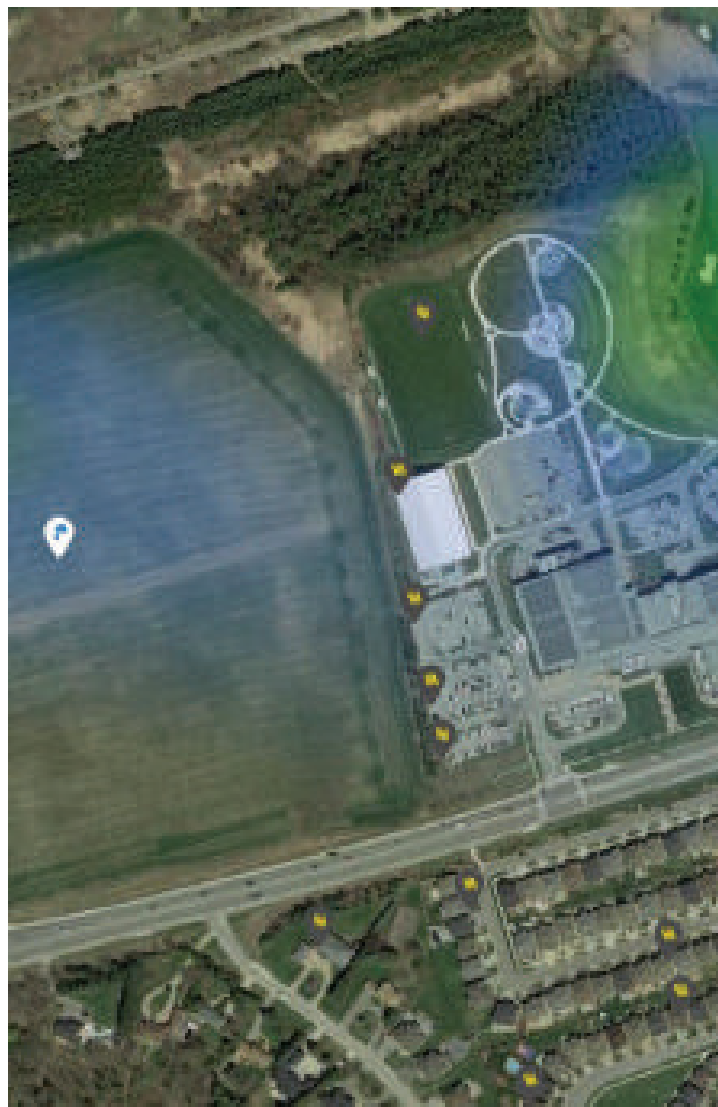
Timeline Control & Navigation

A powerful component of SIMS3 is the **full control of time**. Users can move a Timeline Navigation Slider to investigate how a Plume evolves over a set period. Plume data readings from **ambient monitors, complaints, source emissions, and all other events** will all be synced with the selected time. Users can even create an animation to get a visual on how the plumes and complaints evolve, as plumes will develop and change based on weather conditions, submitted user data, and algorithmic AI developments.
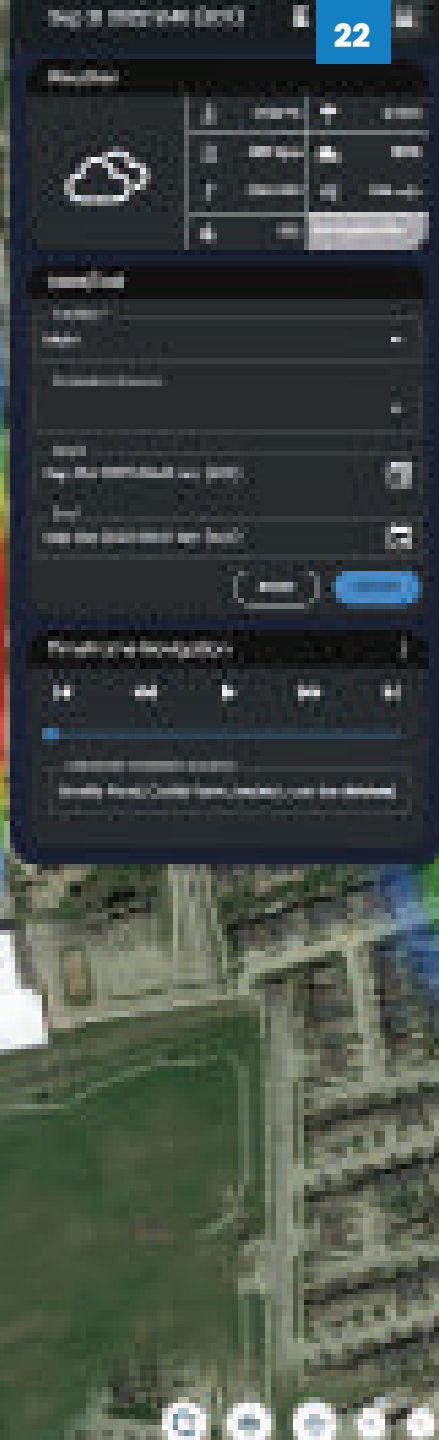
Users can move the timeline into the future and see SIMS3's predictions for plumes, complaints, and even sensor readings within the next 2 days.

Timeframe Navigation

Selected Emission Source

Cattle Farm

Environmental Monitoring

The Scentroid CTmini serves as an **exceptional environmental monitor**, providing valuable insights into air quality wherever they are placed. This monitoring capability enables organizations to gain comprehensive and real-time information on pollutants, particulate matter, and other critical air quality indicators, creating a detailed map of the surrounding environment's conditions.
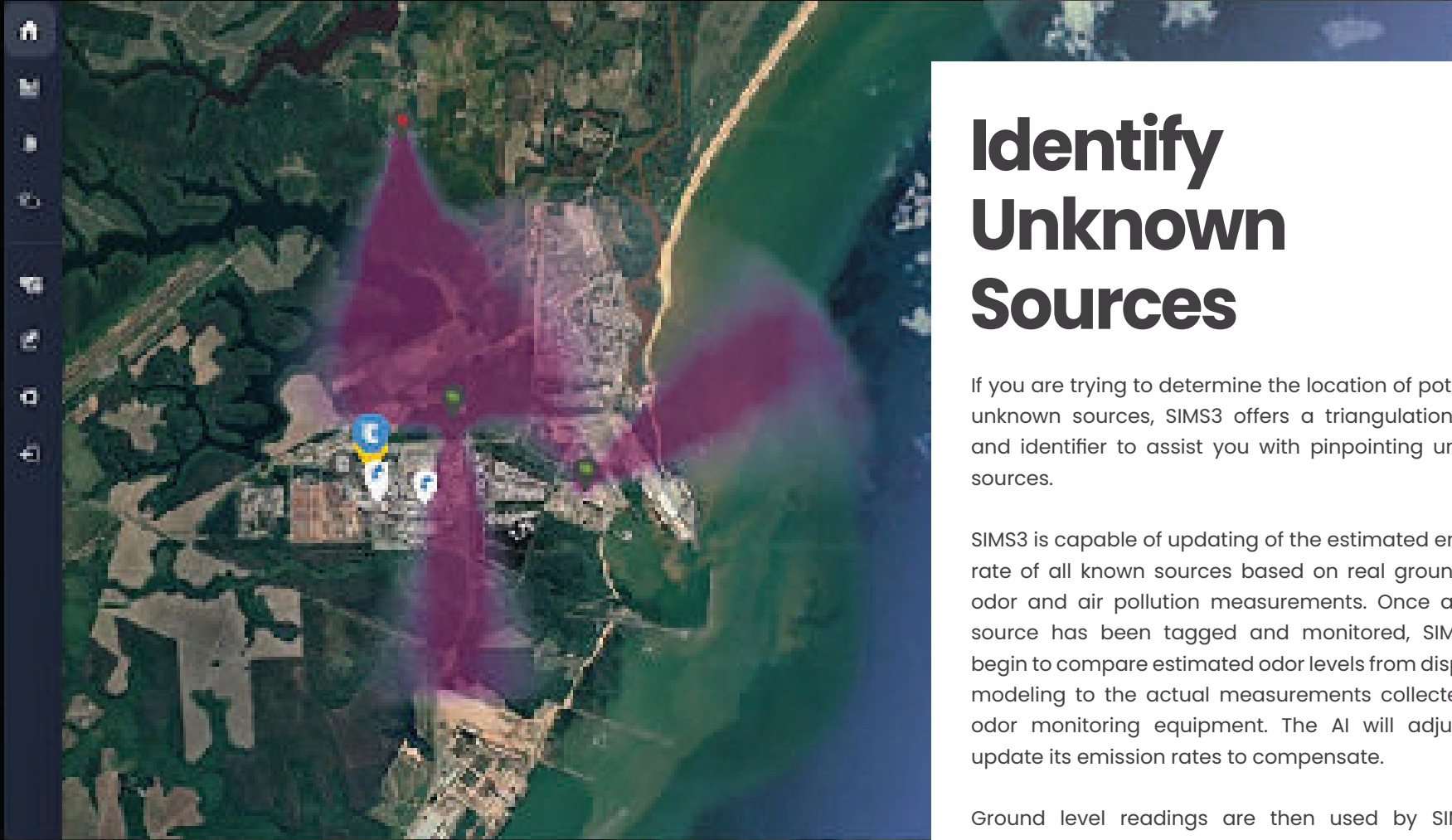
Identify Unknown Sources

If you are trying to determine the location of potentially unknown sources, SIMS3 offers a triangulation mode and identifier to assist you with pinpointing unknown sources.

SIMS3 is capable of updating of the estimated emission rate of all known sources based on real ground-level odor and air pollution measurements. Once an odor source has been tagged and monitored, SIMS3 will begin to compare estimated odor levels from dispersion modeling to the actual measurements collected with odor monitoring equipment. The AI will adjust and update its emission rates to compensate.

Ground level readings are then used by SIMS3 to conduct back-trajectory to identify unknown sources. Continuous pollution data and field olfactometric data are used along with meteorological data to triangulate the exact location of an odor source.

Weather & Complaint Forecasting

The **built-in weather forecasting module** allows the user to see any future weather events, determine complaint risk probability, view temperature, and more. **Complaint risks are displayed underneath each individual forecast,** whether daily or hourly, to assess the potential of receiving an odor complaint at that time, or for that date. Clicking on any date within the forecasted period will let the user **generate a plume** based on changing weather patterns, along with a complaint risk probability rating.
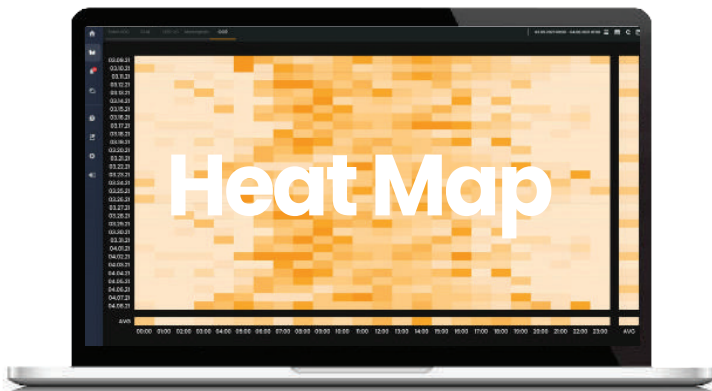
Event & Notification Log

The SIMS3 **Event Log** contains event data, time frame, justification, occurrences, intensity, and a brief description. At a glance, users can determine the **most logged event types,** determine the weekly **frequency of logged events,** and track the **most active day**, **most active time**, and **total events registered**. A series of filters allows users to quickly find a specific event, notification, event type, new or read status, event time, justification status, occurrences, intensity, and more.

Our **notification center** allows you to quickly view your instrument's alarms through a clean and organized interface. Here, you can access your device, look up a specific sensor, display all of your established alarms, and obtain a detailed breakdown of your alarm status.

Temporal

Statistical

AQI

Heat Map

Events

Justification

Robust User Analytics

The **SIMS3 analytics module** provides you with the tools you need to make informed decisions regarding your monitoring projects. This module allows you to view data in several formats including t**emporal view, statistical view, AQI Analysis view, and heat map.** Take your analytic capabilities even further by analyzing your **recorded events, event types, and overall event activity.**

For more details on our SIMS3 platform, please see our **SIMS3 Brochure** available at **www.Scentroid.com**

Our Approach To Odor Management

Sensors are selected based on the application, and therefore, are **customized to individual industries, plants, facilities, sites, etc**. This allows the CTair to find the real tracer that can be used to correlate chemical readings to odor concentration.

1. A large number of calibration points (minimum of 30) are collected using the **SM100 infield olfactometer.** The initial readings along with periodic measurements ensure the system has enough data points to develop an accurate model reflecting all changes to process, pollutants, and sensors.

A sophisticated **machine learning algorithm** is used to find the complex correlation between odor units and pollutants measured. The software provides quality of the fit and the expected error range to ensure reliable data is used.

Measuring Odor Concentration

CTmini measures concentration levels of pollutants in the ambient environment and simultaneously, outputs odor concentration levels as well. Data from individual sensors are processed by Scentroid's chemical and olfactometric correlation system in order to determine the **odor concentration** in an OU/m3 annotation. The system uses a deep learning algorithm to determine an odor concentration based on existing readings from the chemical sensors.

Olfactometric measurements, sampled using Scentroid's SM100i Field Olfactometer, are collected periodically (monthly, bi-monthly, or semi-annually) and are input into the learning algorithm along with the recorded chemical composition. This sophisticated algorithm will create a non-linear relationship between chemical readings and odor concentrations. This data will be used to update the network and enhance the accuracy related to the prediction of odor concentrations.

SM100i Support

With Scentroid technology, it is possible to identify potentially unknown odour sources by using the Scentroid Intelligent and portable Olfactometer SM100i, and the CTmini ambient air quality monitor. Data collected can be used to create a dispersion model based on source testing, through creating an odour emission inventory of an area, and capturing any fugitive sources.

The SM100i Intelligent olfactometric device can be utilized to collect samples at selected locations and assessed for odour concentration levels. Through data collected on the analysis of existing emission sources, potential complaint locations, dispersion modeling results, and odour patrol routes with the SM100i can be determined. Patrollers Collect ambient odour concentration data at determined locations, and upload it to our Cloud-based SIMS3 software.

SIMS3 integrates all information related to odour impact including stationary AQM data, source monitors, and field olfactometric data, potential odour complaints, meteorological data, and even images in one complete GIC software solution. Advance AI algorithms are used to create dispersion models of all located sources and continuously update their emission rates based on AQM and SM100i data. This complete software solution can be used by facilities to monitor their emission rate and complaints related to their activities without having access to data from other facilities. Automatic reports are generated and sent to your team showing emission reduction or increase, and the overall odour impact of each source on a regular basis.

Odor Complaint Management

Within SIMS3, **Odor complaints** are automatically analyzed to determine the individual validity of each against a known **odor source or event**. They're then visually marked as justified (red), not justified (green), and to be justified (yellow). For each complaint the user will receive a list of all contributing sources and events. **Complaints with no known sources will be analyzed to determine validity and to identify possible locations of the unknown contributing source.**

A location that has a potential for an odor complaint – for instance, a person who'll complain frequently or a company that'll be directly affected by an odor, can be marked as a **Sensitive Receptor**. Odor or pollutant concentrations at Sensitive Receptor locations are estimated and modeled every 10 minutes, and users can create alarm levels and view historic odor concentrations at all Sensitive Receptor locations.

CTmini Applications

Urban

Urban air pollution is a significant threat to human health and the quality of life of all people around the world. Minimizing urban air pollution not only serves as a healthy buffer for people in their everyday lives but also encourages reducing the emissions of harmful compounds.

Recommended Sensors:

Carbon Dioxide - (Low Concentration)
Carbon Monoxide - (Low Concentration)
Oxidizing Gases Ozone
Nitric Oxide - NO (Low Concentration)
Nitrogen Dioxide - (Low Concentration)
Oxygen
Total VOCs (ppb) - PID
Sulfur Dioxide - (Low Concentration)
Particulate PM 1, 2.5, 10 (Simultaneous)

Odor

Environmental odor is among the highest sources of nuisance; festering the largest amount of complaints from residents. Environmental odor can be generated from a variety of industries including food processing, tobacco products manufacturing, chemical plants, paint plants, asphalt plants, pulp and paper, WWTP, and etc. Scentinal can be used to monitor odor emissions in order to help plants optimize processes and reduce odor impact.

Recommended Sensors:

Ammonia
Hydrogen Sulfide - (Low Concentration - ppb)
Organic Solvents (Ethanol, Iso-Butane)
Total VOCs (ppb) - PID
General Purpose Odors (VOCs)
TRS and Amines
Air Contaminants (Ammonia, Ethanol, Toluene)

Wastewater

One of the most prominent issues of concern from wastewater treatment plants (also known as sewage treatment plants) is odor. Many chemicals in these facilities generate odor; the majority are sulfur-based. At the start of the process H2S, DMS, and other sulfur compounds are abundant, while at the trailing end of the process (sludge processing), VOCs are more predominant.
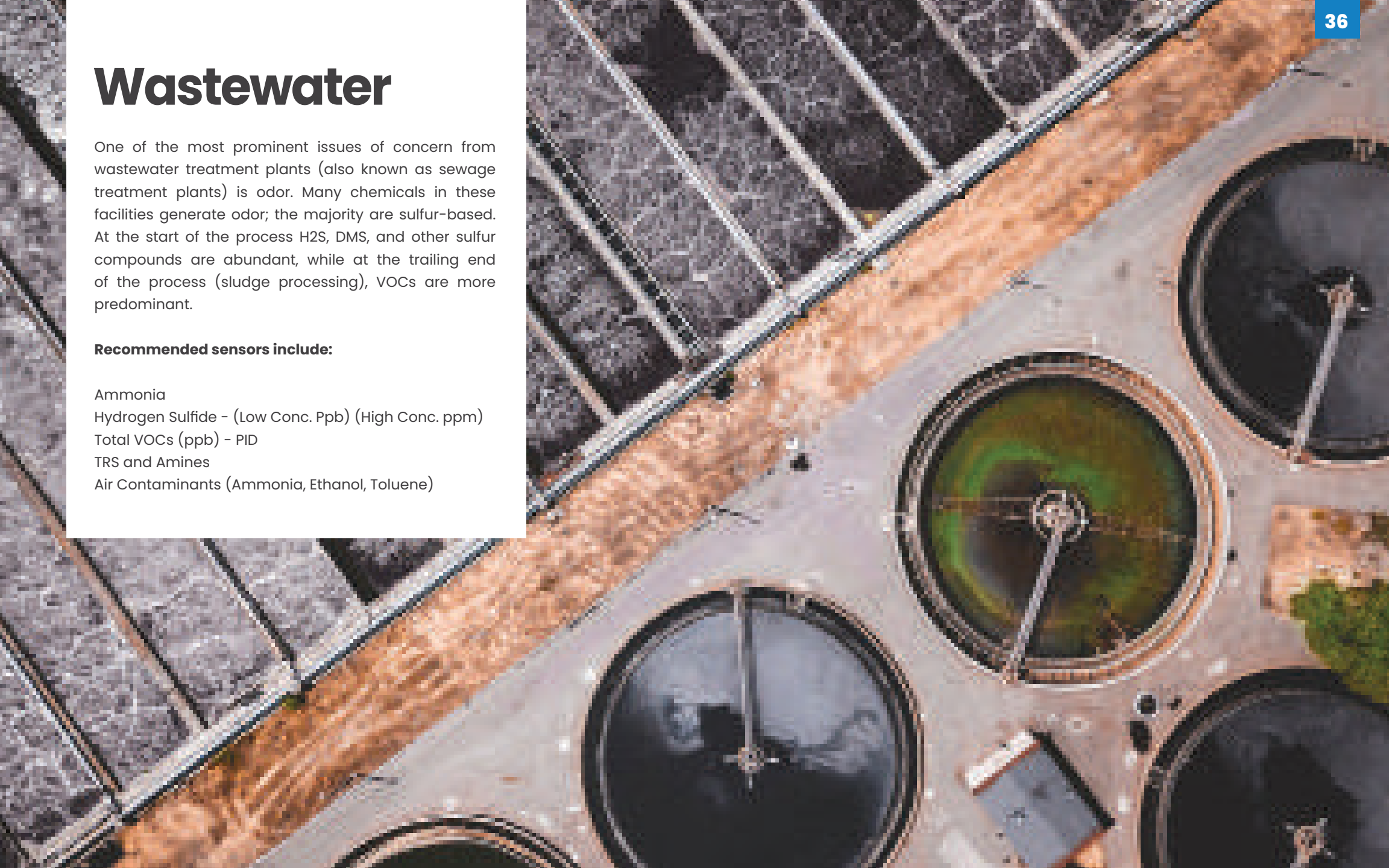
Recommended sensors include:

Ammonia
Hydrogen Sulfide - (Low Conc. Ppb) (High Conc. ppm)
Total VOCs (ppb) - PID
TRS and Amines
Air Contaminants (Ammonia, Ethanol, Toluene)

Indoor Air Quality Monitoring

Indoor air quality plays an important role in human health and comfort. Scentinal provides a solution to monitor and control indoor air quality. Scentinal can also provide continuous monitoring of any selected chemical compound(s), this includes CO_2, CO, O_2, PM 1-10 as well as pollutants such as H_2S, CH_2O, SO_2, VOC, and Odor. The system can be programmed to activate mitigative technology or central HVAC systems if pollutant levels are found to exceed set threshold limits. This active monitoring and mitigation approach will ensure fresh, healthy air for all staff, laborers, and nearby residents and businesses.

Recommended sensors include:

Carbon Dioxide - (Low Concentration)
Carbon Monoxide - (Low Concentration)
Hydrogen
Hydrogen Sulfide - (Low Concentration, ppb)
Nitric Oxide - NO (Low Concentration)
Nitrogen Dioxide - (Low Concentration)
Oxygen
Total VOCs (ppb) - PID
Sulfur Dioxide - (Low Concentration)
Formaldehyde
Particulate PM 1, 2.5, 10 (Simultaneous)

Oil & Gas

Pollutant and Odor monitoring in the petrochemical and oil and gas industry is critical due to the number of hazardous air pollutants released in these processes. Fence line and in-plant monitoring allows the plant to not only ensure adherence to emission regulations and standards, but also to detect issues within the process such as tank leaks, loading spills, and other unexpected events.

Recommended Sensors:

Carbon Dioxide - (Low Concentration)
Carbon Monoxide - (Low Concentration)
Chlorine
Ethylene Oxide
Hydrogen Sulfide
Hydrogen Chloride
Hydrogen Cyanide
Ammonia
Oxidizing Gases Ozone and Nitrogen Dioxide
Phosphine - (Low Concentration)
Phosphine - (High Concentration)
Hydrogen Sulfide - (Low Concentration - ppb)
Organic Solvents (Ethanol, Iso-Butane, H2)
Methane (LEL)
Nitric Oxide - NO (Low Concentration)
Nitric Oxide - NO (High Concentration)
Nitrogen Dioxide - (Low Concentration)
Oxygen
Total VOCs (ppb) - PID
Total VOCs (ppm) - PID
Sulfur Dioxide - (High Concentration)
Sulfur Dioxide - (Low Concentration)
Formaldehyde
Particulate PM 1, 2.5, 10 (Simultaneous)
Air Contaminants (Ammonia, Ethanol, Toluene)

Agriculture

Agricultural facilities emit a wide array of pollutants that must be monitored. The majority of these pollutants are not hazardous but are odorous and therefore a source of nuisance. Scentinal can provide monitoring of both odor and pollutants in agricultural facilities.

Recommended sensors include:

Ammonia
Carbon dioxide
Methane
Particulate PM 1, 2.5, 10 (Simultaneous)

General Safety

Workers from many industries are exposed to multiple harmful gazes every day. These chemicals can lead to fatigue, respiratory decline, illness, and a general decrease in the overall quality of life. Industries need to monitor their air quality and ensure safety for their workers.

Recommended sensors include:

Carbon Dioxide - (High Concentration
Carbon Monoxide - (High Concentration)
Chlorine
Ethylene Oxide
Hydrogen
Hydrogen Chloride
Hydrogen Cyanide
Ammonia
Oxidizing Gases Ozone and Nitrogen Dioxide
Phosphine - (Low and High Concentration)
Hydrogen Sulfide - (High Concentration - ppm)
Methane (LEL)
Nitric Oxide - NO (High Concentration)
Nitrogen Dioxide - (High Concentration)
Total VOCs (ppm) - PID
Sulfur Dioxide - (High Concentration)
Formaldehyde

Compost

Workers in compost facilities are exposed to chemical and biological risks. Additionally, nearby neighborhoods may also be affected by the same contaminants. It is critical to monitor air quality in these type of facilities in order to ensure proper operation and uphold adherence to pertinent regulations.

Recommended sensors include:

Organic solvents (Ethanol, Iso-Butane)
Hydrogen Sulfide
Ammonia
TRS and Amines
Total VOCs - PID

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

LET'S
BUILD OUR
NETWORK

linkedin.com/company/
scentroid

DO YOU
FOLLOW
US YET?

@Scentroid

GET THE
FULL
PICTURE

@Scentroid

LIKE
SHARE
COMMENT

facebook.com/scentroid

WATCH
FOLLOW
SUBSCRIBE

youtube.com/scentroid
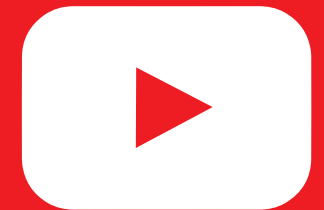
SCENTROiD
Future of Sensory Technology

Scentroid (Division of IDES Canada Inc.)
70 Innovator Avenue, Units #6-8 | Toronto, ON, L4A 0Y2
T: 416. 479.0078 or 1.888.988.IDES (4337)
info@scentroid.com | www.scentroid.com