SCENTROID

SL50 SCENTINAL

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 were environmental impacts will be easily and accurately measured and mitigated.

Dr. Ardevan Bakhtari
CEO, Scentroid

WHY CHOOSE SCENTINAL?

Scentinal offers a completely customizable solution with many unique features including self-cleaning, multiple sampling ports, self-configuration capabilities for plug and play installation, time synchronized readings, alarm/notifications, powerful air conditioner and heating systems, solar powered modules, and more.

With each purchase, you also receive the highest after sales support in the industry, and one of the most comprehensive warranties. Our 2 year complete warranty even includes sensor replacement – showing how confident we are about our product.

At Scentroid, we pride ourselves on our customer care and after sales support. We offer onsite training, online training, as well as videos, brochures, operation manuals, and more.

With its unparalleled reliability and accuracy, these are just some of the advantages of our Scentinal SL50 unit over other air quality monitoring station.

Please contact us for any questions or clarifications at info@scentroid.com OR call us at +1.416.479.0078


SL111601
Unknown Sensor 0.000
Unknown Sensor 16.970
Ext/Int Temp. 17.70C/24.70C
Ext/Int Humid. 38.70%/10.10%
Sensor
Last
1 Hour
8 Hours
24 Hours
AQI
PID
NH3
NO2
SO2-LC
O3-NO2
NO
HCl
H2S-LC
Particulate Matter 1
Particulate Matter 2.5
Particulate Matter 10
CO-LC
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SL50
SCENTINAL
OVERVIEW

Intelligent Odour & Air Quality Monitoring Station

Scentinal is a continuous ambient pollutant and odour emission monitoring system which operates through high accuracy (ppb level) sensing technology. Scentinal can provide simultaneous monitoring of odorous and non-odorous gases such as Hydrogen Sulfide (H2S), Sulfur Dioxide (SO2), Ammonia (NH3), Methane (CH4), Carbon Dioxide (CO2), and many other Volatile Organic Compounds (VOCs).

Scentinal uses up to 20 sensing modules ranging from Photo-Ionization Detectors, Non-Dispersive Infrared Detectors, Electro-Chemical Cells, Laser Scattered counters and Metal Oxide sensors. The data collected from sampling is stored locally and is also transmitted to the cloud server, providing easy accessibility. The Sensor Information Management System (SIMS) is used to store and display the results from monitoring and sampling campaigns while also providing capabilities for remote configuration, calibration, and diagnosis of multiple Scentinal units.

Easy to Use!

Scentinal is easy to setup and use. Each Scentinal comes pre-loaded with a SIM card – all that's left to do is mount the unit to a wall/pole and plug in the power cable. Scentinal will detect its location using its built-in GPS and start transmitting to the central server. All configuration and maintenance can be done on the on-unit 7" touch screen monitor or remotely through the SIMS software (See page 19 for additional information about SIMS software).

The Affordable Solution

At a fraction of the cost of a traditional air quality station, Scentinal can provide pollutant and odour emission data that is critical in meeting your environmental objectives. In addition to an affordable purchase price, Scentinal has minimal operating cost. Add that to Scentroid's unparalleled 2-year comprehensive warranty; which covers all aspects of the instrument (including the sensors), and Scentinal becomes the most affordable solution for continuous airborne pollutant and odour monitoring in the world!

Specifications

Product name	Scentinal SL50
Maximum # of sensors	10
Type of sensors	PID, NDIR, EC, Laser Particulate counter, and MOS
Sampling rate	Adjustable from 1/sec to 1/min
# of sampling ports	1 to 2
Weight	81 lbs
Size	24" x 20" x 8"
Power requirements	100-240V 50/60Hz 2A
Power consumption	30W without AC - 150W with AC
Communication	3G/4G (default), LAN (default), WIFI (optional)
On-board data storage	64GB - SD Card
Cloud server	Included by Default
Local server	Optional
On-Board server	Included by Default
User interface	7" touch screen on Panel door and Remote access Sensor Information Management System
Ambient temperature range	0 to 35 °C without AC system -50 to +50 °C with Heating and AC system
Sample conditions	-50 to +50°C and 10 – 90% RH without pre-dilution system -50 to 120°C and 0 – 100% RH with pre-dilution system
Calibration	Manual, using calibration gas and on-board screen Optional, automatic calibration using built-in calibration gas
Warranty	24 months full warranty on all parts including sensors
Sensor replacement frequency	Sensor dependent – first 2 years covered by warranty
Software	Sensor Information management System – free access for life of product
Cabinet	NEMA 4X
Mounting hardware	Wall mounting hardware included

Scentinal Sensor List

#	Sensor ID	Type	Formula	Chemical	Max. Detection Limit	Lowest Detection Threshold	Resolution	Cross sensitivity		Industry	Expected Life (years)	Warmup Time (Sec)	Response Time (Sec)
								Required	Recommended				
1	CD1	NDIR	CO2	Carbon Dioxide - High Concentration	5%	100 ppm	20 ppm	–	–	Safety/Combustion/ process control	1	120	120
2	CD2	NDIR	CO2	Carbon Dioxide - Low Concentration	2000 ppm	1 ppm	0.6 ppm	–	–	Urban, Industrial, IAQ	1	120	120
3	CM1	EC	CO	Carbon Monoxide (Low Concentration)	100 ppm	0.03 ppm	0.01 ppm		H2, C2H4	Urban, Industrial, IAQ	2	40	40
4	CM3	EC	CO	Carbon Monoxide (Medium Concentration)	1000 ppm	1 ppm	1 ppm	–	–	Urban, Industrial, IAQ	5	40	20
5	CM2	EC	CO	Carbon Monoxide (high concentration)	10000 ppm	30 ppm	3 ppm	–	–	Safety/Combustion/ process control	2	45	40
6	CL2	EC	CL2	Chlorine (High Concentration)	2000	1 ppm	1 ppm	NO2	BR2	Safety/Combustion/ process control	2	45	40
7	CL1	EC	Cl2	Chlorine (Low Concentration)	10 ppm	0.05 ppm	0.01 ppm	NO2	NO2	Industrial, Safety	2	120	60
8	H1	EC	H2	Hydrogen	10000 ppm	100 ppm	10 ppm		CO	Industrial, Safety, IAQ	2	120	40
9	HCL1	EC	HCl	Hydrogen Chloride	20 ppm	0.5 ppm	0.2 ppm	H2S	HBr	Industrial, Safety	2	120	60
10	HCY1	EC	HCN	Hydrogen Cyanide	50 ppm	0.1 ppm	0.1 ppm	H2S, NO2, SO2	–	Industrial, Safety	2	120	30
11	PH1	EC	PH3	Phosphine (low Concentration)	5 ppm	50 ppb	30 ppb	NO2	SO2, H2S	Industrial, safety	2	60	20
12	PH2	EC	PH3	Phosphine (high Concentration)	2000 ppm	5 ppm	2 ppm	NO2	SO2, H2S	Industrial, safety	2	60	25
13	HS1	EC	H2S	Hydrogen Sulfide (low Concentration - ppb)	100 ppm	10 ppb	10 ppb	–	–	WWTP, Odour, IAQ, Urban, Industrial	1	180	35
14	HS2	EC	H2S	Hydrogen Sulfide (high Concentration - ppm)	2000 ppm	15 ppm	2 ppm	–	–	Safety, WWTP	2	180	25
15	HS3	EC	H2S	Hydrogen Sulfide (medium Concentration - ppm)	200 ppm	2 ppm	0.2 ppm	–	–	Safety, WWTP	2	180	60
16	E2	MOS	C2H6O, H2, C4H10	Organic solvents (Ethanol, Iso-Butane, H2)	500 ppm	25 ppm	1 ppm	–	Benzines <20%	Industrial, Odour, Compost	1	30	10
17	MT1	NDIR	CH4	Methane (LEL)	20,000 ppm	10 ppm	10 ppm	–	Propane	Safety/Combustion/Inprocess control, Industrial	>3 years	45	12
18	NC1	EC	NO	Nitric Oxide (Low Concentration)	1 ppm	0.01 ppm	0.001 ppm	–	–	Urban, IAQ, Industrial	2	120	60
19	NC2	EC	NO	Nitric Oxide (Medium Concentration)	25 ppm	0.2 ppm	0.1 ppm	–	–	Urban, IAQ, Industrial	2	120	60
20	NC3	EC	NO	Nitric Oxide (High Concentration)	5000 ppm	2 ppm	2 ppm	–	–	Industrial, safety, Process control	3	120	10
21	ND1	EC	NO2	Nitrogen Dioxide (Low Concentration)	1 ppm	0.01	0.001 ppm	–	–	Urban, IAQ, Industrial	>5 years	120	60
22	ND2	EC	NO2	Nitrogen Dioxide (Med Concentration)	20 ppm	0.1 ppm	0.1 ppm	–	–	Urban, IAQ, Industrial	>5 years	120	60
23	ND3	EC	NO2	Nitrogen Dioxide (high Concentration)	1000 ppm	2 ppm	1 ppm	–	–	Industrial, safety, Process control	2	120	60
24	NS1	NDIR	N2O	Nitrous Oxide	10,000 ppm	100 ppm	1 ppm	–	Negligible	Urban, Industrial, Process control	5	30	30
25	O2	EC	O2	Oxygen (high Concentration)	250,000 ppm	5000 ppm	200 ppm	–	–	Process control, Safety	1	60	15
26	PD3	PID	VOCs	Total VOCs 10.0 eV	100 ppm	5 ppb	5 ppb%	–	Aromatioc Carbons	WWTP, **Odour**, IAQ, Urban, Industrial	5*	5	3
27	PD1	PID	VOCs	Total VOCs (Low Concentration) - PID 10.7 eV	50 ppm (isobutylene)	1 ppb	1 ppb	–	All VOCs	WWTP, Odour, IAQ, Urban, Industrial	5*	5	3
28	PD2	PID	VOCs	Total VOCs (High Concentration) - PID 10.7 eV	300 ppm (isobutylene)	1 ppm	50 ppb	–	All VOCs	Safety, Industrial	5*	5	3

#	Sensor ID	Type	Formula	Chemical	Max. Detection Limit	Lowest Detection Threshold	Resolution	Cross sensitivity		Industry	Expected Life (years)	Warmup Time (Sec)	Response Time (Sec)
								Required	Recommended				
29	SD1	EC	SO2	Sulfur Dioxide (high Concentration)	2000 ppm	2 ppm	1 ppm	NO2	–	Safety, Industrial	2	120	25
30	SD2	EC	SO2	Sulfur Dioxide (low Concentration)	20 ppm	10 ppb	10 ppb	NO2	–	Urban, IAQ, Industrial	2	120	20
31	SD3	EC	SO2	Sulfur Dioxide (medium Concentration)	100 ppm	0.4 ppm	0.2 ppm	NO2	–	Urban, IAQ, Industrial	2	120	20
32	FM1	EC	CH2O	Formaldehyde	5 ppm	10 ppb	10 ppb	–	Ethanol	IAQ, Safety, Industrial,	2	180	60
33	PM 2.5-10	Laser Scattere	PM	Particulate PM 2.5, 10 (simultanous)	1000 µg/m3	1 µg/m3	1 µg/m3	–	NA	Urban, IAQ, Industrial	>5 years	NA	NA
34	TS1	Laser Scattere	TSP	TSP - PM Required	20000 µg/m3	1 µg/m3	1 µg/m3	–	NA	Urban, IAQ, Industrial	>5 years	NA	NA
35	NMH	EC	NMHC	Non-methane Hydrocarbon	25 ppm	0.1 ppm	0.1 ppm	–	NA	Industrial, Process, Combustion	2	180	55
36	MS2	MOS	TRS	TRS and Amines	10 ppm	10 ppb	2 ppb	–	Trimethal Amine, Methyl Mercaptans, H2S, other amines and sulfur compounds	Odours, WWTP	1	30	10
37	MS3	MOS	NH3-C2H6O-C7H8	Air Contaminants (Ammonia, Ethanol,	30 ppm	1 ppm	4 ppb	–	(ammonia, Ethanol, Toulene)	Odours, WWTP, Industrial	1	30	10
38	AM2	EC	NH3	Ammonia (High concentration)	100 ppm	3 ppm	1 ppm	CL2	H2S, NO2	Agricultural, Industrial	2	30	40
39	AM1	EC	NH3	Ammonia (Low Concentration)	100 ppm	100 ppb	100 ppb	CL2	H2S	Agricultural, Industrial	2	30	50
40	OZ1	EC	O3	Ozone (low Concentration)	0.5 ppm	1 ppb	1 ppb	CL2	H2S, NO2	Urban, Industrial	>5 years	60	30
41	OZ2	EC	O3	Ozone (High Concentration)	5 ppm	20 ppb	20 ppb	CL2	H2S, NO2	Urban, Industrial	>5 years	60	30
42	RD1	Geiger Counter	α-, β-, γ, X	Radiation Monitor (α-, β-, γ- and x- radiation)	1000 µSv / h	0.01 µSv / h	0.01 µSv / h	-	-	Mining, Industrial, Nuclear Energy, Security	>3 years	0	0
43	CIO21	EC	CIO2	Chlorine Dioxide	50 ppm	0.01 ppm	0.05 ppm	-	CL2	Odour, Industrial	2	180	60
44	CH4L	TDLS	CH4	Methane - ppb	100 ppm	0.4 ppm	0.01 ppm	-	-	Greenhouse gases, industrial	10+	20	1
45	ET1	EC	C2H4	Ethylene - Low Concentartion	10	0.05 ppm	0.01 ppm	CO	-	Greenhouse gases, industrial	2	120	30
46	ET2	EC	C2H4	Ethylene - Medium Concetration	200	1 ppm	0.5 ppm	CO	--	Greenhouse gases, industrial	2	120	30
47	ET3	EC	C2H4	Ethylene - High Concentration	1500	5 ppm	2 ppm	CO	-	Greenhouse gases, industrial	2	120	30
48	MM	EC	CH3SH	Methyl Mercaptan	10 ppm	0.05 ppm	0.01 ppm	H2S		Odours, WWTP, Leak Detection, Industrial	2	120	35
49	EMF	EMF	EMF	Electro Magnetic Flield	200 mGauss	0.1 mGauss	0.1 mGauss	-	-	Urban, Industrial, power plants	3	<1	<1
50	CS	EC	CS2	Carbon Disulfide	100 ppm	1 ppm	0.1 ppm	-	-	Odour, WWTP, Industrial	2	120	30
51	TBM	EC	C4H10S	Tert Butylthiol	14 ppm	0 ppm	0.1 ppm	-	-	Odour, Leak detection, Industrial	2	120	30
52	THT	EC	C4H8S	Tetrahydrothiophene	14 ppm	0 ppm	0.1 ppm	-	-	Odour, Leak detection, Industrial	2	120	30
53	THT	EC	C4H8S	Tetrahydrothiophene	99.9 pCi/l (3,700Bq/m³)	0.2 pCi/l (700Bq/m³)	0.2 pCi/l (350Bq/m³)	-	-	IAQ, Safety, Industrial,	2	10	<1

For our most updated sensor list, please email us at info@scentroid.com, or visit us online at www.scentroid.com

SCENTINAL FEATURES

Reliability

Scentinal provides 3 levels of data storage:

1. Storage of data on pre-installed SD card
2. Transmission and storage of data on the on-board server
3. Transmission and storage of data on the cloud/localized server

Scentinal is also a Server!

Standard on each Scentinal is a separate dedicated micro-computer acting as an on-unit server to run Scentroid's Sensor Information Management System (SIMS). Through the 7" touchscreen, users are able to view historical data, alter system configurations, perform calibrations, assess real-time readings and set alarms and notifications. The Scentinal's on-unit server is capable of storing data for up to 5 years. This data can be polled by the central station at any time; facilitating safe storage even if the system communication becomes lost. In fact, the Scentinal has the capability to operate without an external server. The system is password protected to ensure only authorized users have access to critical system parameters.

Scentinal for Process Control

In addition to email and SMS alarms, every Scentinal is equipped with multiple industrial relays of up to 20 Amps that can be used to control a variety of equipment. For example, Scentinal can be used to:

1. Provide visual and audible alarms
2. Engage odour control technologies (e.g. misting systems) when fenceline pollutants exceed designated thresholds
3. Secondary polishing filter only when needed; reduce operating costs
4. 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 odour units. All limits and activation conditions are set through the SIMS software via remote server or on-device touch screen.

Self-Purging

Scentinal uses a new method of decontamination to ensure accurate reading, even at ppb levels. Periodically (interval is pre-set remotely through SIMS software or on-device server), the system injects carbon filtered air into the sample line to measure contamination. If contamination is detected, Scentinal will start its ozone generator and flush the lines, pumps, and sensors with ozone and hydroxyl. These reactive molecules will destroy all bacteria, mold, and pollutants. Scentinal will then flow-push carbon filtered air again and ensure the system is completely purged and decontaminated.

This means that after the initial installation, Scentinal is virtually maintenance free.

Flexible Sensing & Modular Design

The Scentinal product can be equipped with up to 10 sensors from Scentroid's sensor list (see pages 7 and 8 for Scentroid's sensor list).
There are 5 categories of sensors:

- Photo-Ionization Detector
- Non-Dispersive Infrared
- Electro-Chemical
- Laser Scattered Counter (for PM1-10)
- Metal Oxide Sensor

Each Scentinal 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 odour units - All limits and activation conditions are set through the SIMS software via remote server or on-device touch screen.

Installation & Connectivity

Each Scentinal has a micro controller; allowing the unit to record it's GPS positioning. This position is sent to the central server during each data transfer. At the time of the installation, the technician simply needs to mount the Scentinal and power it on. The central computer will automatically identify the unit and know of its exact location. To reconfigure the network, the physical sensor can be moved, and the system will automatically adapt to this change. Multiple Scentinal units can be configured within one monitoring area. The connectivity is flexible and secure using one of the following options:

☑ Encrypted transfer over GPRS ☑ WIFI ☑ LAN ☑ Analog/SCADA

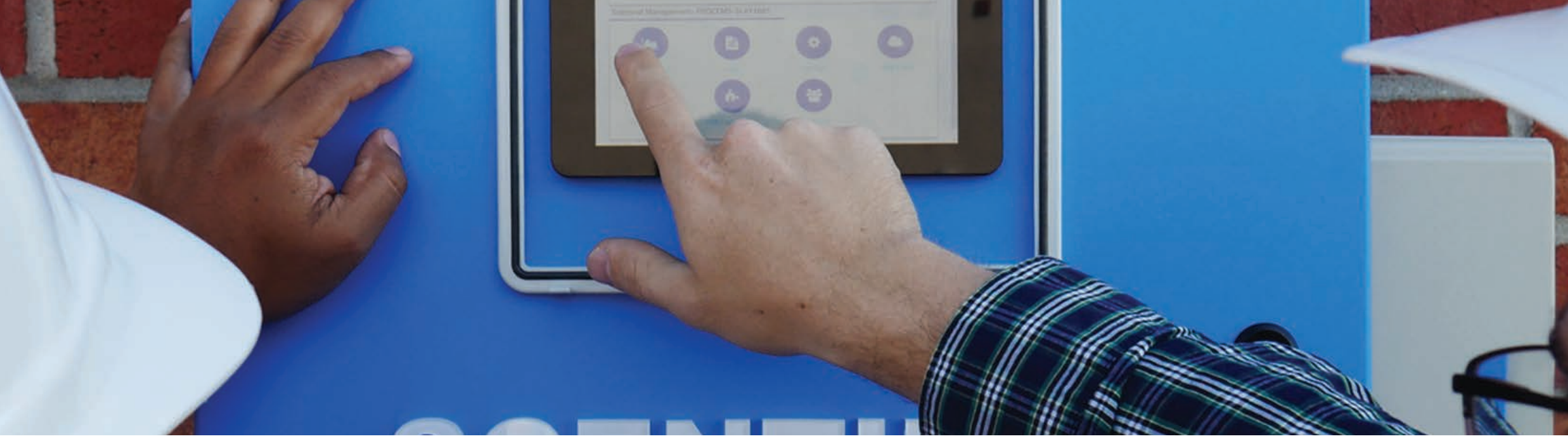
The system can either connect to a local server or Scentroid's cloud-based SIMS server. It is even possible to operate Scentinal with no centralized servers thanks to its on-board server.

Wind Sensor

Scentinal can be equipped with on-board wind direction and wind speed sensor. This information can be used to determine localized wind conditions such as turbulence and down drafts. Scentroid offers either ultrasonic or cup and vane wind sensors to fit any application and budget. For gathering meteorological data, Scentroid provides an independent weather station that can installed in accordance to USEPA guidelines. The Scentroid weather station is equipped with its own communication module and will seamlessly integrate with Scentinal using the SIMS local or cloud-based software.

Multiple Sampling Ports

Scentinal can be equipped with up to 2 sampling ports. This allows the unit to measure pollutants from different process points or locations. For example, Scentinal can be setup to record input and output of a bio trickling filter to provide live efficiency calculations. The ¼" sample ports can be outfitted with ambient sampling hoods or be directly connected to a PTFE line.



Alarms & Notifications

"Scentinal Information Management System" (SIMS) provides the capability for the Scentinal platform to set up alarms and notifications. Alarm levels can be set up based on individual pollutants or on the odour 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 visual and audible alarms. An authorized user can remotely configure each Scentinal; providing it with the desired sampling rate, transmission rate, purging frequency and more. Scentinal can also transmit data over WIFI or LAN networks to a local server running a client SIMS database – providing additional security.

Noise Monitoring

In addition to gas and particulate monitoring, the Scentinal can be equipped with an outdoor Class 1 noise sensor. No additional equipment is required to measure and record ambient noise. Integrated automatic calibration make Scentinal convenient and accurate. Noise measurement range is from 30 to 100 dB (A).

DATA SERVER & COMMUNICATION PROTOCOL

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.

Local Server (Optional)

Scentinal can be configured so that the SIMS (Scentinal Information Management System) software is hosted on a local server, specified by the user. This server must have adequate connection to a secure Wi-Fi or LAN network. Scentroid will provide all necessarily hardware and software to setup a local server. This option includes: Computer hardware (including monitor, keyboard…), SIMS software, Ethernet hub.

Communication Protocols

GPRS

Scentinal, by default, comes with a GPRS module, allowing for wireless communication through existing cell towers. The communication is encrypted and sent to Scentroid's secured SIMS cloud server. A local SIMcard should be obtained by the user to facilitate this data transmission.

WIFI/LAN

Scentinal can also transmit data over WIFI or LAN networks to Scentroid's cloud server or a secured local server. LAN connection is included by default and WIFI is included as an option when ordering.

Analog/SCADA

Scentinal is an open platform allowing interface to many other instruments and systems such as the plant SCADA. Scentinal can be setup to transmit any one of the sensor outputs as 0-5V or 4-20mA to be connected to plant monitoring systems such as SCADA.

Scentinal Information Management System (SIMS)

Scentinal Information Management System, SIMS, is an all-inclusive software, used to view historical data, run diagnostics, configure, and set alarm levels for Scentinal. Provided as part of the Scentinal package, the software is installed on:

1. On-board server (default)
2. Scentroid's cloud-based server (default)
3. Client's localized server (optional).

ODOUR MONITORING

Measuring Odour Concentration

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

Olfactometric measurements, sampled using Scentroid's SM100 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 odour concentrations. This data will be used to update the network and enhance the accuracy related to the prediction of odour concentrations.

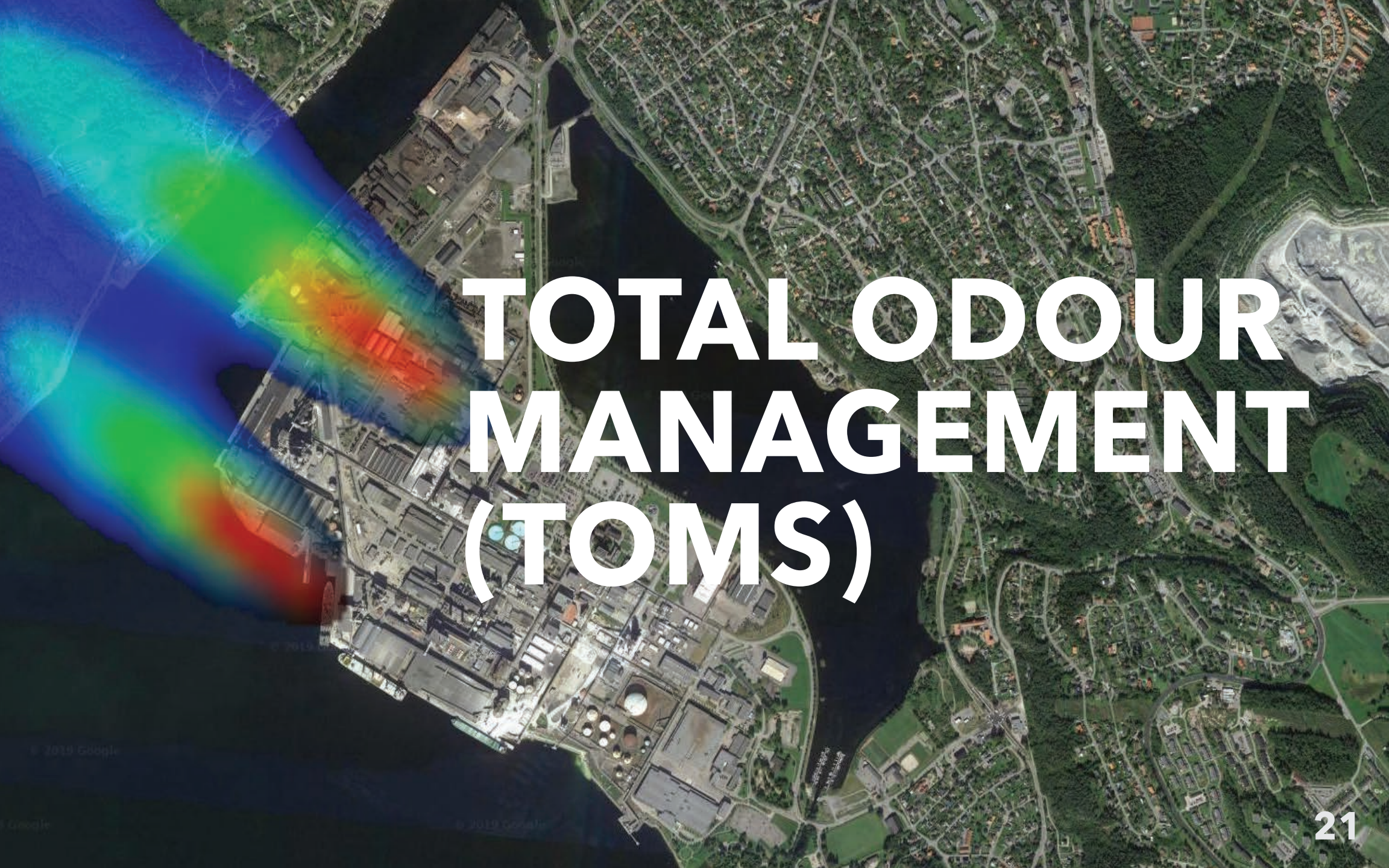
E-Nose Limitations

Traditional E-Nose is a collection of 4 to 30 metal oxide sensors combined with a software algorithm. The calculations from the sensor for odour concentrations are based on a handful of calibration points. These points are obtained using traditional olfactometric analysis in a laboratory. Some limitations with this approach include:

- The strong cross sensitivity that is inherent with metal oxide sensors
- The rapid "drift" of sensors results in different signals for pollutants over time
- The handful of calibration points is insufficient for the complex correlation between sensor readings and odour concentrations

Scentinal Approach to Odour Management

1. Sensors are selected based on the application, and therefore, are customized to individual industries, plants, facilities, sites, etc. This allows Scentinal to find the real tracer that can be used to correlate chemical readings to odour concentration.
2. 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.
3. A sophisticated machine learning algorithm is used to find the complex correlation between odour units and pollutants measured. The software provides quality of the fit and the expected error range to ensure reliable data is used.



TOTAL ODOUR MANAGEMENT (TOMS)

What is TOMS?

TOMS offers a complete, integrated suite for odour management. The system provides an integration of real-time odour impact estimation with a management module related to odour complaints from neighboring residents. The simple to use software combines field-olfactometry and live weather data to reproduce real-time odour plumes; allowing you to identify their severity and extent. Complaints are automatically logged and compared against the odour-air plume for instant validation.

Real Time Odour Dispersion Monitoring

TOMS offers a complete, integrated suite for odour management. The system provides an integration of real-time odour impact estimation with a management module related to odour complaints from neighboring residents. The simple to use software combines field-olfactometry and live weather data to reproduce real-time odour plumes; allowing you to identify their severity and extent. Complaints are automatically logged and compared against the odour-air plume for instant validation.

TOMS Features

- ☑ Automatically validate complaints
- ☑ Real-time representation of odour plume
- ☑ Compatible with chemical sensors and GC-based field analyzers for continuous monitoring
- ☑ Automated report generation
- ☑ Uses USEPA approved AERMOD modelling software
- ☑ Can be used to monitor individual compounds or total odour impact
- ☑ Cloud-based solution with 100% data reliability
- ☑ 2 way communication system (e.g. residents and enforcement agency)

SCENTINAL ACCESSORIES

Air Conditioning & Heating System

Scentinal can equipped with a powerful air conditioner – capable of ensuring an optimal internal temperature even during extreme or pro-longed weather events. In cold climates, the built-in heater will activate to keep the sensors above 15°C. Internal temperature can be monitored remotely through the SIMS software. The enclosure is also fully insulated to reduce power consumption and ensures that Scentinal can operate in any ambient temperature ranging from -50°C to + 50°C.

Scentinal Solar Power Unit

For locations where getting power to Scentinal might be challenging, a solar panel and rechargeable battery can provide all the necessary power for your Scentinal. Scentinal's optional solar power unit will provide all the necessary charge controllers, power management system, and connections to install your solar panels and batteries.

SCENTINAL APPLICATIONS

(INDUSTRIES AND RECOMMENDED SENSORS)

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. Scentinal is a perfect fit for air quality monitoring of the cities.
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)

Odour

Environmental odour is among the highest sources of nuisance; festering the largest amount of complaints from residents. Environmental odour 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 odour emissions in order to help plants optimize processes and reduce odour impact.
Recommended Sensors:

- Ammonia
- Hydrogen Sulfide - (Low Concentration - ppb)
- Organic Solvents (Ethanol, Iso-Butane)
- Total VOCs (ppb) - PID
- General Purpose Odours (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 odour. Many chemicals in these facilities generate odour; 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 CO2, CO, O2, PM 1-10 as well as pollutants such as H2S, CH2O, SO2, VOC, and Odour. 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, labourers, 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 Odour 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 odourous and therefore a source of nuisance. Scentinal can provide monitoring of both odour 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 gasses 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 neighbourhoods 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

Process Control

Scentinal can be programmed to detect in-process gasses and activate, one or more of 3, built-in relays to control in-process events such as mitigative technologies and predesignated alarms. Scentinal will also calculate efficiency of activated-carbon systems and provide notifications for replacement. For example, Scentinal can detect if odour, after being treated with a bio-filter, is above the regulatory permitted value. If it is, the system will automatically engage carbon-filtration. By using activated carbon scrubbing only when needed, the Scentinal will reduce power consumption and increase the life of granular carbon. Some possible example of control conditions:

☑ Odour > 500 OU
☑ H2S > 1 ppm
☑ TVOC > 0.5 ppm
☑ NH3 > 2 ppm

Recommended Sensors are:

- Carbon Dioxide - High Concentration
- Carbon Monoxide - High Concentration
- Oxidizing Gases Ozone
- Nitrogen Dioxide
- Methane (LEL)
- Sulphur Dioxide
- Nitrogen Oxides

INSTALLATION, MAINTAINANCE, OPERATIONAL COSTS

Installation

The small form factor and small mass of the Scentinal makes it easy to transport and install. To install the Scentinal, all that is required is to mount the unit to a wall or a pole and plug in the AC power. Solar panels and rechargeable battery options enable the unit to work in remote locations. Once powered, the instrument will determine its location using a built in GPS receiver and start transmitting data to the closest SIMS server. That's it!

Maintainance

Scentinal uses a new method of decontamination to ensure accurate reading even at ppb levels. Periodically the system assesses contamination using a built-in carbon filter and if required decontaminates all lines, pumps, and valves using oxidizers. Remote diagnostic tools and built-in calibration gas (option) means that once installed, Scentinal is virtually maintenance free.

Operational cost of Scentinal is minimal with electricity and data being the only utilities. The system will require less than 0.5 amps at 220 VAC. if you incorporate AC, an additional 75 watt of consumption will be included. With the optional solar panel, there will be no requirement for external electricity. Data cost is paid for one year. After the first year, the data cost is dependent on the country of installation, for example:

Australia, Canada, UAE, UK and USA cost roughly $100 per year ($0.25 per MB rate and 2-minute update time is assumed).

Sensor Replacement

Sensors are under a comprehensive warranty for 24 months from the date of shipment. Additional warranty can be purchased to cover sensor replacement. Typical sensor life cycle depends on the type of sensor – generally this is between 1 to 5 years.

Calibration

Onsite Calibration

Scentinal can be calibrated through the on-device 7" touch screen using calibration gasses. Calibration should be performed, at minimum, on an annual basis to ensure optimal performance. The entire calibration does not take more than 10 minutes per sensor and requires minimal technical skills.

Automatic Calibration

Optional automated calibration module will allow Scentinal to conduct periodic self-calibration. Scentinal will automatically inject calibration gas, which is permanently connected to the unit, into the sample line and verify/update calibration parameters.

AFTER-SALES SUPPORT

Training

Training is the key of using any instrument, and 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 every Scentinal SL50. Additionally, warranties can be extended for the 3rd, 4th and 5th year. For more information about our extended warranties, pick any of the options in section 9.2 and 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

AIR QUALITY STANDARDS

Pollutant	Scentinal Calibration Range	Detection Limit	US EPA Standard	EU Standard
Ozone	0 - 0.05 ppm (1000 µg / m3)	0.01 ppm (2 µg / m3)	0.075 ppm / 8h (157 µg / m3 / 8h)	(0.102 ppm / 1h) (1000 µg / m3) (1000 µg / m3) (1000 µg / m3)
PM2.5	0 - 2000 µg / m3	1 µg / m3	35 µg / m3 / 24h	25 µg / m3 / 24h
PM10	0 - 2000 µg / m3	1 µg / m3	150 µg / m3 / 24h	50 µg / m3 / 24h 40 µg / m3 / 1Y
Odour	1+OU	1 OU	0 OU	NA
Sulfur Dioxide	0 - 10 ppm (0 - 29 µg / m3)	0.009 ppm (25 µg / m3)	0.14 ppm / 24h (365 µg / m3)	(0.133 ppm / 1h) (0.047 ppm / 24h) 350 µg / m3 / 1h 125 µg / m3 / 24h
Carbon Monoxide	0 - 25 ppm (0 - 29 µg / m3)	< 0.04 ppm (< 0.05 µg / m3)	9 ppm / 88h (10.3 µg / m3)	8.74 ppm / 8h 10 µg / m3 / 8h
Nitrogen Dioxide	0 - 0.2 ppm (380 µg / m3)	0.01 ppm (1.9 µg / m3)	0.053 ppm / 1Y (1.9 µg / m3)	(0.115 ppm / 1h) (0.023 ppm / 1Y) 200 µg / m3 / 1h 40 µg / m3 / 1Y

Scentinal adheres to the US EPA Standard, EU Standard, and most international standards.

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SCENTROID

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