SCENTROID

DR2000 FLYING LAB

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.

Ardevan Bakhtari

Dr. Ardevan Bakhtari
CEO, Scentroid

INTRODUCING THE DR2000

Thank you for expressing an interest in our DR2000 – Scentroid's revolutionary flying laboratory.

Our DR2000 continues to improve upon the collection and monitoring of airborne chemicals. It can go where no ambient air monitor has gone before; virtually everywhere!

Drone technology continues to improve daily, offering both cost effective solutions, and allowing us to access spaces that were previously impossible. Hazardous waste sites, flare emissions, towering stacks and more; ambient air collection has never been easier or more affordable.

While in flight, built-in electrochemical sensors can provide remote monitoring of chemicals selected at the time of ordering. Air quality mapping, model verification, and analysis of ambient air 150+ meters above ground level have all been made possible!

We often find the need to sample stacks, ponds, and various locations deemed inaccessible and/or dangerous. Using Scentroid's DR2000, we can not only collect and analyze valuable data, but we can protect operators from contact with potentially dangerous samples. The Scentroid DR2000 flying laboratory allows for maintaining a safe distance while acquiring a required air sample for laboratory analysis in real time.

What's New?

After years of testing and client feedback, we have improved upon the DR1000 technology in several ways. First and foremost, a weight reduction to 520g/640g (base/fully loaded) now allows for a much more diverse drone portfolio, and less weight grants the operator a longer flight time. We have also improved the DR2000's communication capabilities, offering more range and a faster/higher throughput.

Our advancements in sensor electronics allows for a much more stable and accurate reading, electrochemical sensor health and lifetime check, and improved particulate matter measurements. On top of that, our sensors now a boast a significantly shorter warm up time.

Our newly designed advanced lightweight carbon fiber casing now provides a sleek, aerodynamic body, further reducing drag. And last but certainly not least, our improved sample intake provides a continuous and smooth air flow for stable readings, dramatically reducing the pulsation from pumps.

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

DR2000 OVERVIEW

Intelligent Flying Air Quality Monitoring Laboratory

The DR2000 measures gases using a series of sensors selected based on application. With a library of over 50 sensors, Scentroid has every sensory requirement covered! Each DR2000 unit can be equipped with:

- Up to 4 electro-chemical sensors
- Volatile organic compound sensing using photo-ionization technology
- CO2, Methane, or Nitrous oxide using non-dispersive infrared sensor
- Sensing capabilities for particulates PM 1, PM 2.5, and PM 10
- Temperature, relative humidity, and barometric pressure
- High accuracy GPS recording
- High accuracy altitude measurements

The DR2000 now features a brand-new patented sampling system that samples only undisturbed ambient air, completely avoiding propeller downwash! It then analyzes data continuously while in flight at a rate of more than 100 samples per second, and sends it back to the ground station using long range radio transmission (LoRa protocol), providing a secure & encrypted transmission of data. Data is automatically stamped with GPS position, latitude, time, date, relative humidity, and temperature. This data can be used for numerous applications using our proprietary DR2000 analysis software.

Included With DR2000:

DR2000 Analyzer
Ground Station Receiver
Ground Station
Air Sampling Probe
Charge adapter
Zeroing Filter
Safety Ties

*Does not include drone

Endless Applications

The DR2000 Flying laboratory provides a robust platform to conduct both impact assessments and air quality measurements for a wide range of applications. This includes the monitoring of: fugitive emissions, flare emissions, leak detection along oil pipe lines, landfill methane, odour emissions, military or emergency applications, urban scanning, and much, much more!

Recommended Drone

Due to its new lightweight design, the DR2000 can now be mounted to a much wider series of drones. Our system is completely self-contained and requires nothing from the attached drone except to operate solely as a vehicle. Although it can be attached to many drones, this catalogue features it being used with the DJI Inspire 2.

Specs:

Operating temperature: -20° to 40° C

Forward stereo vision obstacle avoidance system (0.7-30m range) with FOV 60° horizontal and 54° vertical

Downward vision system for Autoland and ultrasonic range detection (10-500 cm)

Upward infrared sensor for obstacle avoidance (0-5 m range) with FOV of ±5°

Maximum speed: 94 kph or 58 mph

Return-to-home low battery and signal loss

Specifications

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, Temperature and Relative Humidity, and barometric pressure
Sampling rate	Approximately 1/s
Sampling Port	Single Sampling Port with probe >1 LPM Flowrate
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 dependant, DJI Inspire 2 around 25m optimally
Communication	LoRa, GSM/WiFi
On-board data storage	16GB SD card
Cloud server	Inlcuded by Default
On-Board Srvr/Storage	Included by Default
Ground Station	10 Inch tablet with LORA communication and DRIMS2 Mobile software
Software	Free access to Drone Information Managemeny System (DRIMS2) for 1 year
Temperature range	5°C to 40 °C.
Operating R. Humidity	10 - 90%
Calibration	Auto-zero before flight. Calibration using optimized GD600 system
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 reduncancy to the drone (mounting screws, counter-weight ties, zip ties)
Location and Altitude	GPS Based with barometric pressure augmentation

Scentroid 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)	3 ppm	7 ppb	1 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)	1 ppm	0.01 ppm	0.001 ppm	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)	10 ppm	0.005 ppm	0.001 ppm	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


DATA SERVER &
COMMUNICATION

Reliability

DR2000 provides 3 levels of data storage:

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

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

DR2000 can be configured so that the native DRIMS2 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, DRIMS2 software, Ethernet hub.

RF Communication (LoRa)

The DR2000 communicates with the Ground Station using long range LORA protocol. Lora provides full encryption and data verification to ensure all communications are secured and accurate. Using license-free sub-gigahertz radio frequency bands, LoRa enables long-range transmissions (approx. 1 km in rural areas) with low power consumption. With a line of sight range of 10 Km, the DR2000 can send data back to the ground station.

The data is stored on the ground station and synced through any wifi network to Scentroid's powerful Drone Information Management System (DRIMS 2).


DRIMS2
BLUETOOTH STATUS
TEMPERATURE
RELATIVE HUMIDITY
LATITUDE
LONGITUDE
ALTITUDE
DRONE ID
TIME
BATTERY
PRESSURE
DISTANCE
ONLINE
30.4°C
10.0%
43.962775
-79.266470
71.285160
646
17
99.0%
60.0kPa
8.0m
RECORDS
GRAPH
MAP
STOP RECORDING
CO2-HC
120000.0 ppm
NH3-LC
5000.0 ppm
PM2.5
400.0 µg/m³
CO-LC
0.0 ppm
H2-HC
70000.0 ppm
100%
1:16 PM

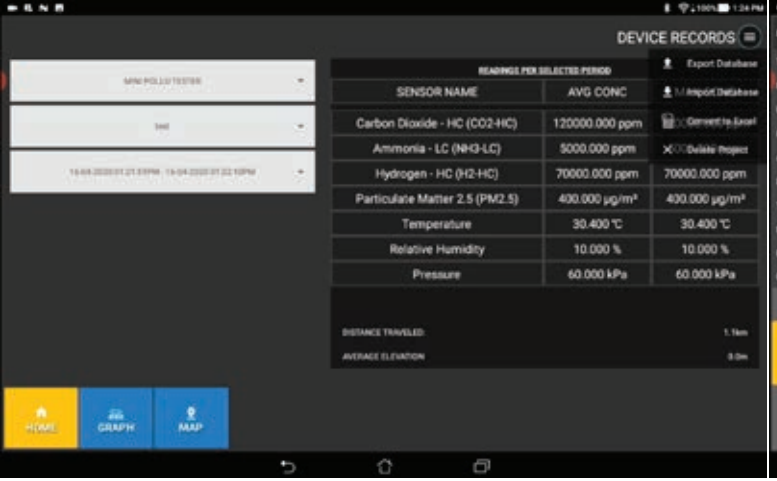
DRIMS2

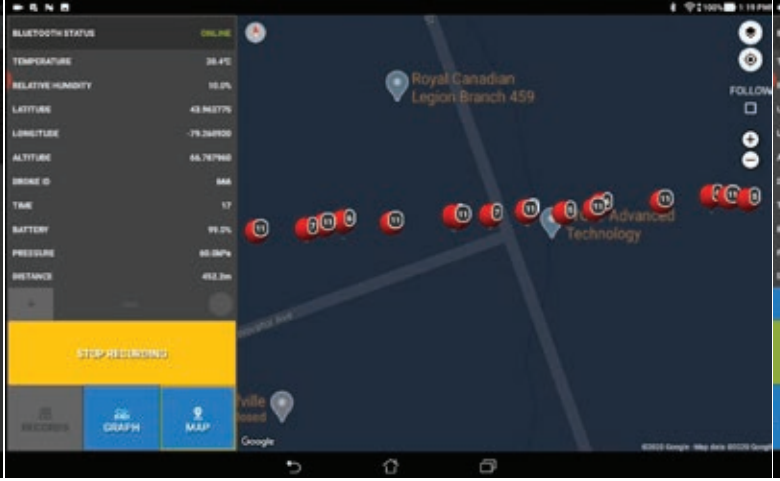
The Scentroid Drone Information Management System, DRIMS2, our all-inclusive software, is used to view historical data, run diagnostics, configure, and set alarm levels for DR2000. Provided as part of the DR2000 package, the software is installed on our onboard server (default), Scentroid's cloud-based server (default) and on your localized server (optional).

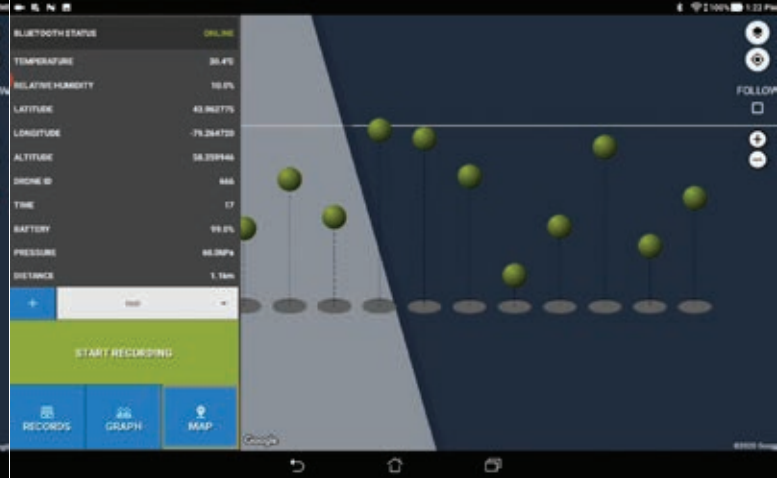
DRIMS2 provides easy analysis tools for an operator to determine pollutant hot spots, possible sources, sampled areas, and much more. The easy to use graphical interface allows anyone to run complicated data analytics without being a GIS expert.

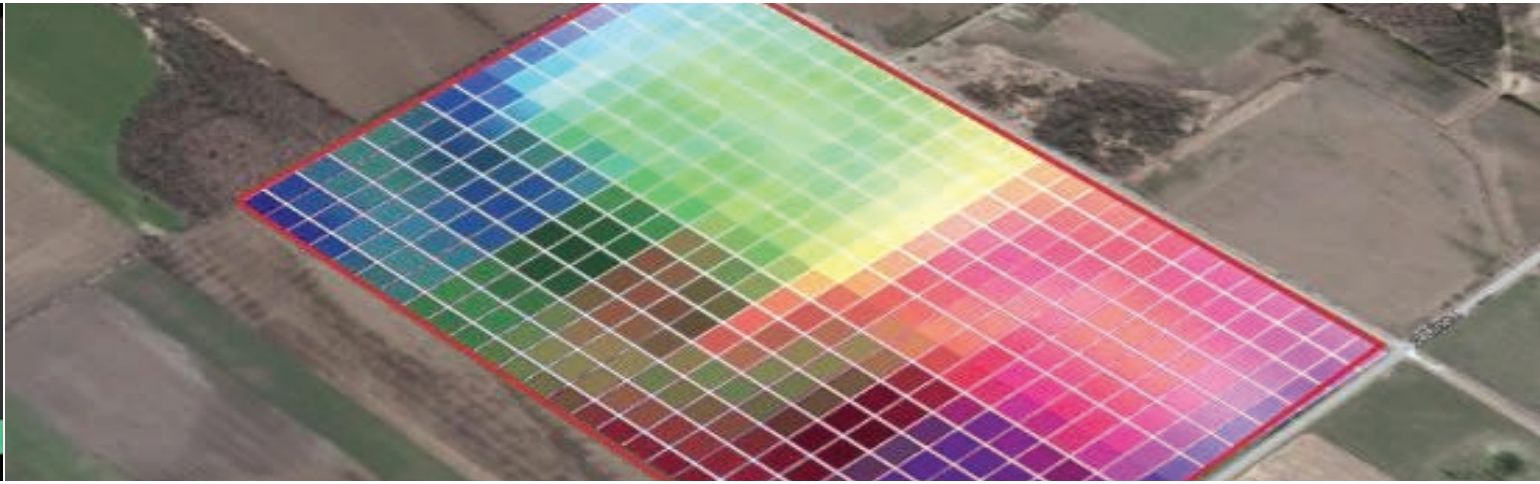
DRIMS2 can control and display data from multiple DR2000s in the same fleet. Users can analyze data and monitor progress remotely from a single platform.

Plus, as a valued Scentroid customer, you will receive a free one-year subscription to our DRIMS2 cloud software.









DRIMS2 Ground Station

The Scentroid ground station, included with every DR2000 Flying Laboratory, consists of a specialized tablet connected to a miniature PC with a high gain powerful communication antenna. Our tablets also come pre-installed with our DRIMS2 Ground Station component software. This branch of DRIMS2 software provides the user with a means to log all acquired data as it occurs. This includes all live data as well as historical data for sensors, including GPS position, altitude, temperature, and humidity.

The user can also command the drone when to take a sample and when to perform routine maintenance such as calibrating sensors. The readings are continuous, and the user can choose whether to display them live with our diagnostics feature or forward it to a database. If an optional on-board camera is present, a video feed will also be sent to the ground station for simultaneous viewing.

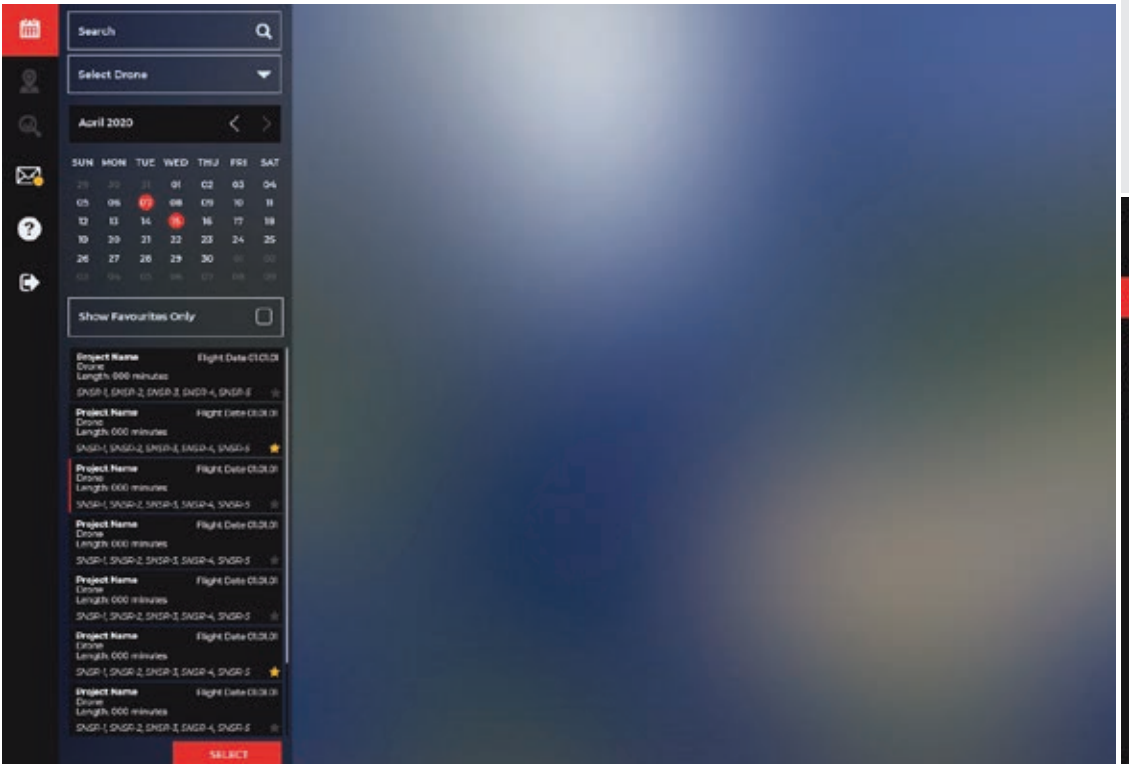
The DRIMS2 software also provides a 3D live mapping of all your readings. The system can provide an auto generated isometric map displaying altitude, along with an auto generated heat map. By automatically syncing with the DRIMS2 cloud software, data export, transfer, and backup are all made easy.

DRIMS2 Analysis Software

The DR2000 comes with simultaneous GPRS and WIFI communication capabilities. The GPRS is used to send data to our Scentroid cloud server. Besides using the Ground Station to communicate with our DRIMS2 system, you can also log into our secured DRIMS2 portal using any pc/laptop with a stable internet connection.

Our DRIMS2 Analysis software serves as the perfect companion to any monitoring job – an offsite wealth of information is stored in a beautiful and easy to navigate interface. After securely logging in, users can select their drone, select their flight/ flight date, favorite, name, or even search for a specific sampling node.

With access to a heat map along with viewing altitude in a 3D setting, managing a sensory project has never been easier (or more informative!)



DR2000 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. Our DR2000 serves as a perfect fit for air quality monitoring of the cities in those hard to access places! Recommended Sensors include:

- 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, etc. The DR2000 along with our olfactometers, can be used to monitor odour emissions to help plants optimize processes and reduce odour impact. Recommended Sensors include:

- 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; with the active majority being 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)

Pipeline Leak Detection

A DR2000 drone can make offshore oil and gas operations safer and more efficient. For instance, the DR2000 can be used for monitoring of gas emissions from pipeline leaks, storage tanks and even stacks. To accomplish this, the DR2000 could be equipped with a fast response PID, H2S, NMHC, and SO2 sensors. Aerial inspection can also result in early detection of leak, damage to structural abnormalities, piping and other external and internal inconsistencies. New technology for drones is making them more accessible than ever before. The oil and natural gas industry have embraced this innovation, to help their efforts as good stewards of the environment. With drone operating costs dropping as technology improves, this tech is rising as the new eye in the sky for oil and natural gas producers. Recommended Sensors include:

- Ammonia
- Formaldehyde
- Organic Solvents (Ethanol, Iso-Butane, H2)
- Methane (LEL)
- Total VOCs (ppb, ppm) - PID
- Sulfur Dioxide
- Particulate PM 1, 2.5, 10 (Simultaneous)
- Air Contaminants (Ammonia, Ethanol, Toluene)

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. In-plant stack and ambient air 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 include:

- 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. The DR2000 can provide aerial 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 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

First Responders, Disaster Aid

Drones are starting to become a common piece of technology used in emergency situations due to the various benefits they provide. Operators fly drones equipped with a Scentroid DR2000 into an active area when they have the go-ahead from the Incident Commander to monitor hazardous gases from catastrophes. This allows first responders to develop a complete picture of the entire affected area, a list of possible hazardous gases to be able to make informed decisions on actions to be taken, and proper protective equipment to be used. The data can also be used to determine the areas that need to be evacuated and the urgency of the evacuation.

In the event of a wildfire or a controlled burn, information is critical for fire management and suppression. A drone equipped with a Scentroid DR2000 is a powerful tool to collect information both during and after a fire, helping the decision makers direct the firefighting activities. Scentroid's DR2000 has been used by several companies and universities, including the University of California, Berkeley to monitor emissions from forest fires. These emissions can help create better models to predict the impact of the fire on air quality both locally and globally. The data can also be used to predict ground level impact up to 48 hours in the future to ensure proper measures such are taken to protect the safety of the public.

Recommended Sensors include:
CO, CO2, O3, NO2, NO, PM1, PM2.5, PM10, SO2, VOC, HF, HCL, Radiation, O3

INSTALLATION, MAINTENANCE

Installation

The small form factor and small mass of the DR2000 makes it easy to transport and install. To install the DR2000, all that is required is to mount it on the specific drone being operated. The DR2000 is self powered and requires no connection to the actual drone being used, therefore any drone with a lift capacity of 520g/640g will work with the DR2000, however, other vehicles such as automobiles or even hot air balloons have been used with the DR2000.

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. A typical sensor life cycle depends on the type of sensor – generally this is between 1 to 5 years.

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 DR2000. 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

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