ROS

NEMA 7

REMOTE ODORANT MONITORING SYSTEM

Wireless Technologies USA
Witech USA Corp

ROS

ROS (Remote Odorant Monitoring System) uses a proven electrochemical odorant sensor for THT or Mercaptan at remote locations. This system is far cheaper than a gas chromatograph bringing the information in real time of odorant level as well as historical information to Scada systems. State of the art electronics keep all historical information stored for several months if required and handles all communications with Scada systems via Modbus, reporting of alarms in real time, local communications and detailed auto-calibration processes.

The ROS has a Nema 7 enclosure that allows its use in confined spaces with permanent or occasional gas presence, classified as class 1 division 1 areas. Said Nema 7 enclosure contains the control electronics with pneumatic and electrical outputs with flame arrestors that allow its use in these areas.

Special care has been taken in order to prevent damage to electrochemical sensors. Electrochemical sensors are air-vented when any odorant level is above normal operating ranges in real time when performing any sample taking or calibration. Alarms are sent to the Scada system in real time. Optional of a second electrochemical sensor is used for comparing the actual measurement of the main sensor in order to achieve a high reliability reading. If the main sensor is detected with a non-allowed deviation, then the second sensor is used and an alarm is sent to the Scada system.

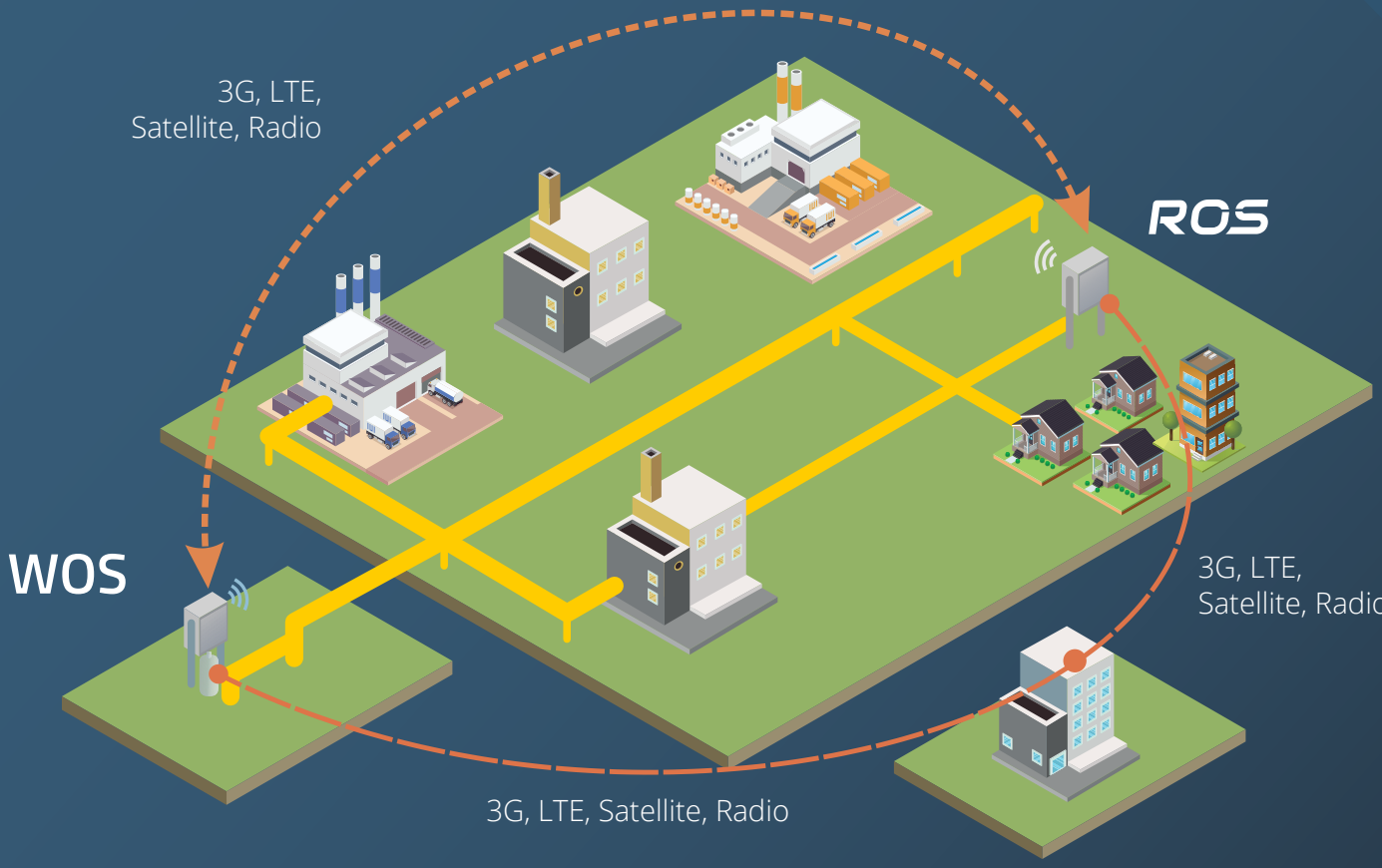
If ROS is paired with a WOS2 odorant injection System, then ROS interacts with WOS2 in order to automate the odorization process. ROS sends WOS2 the actual reading and WOS2 adjusts the amount of odorant injected to the gas stream in order to maintain an specific odorant level at ROS location.

Management, configuration and calibration are easily performed through a web page accessible via wireless Wi-Fi network or locally using a PC running a Windows application.

TOPOLOGY AND WOS INTERACTION

ROS NEMA 7

ROS has a wide array of communication options: 3G, LTE, Satellite, two way radio, Spread Spectrum and is ready for automated odorization system when connected to a WOS2 (Witech Odorization System): ROS sends WOS2 the actual odorant level and WOS2 adjusts its odorant injection frequency in order to reach predefined odorant levels at ROS location so the exact level of odorant injected is warranted at all times.



It is designed to provide simplified data configuration through its communication port, allowing for a fast integration with SCADA and RTU/PLC units. The Scada shows all historical sample readings from every 30 minutes to every day showing as well as a detailed sampling curve every 30 seconds until stabilized. Autocalibration processes can be scheduled every day, month, and in between calibrations in case of out of normal readings detecting a fail sensor and sending an alarm to Scada systems.

CHARACTERISTICS

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- Reliable electrochemical detection technology for accurate readings.
- Available for THT and TBM.
- Nema 7 explosion proof enclosure. Designed for classified areas: Class 1 Groups A, B, C and D. Optional Class 1, Div 2.
- User-friendly web page for configuration, management and controlling.
- Configurable history is logged for odorant level, sample and calibration counters, temperature, detailed sampling stabilization, sampling point pressure, calibration gas tank pressure and other variables.
- Alarms are sent to Scada system in real time: High and low odorant level, sensor failure, high and low pressure, low calibration tank level and any other analog signal monitored.
- Automatic over-range detection disconnects sensors from gas flow to prevent sensor damage.
- Local manual instant sample.
- Integrated air pump with high-speed brushless motor for line cleaning and sampling chamber.
- Does not require degassing to perform calibrations.
- Serial communication port RS232 MODBUS for integration with RTU/PLC devices or direct communication with the Scada System.
- Automated controlled odorant injection System. Wirelessly Interconnects with the WOS2 odorant injection system in order to maintain odorant level at specified values without human intervention.
- 3 Additional analog inputs to monitor pressure, flow, level, gas leaks, etc.
- Local configuration and history download via wireless connection using web browser.

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ROS CONFIGURATION

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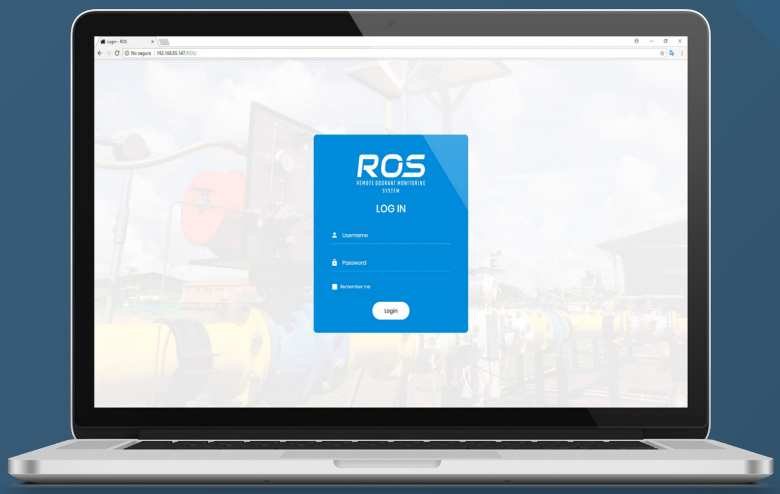

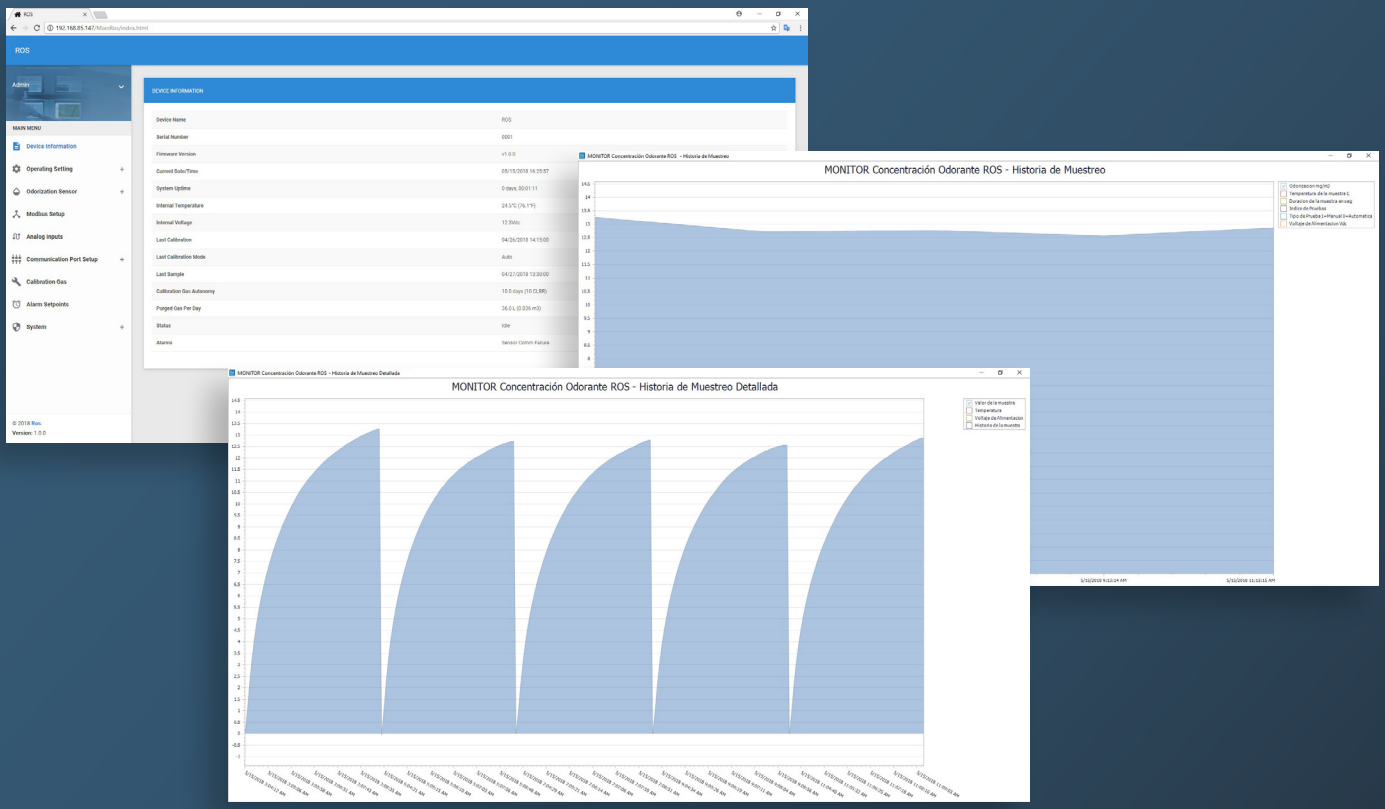

ROS can be accessed through a self-generated Wi-Fi network using any web browser. Intuitive setup of all parameters and graphic historical odorant level helps to a straight forward installation/maintenance in the field.

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ROS CONFIGURATION

ROS
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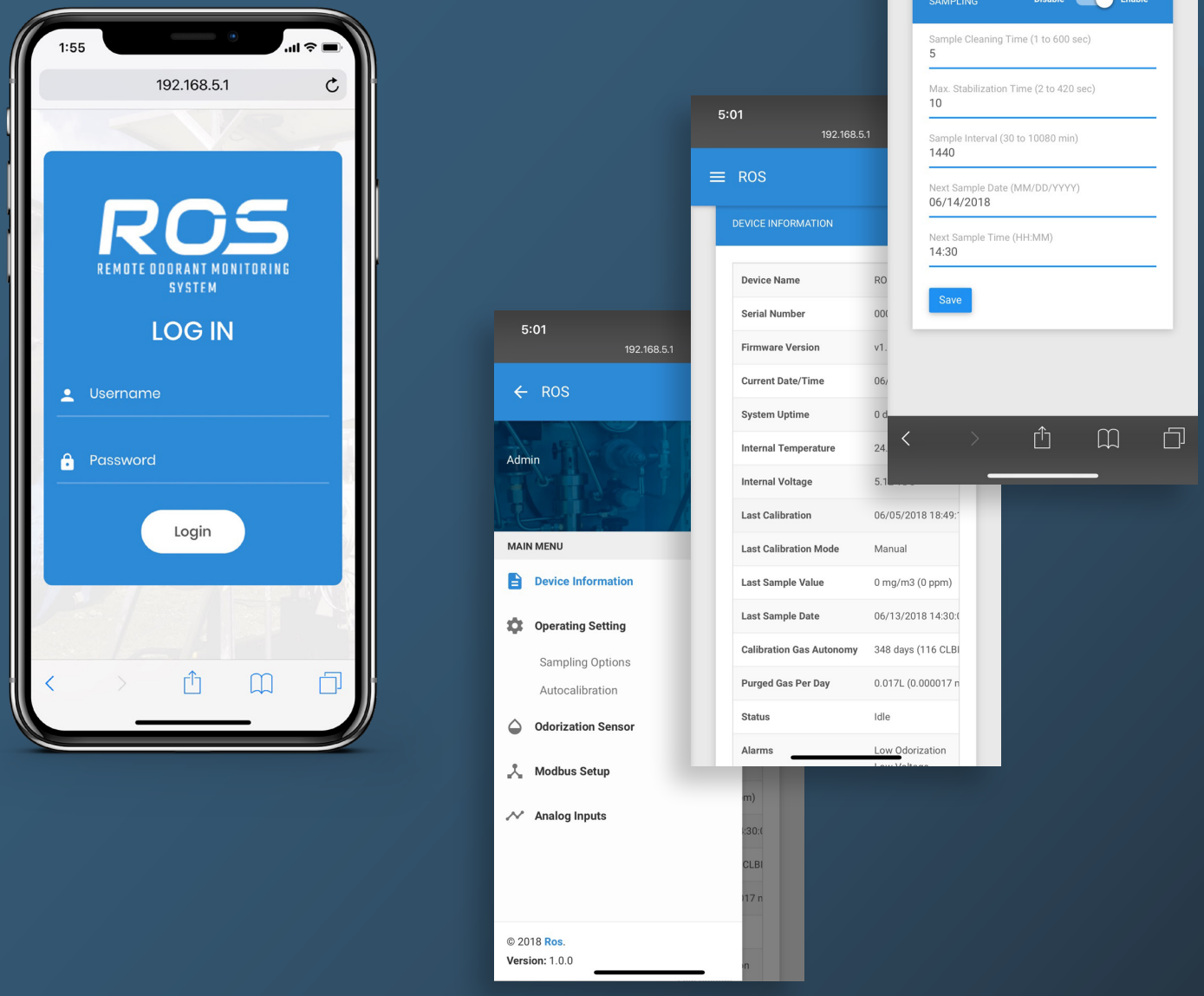

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ROS CONFIGURATION

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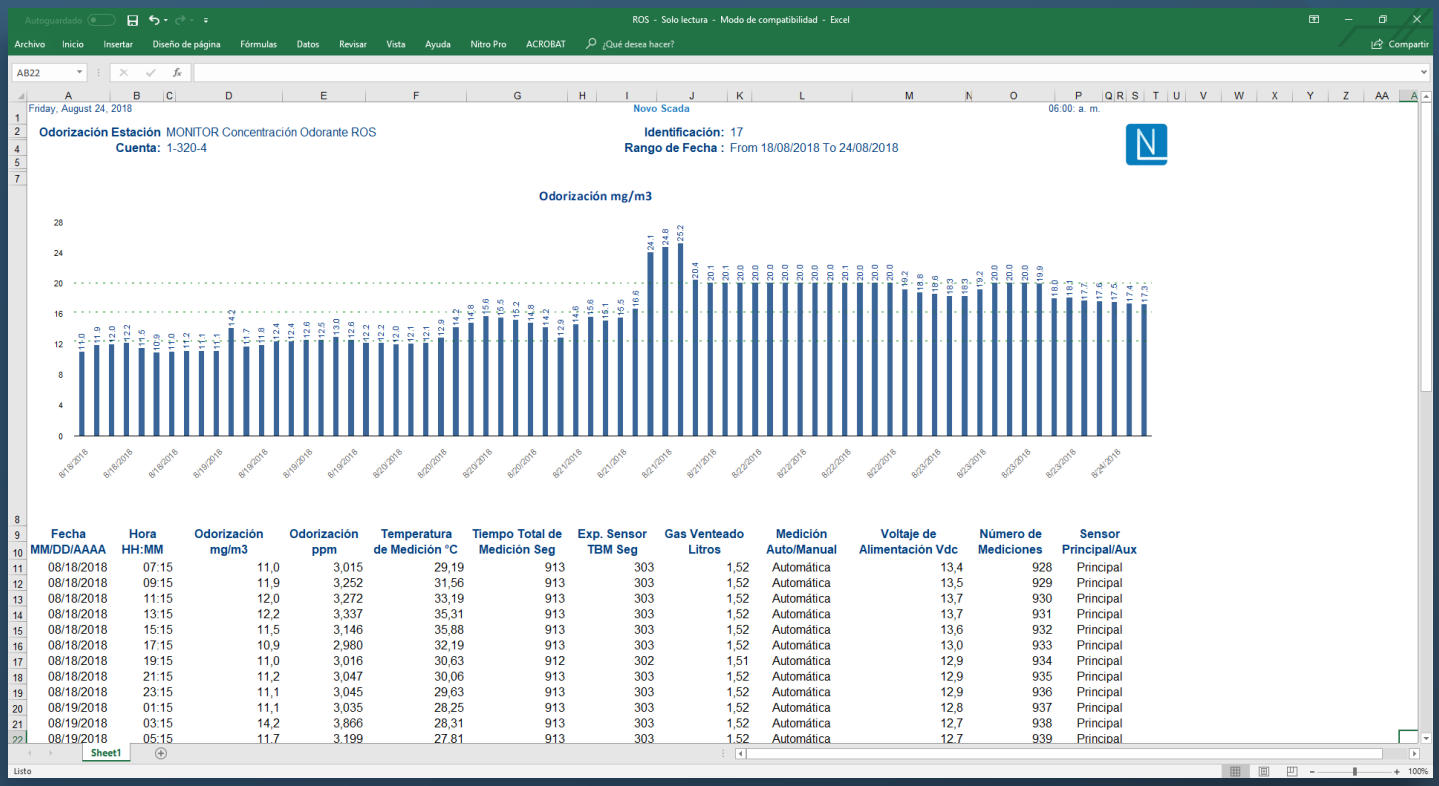

Fecha MM/DD/AAAA	Hora HH:MM	Odorización mg/m3	Odorización ppm	Temperatura de Medición °C	Tiempo Total de Medición Seg	Exp. Sensor TBM Seg	Gas Venteado Litros	Medición Auto/Manual	Voltaje de Alimentación Vdc	Número de Mediciones	Sensor Principal/Aux
08/18/2018	07:15	11,0	3,015	29,19	913	303	1,52	Automática	13,4	928	Principal
08/18/2018	09:15	11,9	3,252	31,56	913	303	1,52	Automática	13,5	929	Principal
08/18/2018	11:15	12,0	3,272	33,19	913	303	1,52	Automática	13,7	930	Principal
08/18/2018	13:15	12,2	3,337	35,31	913	303	1,52	Automática	13,7	931	Principal
08/18/2018	15:15	11,5	3,146	35,88	913	303	1,52	Automática	13,6	932	Principal
08/18/2018	17:15	10,9	2,980	32,19	913	303	1,52	Automática	13,0	933	Principal
08/18/2018	19:15	11,0	3,016	30,63	912	302	1,51	Automática	12,9	934	Principal
08/18/2018	21:15	11,2	3,047	30,06	913	303	1,52	Automática	12,9	935	Principal
08/18/2018	23:15	11,1	3,045	29,63	913	303	1,52	Automática	12,9	936	Principal
08/19/2018	01:15	11,1	3,035	28,25	913	303	1,52	Automática	12,8	937	Principal
08/19/2018	03:15	14,2	3,866	28,31	913	303	1,52	Automática	12,7	938	Principal
08/19/2018	05:15	11,7	3,199	27,81	913	303	1,52	Automática	12,7	939	Principal

Connection with SCADA systems for customized reports.

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TECHNICAL SPECIFICATIONS

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Physical Characteristics

Dimensions:	18″ x 16″ x 10″ (45.7 x 40.6 x 25.4 cm)
Enclosure Protection:	Nema 7, Explosion Proof
Enclosure Material:	Polycarbonate and Aluminium
Weight:	12.5 kg
Mounting:	Wall

Environmental Limits

Operating Temperature:	14 to 104°F (-10 to 40°C)
Humidity:	10-95% without condensation
Hazardous Areas:	Designed for use in Class 1, Div. 1, Groups A, B, C & D areas Optional: Class 1, Div. 2

Electrochemical Sensors

Type:	TBM 0-50 mg/m³/0-14 ppm
Resolution:	< 0.5 mg/m³ @ 20°C
Response Time:	40 sec @ 20°C after 4 min exposure
Accuracy:	+/- 5% FS

Sampling and Calibration

Sample Time:	3-5 minutes, maximum 5 sample per hour
Hazardous Areas:	¼″ FNPT without line conditioner. The sample must be filtered and regulated at 5 psi (max 20 psi)
Cleaning of Sampling and Calibration Line:	3 psi air pump with long life brushless motor
Gas Calibration:	58 L aluminium cylinder, includes filter and regulator

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Power Requirements

Input Voltage:	10-14 Vdc
Input Current:	Standby: 60 mA @ 12Vdc
	Cleaning: 250 mA @ 12Vdc
	Sampling: 500 mA @ 12Vdc
	Sampling (Auxiliary Sensor): 1A @ 12Vdc

Additional Inputs

Analogs:	Three inputs multipurpose 0-5 Vdc or 4 -20 mA
	One input for installation of redundant odorant detector

Communication

Protocol:	Modbus RTU/ASCII Enron
Ports:	One terminal block with standard RS-232
	Baudrate: 9600, 19200, 38400, 57600, 115200
	Data bit:7.8
	Stop bit: 1.2
	Parity: None, Even, Odd
	Flowcontrol: None, XON/XOFF, RTS/CTS
	One micro USB host port for 3G USB modem connection
Wi-Fi:	For monitoring and setup parameters
	2.4 GHz 802.11 b/g/n Wireless AP

Optional

Enclosure:	Nema 4x IP66/IP67, IK07/IK08
Sensors:	THT & TBM
Display:	Graphic Touchscreen Display
Mounting:	Floor and Pole Support
Process:	Sample Taking Conditioner
	Certified Calibration Gas
Power Supply:	AC and solar DC power supply
Communication:	Secondary serial port RS-232/RS-485 (micro USB port)

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TECHNICAL SPECIFICATIONS

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System Upgrade

System upgrade:	USB or OTA with optional 3G, LTE USB modem

Reliability

Automatic reboot trigger:	Built-in watchdog timer

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