

## **SENTINEL Continuous Gas Analyzer / Monitor**

*Controls chemical usage to maximize scrubber efficiency*

### Applications:

- Wet Scrubbers**
- Bio Scrubbers**
- Trunk Line Monitoring**
- Sludge Rooms**
- Lift/Pump Stations**
- Holding Tanks**
- Most Gas Emitting Vessels**

### Benefits:

- Significant chemical savings: caustic, muriatic acid, chlorine**
- Data recordings for scrubber analysis**
- Long sensor life reduces replacement costs**
- Reduced scrubber maintenance**
- Overall operational savings**



INLET H2S	0.00	Pump #1	0.00
H2S EXHAUST	0.00	Pump #2	0.00
CL2 EXHAUST	0.00	Pump #3	0.00
CARBON OUT	0.00	Pump #4	0.00
pH 1	0.0		
pH 2	0.0		

**Sentinel model S4**

*Also Available*

**SENTINEL DGM-100**

Continuous Fuel Gas Monitor  
for Gas Digesters

See back cover for more information



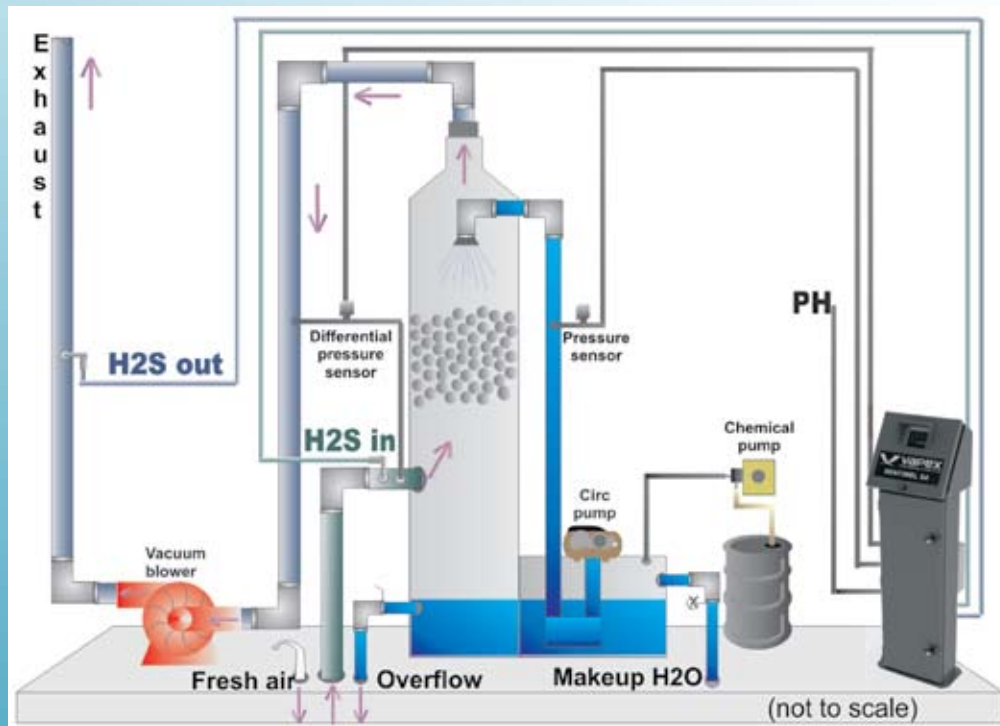
# Maximize Efficiency and Reduce Operational Costs of Your Scrubber System

The Vapex SENTINEL S4 monitors scrubber process variables and automatically optimizes the operation of the scrubber to reduce costs, both short term (reduced sodium hydroxide usage) and long term (scrubber degradation). The SENTINEL S4 works on all types of scrubbers -- bio-caustic, caustic & bleach, bleach and chemical sequestering – in addition to well monitoring. The SENTINEL S4 can be utilized in two ways:

- (1) As a **scrubber control**, the SENTINEL S4 monitors the internal gas passing through the scrubber, records the data, and sends control signals to regulate chemical pump additions.
- (2) As a **monitor for internal gas** that passes through the scrubber. The SENTINEL S4 sends 4~20mA signals indicating scrubber performance to other control devices.

The SENTINEL provides a closed-loop control system for optimized (minimum) application of solutions (e.g.; sodium hydroxide or sodium hypochlorite) to a scrubber to reduce the emission of corrosive gases in the effluent. This is accomplished by measuring the primary variable of interest for scrubber output and the effluent gas constituents. These measurements are then used to regulate the application of the control solutions to the scrubber. The pH or ORP of the scrubber sump can be measured and used in the Vapex SENTINEL software to ensure that the pH or ORP effect is accounted for in the application of the scrubber control logic.

To achieve optimum control and maximum reliability, the performance of the scrubber and the Vapex SENTINEL are measured during operation. To measure the scrubber operating parameters, H<sub>2</sub>S inlet and H<sub>2</sub>S outlet gas sensors are required. Cl<sub>2</sub> sensors are also available.



The Vapex SENTINEL S4 can control a 1 to 4 stage vacuum or pressure scrubber. Sample gas is continuously drawn across each sensor at a controlled rate to assure long sensor life and sensor accuracy.

# FEATURES

## Design Features Include:

- Patented sample conditioning methods
- Designed for easy installation and simple calibration
- Configurable for multi-stage scrubbers
- Up to 4 sensors per unit (4 sample points)
- New long-life, low-flow sampling pump technology
- Modular components for simplified maintenance
- Unique sample gas conditioning
- Gas sample return system
- Stand alone enclosure built to NEMA 4X rating
- Long sensor life span – one year warranty
- Chemical feed pump controlled capability

## Software Features Include:

- Programmable touch screen interface
- Enhanced, user-friendly sensor calibration capabilities with fail detection
- 1, 2, 3 or 4 stage scrubber programming
- Alarms indicate problems as they occur (e.g.; fail to control H<sub>2</sub>S to customer limits)
- Can be networked with other control devices
- Stores 1+ years of data in memory
- Optional Ethernet or wireless data transmission
- Comma delimited ASCII file for exporting
- Built-in, on-screen “help” functions
- Proprietary software

# S4 Specifications

# of sensors:	2, 3 or 4	Scrubber size:	1 to 4 stages
Sensor type:	H <sub>2</sub> S or Cl <sub>2</sub>	Scrubber type:	Pressure or vacuum
H <sub>2</sub> S sensor range:	20 PPM to 300 PPM	H <sub>2</sub> S control point:	0.5 PPM or higher
Cl <sub>2</sub> sensor range:	5 PPM std., 20 PPM opt.	Cl <sub>2</sub> control point:	0.5 PPM or higher
Sensor life:	1 year warranty	Sensor technology:	Electro-chemical
CAL gas required:	5 PPM to 200 PPM	Sample Draw:	1 SCFH to 2 SCFH
	Sensor selector dependent	Calibration:	Monthly or as needed
Response time:	Approximately 60 sec.	Pump control:	4 mA to 20 mA or on/off
Pressure range:	Atmosphere +/- 10%	Sensor output drift:	~1% monthly signal loss
Power:	110 AC, 60 Hz, 5 AMP	Dimensions:	57”H x 18” W x 13” to 16” D
Temperature range:	-40°C (-40°F) to 40°C (104°F)	Weight:	85 lbs (w/packing 108 lbs)
Enclosure:	Stainless steel, weatherproof	Mounting:	Stand alone unit