Features – Functions - Benefits

- 1-8 Smart Gas Sensor Modules

    Toxics - Oxygen – Combustibles - VOCs

- Meteorological Sensors

    Wind speed - Wind Direction -Temperature - Humidity

    Atmospheric Pressure - Particulate Matter - Rainfall - Noise

- Serial Output - Modbus RTU 9600 bps

- Installation and Connectivity Options

    Wired RS-485 MODBUS RTU

    Wireless 915 MHz Radio

    LoRa WAN Wireless Transceiver

Description

Model SA-XES gas detection systems use an extractive sampling pump to deliver an air and gas sample to one or more gas sensors in sample flow cells mounted in the system enclosure. Gas type and detection range are determined by installing selected Safeguard Analytics Model SA1 smart sensor modules. System capacity can be specified for 1 to 4 dual sensor modules creating up to 8 different active gas sensors. Smart sensor options include combustible gases, toxic gases, oxygen deficiency and volatile organic compounds. The system is modular and features a color graphic display that serves as a MODBUS master, internally mounted sensor flow cells, a "Smart Pump" assembly and an integration connector board for connecting external meteorological devices. System output is MODBUS RTU 9600 bps. Smart sensor modules can be pre-calibrated using a portable calibration kit or calibrated in situ using demand flow regulators and applicable span gas sources. The system is packaged in a NEMA 4X weatherproof enclosure suitable for installation in outdoor non-hazardous locations. Power options are 10-30 VDC or 90-240 VAC.

Data Logger

Model SA-XES gas detection systems feature an internal data logging function capable of storing real time readings for up to 30 days based on a data capture rate of one minute. In addition to storing date time stamped real time readings the calibration and alarm events are stored for access as needed. Logged data is stored in the system controller and accessed through the MODBUS output.

Model SA1 Smart Sensor Modules

- Embedded CPU and signal conditioning circuit
- Stored gas type and measurement range
- Stored zero calibration data point
- Stored span calibration data point
- Comprehensive fault diagnostics

- Catalytic Pellistor Combustible Gas
- MPS™ Combustible Gas and Refrigerants
- Combustible Hydrocarbons (Non-dispersive infrared)
- Electrochemical Toxic Gases
- Electrochemical Oxygen Depletion
- Photo Ionization Detector Volatile Organic Compounds
- Metal Oxide Semiconductor Refrigerants

Model SA-XES

Specifications*

System

Detector Type	1-8 Model SA1 Smart Sensor Modules
Detection Method	Sample draw via internal Smart Pump
Indicators-Local Display	Color Graphic Digital Display
	Green – Normal Operation
	Amber – Warning Level 1
	Red – Warning Level 2
	Blue- Fault Condition Detected
OpCheck Performance Diagnostics	Zero Stability
	Response Time
	Span Drift
	Signal Stability
	Sensor Life
User Interface	Magnetic Wand
Warranty	2 Years

Environmental

Temperature Range	–4°F to +122° F, -20°C to +50°C
Humidity Range	15-95% non-condensing

*Specifications subject to change without notice

Electrical Specifications

Input Voltage	10-30 VDC, Nominal 24VDC
	Optional 110/220 VAC power supply
Power Consumption	~4.5 watts
	(varies by number and type of Smart Sensors)
Serial Output	Modbus RTU 9600 bps
Optional Local Alarm Relays	Alarm level 1 & 2 + Fault
	Form "C" 2A contacts

Mechanical

Enclosure Material	Polycarbonate
Dimensions	16" H, 14" W, 8" D
	406mm H, 355mm W, 203mm D

Area Classification

Non-hazardous Location	NEMA 4X weatherproof

Model SA1 Smart Sensor Modules

Gas Type	Model No	Range	Gas Type	Model No	Range
Combustible Gas	SA1-CPS	0-100% LEL	Ethylene	SA1-C2H4-100	0-100 ppm
Combustible Gas	SA1-MPS	0-100% LEL	Ethylene Oxide	SA1-C2H4O-20	0-20.0 PPM
Combustible HC	SA1-CH4-LEL	0-100% LEL	Fluorine	SA1-F2-1	0-1.00 PPM
Combustible HC	SA1-CH4-PPM	0-5000 PPM	Formaldehyde	SA1-CH2O-100	0-100 PPM
Oxygen Depletion	SA1-O2-EC	0-25.0%	Formic Acid	SA1-H2CO2-10	0-10.0 PPM
VOCs - PID	SA1-PID-2	0-2.00 PPM	Hydrogen	SA1-H2-100	0-100 ppm
VOCs - PID	SA1-PID-20	0-20.00 PPM	Hydrogen Chloride	SA1-HCL-30	0-30.0 PPM
VOCs - PID	SA1-PID-50	0-50.0	Hydrogen Cyanide	SA1-HCN-30	0-30.0 PPM
Carbon Dioxide	SA1-CO2-1K	0-1000 PPM	Hydrogen Fluoride	SA1-HF-10	0-10.0 PPM
Carbon Dioxide	SA1-CO2-3K	0-3.00%	Hydrogen Peroxide	SA1-H2O2-100	0-100 ppm
Carbon Dioxide	SA1-CO2-5K	0-5.00%	Hydrogen Sulfide	SA1-H2S-100	0-100 PPM
Acetylene	SA1-C2H2-100	0-100 PPM	Methyl Alcohol	SA1-CH30H-100	0-100 ppm
Alcohol	SA1-C2H6O-100	0-100 PPM	Methyl Mercaptan	SA1-CH3SH-100	0-100 ppm
Ammonia	SA1-NH3-100	0-100 PPM	Nitric Oxide	SA1-NO-100	0-100 ppm
Arsine	SA1-AsH3-1	0-1.00 PPM	Nitrogen Dioxide	SA1-NO2-30	0-30.0 PPM
Bromine	SA1-Br2-20	0-20.0 PPM	Ozone Gas	SA1-O3-1	0-1.00 PPM
Carbon Disulfide	SA1-CS2-100	0-100 PPM	Phosgene	SA1-COCL2-1	0-1.00 PPM
Carbon Monoxide	SA1-CO-200	0-200 PPM	Phosphine	SA1-PH3-5	0-5.00 PPM
Chlorine	SA1-Cl2-10	0-10.0 PPM	Silane	SA1-SIH4-50	0-50.0 PPM
Chlorine Dioxide	SA1-ClO2-100	0-100 PPM	Sulfur Dioxide	SA1-S02-20	0-20.0 PPM
Diobrane	SA1-B2H6-1	0-1.00 PPM	A2L Refrigerants	SA1-A2L-2.5K	0-2500 PPM
Ethanol	SA1-C2H6O-100	0-100 ppm	A3 Refrigerants	SA1-A3-2.5K	0-2500 PPM

(Refer to the Model SA1 product guide or contact the factory for additional gas types and ranges of sensitivity)

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