



Features – Functions - Benefits

- **Gas Sensor Options**
Toxics - Oxygen - Combustibles - VOCs - Refrigerants
- **High Visibility Color Graphic HMI**
- **Smart System Auto Config Capable**
- **User Interface via Magnet and Panel Switches**
- **Embedded Alarm and Calibration Data Logger**
- **Connectivity Options**
 - Wired RS-485 MODBUS RTU 9600 bps
 - Wireless Non-licensed 915 MHz
 - Wireless LoRa WAN 915 MHz

Description

The SA-4N4 gas detection systems have been engineered for the purpose of detecting and monitoring various gases such as toxic, oxygen, and combustible gases within the surrounding air. These sensors utilize diffusion-based sampling methods. The design incorporates a comprehensive array of sensor technologies, including electrochemical sensors, photoionization detectors, non-dispersed infrared sensors, and a multi-spectrum combustible gas detection sensor. The specific gas to be detected is determined by installing a chosen Model SA1 smart sensor module. Each sensor module retains information about the gas type, sensitivity range, default alarm levels as well as the most recent zero and span calibration data points.

All electronic components are housed within a NEMA 4X weatherproof enclosure, making it suitable for installation in non-hazardous locations. The SA-4N4 gas detectors offer a user-friendly calibration process, which can be accomplished non-intrusively using a small magnet or an Android™ phone or tablet along with the Safeguard OpCheck application. The color graphic display simplifies the user interface, providing real-time readings and full script service instructions. The device's status is easily discerned through screen colors, with green indicating normal operation (no alarm), yellow signifying an alarm at level 1, red indicating an alarm at level 2, and blue denoting a fault condition.

Smart Sensor Modules

Toxics - Oxygen - Combustibles - VOCs - Refrigerants

The SA1 smart sensor modules are designed for the detection and monitoring of a wide range of gases present in ambient air. These modules comprise a gas detection sensor tailored to a particular gas type and a microprocessor-based signal conditioning circuit. Both components are securely housed within a metallic enclosure equipped with gold-plated connecting pins. The "Smart Sensor Module" comes pre-programmed at the factory with specific gas type and range of sensitivity and default alarm levels. When powered up, the control system automatically retrieves this information along with the previous zero and span calibration data points and the date of the last calibration. This automated startup process streamlines the operation. These modules are compatible with a range of Safeguard Analytics gas detection transmitters for versatile usage.



Model SA-4N4 System Specifications*

System Capacity	1 to 4 Model SA1 smart sensors	Input Voltage	90-240 VAC, 50/60 Hz
Sensor Technology	Combustible Gas, Catalytic Pellisitors		10 to 30 VDC
	Combustible Hydrocarbons, NDIR	Power Consumption	2 to 6 Watts (Smart Sensor Dependent)
	Oxygen Deficiency, Electrochemical	Addressable Output	MODBUS RTU 9600 bps
	Toxic Gases, Electrochemical	Alarm Relays	Level 1, Level 2, Fault, Auxiliary
	Carbon Dioxide, NDIR		Form "C" 5A Contacts
	Volatile Organic Compounds, PID		Latching or Non-latching
	Refrigerants, MOS		Ascending or Descending
	Refrigerants, NDIR	Temperature Range	-4°F to +140°F
Detection Method	Diffusion		-20°C to +60°C
	Indicators	Color Graphic Digital Display	Humidity Range
Green – Normal Operation, No Alarm		Dimensions	10.0" W, 8.0" H, 4.0" D
Amber Alarm Level 1			254mm W, 203mm H, 101mm D
Red Alarm Level 2			Area Classification
Blue Fault Condition			NEMA 4X Weatherproof
User Interface	Magnetic Wand + Panel Switches	System Warranty	2 Years

* Specifications subject to change without notice

Model SA1 Smart Sensor Modules (Partial List) *

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 ppm	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-CO2-30K	0-3.00%	Hydrogen Peroxide	SA1-H2O2-100	0-100 ppm
Carbon Dioxide	SA1-CO2-50K	0-5.00%	Hydrogen Sulfide	SA1-H2S-100	0-100 ppm
Acetylene	SA1-C2H2-100	0-100 ppm	Methyl Alcohol	SA1-CH3OH-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-SO2-20	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

*Contact the factory for additional gas types and ranges of sensitivity



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