

# **SENSIDYNE®**

Industrial Health & Safety Instrumentation



## *Gas Monitoring for the Pulp and Paper Industry*

**SENSALERT PLUS**

+  
Detection at every point.

# SENSALERT<sup>®</sup> PLUS

**Universal Point Gas Detector Accepting Combustible  
(Infrared or Catalytic), Toxic, and Oxygen Gas Sensors**



## Highest Reliability and Function

- Predictive Sensor End-of-Life Indication
- Missing or Non-functional Sensor Indication
- Sensor Test-On-Demand, with On-board Gas Generator

## Intrinsically Safe Sensor Head

- Shop Calibrate and Hot-swap Gas Sensors in Classified Areas
- Mount Sensor up to 100 ft./30 m. Away Without Rigid Conduit

## Intelligent SensAlert *Plus* Sensors

- Auto-recognition and Set-up from Sensor Memory Provides Operating Parameters and Diagnostics for All *Plus* Transmitters

## International Performance Approvals

- Performance Tested and Certified to FM and ATEX Standards
- Unrestricted Hazardous Classified Area Installation and Operation

## Flexible Installation or Retrofit

- 2-Wire and 3-Wire Transmitters with Enclosure Options
- Non-intrusive Configuration and Maintenance Interface
- Remote Sensor / Gassing, Duct Mount and Sample Draw
- Configurable Alarms: Fault Conditions and Test-on-Demand

### Increased Reliability

Intelligent and dependable firmware monitors the intelligent *Plus* sensor for changes that could effect performance. Sensor condition and maintenance notifications are displayed locally and can be sent to a controller or facility monitoring system via on-board relays, a virtual relay (assignable to a fault current), RS-485 Modbus, or HART. This thorough monitoring provides increased reliability.

### Simple to Install & Maintain

The SensAlert *Plus* Intrinsically Safe sensor head can be remote mounted up to 100 feet (30m) from the transmitter providing greater flexibility to position the transmitter in an personnel-accessible location while positioning the sensor closer to potential hazards. A wide range of sensors, accessories and remote gassing/sampling systems further simplify maintenance and provide installation flexibility.

### Reduced Cost of Ownership

Shop or field calibrate, then swap sensors under power to minimize maintenance and calibration time. A large backlit alphanumeric display with a non-intrusive user interface allows for configuration, setup, and data review without declassifying a hazardous area. SensAlert *Plus* is a universal transmitter allowing facility standardization across gas types, sensor technologies, and sensor ranges.

**+ Detection at every point.**

## Risk Mitigation for Gas Hazards in the Pulp and Paper Industry

### Ideal Monitoring Solution

SensAlert Plus is an ideal point gas monitor for the pulp and paper industry. The universal sensor head accepts Combustible (Infrared or Catalytic), Toxic, and Oxygen Gas Sensors without additional configuration or setup allowing for facility-standardization and lower ownership costs. SensAlert Plus third-party performance approvals from ATEX and FM approved evidence of system dependability and integrity.

### Monitor Potential Hazards

Potential gas hazards in pulp and paper mills are often located in difficult to reach locations. SensAlert Plus provides monitoring in these difficult to reach locations by permitting remote mount sensor heads. Sensor heads can be remote mounted up to 100 feet from the transmitter placing the head closer to the potential hazard while the transmitter is in an easier to access location.

The transportable calibration feature enables sensor calibration in a safe area and installation in a hazardous classified area without powering-down. Once a sensor is installed the transmitter will self-configure by uploading sensor data, to the transmitter. Test-On-Demand (TOD), available for many toxic sensors, provides a functional bump test using generated gas to confirm sensor response.

## Pulp and Paper Mill Gas Hazards

Hazardous chemicals used in pulp and paper mills require careful handling and continuous monitoring to minimize threat to workers, processes, and nearby communities.

Chemical pulping techniques of the Kraft process occur in batch or continuous digesters where heat and white liquor are used to reduce wood chips to pulp. During this process glue holding the woodchips together, known as lignin, breaks down and mixes with the white liquor liberating Hydrogen Sulfide (H<sub>2</sub>S) gas. The lignin-contaminated liquor is now known as black liquor and is sent to recovery boilers where molten solids are produced. These molten solids are discharged into water tanks that

form green liquor and then processed further to convert it back to white liquor for reuse in the digesters.

From the digesters pulp stock is washed, screened, and then sent to the bleaching process. Bleaching of pulp stock is achieved through either an oxidation process using Oxygen (O<sub>2</sub>) to dissolve undesired color from pulp stock or chlorination using Chlorine (Cl<sub>2</sub>) or Chlorine Dioxide (ClO<sub>2</sub>). Though alternate chemicals such as Hydrogen Peroxide (H<sub>2</sub>O<sub>2</sub>) and Ozone (O<sub>3</sub>) are common replacements in some facilities, the chemicals used in chlorination and oxidation processes may produce deadly vapors and should be monitored.



After bleaching, pulp is sent to the burner decks for drying. Natural Gas (CH<sub>4</sub>) used to heat the burner presents a combustible hazard.

Part Number	FM Approved	Formula	"Gas data	Sensor Span-Units	TOD Cell	Response Time <sup>2</sup> T90	Environmental Temp. (F) / Humidity RH
823-0239-41	✓	ClO <sub>2</sub>	0.1ppm / 5ppm	1.00ppm	C	T90 <30sec	-4° - 122° / 15-90%
823-0239-42	✓	ClO <sub>2</sub>	0.1ppm / 5ppm	5.00ppm	C	T90 <30sec	-4° - 122° / 15-90%
823-0202-22	✓	Cl <sub>2</sub>	0.5ppm / 10ppm	5.00ppm	C	T90 <40sec	-4° - 122° / 15-90%
823-0202-21	✓	Cl <sub>2</sub>	0.5ppm / 10ppm	10.00ppm	C	T90 <40sec	-4° - 122° / 15-90%
823-0206-23	✓	H <sub>2</sub> S	1.0ppm / 5ppm	10.00ppm	S	T90 <30sec	-40° - 122° / 15-90%
823-0206-22	✓	H <sub>2</sub> S	1.0ppm / 5ppm	50.00ppm	S	T90 <30sec	-40° - 122° / 15-90%
823-0206-21	✓	H <sub>2</sub> S	1.0ppm / 5ppm	100.00ppm	S	T90 <30sec	-40° - 122° / 15-90%
823-0211-51	✓	Hydrocarbon IR		100%LEL	--	T60 <12sec	-40° - 167° / 0-90%
823-0211-31	✓	General Hydrocarbon CB		100%LEL	--	T60 <12sec	-13° - 167° / 0-95%
823-0240-22	✓	O <sub>2</sub>	≤19.5% / <18%	25%vol	--	T50 <4sec	-4° - 122° / 0-90%
823-0218-22	✓	SO <sub>2</sub>	2ppm / 100ppm	10.00ppm	--	T90 <15sec	-4° - 122° / 15-90%

Note: Reference individual sensor datasheets for interferent gases. 1 Gas data is from ACGIH and NIOSH. User is responsible for verifying table values. 2 Nominal sensor response times slow due to sensor age, filters and calibration frequency





# SENSALERT PLUS®

Universal Point Gas Detector Accepting Combustible  
(Infrared or Catalytic), Toxic, and Oxygen Gas Sensors

Enclosure Options Certified  
for most Environments

Large Backlit Alphanumeric  
Display  
(Backlit on 3-wire only)

HART or Modbus (RS-485)  
Communication Cards  
(Optional)

Alarm Relay Card  
(Optional)

Intrinsically Safe Sensor  
Head

Test-On-Demand™ (ToD)  
Gas Generator  
(Optional)

Plus Intelligent Sensor

O-ring Seal

Sensor Retainer

Moisture Barrier (Optional)

Remote Gassing Fixture  
(Optional)

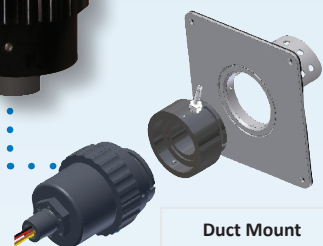
Sensor Shield

Flow Block for Remote  
Sampling and Cal Plug  
(Optional)

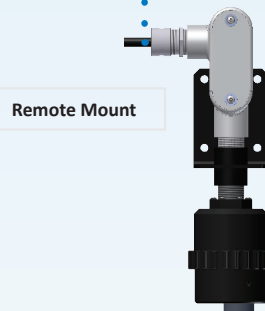
Baffled Rainshield  
(Optional)



Shown with optional second strobe.



Duct Mount



Remote Mount

## SENSALARM PLUS

SensAlarm Plus is a complete single point gas detection system comprised of a gas detection transmitter, sensor, power supply, outputs, and annunciation. This system is extremely cost-effective and easy to install. SensAlarm Plus is compatible with all SensAlert Plus sensors and accessories.

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