

SENSIDYNE®

Industrial Health & Safety Instrumentation



Flammable & Toxic Gas Detection for Pipeline & Gas Processing Plants

**LEL, H₂S, SO₂, CO₂, Oxygen
Many Additional Gases Available**

SENSALERT® ASI

Bulk Petroleum • Crude Oil • Distribution Pipelines
• Ethane, Propane, Butane, Isobutene, Pentanes Plus
• Formations of Storage Natural Gas (NG) • Fossil Fuel
Combustion • Fractionate NG Liquids • Gathering and
Boosting Equipment • Gathering Pipelines • Liquefied
Natural Gas (LNG) Storage • LNG Import and Export
Equipment • NG Handling & Distribution System • NG
Liquids • NG Liquids Fractionator • NG Processing

+ Detection at every point.

SENSALERT[®] ASI

Industry-leading reliability, SensAlert ASI is the ideal fixed-point gas detector for critical safety applications. Flexible configurations and a simple interface provide maximum application versatility while remaining the easiest to install, commission, operate, and maintain.



Available in Aluminum
or Stainless Steel

■ Functional Safety, Unquestionable Reliability

Third-party SIL-2 certification validating long-term reliability
Sensors are performance tested and certified providing assured capability
Sensor Test-On-Demand, with on-board gas generator

■ Universal Platform with Intrinsically Safe Sensor Head

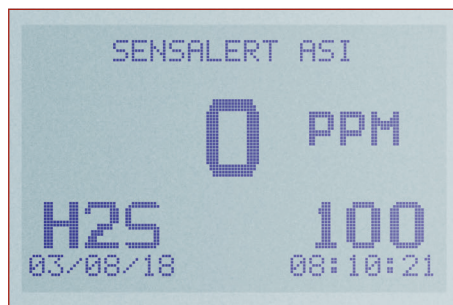
Replace sensors without area declassification or work permits
Shop calibrate then hot-swap gas sensors in classified areas
Remote mount sensor up to 100 ft./30 m. away without rigid conduit
Modbus, HART, and 4-20 mA communication options

■ Intelligent Plus Series Sensors

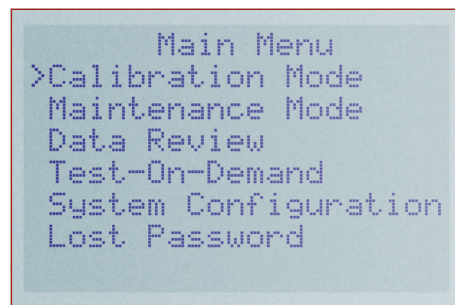
Auto-recognition and set-up from sensor memory
Extensive sensor range for Flammables/Combustibles, Toxics, and Oxygen
Compatible with all Plus Series sensor ranges and technologies

■ Flexible Installation or Retrofit

2-wire and 3-wire transmitter models with global performance approvals
Unrestricted installation and operation in hazardous classified areas
Non-intrusive configuration and maintenance Interface
Configurable alarms & warnings for hazard mitigation and notification



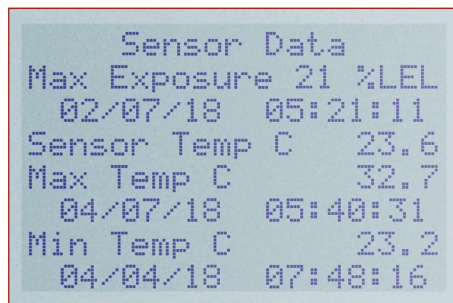
Main Display



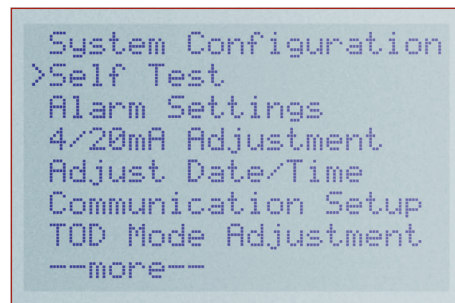
Main Menu



Magnetic Wand for Nonintrusive Calibration



Sensor Data Review



System Configuration Menu

Gas Processing Hazards and Mitigation

Natural gas is a mixture of Methane and up to 30% of other Hydrocarbons and lesser amounts of impurities such as Carbon Dioxide, Hydrogen Sulfide, Helium and Nitrogen. Gas is commercially extracted from underground oil and gas fields.

Highly valued as the cleanest fuel with the lowest CO₂ emissions, Natural gas flammability and toxic constituents require monitoring and mitigation programs for compliance with OSHA, EPA, API and State Corporation Commission laws and guidelines for compliance and prevention of personal injury and property loss.

Wellhead gas is separated from the liquids (water and oil or condensate), gathered and processed under pressure in multiple dedicated units, before being compressed and delivered to the pipeline. Gas leaks are very hazardous because of the flammability of the gas and highly toxic Hydrogen Sulfide. Revised ACGIH guidelines for H₂S limit exposure to 1.0 PPM, 8 hour TWA, with a 15 PPM STEL (15 minutes). The OSHA PEL is 10 PPM.

Natural gas pretreatment usually consists of mercury removal, gas



sweetening and drying. A Claus unit with tail gas treating may be used when sulfur content is high. Should Carbon Dioxide be an exposure hazard, Oxygen deficiency monitoring is not sufficient as safe levels of CO₂ are grossly exceeded way before an Oxygen sensor alarms. Gas detectors for H₂S, CO₂ and SO₂ are strategically placed in the units near the fluid handling equipment to protect personnel.

Nitrogen and Helium extraction and purification is usually done by cryogenic or PSA methods. Natural gas liquids, liquefied petroleum gas and the pure components C₂ through C₅ are separated by fractionation. LEL monitoring is required near all active

process equipment where leaks might occur. Optical flame detectors are often positioned for flame and fire detection within seconds.

A complete safety program including point gas detectors, open path gas detection and optical flame detection is the most reliable solution for process leak detection. FM performance certified sensors and FM explosion-proof approval delivers gas detection that operates flawlessly in any environment and delivers the earliest warning of dangerous conditions.

FM Certified Gas Detection Sensors for Natural Gas Processing Plants

Part Number	Gas	TLV TWA	NIOSH IDLH	Sensor Span Units	Response Time, T-50	Operating Temperature, Humidity
823-0201-22	NH ₃	25 PPM	300 PPM	0-50 PPM	11 sec	-4° to 122° F, 15-90% RH
823-0201-21	NH ₃	25 PPM	300 PPM	0-100 PPM	11 sec	-4° to 122° F, 15-90% RH
823-0201-41	NH ₃	25 PPM	300 PPM	0-300 PPM	10 sec	-4° to 122° F, 15-90% RH
823-0206-23	H ₂ S	1 PPM	100 PPM	0-10.0 PPM	10 sec	-40° to 122 F°, 15-90% RH
823-0206-22	H ₂ S	1 PPM	100 PPM	0-50 PPM	10 sec	-40° to 122 F°, 15-90% RH
823-0206-21	H ₂ S	1 PPM	100 PPM	0-100 PPM	10 sec	-40° to 122 F°, 15-90% RH
823-0205-53	CO ₂	0.50%	4.00%	0-5.0%	60 sec	-4° to 122 F°, 15-95% RH
823-0219-23	CO	25 PPM	1,200 PPM	0-100 PPM	10 sec	-4° to 122 F°, 15-90% RH
823-0219-22	CO	25 PPM	1,200 PPM	0-500 PPM	10 sec	-4° to 122 F°, 15-90% RH
823-0240-22	O ₂	19.50%	18.00%	0-25%	4 sec	-4° to 122 F°, 5-90% RH
823-0221-21	NO ₂	1 PPM	20 PPM	0-10.0 PPM	10 sec	-4° to 122 F°, 15-90% RH
823-0218-22	SO ₂	2 PPM	100 PPM	0-10.0 PPM	10 sec	-4° to 122 F°, 15-90% RH
823-0218-21	SO ₂	2 PPM	100 PPM	0-20.0 PPM	10 sec	-4° to 122 F°, 15-90% RH
823-0211-51	NGLs, CH ₄	10% LEL	--	0-100% LEL	10 sec	-13° to 167 F°, 15-90% RH

SENSALERT® ASI

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)



The new 40/40I Triple IR (IR3) Flame Detector detects fuel and gas fires at long distances with the highest immunity to false alarms. The 40/40I IR3 can detect a 1ft² (0.1m²) gasoline pan fire at 215 ft (65m) in less than 5 seconds. The 40/40I is the most durable and weather-resistant flame detector currently on the market. Due to increased reliability, the 40/40 Series warranty period has been extended to 5 years and is SIL2 approved to IEC 61508.



The SafEye Quasar 900 is an open path detection system which provides continuous monitoring for combustible hydrocarbon gases. It employs "spectral finger print" analysis of the atmosphere using the Differential Optical Absorption Spectroscopy (DOAS) technique. It consists of a Xenon Flash infrared transmitter and infrared receiver, separated over a line of sight from 23 ft (7m) to 660 ft (200m) in extremely harsh conditions where dust, fog, rain, snow, or vibration can cause a high reduction of signal.

The transmitter and receiver are both housed in a rugged, stainless steel, ATEX and IECEx approved enclosure. The main enclosure is EExd flameproof with an integral, segregated, EExe increased safety terminal section. The hand-held unit can be connected in-situ via the intrinsically safe approved data port for prognostic and diagnostic maintenance. The Quasar 900 is approved to FM/FMC per Class I Div 1 Group B, C and D and Class I, II Div 1 Group E, F and G, and ATEX/IECEx per Ex d e ib [ib Gb] IIB + H2 T4 Gb, Ex tb IIIC T135°C Db.

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