

# Gas Watch EX

The Gas Watch™ EX gas detection system liberates formation gasses trapped in the returning drilling fluid. The autonomous, standalone system is an integral component in identifying gasses that represent a danger to rig personnel and as an indicator of high hydrocarbon gas concentrations.

## Features and Benefits

- Identifies the presence and concentration of light and heavy hydrocarbon along with H2S for improved reservoir hydrocarbon characterization
- Greater system accuracy eliminates shut downs due to false high-gas readings with NOV-proprietary IR sensor technology
- Non-purge Zone 1 ATEX, IECEx certification
- Configurable, automatic self-maintenance cycles protect components and ensure operability
- Intelligent system with self-diagnostic and fault-detection capabilities results in maximum uptime
- Remote accessibility via web-based configuration and diagnostics tool
- Maintenance-free sample air dehydration system eliminates consumable desiccants
- Agitator suitable for both inline or shaker box installation

## General Specification

Operating voltage ..... 100 to 240V Vrms (Um = 250 Vrms)  
Current max..... 3 amps  
Internal circuit breaker..... 3 amps  
Frequency..... 50 to 60 Hz  
Transient overvoltage..... Overvoltage category II  
Air pressure.....6 SCFH at 32 psi

## Communications

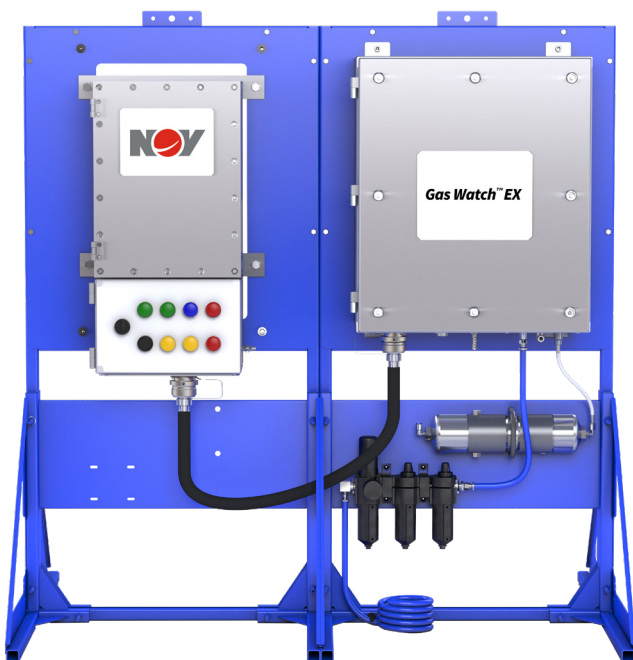
Fiber ..... 100BASE-FX, multimode 62/125 um, ST connection  
Ethernet (optional)..... 100BASE-TX (if mounted in safe area)

## Outputs

Modbus UDP/TCP.....73 available sensor, status, and alarm outputs  
Analog out (optional).... Five 4-20 mA outputs, One Digital Out Alarms.....Six local indicators lamps

## Environmental

Operating temperature.....  
Sensor assembly Model 004 (w/H2S): -20 to +55°C  
Sensor Assembly Model 005 (w/o H2S): -40 to +55°C  
Control Assembly: -20 to +55°C  
Storage temperature..... -20 to +70°C  
Ingress protection..... IP 66



# Features

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## Certification

- Sensor and electronic modules: ATEX and IECEx Zone 1
- Interconnect Cable: ATEX and IECEx Zone 1
- Agitator: Mechanical ATEX Zone 1

## High Reliability

- Autonomous nature removes much of the typical daily maintenance, spot checking
- Reduces nuisance downtime and halted drilling operations due to non-working gas detector
- Automatic sample flow control for consistent sample readings
- Automatic agitator speed control maintains consistent gas extraction even when small leaks are present
- Membrane dryer protects Sensor module from fluid ingress
- Non-purged system keeps internals free from damage associated with water vapor in air lines
- Venturi pump eliminates standard pump failures
- Self-maintenance cycle protects components and ensures operability
- When powered off, the system purges chambers and seals from environmental contaminants
- System hibernation and monitor during loss of rig air to protect components and extend life
- System fault detection - 11 independent system sensors

## Low Maintenance

- Membrane dryer eliminates daily desiccant monitoring and constant replacement
- Automatic sample line blockage clearing
- Electrochemical H<sub>2</sub>S sensor/inexpensive replaceable cell
- Remotely or locally accessible web configuration tool
- Dedicated RigSense screen for easy monitoring of system status
- Web page adjustable agitator speed, sample flow rates and other key parameters
- Local visual indicators of system status

## Consistent Hydrocarbon Identification

- Propane-to-methane ratios help to identify transition zones when moving from light to heavier hydrocarbons
- Second order calibration curves for better trend analysis with maximum limits to eliminate saturation
- Constant Volume Agitator delivers consistent extraction of gases regardless of shaker fluid level
- Feedback loop controlled sample flow rate promotes consistent transportation of gasses
- Sample and agitation speed controls allow for system-level calibration and characterization

## Improved Operational Safety

- Zone 1 IECEx, ATEX certification meets the certification needs in virtually every location
- Many rigs require drilling operations to cease when gas detector is nonfunctional
- Gas increases are key indicators of potential problems and transition zones
- Accurate and consistent gas readings are critical in evaluation potential problems
- H<sub>2</sub>S extracted from the mud delivers the earliest warning of potential hazard

## Flexible Installation and Connectivity

- 4-20mA analog outputs for standard sensor data and system status
- Modbus UDP/TCP connectivity offers sensor data and advanced diagnostics
- Remote or co-location of system modules (side-by-side, front-back, wall mounted)
- Frames allow for lifting hardware and incorporate provisions for temporary wheels
- Interconnect Hazloc cable allows for rapid installation of modules without cementing glands