

Oxygen Analysers Ensure Quality and Safety in Natural Gas



Product quality and contract compliance:

The overriding reason to measure oxygen levels in natural gas, at any point in the process, is to ensure contract compliance with the EASEE gas standard that states that there must be less than 100 ppm O₂ in transmission quality natural gas.

Safety:

Secondly but equally important is to ensure the safety of people and equipment.

Oxygen in high concentrations can damage compressors and other transmission equipment. Also, when combined with moisture, hydrogen sulphide (H₂S) and carbon dioxide (CO₂) form corrosive acid compounds which attack and weaken natural gas transmission lines which are under up to 700 psi. Leakage of natural gas consisting largely of methane is extremely flammable creates a potentially explosive atmosphere.

Hydrogen Sulphide (H₂S) poses a safety consideration to both people and equipment as well.

Measurement technologies available:

Requirements: As with any process, the cost of capital expenditure and maintenance costs are important. Processes require low-maintenance analyzers and sensors, capable of measuring below 100 PPM.

Electrochemical Oxygen Analysers

- ▶ Accurate and reliable PPM O₂ measurements
- ▶ ATEX / UL certified intrinsically safe
- ▶ Lower Detectable Limit of 50 PPB
- ▶ Low cost of ownership
- ▶ Easy to install, operate and field calibrate
- ▶ No maintenance replace sensor like a battery
- ▶ Optional 'LD' flow through sensor housing drops out liquids with no maintenance
- ▶ Suitable for up to 1% H₂S background gas with optional sample system

Tunable Diode Laser Spectroscopy

- ▶ Accurate and reliable PPM O₂ measurements
- ▶ Able to detect trace oxygen in a variety of background gases
- ▶ Capable of detecting a variety of gases
- ▶ High cost of ownership
- ▶ Technically demanding to install, operate and calibrate
- ▶ Cleaning measuring surfaces can be maintenance intensive
- ▶ Resistant to contamination, suitable for high levels of H₂S background gases

Possible pitfalls:

- ▶ Sample System components need careful consideration (true for any kind of oxygen analyzer).
- ▶ Electrochemical oxygen analysers are suitable for up to 1% H₂S background gas with optional sample system which retains a significant price advantage over competitive technologies.
- ▶ Samples with entrained liquid present no problem for the GPR-1800 AIS-LD with its innovative liquid drain sensor housing.
- ▶ Maintenance costs associated with changing and calibrating an electrochemical sensor versus setup and cleaning the measuring surfaces of a laser in the field.

All Recommended Solutions:

GPR-1800 AIS PPM Oxygen Analyzer

- ▶ Certified Intrinsically Safe: ATEX Ex d [ib] ib IIB T4
UL Class 1, Division 1, Groups C, D
- ▶ Accuracy: <1% of FS Range under constant condition
- ▶ Sensitivity: < 0.5% FS Range, LDL 50 PPB
- ▶ Measuring Ranges: 0-10 PPM, 0-100 PPM, 0-1000 PPM, 0-1%
- ▶ Additional Air Calibration Range: 0-25%
- ▶ Menu Driven Controls; Automatic or Manual Ranging
- ▶ Adjustable High, Low Alarms
- ▶ Modular Sampling System (optional)



GPR-1800 AIS-LD Liquid Drain PPM Oxygen Analyzer

- ▶ Certified Intrinsically Safe: ATEX Ex d [ib] ib IIB T4
UL Class 1, Division 1, Groups C, D
- ▶ Innovative 'Liquid Drain' sensor housing removes liquids
- ▶ Accuracy: <1% of FS Range under constant condition
- ▶ Sensitivity: < 0.5% FS Range, LDL 50 PPB
- ▶ Measuring Ranges: 0-10 PPM, 0-100 PPM, 0-1000 PPM, 0-1%
- ▶ Additional Air Calibration Range: 0-25%
- ▶ Menu Driven Controls; Automatic or Manual Ranging
- ▶ Adjustable High, Low Alarms



GPR-1200 Portable PPM Oxygen Analyzer

- ▶ Certified Intrinsically Safe: ATEX Ex ib IIB T4
- ▶ Accuracy: <1% of FS Range under constant condition
- ▶ Sensitivity: < 0.5% FS Range, LDL 50 PPB
- ▶ Measuring Ranges: 0-10 PPM, 0-100 PPM, 0-1000 PPM, 0-1%
- ▶ Additional Air Calibration Range: 0-25%
- ▶ Menu Driven Controls; Automatic or Manual Ranging
- ▶ Bypass System isolates sensor when changing gas lines thereby minimizing downtime and increasing productivity
- ▶ Sample Conditioning Systems (optional)
- ▶ Ideal for spot checking or on-line for emergencies



Related Products:

GPR-7500 AIS PPM Hydrogen Sulphide Analyzer

- ▶ Certified Intrinsically Safe: ATEX Ex d ib IIB T4
UL Class 1, Division 1, Groups C, D
- ▶ Trace H₂S in flowing gas streams
- ▶ Accuracy: 2% of FS Range under constant condition
- ▶ Sensitivity: < 0.5% FS Range
- ▶ Measuring Range: 0-20, 0-50, 0-100 PPM
Optional range: 0-500, 0-1000, 0-2000 PPM
- ▶ Integral dilution system for easy calibration and higher measurements



GPR-7100 Portable PPM Hydrogen Sulphide Analyzer

- ▶ Certified Intrinsically Safe: ATEX Ex ib IIB T4
- ▶ Trace H₂S in flowing gas streams
- ▶ Accuracy: 2% of FS Range under constant condition
- ▶ Sensitivity: < 0.5% FS Range
- ▶ Measuring Range: 0-20, 0-50, 0-100 PPM
Optional range: 0-500, 0-1000, 0-2000 PPM
- ▶ Integral dilution system for easy calibration and higher measurements
- ▶ Ideal for spot checking or on-line for emergencies



2855 Metropolitan Place, Pomona, CA 91767 USA • Tel: 909-392-6900, Web: www.aii1.com, e-mail: info@aii1.com

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