Solutions for Low Flow Vent Gas Measurement

The Hawk Vent Gas Meter is designed to measure and digitally log low flow vent gas, such as methane, with high accuracy. Typical applications are surface casing vent, pneumatic control gas usage, and any vent gas where either high accuracy vent gas measurement or audit trails are required.

The Hawk uses a digitized positive displacement diaphragm meter with precision pressure sensor, a flowing temperature probe and industry standard gas flow measurement algorithms to accurately measure the gas rates. As a result, flow rates down to 0.5 acf/day can be measured with accuracies less than +/-2% depending on the length of test.

Reporting is the next step once your test is done. Callwin the Hawk’s Windows interface software uses the Hawks digitally logged values and generates a report showing the gas flow trends and the total flow measured in a PDF format. An example is shown on the back of this datasheet.

Surface Casing Buildups can be accommodated by configuring the Hawk Vent Meter with a shut-in valve and a pressure safety valve. Optionally the valve can be combined with a 24 hour automatic timer and electric actuator to switch the Hawk from flow to buildup mode.

Safety is ensured since the Hawk is Class 1 Div 1 rated. This allows the Hawk to be run right beside the wellhead or in a enclosed building.

Feature Summary
- All data and settings logged for Audit Trail
- PDF reporting of data
- Fuel gas rate accuracy less than +/- 2%
- Sample rates as fast as once per second
- Calibrated from -40°C to +60°C
- Gas Equations AGA8 and AGA7
- Certified for Hazardous Location Class I Div1
- Able to measure methane gas on pneumatics, surface casing vent and most any gas venting
- Optional 2nd pressure sensor and 24hr flow timer for surface casing buildups
- Available for rent or purchase
Reporting
One of the hardest things after collecting data is generating a report summarizing the results.

Calwin, the Hawk’s windows interface software, can generate a simple one page PDF report and export the data. No more struggling with Excel to generate a simple report.

Total Flow Accuracy
All diaphragm meters have inherent non-linear errors when measuring small volumes due to the uncertainty of the bellow’s position when the test starts. This is in addition to the stated flow accuracy specification.

The “Total Flow Accuracy” chart on the right combines the AC-250 total diaphragm meter errors, the flowing temperature, and the static pressure sensor errors of the Hawk. For example, to get a ±2% measurement error at 0.5 acf/day flow rate, you would need at least a 19 hour long test.

Specifications

Silicon Pressure Sensors
BuildUp Pressure Ranges: 1500, 3500 psig
Pressure Accuracy: 0.024 % full scale
Pressure Resolution: 0.0003 % full scale
Pressure Drift: < 0.01 % full scale/year
Flowing Pressure Range: 270 psia
Pressure Accuracy: 0.040 % full scale or ±0.11 psi (0.744 kPa)

Flowing Temperature Probe (RTD)
Temperature Accuracy: ±0.4°C (±0.20°C typical)
Temperature Resolution: < 0.05°C

AC-250 Diaphragm Meter
Flow Accuracy: ±1%
Flow Resolution: 0.025 cubic feet (0.000708 m³)
Max Flow at 0.5 inH₂O Differential: 6000 acf/day (170 am³/day)
Max Flow at 2.0 inH₂O Differential: 12000 acf/day (340 am³/day)
Minimum Constant Flow rate: 0.5 acf/day (0.028 am³/day)
Max Allowable Working Pressure: 10 psig

The “a” in the units means the gas is referenced to the actual flowing pressure and temperature, not to standard conditions.

Gas Equations
AGA7
AGA8-92 Detailed or Gross
Redlich-Kwong with Wichert-Aziz sour gas correction

Certified Safety Compliance
C22.2 No O-M 1991 : Canadian Electrical Code Part II
C22.2 No 157-M 1992 : Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations
UL 913, Sixth Edition : Intrinsically Safe Apparatus and Associated Apparatus for use in Class I, II, III, Division I, Hazardous (Classified)

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All specifications are subject to change without notice rev 2v01