



TECH NOTE

LOCI GUARDIAN HAS ACTIVE FLOW CONTROL AND 24/7/365 GAS COMPOSITION ANALYSIS TO MAXIMIZE LANDFILL GAS COLLECTION FOR ELECTRICITY SITES

Guardian

The Loci Guardian is a core component of Loci's automated landfill gas collection service, and delivers increased gas collection, decreased costs, and reduced risks. The Guardian is designed for electricity sites and low flow wells at high BTU sites.

Loci Guardian is wellhead-mounted hardware with an onboard sensor and communication system that remotely monitors differential pressure, flow, landfill gas temperature, barometric pressure, CO₂, CH₄, O₂, and balance gas (calculated; N₂ and trace gases). The Guardian includes an automated, precision controlled, ball valve that regulates flow at every well based on Loci Controls' control algorithm which analyzes well and field-level flow and gas composition in real-time while maximizing gas collection and methane flow, all within operator-established gas composition set points.

Gas composition is measured with optical sensors analogous to industry standard handheld gas analyzers. Flow is measured with an orifice plate and differential pressure, using pressure, temperature, and gas-density compensation for accuracy. The valve position is shown in real-time on the WellWatcher user interface.

Installation of Loci Guardian is recommended for electricity sites and low flow wells at high BTU sites, where the tolerance on gas composition requires control precision down to the percentage point, but not down to tenths of a percent.

LOCI GUARDIAN SPECIFICATIONS

AREA	RATING	METRIC
Flow	0 - 110	scfm
Remotely Activated Flow/ Valve Control	0 - 100%	Fully Closed Fully Open
Pressure Readings (Above and Below the unit, P _A and P _B)	0" to -138.5"	Inches of H ₂ O
Differential/ Pressure	0" to 10.0"	Inches of H ₂ O
Flow Accuracy	± 1 scfm ± 2 scfm	2.5-55 scfm 55-110 scfm
Pressure Accuracy	± 0.25%	% of Full Scale
Maximum/ Operating Temperature	140°F (60°C)	Deg F (Deg C)

GAS COMPOSITION	RANGE	ACCURACY
Methane	0% - 100%	± 1% (vol)
Carbon Dioxide	0% - 100%	± 1% (vol)
Oxygen	0% - 2.5%	± 0.5% (vol)
Balance Gas (Nitrogen)	0% - 100%	± 2.5% (vol)

Typical accuracy after calibration as recommended by Loci.



Additional Technical Specifications

Power: Solar w/ rechargeable battery
Battery Charge Time: Three weeks
Compatible Pipe Sizes: 2"-4" well heads
Auto-Calibration: Monthly
Connectivity: CDMA Wireless
Installation Location: Mounted to vacuum riser
Default Measurement Frequency: 1/hr.
Operating System Compatibility: Windows, MAC, Linux
Optimization Target: Maximized energy collection, minimize odors, specific gas composition requirements

WHY LOCI CONTROLS?

With financial, operational, and environmental benefits, Loci Controls' product/service suite helps streamline and optimize facility management and gas collection for power plant operators and landfill owners alike.



INCREASE REVENUE

- Maximize methane gas flow
- Optimize gas composition
- Automate real-time wellhead adjustment and data collection
- Boost plant uptime



DECREASE COSTS

- Lower labor costs for well-field tuning and O&M
- Reduce equipment maintenance costs



REDUCE RISKS

- Reduce fugitive LFG emissions
- Prevent significant maintenance issues

