

## GAS MICRO SELECTED SPECIFICATIONS

<b>Audit Trail</b>	8 user-selectable log items 8 user-selectable extended log items
<b>Fully Configurable Log &amp; Extended Log Items Acid Gas</b>	Hourly, daily, monthly Up to 29 configurations, 31 instantaneous, 27 hourly, 31 daily & 31 monthly items can be selected. (8,192 values for each log)
<b>Log Sizes</b>	
Data	64 days of hourly data, 188 days of daily data, 3 years of monthly data
Events	128 records
Alarms	512 records
<b>Calibration</b>	Quick two-point, single-point validation anywhere in pressure-transducer range
<b>Volume-Correction Method</b>	AGA7 & AGA8 gross method 1 & gross method 2 (super compressibility)
<b>I/O Capabilities</b>	
Communications	1 – RS232 (PC interface)
Modems	Dial-up/leased line 2400 BAUD modem; cellular modems (CDMA or GSM)
TCP/IP	Optional IP anywhere (for communication over Internet or TCP/IP network)
Inputs	2 – Analog (accepts static and differential pressure transducers) 1 – PT100 RTD (4-wire) or temperature transducer 2 – Discrete pulse (4 KHz with battery, 8 KHz with AC)
Output	1 – eight-character LCD display 2 – Fully configurable & scalable pulse outputs
<b>Alarms</b>	Low/high analog inputs Low battery High nomination Reed switch failure Configurable for discrete alarm for AUX devices
<b>I/O Protocol</b>	Modbus (Enron RTU), fully mapable & configurable
<b>Hazardous Area</b>	Class 1, Division 1, Groups C & D (no internal communication devices or solar power assembly) Class 1, Division 2*
<b>Power Requirements</b>	Redundant Alkaline or Lithium Batteries (> +4 year typical configuration lifetime) 110VAC 50/60 Hz, 12VDC (optional) 10W solar power assembly with 12VDC 8.5AH battery (optional)

\*I.S. barriers not required under the following conditions: 1) using internal battery pack, 2) using external Class 2 Galvanic power supply, 3) unit is fitted with poly fuse (SRP 200) 2A

Please note: we work continuously to improve the performance of our products – all specifications are subject to change without notice.

### Galvanic assures flexible, headache-free installation and operation

Galvanic Applied Sciences' expert support team will work with you to determine the best, most cost-effective way for your facility to meet your acid-gas and amine unit-analysis needs. Galvanic's high-performance analyzers are calibrated to your exact specifications and custom-configured at the factory to integrate seamlessly into your existing infrastructure. Galvanic can also supply other key components and services for a total integrated solution – from custom designs and field commissioning for your systems – to analyzer shelters and sample-conditioning panels.



**GALVANIC**  
APPLIED SCIENCES



## Application Insight: Gas Micro Electronic Volume Corrector

### Electronic Volume Correction in NG Custody Transfer & Distribution Applications



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Whether you are on the sending or receiving end of the natural gas distribution system, you want to be assured that the actual value of the transported gas is assessed correctly. While that requires a precise measurement of Btu content, it is just as important to determine the actual volume of gas delivered.

The Gas Micro instrument by Galvanic Applied Sciences provides the functionality of three instruments – an electric volume corrector (EVC), electronic pressure recorder (EPR), and a data logger – in one, rugged hardware/software package. With its versatile, user-friendly software, high performance, and advanced features, it is the most economical choice for custody-transfer applications on the market today.

### Electronic Volume Correction in NG Custody Transfer & Distribution Applications

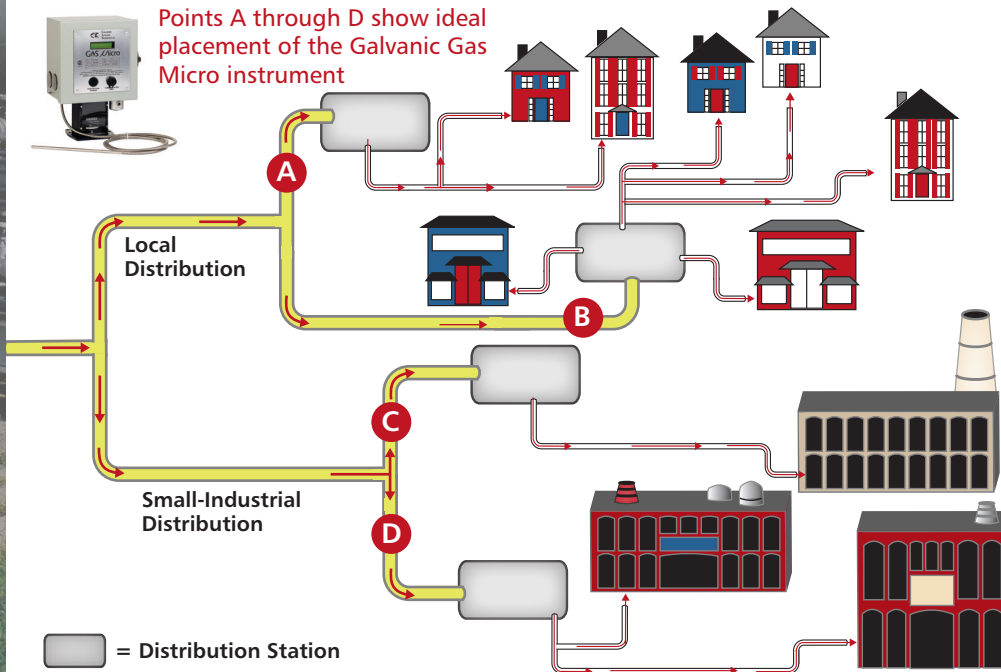
Natural gas meters, such as turbine or rotary meters, only measure the volume of gas flowing through them. The meter reports an uncorrected volume of natural gas as determined by the physical volume of the meter. However, because NG is compressible, the volume varies as a result of live pressure and temperature changes occurring in the pipeline. An electronic volume corrector is needed to fully compensate for these variations to accurately calculate the true volume of NG flowing through the meter.

Galvanic's Gas Micro instrument is a three-in-one measurement device ideally suited for all custody-transfer applications since it complies with both AGA7 & AGA8, which takes super-compressibility into account.

Unlike turbine or rotary meters, when gas flows through the flow meter, the Gas Micro instrument takes the meter's electronic signal output and uses it to calculate the corrected volume, according to AGA7 and AGA8. These data are logged and stored in memory for record keeping, and ultimately, for data distribution.

The diagram below shows a typical gas-distribution system and the locations (A-D) where a Galvanic Gas Micro instrument would provide a cost-effective solution to assure that customers receive the precise amount of natural gas they expect, and distribution companies bill appropriately.

### Typical Natural Gas Distribution System



### Ideal Gas Law

An ideal gas can be characterized by three state variables: absolute pressure, volume, and absolute temperature. The relationship among them is called the Ideal Gas Law. According to the law,

$$PV = nRT$$

Where:

P = pressure

V = volume

n = number of moles

R = universal gas constant

T = temperature.

When the constants are removed, the relationship becomes:

$$PV \propto T$$

or

$$V \propto T/P$$



The most economical electronic volume corrector on the market today, the Gas Micro instrument enables precise billing for custody transfer. It will provide years maintenance-free service, delivering accurate and auditable records:

- Measurement Canada-approved for custody transfer with 12-year initial re-verification for pressure and temperature
- User-friendly Gas Micro IMACS® Windows® PC software with point-&-click/drop-&-drag functionality for easy local or remote configuration
- Fully configurable Modbus (Enron RTU) & three levels of password protection for optimal security
- Automated options include: automated meter reading/reporting & configurable alarms capable of initiating automatic dial-out alarm or email notifications
- AGA 7 & AGA 8 volume-correction calculation methods
- Instrument mount with integrated pulse generator for turbine, rotary, diaphragm or positive-displacement meter with optional remote mounting of the pulse generator Gas Micro index with integral pulse generator
- Pulse outputs for controlling odorant or other process devices
- Reverse flow and rocking-detection compensation
- Long battery life with redundant supplies using alkaline or lithium batteries
- Solar power or external 110VAC – 12VDC switching supply available
- Rugged design with industrial components and four-year comprehensive warranty
- Redundant mechanical backup measurement for continuous measurement – even with electronic failure!

### GAS MICRO SELECTED SPECIFICATIONS

<b>Functions Provided</b>	Electronic volume corrector (EVC) Electronic pressure & temperature recorder Three-channel data logger
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#### Accuracy @25° C

Corrected Volume	±0.05% of reading
Pressure	±0.05% of reading
Temperature	±0.05% of reading

#### Maximum Error Over Ambient Temperature Range -40° to 65°

Corrected Volume	±0.2% of reading
Pressure	±0.2% of reading
Temperature	±0.2% of reading

<b>Pressure Transducer Ranges</b>	15, 30, 60, 100, 200, 300, 500, 1,000 & 2,000 (psia or psig) Exceeds 250:1 turndown, compatible with standard, differential, or linear transducers
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