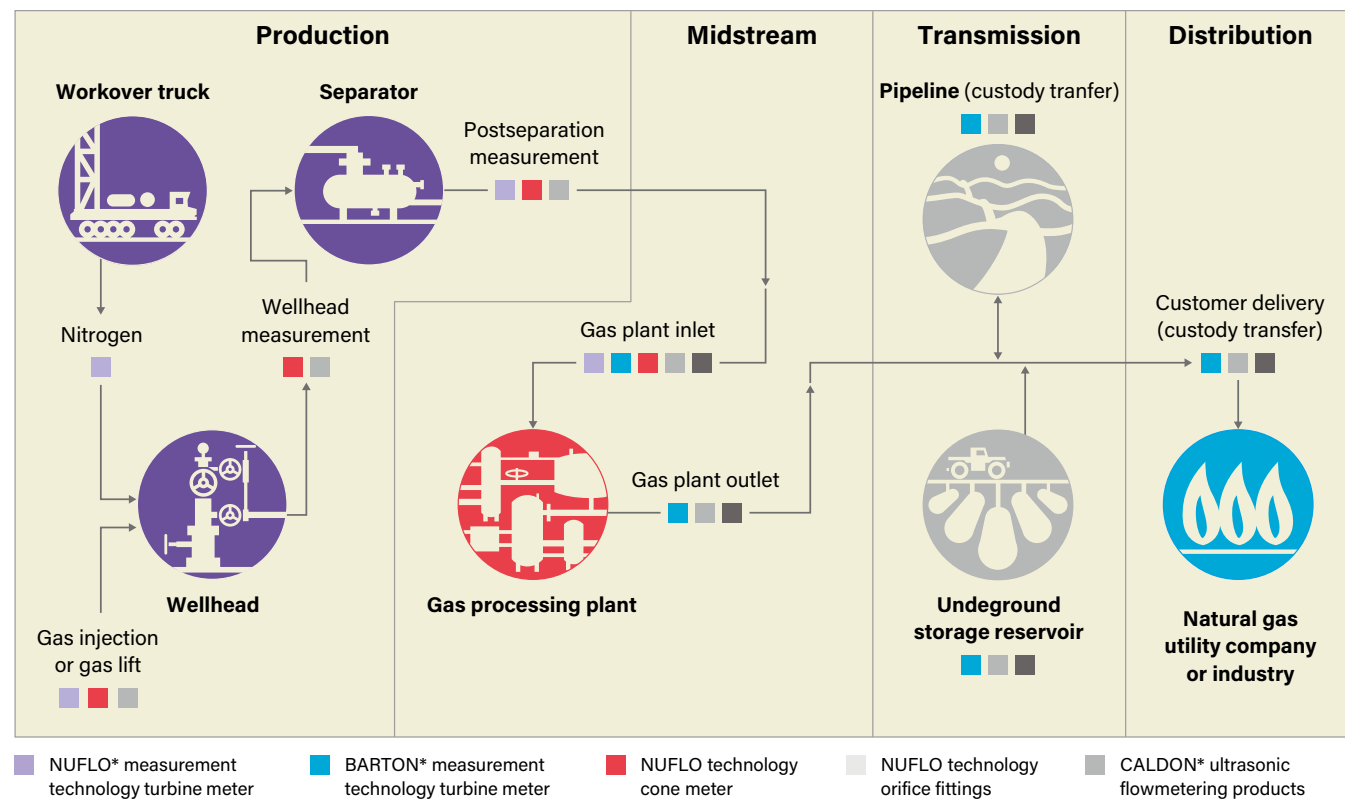


# + Gas Meter Solutions

Turbines, cones, orifice fittings,  
and ultrasonic flowmeters



# A Meter for Every Measurement



**Gas flow can be measured with several different devices, each with different primary measurement principles, applicable ranges, and costs. Selecting the proper meter for a given application requires an assessment of flow rates, required accuracy, and cost-to-benefit expectations.**

To satisfy this broad range of needs, the Sensia portfolio of gas measurement technologies includes turbine meters, ultrasonic meters, and differential pressure devices such as orifice meters and cone meters.

When selecting your next flowmeter,

- + consider the accuracy and repeatability required for the application
- + carefully estimate the required flow capacity; consider both anticipated low- and high-flow conditions to better evaluate the level of rangeability (turndown) required.
- + do not assume that cost is the most important factor; durability, power, and communication requirements and maintenance may be equally important
- + consider the installation requirements and location; some meters are designed to perform reliably with shorter upstream and downstream piping requirements
- + consider how fluid composition affects your choice of materials of construction, management of solids or liquids, and computational requirements.
- + consider operational costs associated with pressure loss, user intervention, and maintenance



NUFLO turbine meter technology



NUFLO high-pressure turbine meter technology

## TURBINE METER TECHNOLOGY

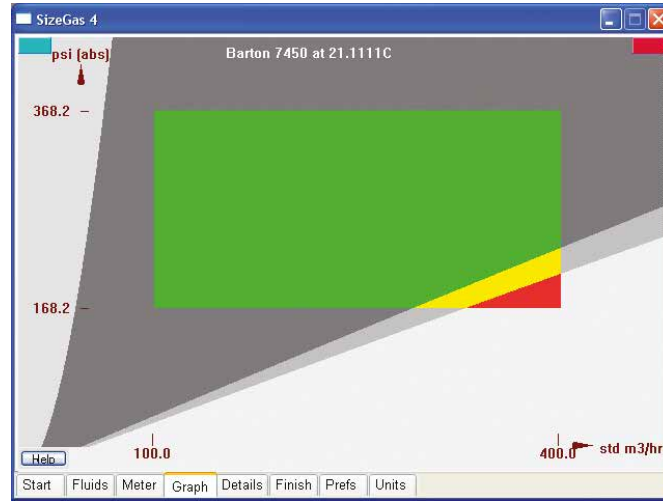
NUFLO 2-in twin-bladed turbine meter technologies infer gas volume by determining the speed of the gas moving through the meter. They are specially suited for low-pressure gas measurement in 2-in lines but can accommodate pressures up to 2,220-psi gauge pressure.

- + Unique cartridge design enables removal of all internal parts as one assembly (three cartridge ranges cover the gas flow rates typically found in 1- to 3-in flowline applications)
- + Often used for measuring the supply of fuel gas to line heaters or small compressors
- + Between-flange design simplifies installation and makes the meter easy to remove from the line for maintenance
- + Negligible pressure drop
- + Measurement largely unaffected by gas density

Sensia also offers a high-pressure turbine meter for flowing pressures between 3,500 and 15,000 psi [24 and 103 MPa]. This meter can measure flow rates as low as one tenth its capacity, and with four sizes available between 1 and 3 in, a diverse range of flows can be metered. These rugged meters are frequently used to measure flows associated with well stimulation.



# Meter Sizing Made Easy



Graphical view of selected meter's performance

Even when flow conditions are well defined, choosing the meter that will deliver the best performance in a specific application can be difficult. Sensia's sizing programs take the guesswork out of the process by automating the meter selection based on user-specified meter design and flow parameters.

Sensia's differential pressure cone meter sizing program recommends the optimal cone meter size, beta ratio, and full-scale differential pressure to suit a required flow rate for a specified gas.

The program provides a similar service for selection of NUFLO technology, BARTON technology, and CALDON technology. This program not only recommends a meter type and size but also provides a graphical display of the meter's performance envelope so that users can easily detect the boundaries of the meter's range. Users can override the automated meter selection to see the effect on performance.

Both programs are free, easy to use, and readily available for download from the Sensia website.

# Gas Sampling Solution



CLIF MOCK technology

The Sensia portfolio of CLIF MOCK\* measurement technology includes a sampler controller that is specially designed to sample gas streams in proportion to time or volume. As the solenoid supplies air pressure to the pump, the pump collects product samples from the pipeline and deposits them into a receiver, which can be transported for offsite analysis. The pump can collect a sample size of 0.05 to 1.00 cm<sup>3</sup> every 5 seconds.

The system can be direct mounted to a sample probe in a pipeline or remote mounted. It is CSA certified as intrinsically safe.

Sample count, flow total, flow rate, and performance indicators are displayed on a readout and transmitted via serial communications.

Sensia offers the sampler controller as a stand-alone instrument and as the cornerstone of a complete sampling system, custom designed to meet a individual applications.

# Meters and More

Sensia has the products and the expertise to satisfy all of your flow measurement needs.

Choosing a gas meter is just the first step in creating a total gas measurement solution. The measurement of gas is based on standard volumes, mass, or energy amounts, which requires the calculation of several flow parameters that a gas meter alone cannot provide. At a minimum, these parameters are derived from fluid composition and pressure and temperature measurements. These parameters can be computed instantaneously by a flow computer or separately using measurements made by a recorder.

Sensia offers a variety of electronic products to simplify this process and provide the accuracy required for a wide variety of applications.

The BARTON gas chart recorder technology displays and records the measured differential pressure, static pressure, and temperature.

Scanner\* flow computers measure, display, record, and compute flow using nearly any type of flow sensor in the industry. They may be self-contained and have onboard power as well as pressure and temperature sensors, or they may be connected to peripheral devices such as radio communications systems, gas chromatographs, and external power.

Where pressure and temperature is relatively constant, Sensia turbine totalizers, differential pressure indicators, and transmitters can sense, communicate, and record flow.

### PACKAGED SOLUTIONS

Sensia's expertise goes beyond the design and manufacture of measurement devices to include the design and assembly of complete measurement systems and subsystems. Our custom measurement skids can include all of measurement and automation and the networking of multiple measurement locations with software.

Sensia also packages essential measurement components together to create bolt-in subsystems. These ready-to-install systems typically include a turbine meter, straight-run piping, pressure sensor, temperature sensor, and a flow computer preprogrammed with site-specific and user-specified parameters.



Fabricated gas measurement skid



1. BARTON Model 202 chart recorder
2. Scanner 2000 flow computer and NUFLO cone meter technology
3. NUFLO MC-III flow totalizer and BARTON 7400 technology
4. FUJI® transmitter and NUFLO single-chamber orifice fitting technology
5. NUFLO MC-II® flow totalizer and NUFLO 2-in turbine meter technology
6. Preamsembled explosion-proof Scanner 2000 flow computer bolt-in system

[sensiaglobal.com](http://sensiaglobal.com)

**Add intelligent action to your oil & gas solutions**

© Sensia LLC 2020. All rights reserved. 258A-CO-0921-BR

\* Mark of Sensia. Other company, product, and service names are the properties of their respective owners.

**sensia**

Rockwell Automation + Schlumberger