



SIEMENS



Clamp-on flowmeters from Siemens enhance public safety in Argentina

[siemens.com/flow](https://www.siemens.com/flow)



SITRANS FUG1010 IP65 NEMA 4X

Background

Together, Camuzzi Gas del Sur and Camuzzi Gas Pampeana form one of the four main natural gas distribution companies in Argentina. Camuzzi distributes gas to more than 1,500,000 household and industrial users dispersed across the central and southern (Patagonian) regions of Argentina, an area covering approximately 1,200,000 km² (463,322.6 mi²).

Camuzzi recently began seeking flow measurement technology to incorporate into a number of their new and existing odorant stations. These stations are responsible for dosing incoming gas lines with carefully controlled amounts of gas odorant, a noxious

chemical mixture that provides natural gas with its characteristic odor and lessens the danger it presents to the human population.

Problem

A properly functioning odorant station will deliver a proportion of 10-20 mg (0.00035-0.00071 oz) of odorant per 1 m³ (10.8 ft³) of gas. Injecting too little odorant into natural gas can prove harmful to public health, as this normally odorless and colorless gas is exceptionally difficult to detect in the instance of a potentially deadly leak. At the same time, injecting an excess amount of gas odorant can result in a deluge of false leak reports to city offices as well as serious long-term damage to steel

Answers for industry.



pipes. For all of these reasons, Camuzzi knew it was vital to be able to measure the addition of odorant with extreme precision and consistency.

The gas company first considered inline ultrasonic flowmeters, which demonstrate a high enough turndown ratio to detect small volumes of gas in large pipelines. However, it would take at least three months to install this type of meter on the necessary gas lines, and the cost associated with cutting the lines to insert the measurement equipment was prohibitively high.

Camuzzi soon concluded that clamp-on ultrasonic flow measurement would be a much better fit. Because these meters utilize external sensors and do not require any cutting of pipes or interruption of gas supply, they would cost the company 600% less to install than inline meters. In addition, installation of the meters could be completed in only 1 hour.

Solution

In mid-2010, Camuzzi acquired 9 SITRANS FUG1010 clamp-on ultrasonic gas flowmeters from Siemens. The company chose Siemens as its supplier for several important reasons. All ultrasonic flowmeters calculate flow velocity by determining the difference in travel time between signals traveling upstream and downstream of the flow direction. However, SITRANS FUG1010 has the added advantage of WideBeam transit-time technology, which utilizes the pipe as an integral part of the measurement process to produce a particularly strong and focused signal. The result is a very high rate of accuracy exceeding that of many other non-intrusive meters. "One of the ways we verify gas flowmeter performance is by using the AGA-10 calculation method, which establishes the speed of sound in a gas through chromatographic analysis," said Agustín Zabaljauregui, an engineer and head of the Department of Measurements at Camuzzi. "Through AGA-10, we verified that the flow velocity initially calculated by SITRANS FUG1010 for our natural gas lines was correct."

Another selling point of SITRANS FUG1010 for Camuzzi was the quality and quantity of diagnostic data provided by the meter, which the company found invaluable in ensuring the highest possible level of performance. According to Mr. Zabaljauregui, "Other meters we worked with did not provide enough useful information or made it difficult to find this information, but SITRANS FUG1010 includes all of the necessary diagnostics that

allow us to observe the ongoing functionality of the instrument and quickly determine if it is operating optimally."

Camuzzi was also pleased that, although the flowmeters were installed on pipes ranging in diameter from 3"-16" and pressures from 25-70 bar, SITRANS FUG1010 demonstrated a consistently excellent accuracy rate of approximately 0.5%. In addition, the gas company appreciated the large number of outputs available with the meter (4 analog, 4 relays, 2 digital and 2 status), making it possible to perform several measurement and calculation tasks simultaneously.

The gas company is already reaping the benefits of adding SITRANS FUG1010 to some of its most active odorant stations. For example, one meter was placed in a station that doses the gas lines into the city and suburbs of La Plata, the capital of Buenos Aires Province with a total population of nearly 900,000. In the winter, gas lines feeding La Plata can distribute as much as 3,000,000 m³ (32,291,731.3 ft³) of natural gas per day, a quantity that decreases significantly over the summer. If these seasonal differences in gas consumption are not accounted for, an odorant overdose rate on the order of 30% would occur during the summer months. By utilizing a SITRANS FUG1010 flowmeter at this particular station, Camuzzi is saving enough in odorant expenses to amortize the cost of the equipment in only one year.

Conclusion

As clamp-on ultrasonic flow measurement continues to gain recognition in Argentina for its accuracy and versatility, gas companies are incorporating these flowmeters into all stages of the natural gas manufacturing process, including primary extraction, transportation, transfer and distribution. This non-intrusive technology is providing corporations like Camuzzi with innovative ways to ensure the safety of the Argentinean public while minimizing operating costs and maximizing profits.

Siemens Industry, Inc.
Industry Automation Division
CoC Ultrasonic Flow
HAUPPAUGE, NY
USA

Order No. PIFL-NGUSF1013 | Printed in USA |
© 2013, Siemens AG