

SIEMENS



Refinery chooses ultrasonic flow technology to enhance pipeline upgrade

Process Instrumentation



Challenge

An Oklahoma refinery recently required a flow measurement solution for a finished gasoline and diesel fuel line leaving the refinery site. They were already using a Siemens clamp-on check meter and interface detector elsewhere and hoped to install the same product on the fuel line. However, the local Siemens representative, the Ernie Graves Company, determined that there would not be enough straight run of pipe to support a clamp-on meter, and the refinery decided that they would need to bring the pipe above ground. Since they were going to invest so much in altering the pipeline, the representative recommended that they choose a flow solution offering the same benefits as clamp-on technology but with an even higher level of accuracy: the liquid version of the SITRANS FUT1010 ultrasonic flowmeter.

usa.siemens.com/clamp



	Technical Specifications
Calibrated accuracies	Liquid: <0.15% of flow Gas: <0.2% of flow
Repeatability	±0.05% to 0.1% of actual reading
Flow ranges	Liquid: ±40 f/s (±12 m/s) Gas: up to ±120 f/s (±36.5 m/s), both bidirectional
Temperature ranges	-20 °F to 200 °F (-28 °C to 93 °C)
Sensor diameters	4 to 24 inches (DN100 to DN600)
Data inputs	4 x 4-20 mA, programmable (pressure, temp., etc.)
Data outputs	4 x isolated 4-20 mA, 2 x 0-10 VDC, 4 x digital pulse outputs (2x open collector, 2x 0-5V TTL)
Communication	RS232 (standard) and Modbus RS485/422 (optional)
Enclosure ratings	Sensor: IP65 (NEMA 4X), transmitter: IP66 (NEMA 7)
Approvals	INMETRO, CSA, FM, CRN and ATEX

Solution

The SITRANS FUT1010 now provides the operators at the refinery with real-time flow information so that they are able to determine media conditions within the pipeline and be made aware of any changes immediately as they occur. The meter supports them in making informed decisions about pipeline operation and helps to maximize delivery and performance control. The customer also likes the fact that there is no need to shut down the flow should a transducer ever need to be replaced, which saves considerable time and money.

“The refined petroleum pipeline required a great deal of precision in flow measurement, so I knew right away that this application would require a very high-performing flowmeter,” said Colby Graves, CEO of the Ernie Graves Company. “I recommended the SITRANS FUT1010 because of its unique combination of flow measurement accuracy and capability for multi-product identification, which makes it an extremely cost-efficient solution. The customer is now reaping the benefits.”

About the SITRANS FUT1010

The SITRANS FUT1010 ultrasonic flowmeter was developed specifically for measurement of liquid and gas applications within the hydrocarbon industry, including pipeline, terminal, refinery and transportation applications. It features patented WideBeam ultrasonic transit time technology for high-precision performance.

The newly developed TransLoc mounting system means that the transducers are permanently mounted on the outside of the sensor, providing custody transfer accuracy (±0.15%), no cavities or clogging by the high-paraffin liquids found in many hydrocarbon installations, and measurement of viscosities up to 2800 cSt. The SITRANS FUT1010 is available in dual-, three- and four-channel configurations and with two enclosures: wall mount and wall-mount explosionproof.

To demonstrate the accuracy and repeatability of the SITRANS FUT1010, the liquid version was recently subjected to extensive tests at an accredited third-party test facility. The excellent results prove that the meter is a perfect match and a wise investment for the hydrocarbon industry.

Typical liquid applications include:

- Pipelines: Allocation, line balance, interface detection, density/densitometer reading
- Terminals: Check metering, transmix metering, product identification
- Refineries: Process control, blending, tank measurement, ship loading and unloading
- Transportation: Crude oil, LPG, refined product

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