

University chooses Siemens flowmeters for steam/energy allocation

Process instrumentation and control systems

Situation

A large university in the Southwest USA needs to measure the distribution and consumption of steam for their energy monitoring and control system. This system is used to allocate the steam/energy usage for all the buildings in and around the campus.

In order to get an accurate measurement of steam mass flow, the pressure and temperature of the fluid must be factored into the measurement. Variations can affect the flow and energy measurements dramatically. The Siemens Vortex sensor easily handles the task of measuring flow, temperature and pressure variables to provide an accurate flow rate.

The customer monitors each of the buildings for their steam usage, so that allocations of energy can be adjusted to a building's need on any given day. The flow use data is shown on the Campus Metabolism program located on their internet site. It can be accessed from anywhere to view each of the campus building's consumption and modify energy usage parameters as needed.

Challenge

Previously, the customer was using a Pitot tube system that measures flow with separate differential pressure measurements to calculate the steam flow. The customer found that type of measurement to be more maintenance intensive and not as accurate as they desired because it did not correct for the steam density changes. This type of

system did not have the turndown ratio required to capture accurate flow rates from low to high demand periods.

Solution

The customer chose the SITRANS FX300 Vortex Shedding flowmeter with pressure and temperature compensation built in to measure the steam usage in each building. The university had already been successfully using Siemens ultrasonic clamp-on flowmeters in other applications and they were pleased that Siemens was able to provide a solution that better met their needs for the steam flow measurement.

The Siemens Vortex meter with HART protocol was able to deliver the accuracy and performance required and provided a maintenance-free design that perfectly met their needs. The customer uses the HART protocol on all their monitoring instruments to view and adjust parameters as needed.



Siemens Vortex transmitter family

Benefits

- Maintenance free: A fully welded sensor design with no internal gaskets means no liquid or steam leaks.
- Cost savings: Multivariable measurements in one device means no additional equipment, installation, or wiring costs.
- Reduces downtime: Optional isolation valve makes exchange of the pressure sensor possible without interruption the process.
- Time savings: Plug and play installations quick and easy.
- Greater measurement security: Dual transmitter version allows for system redundancy, or can be used for two separate measurements on dual-use lines.

About the Siemens Vortex Flowmeter The SITRANS FX300 Vortex flowmeter provides an accurate standard volumetric and mass flow measurement of steam, gases and liquids as an all-in-one solution with the addition of integrated temperature and pressure compensation.

The Vortex flowmeter product family offers two types of flowmeters – flange and sandwich – covering all possible applications, making Siemens unique. The flange version Siemens Industry, Inc.



Sitrans FX330 transmitter close-up

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