

Case Study

M24 Pro-V[®] Vortex Flow Meter with Power Over Ethernet Capabilities Provides Cost Savings for a Major University



Challenge

A major university was seeking to accurately allocate steam usage while simultaneously reducing its heating system operating and maintenance costs.

The Facilities Department of this university provides steam to all buildings on campus for heating purposes. As with all district energy systems, energy efficiency is always a top priority. Allocation of steam usage is crucial in understanding usage throughout the distribution system. Knowing the steam usage of individual buildings can aid in identifying problem areas and wasted energy within the system. As such, steam flow meters are needed at the entrance to every building within the distribution system.

RESULTS

Reduced operating & maintenance costs

Accurate allocation of steam usage across entire system

Reduced flowmeter installation costs

Increased energy efficiencies

Insertion-style turbine flow meters were the flow metering technology chosen for the original installation. These flow meters were not integrated into a control system. Instead, a technician would read the monthly totals locally at the meter and record the data in a log. This practice was time-consuming and labor-intensive. Also, these turbine-style flow meters would occasionally incur damage to their rotors, requiring replacement. With a small staff, replacing rotors throughout the steam system became overwhelming.



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So, the challenge for the Facilities Department was properly allocating steam usage across the distribution system while simultaneously reducing installation, operating, and maintenance costs of flow metering equipment. Reaching these goals would require replacing the existing insertion-style turbine flow meters with a more durable and modern steam flow metering solution.



Power Over Ethernet

Since these flow meters were not integrated into a control system, replacing them with networked flow meters would require additional wiring for communications. As this facility had begun modernizing instrumentation, they decided to standardize on a single communications protocol for new instrumentation, Modbus® TCP/IP. Modbus TCP/IP utilizes Ethernet as its physical layer.

Solution

After careful consideration, this facility selected VorTek Instruments' M24 Vortex Flow Meter. The M24 is the world's first vortex flow meter to provide Power over Ethernet (PoE) capabilities.

Since Modbus TCP/IP is their communications standard for instrumentation, choosing a flow meter with Power over Ethernet capabilities allows for power and communications through a single ethernet cable. Both simplifying meter installation and reducing installation costs.

Vortex flow meters also have no moving parts and no fluid-to-sensor contact, providing a much more reliable and lower-maintenance alternative to insertion turbine flow meters.

The M24 also offers an integrated secure web server. This web server allows facilities personnel to access the meter from the comfort of their office remotely. The user can view live measurements, configure meter parameters, view logged data from the meter's SD Card, and even troubleshoot issues with the meter. In this extensive and sprawling steam distribution system, this remote meter access allows personnel to make better use of their time, reducing the need to make trips into the field.

The M24 provided cost savings across the board on this project. Installation cost savings by using a single ethernet cable for power and communications. Also, operating and maintenance cost savings primarily by eliminating unnecessary trips into the field. Steam flow measurements are no longer taken locally at the meter, turbines no longer have to be replaced, and most meter functions can be conducted remotely using the secure web server.



For more information visit

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