



Innovative New Air / Gas Thermal Flow Meter Changes the Rules

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FCI ST100 Series Flow Meter

Upgrading a plant's gas flow meters can improve process efficiency, reduce energy costs and save on maintenance expenses in both equipment and labor, as well as improve reporting accuracy to local regulatory agencies. However, expanding or replacing a facility's gas flow meters can represent a significant investment.

The decisions and ROI calculations get even more complex when plant staff and their engineering partners are constrained by or must factor in obsolescence should the plant want to consider upgrading their process systems' communication method. Clearly being able to upgrade or change out the output from an existing instrument is the preferred and lowest cost solution to this situation. Randy Brown, marketing manager for FCI, says his company's newest line of thermal mass flow meters is designed to do just that.

FCI's new ST100 Series air/gas flow meters not only have the most comprehensive selection of outputs, but all are field changeable by the user. An ST100 flow meter with traditional 4-20mA/HART outputs today can be migrated to a ST100 with Profibus or Foundation Fieldbus bus communication any time in the future. FCI's ST100 Series design team listened to instrument, process, and plant engineers to better understand their problems and needs. A common theme was for a flexible design that could adapt to alternative communications

technologies that might be deployed in the future. Brown said the ST100 meets that demand and more.

While all thermal flow meters provide at least a single 4-20mA analog output only a few, including FCI, provide any two-way bus communications and none with interchangeability. FCI's ST100 Series has multiple analog and bus communications outputs for the user to choose from. More importantly, said Brown, all these output are changeable – a unique feature that lets the user adapt the flow meter to present and future needs. If a plant's process control communications strategy ever changes, the user can switch the ST100 outputs to adapt to it.

The ST100 output choices include triple 4-20 mA outputs, relays, HART, FOUNDATION™ fieldbus, PROFIBUS and Modbus. A USB serial port and an Ethernet port, with a pre-assigned IP address are included. FCI's goal for the design is for it to never be obsolete.

Brown said, "Most of the time, instrumentation outputs are fixed. What you buy today is what you're stuck with tomorrow. With FCI's ST100 flow meters the instrument is very adaptable to where a user might go in the future. We're trying to eliminate the user's concerns and issues with obsolescence. If there is a change in the process communication protocol deployed, a user can simply and easily convert instead of replace."

While the ST100's outputs capabilities and flexibility is perhaps its most unique feature, the device also includes several features designed to get more information to engineers in the field. The meter's display is a comprehensive graphical, backlit LCD that continually displays all process measurements, alarm statuses and includes a unique user writeable field which can be used to display the process name, gas type, tag number or whatever is meaningful to the plant.

Furthermore, the on-board optical touch keys are activated through the glass so users never need to remove the unit from the process or decommission the area when installed in a hazardous gas application to change settings or interrogate the instrument. The meter also includes an on-board data logger feature that can store up to 21 million readings on a removable microSD memory card (the same type used in digital cameras).

The comprehensive ST100 measures gas mass flow rate, total flow, and temperature, and a new, unique version also includes pressure measurement. "The STP models are the only 'triple variable' (flow, temperature and pressure) thermal flow meter in the world," Brown said.

In many installations engineers want to know all three of these variables in a single pipe run, but this can mean up to three discrete sensors along with the additional cost of three

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additional process penetration points, power lines and wire runs, three bus nodes, etc. "With a single instrument requiring a single penetration point for all three measurement parameters, a user can realize significant cost savings in sensor and installation when compared to three discrete sensors," Brown said.

The ST100 can store up to five different gas calibrations. "For example in WWTP digester gas applications, this can be a highly valuable feature to ensure calibrations matched with seasonal changes that can occur in the digester gas composition," Brown said.

Brown said that several ST100's have been in field trials in different industries and applications for more than six months. Two of the trial sites are with wastewater treatment plants in aeration basins and another with a water plant in an ozone disinfection application. All have been operating flawlessly. In fact, one of the units has been operating for more than a year at a WWTP facility located in the Southwest desert while continuously exposed to direct sunlight throughout the summer and to snow and rain in the winter.

"Thermal mass gas flow meters are widely deployed in water and wastewater treatment plant applications such as aeration, digester and disinfection gas injection," Brown said and continued, "The new ST100 Series from FCI is the most comprehensive, highest performance and future-ready thermal flow meter solution available in the world." FCI's new ST100 Series has changed the rules. ■



FCI ST100 Series Flow Meter at WWTP trial site