FLUID COMPONENTS INTERNATIONAL LLC

Multipoint Thermal Mass Flow Meters Improve Boiler Air Preheater (APH) System Efficiency

Ideal for Cost-Effective Steam Turbine Driven Electric Power Generation

San Marcos, CA — Engineers who need to optimize boiler efficiency for electric power generation will find the MT100 and ST102A multipoint thermal mass flow meters from Fluid Components International (FCI) help them accurately measure recycled hot air from stack gases in order to reduce the consumption and cost of fuel.

Industrial boilers are widely used in electric power generation systems to provide the steam that drives large electricity generating turbines. All large industrial boilers are fired by carbon fuel sources such as natural gas, waste gases (co-gen) or coal, which are expensive and result in waste gases that must be treated to prevent air pollution and minimize global warming.

Air preheater (APH) systems recover the lost heat from a boiler's stack gas in order to enhance the boiler's efficiency. The heated air from stack gases optimizes the boiler's combustion rate or thermal efficiency, which in turn lowers fuel consumption. Such systems all have one thing in common: They also depend on precise air flow measurement provided by flow meters operating under very high temperature conditions in dirty, hazardous environments.

FCI's MT100 and ST102A multipoint air/gas flow meters combine state-of-art electronics technology with application-proven precision air flow sensors in a rugged industrial package designed for the most demanding hazardous plant and building operating environments. They provide precision, temperature-compensated direct mass flow measurement of air for highly reliable, repeatable control with low maintenance requirements.

All MT100 and ST102A flow meters have been independently tested and verified to comply with IEC safety directives for EMC and LVD, and carry the CE Marking. Optionally available for processes with hazardous, potentially explosive gases and/or dust, they can be ordered with FM/FMc, ATEX or IECEx and other HazEx agency approvals for Division II/Zone 2, or Division 1/Zone 1.

FCI's MT100 Series flow meters are available with two to eight air flow rate sensing points to ensure compatibility with large diameter piping and large ducts. These multiple sensors are inserted at various depths within the duct or pipe and their outputs are multiplexed and averaged to accurately measure the flow rate. These multiple sensors can be installed either across a mast or as discrete, single sensors inserted at multiple points around a large duct or round pipe in a single plane.

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The ST102A flow meter is available with two multiplexed thermal sensors. It features FCI's innovative Adaptive-Sensor Technology (AST) thermal mass flow sensor drive technology. This breakthrough technology provides a number of benefits, including: fast response, extended flow rates, lower energy cost and extended flow element reliability. "AST" mode provides fast-response for applications requiring fast-response to ensure optimum control.

In cold or hot ambient weather conditions, or if the intake air could be dusty or dirty, the MT100 and ST102A flow meters excel because they are temperature-compensated and there are no orifices or glass windows to foul, fog-up or clog. They are virtually maintenance free operating over a long life span for an exceptionally low operating and lifecycle cost.

The MT100 and ST102A flow meters can measure flow rates over a wide range from 0.25 SFPS to 1000 SFPS [0,07 NMPS to 305 NMPS] with wide turndowns up to 100:1 depending on the model chosen. They are also dual-function – also providing air temperature measurement capability from -50 °F to 850 °F [-45 °C to 454 °C]. Both instruments can be calibrated to match the users' actual installation's air temperature in FCI's own NIST qualified Calibration Laboratory.

The state-of-art transmitters for the MT100 and ST102A flow meters are both full-featured and rugged. They come with an extensive choice of output options to interface with popular control systems. Dual, isolated, high resolution 4-20 mA outputs, HART (Fieldcomm Group™ certified), Modbus and a USB port are all included, standard. They are also optionally available are FOUNDATION Fieldbus or PROFIBUS-PA bus communications.

Their large color touch-screen LCD readout provides process information to users with both analog and digital displays of flow rate, temperature and totalized flow and sensor status diagnostics. The transmitter's stainless steel enclosure carries a rugged NEMA 4X/IP64 rating.

Fluid Components International is a global company committed to meeting the needs of its customers through innovative solutions to the most challenging requirements for sensing, measuring and controlling flow and level of air, gases and liquids.

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