

Optimizing Ozone Disinfection for Water Processes With Thermal Flow Meter Reduces Maintenance Costs

Chlorine-Free Disinfection With Virtually No Flow Meter Maintenance

San Marcos, CA — Water engineers and plant managers will find the rugged [ST80 thermal flow meter series](#) from [Fluid Components International \(FCI\)](#) provides precision air/gas measurement that helps them optimize their ozone (O_3) disinfection process to avoid the use of harsh chlorine (Cl_2) chemicals while at the same time reducing their busy technician's meter maintenance requirements to almost zero.

FCI's ST80 air/gas flow meter series, which is available in either insertion or in-line configurations, is well suited for air or gas line flow measurements in various water treatment plant applications. The insertion style meter, for example, operates over a wide flow range of 0.25 SFPS to 1000 SFPS [0,07 NMPS to 305 NMPS]. The ST80 Series is factory calibrated and can provide a flow turndown range of 2:1 to 100:1; surpassing the capabilities of other flow meter technologies in variable demand flow processes.

Ozone is an unstable molecule that can easily be converted to oxygen (O_2). As an oxidizer, it becomes a strong disinfectant that can be applied for water treatment that kills dangerous organisms within raw water supplies to make the water safe for human consumption. There are several different types of ozone water treatment systems. Each type of treatment system has its particular benefits and short-comings.

All ozone systems, however, provide excellent disinfection and eliminate some of the chemical by-product problems caused by water chlorination. They also produce no odors or after-taste, which makes the finished water more palatable. In addition, the efficiency and operational cost of O_3 disinfection systems have one more thing in common: They are highly dependent on accurate, dependable air/gas flow measurement in harsh conditions for efficient operation.

With its built-in temperature compensation, the ST80 flow meter offers highly repeatable performance under various process environments. It features accuracy up to $\pm 1\%$ of reading with $\pm 0.5\%$ repeatability over variable process temperatures and pressures in line sizes from 2 inches [6 mm] and up.

The ST80 flow meter's thermal dispersion flow sensor design is elegant in that it does not utilize any moving parts by employing solid-state platinum RTD sensors that are precision matched and embedded in equal mass thermowells. The sensor's design requires virtually no cleaning and is less prone to fouling than other flow measurement technologies when there is a concern about particulate laden gas streams.



The durable and highly reliable ST80 flow meter is optionally available with remote mounting capabilities where space is at a premium or the measurement point is not easily accessed. The remote mount transmitter, which has an option for local indication of flow, temperature and totalized flow, can be mounted up to 1000 feet [300 meters] away from the flow sensor in the process piping.

The ST80 flow meter series features scalable dual 4-20 mA outputs are standard. They are user assignable to flow rate or temperature. Outputs are user programmable to full flow range or subsets of full flow range. They are also isolated and have fault indication per NAMUR NE43 guidelines, and they user selectable for high (>21.0 mA) or low (<3.6 mA). Standard digital outputs available include: HART (v7 compliant), Modbus RS-485 and USB Serial I/O. Optional: digital outputs that can added are FOUNDATION Fieldbus H1, PROFIBUS-PA, or PROFIBUS-DP

Offering mass flow measurement for higher performance at an economical price with proven thermal dispersion technology, the ST80 Series flow meters eliminate the need for additional pressure and temperature sensors, flow computers, or other devices that are required with orifice plates, Venturis, Vortex shedding, and other volumetric meters. The ST80 flow meter also requires virtually no maintenance for both a low installed and low life-cycle cost.

The highly reliable ST80 Series flow meter also carries numerous agency approvals and certifications, including: ATEX, CE, CPA, CRN, FMc, FM, EAC/TR CU, EQM/ECAS, IECEX, NEPSI, SIL (IEC 61508), UKCA (UKEX).

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