

Burner Control for Manufacturing

Industrial Mass Flow Control of Fuel-to-Air Ratio

Industrial mass flow control is a crucial part of burner and combustion control in manufacturing applications. Precise mass flow control of the fuel-to-air ratio to the burner keeps melt temperatures constant which produces quality products for the manufacturing industry including glass, metals, and ceramics manufacturing. To create the optimal flame temperature, one mass flow controller is used to control the gas feed and another mass flow controller controls the exact combustion air supply required (See Figure 1).

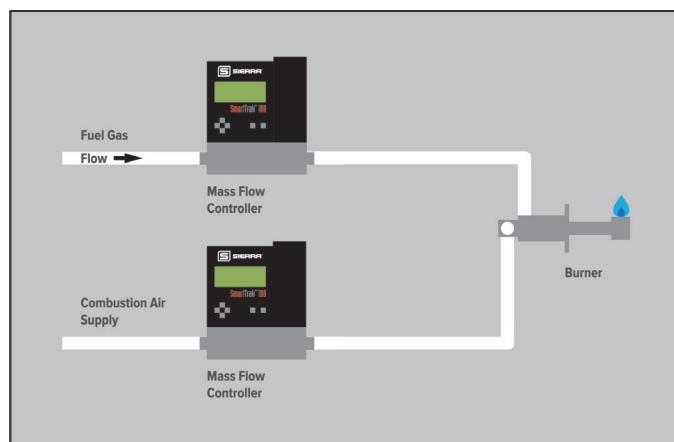


Figure 1: Burner Control Application

If there is not enough natural gas, the flame will not melt the glass resulting in a defective product. Without mass flow controllers, manual control of the air and natural gas flow to the burners results in unacceptable levels of rejected materials, as well as excessive gas consumption.

To automate the burner control process, Sierra's SmartTrak® 100 (See Figure 2) offers the perfect solution with over 100,000 MFCs installed over the last 20 years. SmartTrak mass flow controllers use thermal technology for direct mass flow control of the fuel-to-air ratio to the burner.

Only through thermal mass flow technology, not volumetric, the SmartTrak flow controller counts and controls every gas molecule flowing through the instrument to achieve unmatched precision. The SmartTrak 100 MFC delivers smooth, stable, accurate, and repeatable gas mass flow control you can rely on, every time. Unaffected by upstream gas temperature and pressure fluctuations, gas mass flow control is direct and unequivocal. Only with this type of precision control, can manufacturers control the exact fuel-to-air ratio for combustion which results in superior product quality, increased efficiency, and ultimately more profit to the bottom line. **Learn More at www.sierrainstruments.com/library/videos/capillary-thermal-mass-flow-meter-technology**

The SmartTrak is CE approved, available in any flow range you specify from low flows (0 to 0.1 sccm) to high flows (to 1000 slpm) including a small footprint at 50 slpm (ideal for OEMs) and full suite of digital communication for easy process integration. SmartTrak also offers a wide operating range for temperature and pressure with high pressure options (up to 5000 psig) and low pressure drop (4.5 psid). Specifically designed for industrial mass flow control combustion applications, the MaxTrak 180, is available with 316 stainless-steel flanges for the heaviest industrial environments with industrial waterproof NEMA 6 and IP67 enclosures.

Learn More at www.sierrainstruments.com/scientific-industrial

Glass manufacturing process engineers, for example, are always seeking methods to improve glass quality, reduce raw material waste, and increase production capacity. They require a constant burner temperature at all times to produce the perfect quality glass. If too much natural gas is fed into the burner, the flame will be too hot and the glass will melt.



Figure 2: SmartTrak® 100 Digital Mass Flow Controller

- Direct mass flow +/- 0.5% full scale accuracy
- Mass flow rates up to 1000 slpm and down to 0 to 0.1 sccm
- Pressure to 5000 psig (345 barg) with low pressure drop (4.5 psid)
- Small footprint at 50 slpm ideal for OEMs
- Industrial mass flow controller option with 316 stainless-steel flanges and waterproof NEMA 6 and IP67 enclosures
- True multi-gas
- View and change every aspect of the instrument with user-friendly push button display or remote Pilot Module
- Plug in Compod™ to make MFC a mini PLC with Modbus RTU
- Profibus DP and Foundation Fieldbus digital communications
- 10-point NIST calibration on primary standards or "Do-it-Yourself" calibration program
- Fast one-day delivery online