

# Thermal oxidizer gas flow monitoring



Photo courtesy of Glenro, Inc.

## Pharmaceutical Case Study 104-1

### Application

Pharmaceutical, chemical, refining, semiconductor, remediation and other industries that are required to control volatile organic compound (VOC) emissions and hazardous air pollutants (HAP) rely heavily on Thermal Oxidizer systems. These systems destroy objectionable solid, liquid or vapor hydrocarbons contained in industrial waste streams. Thermal Oxidizers are designed to use heat energy to convert these hydrocarbon contaminants to carbon dioxide and water vapor, and also convert contaminated metals to their oxide form under controlled conditions. Many waste materials are rich in hydrocarbons and require additional air injection into the oxidizer.

### Challenge

Thermal Oxidizer systems must be designed to maximize fuel efficiency while maintaining maximum thermal oxidation performance by properly measuring and controlling fuel flow to the burners, and air injection to prevent overheating and thermal damage or explosions.

In order to ensure accurate, reliable measurement and control of air and natural gas flow of the Thermal Oxidizer, the use of flow meters to accurately and effectively measure the wide range parameters are involved.

### Project parameters

Users	Pharmaceutical, chemical plants and refineries
Location	Various locations
Media	Air and natural gas
Pressure Range	Various pressures
Temperature Range	Various temperatures

### Solution

FCI's ST98 FlexMASter® thermal mass flow meters are typically selected as the ideal solution for these applications. The FCI ST98 FlexMASter eliminates pressure drop typically experienced by orifice plates. It also features wide flow ranges (100:1) and exceptional low flow sensitivity. Installation of FCI's ST98 FlexMASter ensures extremely accurate and

repeatable flow measurement with control that affords maximum fuel efficiency and emissions reduction.

FCI's thermal mass flow meters are calibrated in our world-class calibration facility that use the actual air/gas composition, pressure and temperature of the application installation to insure optimum instrument accuracy and repeatability. FCI flow meters measure "true" mass flow using a single instrument thereby eliminating the additional need and cost for pressure and temperature instrumentation.

### FCI flow meter specifications

Model	ST98 FlexMASter®
Media	Air and natural gas
Flow Range	0.75 to 600 SFPS [0.21 to 172 NMPS]
Pressure Range	0 to 250 psig [0 to 17 bar(g)]
Temperature Range	-40° to +500°F [-40° to +260°C]

### Your FCI local representative:



Web: [www.fluidcomponents.com](http://www.fluidcomponents.com) | Email: [info@fluidcomponents.com](mailto:info@fluidcomponents.com)

1755 La Costa Meadows Drive, San Marcos, California 92069 USA | Phone: 760-744-6950 | Toll free: 800-854-1993 | Fax: 760-736-6250

European Office: Persephonestraat 3-01 5047 TT Tilburg, The Netherlands | Phone: 31-13-5159989 | Fax: 31-13-5799036

FCI is ISO 9001 certified/conformance to AS9000