

# FOX APPLICATION GUIDE

## Direct Mass Measurement of Flare and Combustor Gas Flow Rates

### TYPICAL APPLICATIONS INCLUDE:

- Onshore Oil & Gas Well Drilling Operations
- Offshore Oil & Gas Operations
- Oil Refineries
- Chemical/Petrochemical Processing Plants
- Gas Distribution Infrastructure
- Landfills

### Flare and Combustor Gas: Emission Concerns

Flares and combustors are used for the same end purpose: the burning of combustible gas from a system. The first flare gas concern is its use as a precaution to keep system pressure at safe levels. The other common flare gas concern is to reduce the release of harmful greenhouse gases (GHGs) - like methane and other hydrocarbons found in oil & gas drilling applications - into the atmosphere.

The flaring of gases is subject to stringent regulations, requiring operators to measure, record and report the amount of flared gases.

### Flares vs Combustors

Flares are open flames that can light up the night sky when in use, whereas combustors enclose the flame leading to fewer public complaints. The enclosed flame of a combustor generally has a lower noise level and a lower profile. Flares use tall stack structures and have a higher noise level during operation.

### Accurate Measurement of Flaring Operations

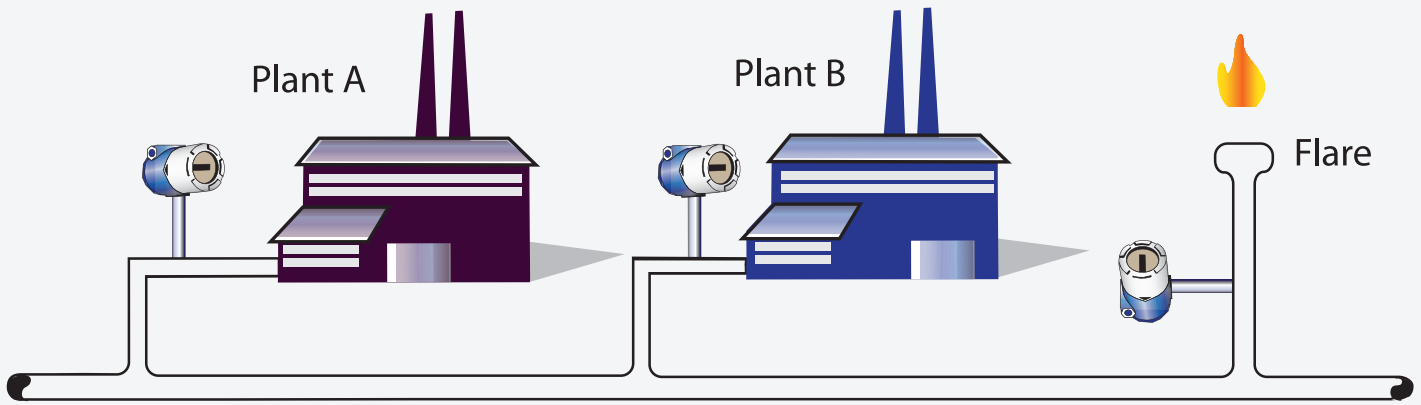
Flare stacks and combustors are used to burn waste gases from the plant or process, converting chemical and organic hydrocarbons into primarily water vapor and CO<sub>2</sub>. Some processes also use relief valves to vent flammable gases to the flare stack during upset conditions.

Due to the potential for large changes in flow rates, density, pressure and gas composition, flare gas measurement is one of the most difficult and demanding flow applications. Fox Thermal flow meters have demonstrated their ability to measure the low-flow rates typical of normal flare conditions, and also the high velocities found in upset conditions.

Fluid composition and installation anomalies can also affect



A flare burning hydrocarbons and lighting the night sky.



Sub-metering flare gas from multiple facilities to track emissions to report for regulatory compliance.

flow meter performance. Fox Thermal's calibration lab employs a wide range of gases, gas mixtures, temperatures, pressures and line sizes to simulate actual fluid and process conditions. This real-world approach improves installed accuracy and minimizes measurement uncertainty.

## Fox Flow Meter Advantages in Emissions Monitoring Applications

- Exceptional low-flow sensitivity for accurate measurement over a wide range of flaring operations
- Stainless steel sensor is suitable for corrosive, particulate-laden gas streams
- No temperature and pressure compensation required
- Direct mass flow measurement
- Built-in alarms, totalizers and a wide variety of communications protocols available for easy interfacing with emissions management systems



The robust features and approvals of the Fox model FT4A commonly used in Oil & Gas applications.



399 Reservation Road | Marina, CA 93933  
 Office: 831.384.4300 | Fax: 831.384.4312  
[foxthermal.com](http://foxthermal.com)