



## Flare Gas Measurement

Flare systems are designed to burn large quantities of gas resulting from inventory movements or disposal of combustible gases during upset or emergency conditions. There are times that they are used to remove smaller volumes of waste gas that are not financially feasible to reclaim as a fuel source. Most of the flow rates in these flare gas applications are low flow with occasional high erratic increases during upset conditions.

Burning off waste gases through a flare system is quite common in hydrocarbon industries like Oil & Gas, Petro-Chemical, refining, landfills, and environmental waste treatment sites. To make sure that these venting systems are operating according to the mandated guidelines for emissions set forth by the Environmental Protection Agency (EPA), Operators are required to monitor and measure these vented gaseous emissions.

The measurement of this gas is not straight forward and typically presents problems for flow measurement technologies. Some challenges encountered in these flow measurement applications are wide flow ranges, varying gas compositions, changing temperatures and pressures, and remote locations. Conventional differential flow measurements cannot be used because of the flow restrictions they cause in a safety venting system and the large flow measurement ranges that are required.

Thermal Instrument Company has been successful in working with Operators to successfully measure flare gas utilizing our Model # 62-9 Insertion Probe with integral Model # 9500P electronics.



One Upstream Producer has successfully deployed over 100 measuring systems over a 400 square mile region in the Eagle Ford Shale Region in South Texas. Our flow meters are installed in the flare gas line downstream of the knockout drum. The output from the Thermal Instrument insertion meter is used to control combustion air variable speed fans for optimum (non-smoking) combustion of waste gases.

It is common for the gas compositions to change as pressures change and even from one well head site to another. Thermal Instrument and the client worked together to gather information from various gas composition reports and incorporated that data into the calibration process so that an accurate representation of the emitted gas could be measured.



Thermal Instrument Company, with 60 years of mass flow technology experience has proven to be a provider of accurate and reliable flow measurement instrumentation helping these sites provide the data for maintaining compliance for emissions reporting.

Some advantages to working with Thermal Instrument mass flow meters are:

- Calibrated to the specific gas composition right out of the box
- Wide turndown to accurately measure the entire flow range
- Quick response times to changing flow rates
- Temperature compensated to respond to changing gas conditions
- Negligible pressure drop
- No moving parts
- Easy installation
- Single piece design for easy extraction for cleaning or maintenance
- Ability to be paired with Solar / battery power for remote installation
- Responsive support team at the factory

Contact us today for more information on how our flow measurement instruments can help you manage your flare gas operation.



**Thermal Instrument Co.**

217 Sterner Mill Road, Trevose, PA 19053

T:215-355-8400 F: 215-355-1789

[www.thermalinstrument.com](http://www.thermalinstrument.com)

[info@thermalinstrument.com](mailto:info@thermalinstrument.com)