Non-Invasive Ultrasonic Flare Gas Flow Measurement

Accurate - Reliable - Versatile

Flare and Vent Gas
Mass Balance
Gas Waste Streams

FLEXIM
when measuring matters
The non-invasive ultrasonic transit-time flow measurement technology employed by FLUXUS®, is the ideal metering solution for flare gas applications. As the transducers are mounted onto the outside of the pipe wall, there are no moving parts and thus no interference with the flow in any way. Further, the system is virtually maintenance-free, thus significantly reducing costs and increasing the lifetime of the meter.

One of the challenges of measuring flare gas is the ability to measure extremely low flows in purging situations as well as high flow velocities during flaring events. FLUXUS® achieves an unrivalled accuracy and reliability at such variable conditions by emitting and receiving over 1,000 measurement signals per second and employing a standard setting digital signal processing algorithm. By use of an additional internal temperature compensation within the ultrasonic transducer according to ANSI/ASME standards, measurement drift is completely ruled out.

FLUXUS® is a superior solution in comparison to insertion meter and also inline ultrasonic meter solutions as the transducers do not intrude into the pipe itself. Installation of the measurement system can be done with minimal process interference by inserting the pre-fabricated spool piece.

Why do this with a Polypropylene Spool? Though our meters are capable of measuring gas on steel pipes down to a minimum pressure of 3 bar - which no other clamp-on meter on the market achieves, it is possible to measure even at ambient pressure when using a polypropylene pipe!

**FLUXUS® is already the flare gas meter of choice by major Oil & Gas producers - contact us for references!**
Due to their harmful effect on the atmosphere, regulating agencies require flow measurement for reporting fared and wasted greenhouse gases. Waste gasses can contain moisture and residual solids. Meters that are intrusive like ultrasonic and thermal can get fouled and become maintenance prone. The accuracy of thermal meters can be severely affected by coatings, moisture, and the gas composition. The non-invasive nature of FLEXIM’s clamp-on meter makes it immune to these effects.

Another very important aspect of flare metering is turndown range. The FLUXUS® ultrasonic flare gas meter is truly non-invasive and offers a virtually unlimited turndown ratio – measuring from the lowest flow rates down to 0.01 m/sec and up to 35 m/sec with an unrivalled degree of accuracy and reliability.

Flare and Waste Gas Monitoring
Flare stack and feed lines are common in Oil & Gas production environments as well as at Chemical and Petrochemical plants. The flared or wasted gases can range from various natural gas compositions – including sour gas - to inorganic gases such as nitrogen oxides (NOx), highly reactive volatile organic compounds (HRVOC) and other greenhouse gases. FLUXUS® measures accurately and highly reliably over a huge turndown ratio at temperatures up to 93 °C and internal pressurisation up to 10 bar.

Pressure Relief Valve Flow Measurement
Installed downstream of relief valves feeding into the main flare header, FLUXUS® is the ideal solution to accurately and reliably indicate flow of flare gas and monitor “blowdown” events as well as potential leaks.
FLUXUS® Flare Gas Meter
Non-invasive Ultrasonic Transit Time Measurement Principle

Quantities of measurement:
Standard and actual volume flow, mass flow, totalized standard volume flow, totalized mass flow, flow velocity

Flow Velocity:
0.01 m/s to 35 m/s

Accuracy:
±1 ... 3% ±0.01 m/s (depending on application)
±0.5% ±0.01 m/s (field calibrated)

Repeatability:
0.15% ±0.01 m/s

Pipe Sizes:
1 inch to 10 inch

Pipe Material:
Polypropylene resin (Proline)
Clamp-on System: Stainless Steel

Temperature range:
up to 24 °C at 10 bar, up to 93 °C at 0.7 bar

Pressure range:
up to 10 bar

Certification:
ATEX / IECEx Zone 2 (Transducers Zone 1)
cFM Class I Div. 2 (Transducers: Class I, Div. 1)

Input types:
Maximum of 4, Available are: temperature (Pt 100, Pt 1000), current, voltage

Output types:
A variety of combinations are available from the following: current (0/4 mA to 20 mA/A), voltage, frequency, pulse, alarm

Communication:
HART or Foundation Fieldbus or Modbus RTU or RS485 or BACnet MS/TP

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SGR11 - Proline Pre 150 Spool Piece

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<th>Nominal Pipe Size</th>
<th>OD (inch)</th>
<th>WT (inch)</th>
<th>Length (inch)</th>
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