

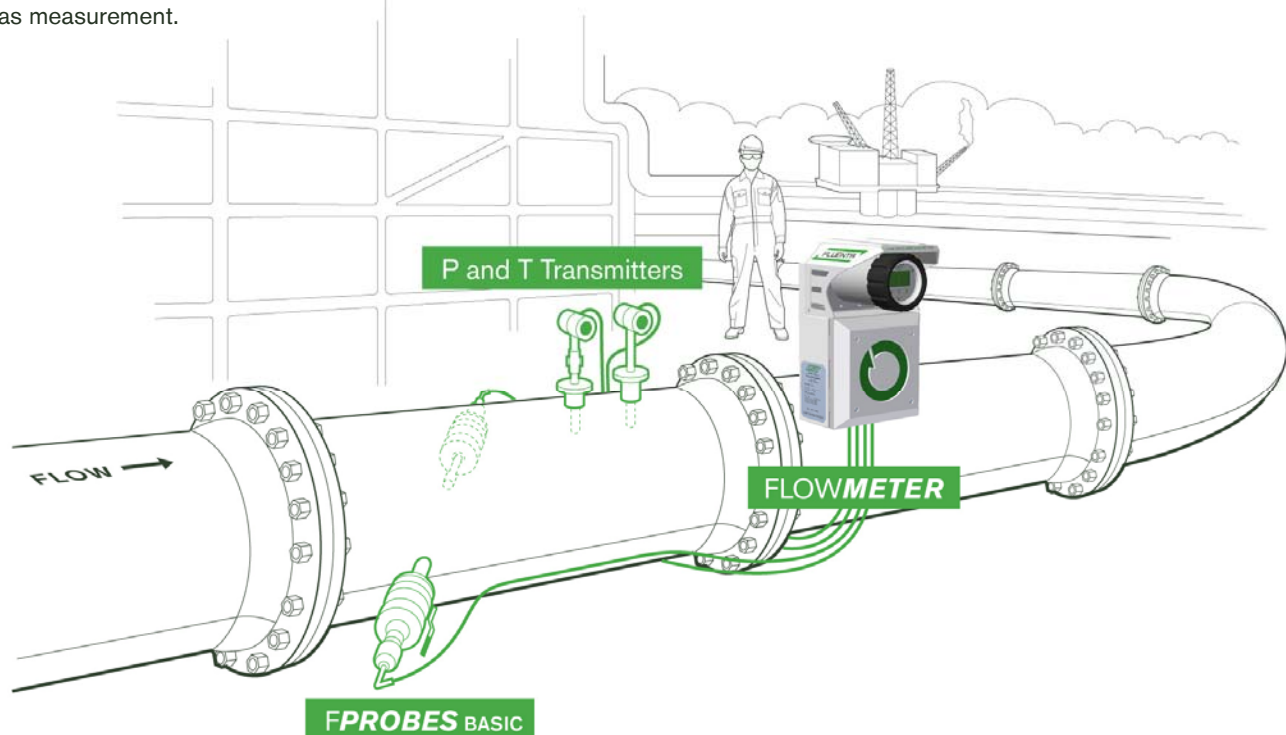
FGM-160 FLOWMETER

ULTRASONIC FLARE GAS METER

Fluenta's FGM-160 is the most robust ultrasonic flare gas meter on the market. Coupled with Fluenta's years of experience and detailed application knowledge, the FGM-160 is the meter of choice for the world's most demanding emissions requirements. Fluenta's team is recognized by agencies and operators for delivering world-class technology and innovative solutions to flare gas measurement.

APPLICATIONS

- Leak detection
- Acid gas
- Mass balance
- Process optimization
- Gas waste streams
- Wide velocity range and low pressure applications
- TCEQ / AQMD / EPA / BOEMRE compliant



FEATURES

- High accuracy – only one set of probes
- Velocities up to 394 ft/s (120 m/s)
- 4000 to 1 turndown ratio
- Measures velocity, mass and volume flow rates, density and molecular weight
- Wetted non-intrusive sensors – no pressure drop
- No maintenance – no moving parts
- Certified for operations in hazardous areas
- No calibration required during/after installation
- Rapid installation
- Enhanced Density Modeling for nitrogen subtraction

HIGH ACCURACY

One of the challenges in measuring flare gas is the ability to measure extreme low flows in purging situations as well as high velocity flows during flaring events. Fluenta accomplishes this by using multiple frequencies on one pair of probes to maintain accuracy throughout the full range.

WETTED NON-INTRUSIVE FOR ALL PIPE DIAMETERS

With the unique design of non-intrusive sensors for all pipe diameters, the Fluenta FGM-160 does not obstruct gas flow and sensors are not exposed to particles from the flow. This prevents damage to the probes due to high velocities, reducing maintenance costs and increasing the lifetime of your investment.

INSTALLATION

Fluenta uses custom designed jigs for fast, economical and accurate mounting of the transducer holders. The meter can either be delivered as a hot/cold tap version or with a prefabricated spool piece.

Fluenta requires only 10 diameters upstream (10D) and 5 diameters downstream (5D) of straight pipe run for the installation of the meter.

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ULTRASONIC FLARE GAS METER SPECIFICATIONS

FGM 160 TECHNICAL SPECIFICATIONS

VARIABLES	STANDARD	OPTIONAL
General Specification		
Transducer Type	Ultrasonic / Time-of-flight / Wetted non-intrusive	
Transducer Material	Titanium / SS316	Titanium / Inconel Titanium / Hastelloy Titanium / 6Mo Titanium / Duplex
Transducer Cable Length	up to 164 ft (50 m)	
Functional Characteristics		
Velocity Range	0.1 ft/s - 394 ft/s (0.03 m/s - 120 m/s)	
Accuracy	+/- 2.5% to 5%	+/- 1% to 2%
Turn Down Ratio	4000:1	
Repeatability	Better than 1%	
Resolution	0.003 ft/s (0.0008 m/s)	
Measurement Parameters	Standard and actual volume flow, mass flow, totalized standard volume flow, totalized mass flow, molecular weight, standard density, actual density, pressure, temperature, speed of sound, gas velocity	
Operating Conditions		
Pipe Sizes	2" to 72"	74" to 82"
Operating Temperature (Transducers)	-94 °F to +293 °F (-70 °C to +145 °C)	-166 °F to +428 °F (-110 °C to +220 °C)
Ambient Temperature (Field Computer)	-40 °F to +140 °F (-40 °C to +60 °C)	
Operating Pressure	11.6 psiA to 145 psiA (0.8 barA to 10 barA)	
Design Conditions		
Design Temperature (Transducers)	-238 °F to +599 °F (-150 °C to +315 °C)	-238 °F to +662 °F (-150 °C to +350 °C)
Design Pressure (Transducers)	290 psiA (20 barA)	
Certification		
Certification	ATEX CSA - USA and Canada GOST-R GOST-K	
Field Computer	Ex de [ia] IIC T6, Tamb: -40 °C to +60 °C (Zone 1)	
Ultrasonic Transducers	Ex ia IIC T4-T6 (Zone 0)	
Electrical Data		
Supply Voltage	24 VDC (20 - 32 VDC)	Power converter from AC to DC
Power Consumption	13 W	
Communication		
Input Signal	Transit times: from ultrasonic transducers Temperature and pressure: analog 4-20mA or digital HART communication	
Output Signal	6 x analog 4-20 mA outputs HART output Pulse / frequency signal RS422 / RS485, 2- or 4- wire Modbus Protocol, RTU	Foundation Fieldbus TCP/IP via Ethernet SoftFlow