FM Series Gas Meter with Pulse Output

Third-Party Products
From The Manufacturer of E-Mon D-Mon

Description

The FM series meters are highly accurate solid state gas meters suited for commercial and industrial gas measurement applications for flow rates from 40 to 56,000 actual CuFt/hour. These meters use the Fluidic Oscillating Principle and have no moving parts, making them ideal for applications where continuous flow to the customer is required. The lack of moving parts also means the only associated maintenance requirement is the built-in battery which has a typical operating life of 8-11 years.

Advantages

Safety: Because the FM meters have no moving parts, the meter cannot 'lock-up' or stop gas flow. This may be necessary in some applications such as hospitals, schools or manufacturing where continuous gas service may be critical.

Robustness: The FM meter may be subjected to flow rates many times its rating capacity without any damage to the meter. An alarm will be displayed letting the user know the meter was in an 'overflow' condition. The meter will measure normally once the flow is within its operating range.

Applications: Without mechanical elements impeding the flow, the meter performs very well where slam-shut or slam-open equipment is used. The meter doesn't create pulsations that can affect pressure regulator performance. The meters can be ordered with the temperature compensation option if required.

Ease of Installation: Having completely aligned flanges is not necessary, nor is leveling the meter. Neither torsion on the meter or a non-level setting will affect the meter performance.

Model Numbers

Up to 1 million BTU/hr

1.25"	GMI-FM2-1M-1 1/4"
1.5"	GMI-FM2-1M-1 1/2"
2"	GMI-FM2-1M-2"

Up to 3 million BTU/hr

1.5"	GMI-FM2-3M- 1 1/2"
2"	GMI-FM2-3M-2"
3"	GMI-FM2-3M-3"

Up to 7 million BTU/hr

2"	GMI-FM2-7M-2"
3"	GMI-FM2-7M-3"

11 million BTU/hr and above

4"	GMI-FM3-11M-4"
4"	GMI-FM3-16M-4"
4"	GMI-FM3-16M-4"PT (Pressure & Temp. Corr.)

Temperature Compensation Option: GME-DAT-ETC

*Other sizes available. Contact E-Mon for information.

Compatibility: Four pulse output channels with programmable pulse weights and widths make the FM series widely compatible with AMR systems and interval data recorders. The meters are also available with ModBus communications for use with SCADA and other equipment that communicates via ModBus.

Specifications

Flanges: 2, 3 & 4 inch
Max. Allowable Operating Pressure (MAOP): 150 psig
Units: Cubic Feet

Flange to Flange Dimensions: FM2: 6.75", FM3: 9.5"
Display: Programmable up to eight digits
Operating Temperature: -40F to 140F

Construction: Measurement Unit: Cast Aluminum A356T6
External cover: ASA (acrylonitril styrene acrylate)
Index housing: UV stabilized polycarbonate

Accuracy: +/- 1% over full range

Power Supply: 2- 3.6V, D cell lithium batteries. Typical life: 8-11 years

Pulse Inputs: Low frequency standard Namur
Form Type: A Pulse Duration: 250 ms
Pulse value: user scalable

Alarms: Temp-out of range, Flow rate-over range, Battery-out of life
Oscillating sensors: failure, warning, contamination

Weight: FM2: 37 lbs, shipping weight: 42 lbs
FM3: 114 lbs, shipping weight: 128 lbs

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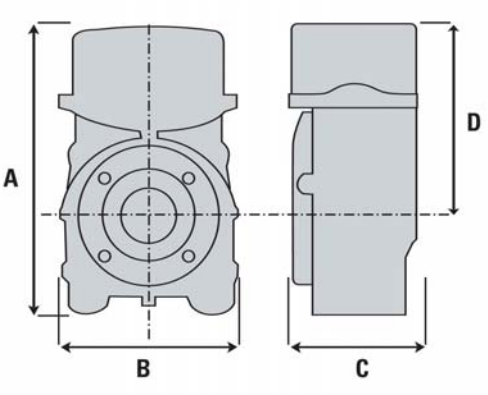
Model	A	B	C	D	Thread Depth
FM2	16.5”	10.6”	6.75”	10”	1”
FM3	23.7”	16.5”	9.5”	15.2”	1”

Model	Flange Type	Bolt Pattern Diameter
FM2	ANSI 125 2”	4.75”
FM2	ANSI 125 3”	6.00”
FM3	ANSI 125 4”	7.50”



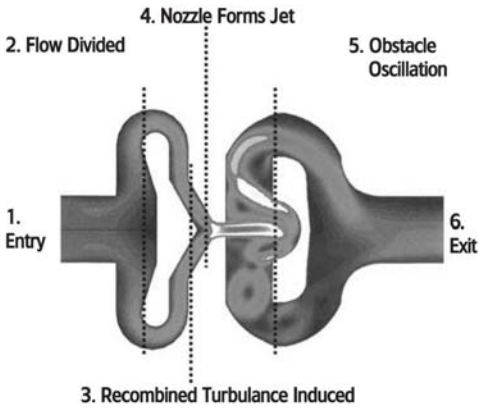
Fluidic Oscillation Principle

The operation of the FM meter is based on the fluidic oscillation principle. The measurement unit is comprised of three functional sections; the flow conditioner, jet nozzle formation and fluidic oscillation chamber.

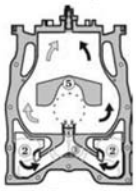
Gas enters (1) the meter and divides into two separate flow paths (2). These two paths recombine (3) as they exit the flow conditioner and enter the fluidic oscillation chamber through the nozzle. The process of dividing the flow eliminates upstream disturbances and creates well conditioned flow.

In the fluidic oscillating chamber, a jet is formed (4) as the gas enters through the nozzle. The jet then starts oscillating back and forth (5). Thermal sensors located just after the nozzle detect a temperature variance as the jet passes from one side to the other.

The volume of gas passed through the meter is obtained by counting the number of oscillations detected by the sensors.



Side Cutaway-view



Internal View of Meter