Flowmetrics, Inc.

"Where Quality is Measurable"

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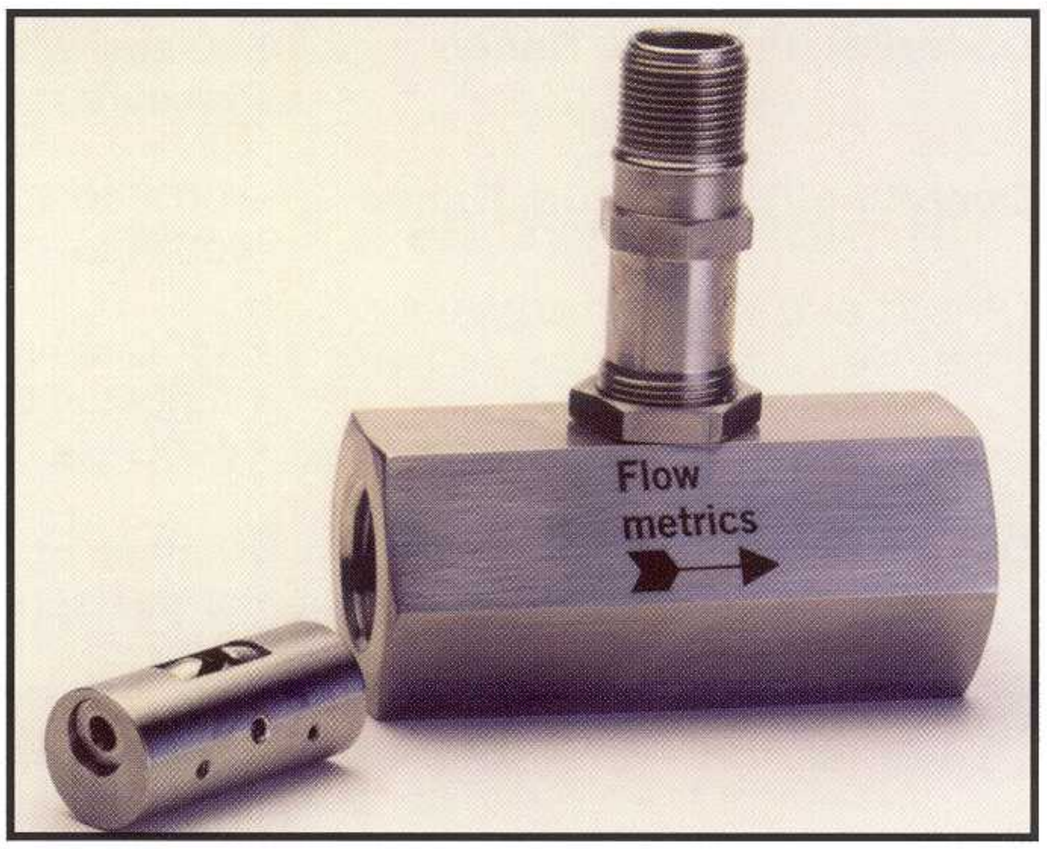
Tangential Turbine Flowmeter – FMT Series

Special Features:

- Well suited to meet a variety of process media
- Capable of measuring extremely low flow rates as .001 GPM in liquids and .001 ACFM in gases
- High output and low drag magnetic pickoffs
- Zero drag modulated carrier pickoffs*
- Bearings to suit specialized applications
- NIST traceable calibration

*Modulated carrier pickoff requires a pre-amplifier – please refer to the PA/PC/PS/LS Brochure



General:

The Flowmetrics Tangential turbine flowmeter is a unique volumetric device. This uses a dual orifice design to direct a stream of fluid tangent to a low mass/balanced rotor and a precision bearing to provide maximum sensitivity. This arrangement permits the measurement of very low flow rates in either liquid or gas service under a variety of operating conditions with high degree of precision and reliability. This geometry also eliminates the need for flow straighteners and allows for greater repeatability.

The unit produces an electrical output with pulse frequency proportional to the flowrate. These pulse can be fed into digital data display, frequency to DC analog, totalizing or into one of many recording equipments available from Flowmetrics, Inc., to provide full fluid flow measurement capability.

Specifications

Accuracy

Calibration Accuracy	Liquid: ± 0.05%	Gas: ± 0.25%
Repeatability	Liquid: ± 0.1% of reading	Gas: ± 0.2% of reading
Linearity	Maximum non-linearity is 5% to 50% depending upon range and viscosity of metered liquid or density of the metered gas	
	IMPORTANT: Accuracy of primary flow calibration standard is directly traceable to NIST	

Pressure Drop

Liquid: Maximum pressure is 10 psid in normal 10:1 flow rate range with water at 70°F

Gas: Maximum pressure drop is 12 inches of water in normal 10:1 flow rate range with air at S.T.P.

End Connections

- 3/4-16 UNF-3B per MS33649-08
- 1/2-14 FNPT
- ANSI Flange
- Others available upon request

Operating Pressure Range

5000 psi with FNPT or MS33649-08 connections
Pressure rating for flanged connection varies with flange class

Operating Temperature Range

-400°F to 400°F (standard)
-400°F to 750°F (optional)

Bearings

- 440C stainless steel ball bearing
- Tungsten Carbide pivot bearing
- 440C stainless steel ball bearing in special self lubricating retainers

Dynamic Response

10 msec or less for liquid serviced meters
For gas serviced meter it depends on gas density

Materials of Construction

Rotor 430F stainless steel
All other components are 316 stainless steel
(other materials are available upon special order)

Filtration Recommendations

100 Microns or better

Electrial Connections

MS3102 A-10SL-4P (2 pin connector) - For LD & CF Pickoff
MS3102 A-10SL-3P (3 pin connector) - For LDA & CFA Pickoff
Note: Mating connector MS3106A-10SL-4S (for LD & CF pickoff) or MS3106A-10SL-3S (for LDA & CFA pickoff) supplied. Explosion proof with 2 wire pigtails and 1/2" NPT connection terminates inside a condulet.

Electrial Output

Magnetic Pickoff	30mV P-P at minimum linear rate
Modulated Carrier Pickoff*	0-5 VDC or 0-10 VDC pulse or open collector.
(with pre-amplifier)	Note: The unit is powered by a user supplied 8-30 VDC. An on-board regulator provides the required regulation and noise rejection.

**Modulated carrier pickoff requires a pre-amplifier - please refer to the PA/PC/PS/LS brochure.*

MODEL NUMBERING SYSTEM

Model Number (Example) FMT-8 | -3 | A | X1 | 2.00 | CF | H | 1 | L | (S)

Model No. Prefix
- Select from Table 1

End Connections
- A = Female MS37° Flare (-8MS)
- N = 1/2" FNPT
- F = ANSI Flange
  (F1 = 150#, F2 = 300#, F3 = 600#, F4 = 900#)

Explosion Proof
- X = Explosion Proof Pickoff
- X1 = 3/4" MNPT Mounting Boss
- X2 = 1" MNPT Mounting Boss
  (otherwise leave blank)

Max Flow Rate
- GPM or ACFM

Pickoff
- LD = Low drag magnetic
- CF = Modulated carrier
- LDA = Low drag magnetic integrate a pre-amplifier
- CFA = Modulated carrier integrate a pre-amplifier

} ΔOutput: 0-5 VDC or 0-10 VDC pulse or open collector

ΔThis unit is powered by a user supplied 8 to 30 VDC. An on-board regulator provides the required regulation and noise rejection.

Special Const.
- (otherwise leave blank)

Liquid/Gas
- L = Liquid
- G = Gas

Bearing
- 1 = Ball bearing (440C)
- 2 = Ball bearing (440C)
  in self lubricating retainers
- 3 = Carbide Pivot
- 4 = Special

HI Temp Pickoff
- (otherwise leave blank)

TABLE 1

Flow Range:

Model Number Prefix	Liquid Service* US Gallons/Min		Gas Service** Actual Cubic Feet/Min		Orifice Size (Ref)
	Normal	Extended***	Normal	Extended***	
-3	0.20 – 2.00	0.10 — 2.00	0.25 – 2.00	0.15 — 2.00	0.250
-4	0.10 – 1.00	0.05 — 1.25	0.10 – 1.00	0.08 — 1.20	0.156
-5	0.07 – 0.70	0.02 — 0.80	0.07 – 0.70	0.04 — 0.80	0.084
-6	0.02 – 0.12	0.005 – 0.120	0.02 – 0.12	0.01 — 0.12	0.047
-7	Not Available	0.001 – 0.070	Not Available	0.005 – 0.070	0.032

**The data is based on measurements taken with Mil-C-7024-TII at 70°F, viscosity of 1.2 centistokes*
***The data is based on measurements taken with air at standard condition of 14.7 PSIA and 70°F*
****Requires a modulated carrier amplifier for extended range.*

Flange Size	A	B
1/2”-150 Lb	4.00	3.50
1/2”-300 Lb	4.25	3.75
1/2”-600 Lb	4.63	3.75
1/2”-900 Lb	5.25	4.75