



Liquid Flow Sensor

TM-MCM 106

The Model TM-MCM-106 Flo-Sensor will precisely measure flow rates of virtually any low-viscosity fluid, as low as 15 mL/minute or as high as 10 L/minute (2.6 GPM). Repeatable results are achieved by utilizing a patented* Pelton-type microturbine wheel, designed for use with corrosive applications. This proven design does not generate any particles to contaminate your processes, but continues to provide precise results even after many years of service.

Standard installed tube compression fittings provide easy connection; flare fittings are optional. Electrical connections are made via the included 6 foot cable. Several power and signal configurations are available for a wide range of applications.

The superior design of the microturbine technology used in the Model TM-MCM-106 is shown in its compact size. For most of the flow rates, the footprint of the unit is nearly 1/4 the size of a comparable differential pressure flow sensor.

By limiting the wetted surfaces of the TM-MCM-106 to PTFE, Kal-Rez and sapphire, it can be used to measure almost any low-viscosity fluid, including hydrofluoric and other acids, sodium hydroxide, solvents, deionized water, and other additives and reagents.



Specifications

Accuracy/Linearity:	$\pm 0.5\%$ Full Scale accuracy/linearity, use the Model TM-MCM-106 (A suffix) with the optional Model 251 multi-Function Display. TM-MCM-106 with pulse output (A, E suffix): $\pm 3\%$ Full Scale*, typical. TM-MCM-106 with analog output (B, C, D, J or K suffix): $\pm 1\%$ Full Scale*, typical.
Repeatability:	$\pm 0.2\%$ Full Scale*
Power Requirements:	TM-MCM-106 (A suffix): 12-15 VDC, 50 mA TM-MCM-106 (B, J suffix): 22-25VDC, 55 mA TM-MCM-106 (C suffix): 22-25VDC, 75 mA TM-MCM-106 (E suffix): 22-25VDC, 50 mA TM-MCM-106 (D, K suffix): 12-15VDC, 55 mA
Pressure Rating:	Normal working pressure should not exceed 60 psig (4 bar)
Over pressure limit	100 psig (6.8 bar)
Temperature Rating:	Operating range: 5 to 55°C (5 to 85°C for models with "HT" suffix)
Storage range:	0 to 70°C
Temperature Sensitivity:	$\pm 0.2\%$ Full Scale* or less per °C
Wetted Materials:	PTFE, sapphire, Kal-Rez®
Non-wetted Materials:	PTFE, Ryton , Viton , aluminum (PTFE coated on models with "TX" suffix), stainless steel, PVC-jacketed cable
Recommended Filtration:	25 microns or less
Compatible Fluids:	Most low viscosity liquids - best performance with liquids <10 centistokes
Outputs:	TM-MCM-106 with pulse output (A, E suffix): Opto-isolated passive pulse -- bidirectional BOSFET. Isolation is 2500 volts. Pulse rate is proportional to flow rate (zero pulses at zero flow). Lowest flow range (15-100 mL/minute) produces typically 0-200 Hz, while higher flow ranges typically produce 0-500 Hz. Pulse height selectable using external voltage source. TM-MCM-106 with 0-5VDC output (B, D suffix): Analog voltage output -- 0-5VDC. Voltage level is proportional to flow rate (zero VDC at zero flow). Load connected to output should not be less than 2500 ohms. Output not isolated from ground. TM-MCM-106 with 4-20 mA output (C suffix): Analog current output -- 4-20 mA. Current level is proportional to flow rate (4 mA at zero flow). Current loop should not exceed 500 ohms. Output is not isolated from ground. TM-MCM-106 with 0-10 VDC output (J, K suffix): Analog voltage output -- 0-10 VDC. Voltage level is proportional to flow rate (zero VDC at zero flow). Load connected to output should not be less than 5000 ohms. Output not isolated from ground.
Flow Connections:	PFA tube fittings standard. For flow rates below 500 mLpm, 1/8" fittings are standard. For flow rates from 500 to 2000 mLpm, 1/4" fittings are standard. For flow rates above 2000 mLpm, 3/8" fittings are standard. Flare fittings are available at additional cost.
Electrical Connections:	Integrated, shielded 6-ft, 4-conductor cable (PVC jacket), terminated with tinned pigtail leads. Other lengths & connection options available.

All specifications are subject to change without notice.



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ORDERING INFORMATION

1. Select a range:

Model Number	Flow Range*	Max. Pressure Drop**	Standard Fittings
TM-MCM-106-3	15-100 mL/minute	12 psi	1/8" tube
TM-MCM-106-4	20-200 mL/minute	10 psi	1/4" tube
TM-MCM-106-5	50-500 mL/minute	10 psi	1/4" tube
TM-MCM-106-6	100-1000 mL/minute	6 psi	1/4" tube
TM-MCM-106-7	200-2000 mL/minute	10 psi	1/4" tube
TM-MCM-106-8	500-5000 mL/minute	10 psi	3/8" tube
TM-MCM-106-9	1.0-10.0 L/minute	10 psi	3/8" tube

2. Select a signal and power configuration:

Suffix	Power Requirement	Output
A	12-15 VDC	Pulse (Passive BOSFET)
B	22-25 VDC	Non-isolated 0-5 VDC
C	15-25 VDC	Non-isolated 4-20 mA
D	12-15 VDC	Non-isolated 0-5VDC
E	22-25 VDC	Pulse (Passive BOSFET)
J	22-25 VDC	Non-isolated 0-10 VDC
K	12-15 VDC	Non-isolated 0-10 VDC

Options & accessories:

1/4" Flare Fittings: Order suffix "F4" for PFA 1/4" flare fittings (use with ranges 1 L/minute and below).

3/8" Flare Fittings: Order suffix "F6" for PFA 3/8" flare fittings.

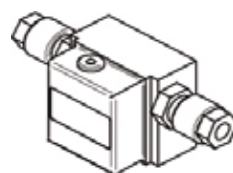
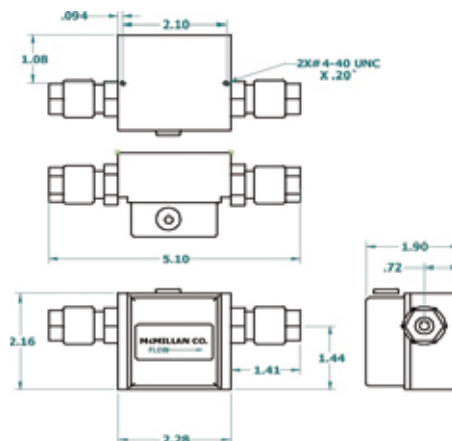
High Temperature Operation: Order suffix "HT" for fluid temperatures up to 85°C.

PTFE Coating: Order suffix "TX" to receive all exterior metal parts coated in PTFE for greater chemical resistance.

FEP-Jacketed Cable: Order suffix "TC" to receive a unit with a FEP-jacketed cable instead of PVC.

*All units calibrated using deionized water. Ranges shown indicate recommended measurement range for deionized water applications.

** Maximum pressure drop occurs at maximum (100%) rated flow. At 50% of rated flow, the actual pressure drop will only be 25% of maximum pressure drop. At 25% of rated flow, the actual pressure drop will only be 6.25% of maximum pressure drop.



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