



U.S. Patents 8404076, 8887578, & 9677921.  
Japanese Patent 5602884. Other patents pending.

## Key Features

- Fluid measurement performance is independent of fluid properties – eliminating the need to calibrate on different fluids
- Accuracy unaffected by flow regime (e.g. laminar or turbulent flow) or variations in flow velocity profile
- Sensors operate and measure in two-phase flow conditions with gas volumetric void fractions in excess of 30%

## Applications

- Highly corrosive chemicals
- CMP Slurries or solutions containing solid contents and/or bubbles
- Pure water or ultra high purity chemicals
- Fluids with varying density or viscosity

# CPFM-8800 High Purity Coriolis Mass Flow Meter

All-PFA wetted Coriolis flow meter  
designed for measuring liquids in  
high-purity applications

## Description

The Malema Sensors® CPFM-8800 series is a family of advanced flow meters based on the Coriolis principle. The fluid path is fabricated exclusively from PFA (Perfluoroalkoxy) polymeric material.

CPFM-8800 series flow meters are comprised of two assemblies – one containing the sensor, the other containing the supporting electronics. The sensors are specially designed for measuring liquids in high-purity semiconductor, bio-pharmaceutical and other applications that require all PFA-wetted surfaces and provide a Mass Flow Rate, Total Mass and Temperature.

## Measurement Principle

Fluid flows into the sensor consisting of two flow sensitive elements which are vibrated relative to one another - similar to the tines of a tuning fork. Fluid interacts with the sensor dynamically in such a way that the sensor's response is immune to the fluid's chemical and physical properties flow regime, or variations in flow velocity profile. Fluid mass flow rate is determined by measuring the relative motion and frequency of the flow-sensitive elements.

### Measurement Specifications

Accuracy	± 1 % of rate (flow rates between 100-10% of MRV) ± 1 % of rate ± Z.O.S (flow rates below 10% of MRV)
Temperature	Ambient: 0–50°C Fluid: 15–80°C
Operating Pressure	80 psig (Max.)

Model	Measurement Range		Zero Offset Stability (Z.O.S)
	Minimum Range Value	Maximum Range Value (MRV)	
8803-1	50 g/min	1,500 g/min	0.36 g/min
8803-2	150 g/min	4,000 g/min	0.45 g/min

### Electrical Specifications

Supply Voltage	24V DC ±10%
Power Consumption	Max 6 W
Programming	Operator Parameter configuration through USB interface with a PC
Output Interfaces	4–20 mA Current Loop, Digital I/O
Analog Output Module	4–20 mA ; 500 Ohms max load
Digital Input/Output Module	Configurable as Frequency or Digital I/O
Frequency Output	0–10 kHz proportional to flow rate

### Physical Specifications

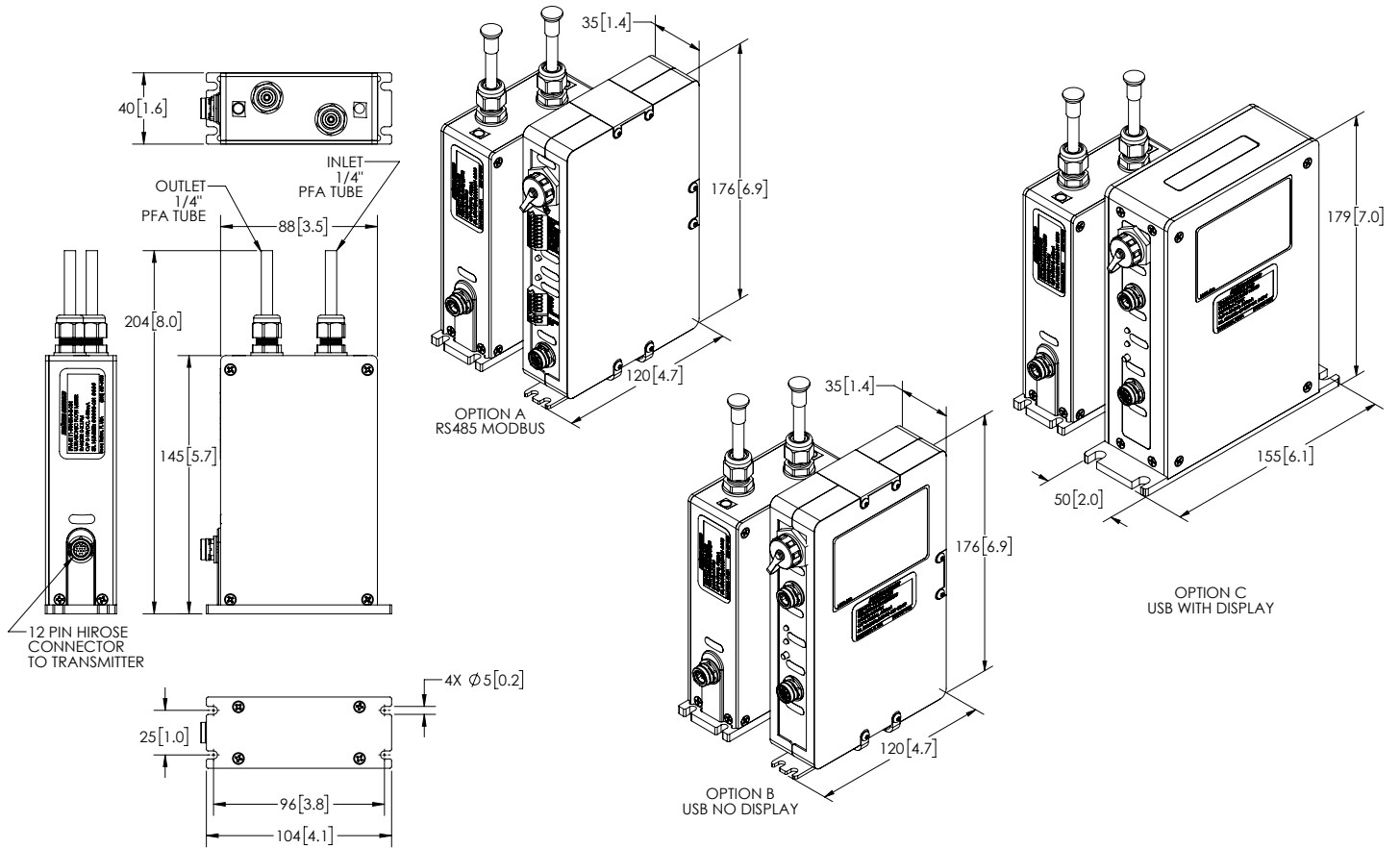
Process Connections	1/4" or 3/8" tube connection *
Wetted Material	Daikin 211 SH (Similar to Perfluoroalkoxy (PFA) 440)
Sensor Dimensions	Mini option: 104 mm (L) x 40 mm (W) x 204 mm (H)
Transmitter Dimension	Display option: 155 mm (L) x 50 mm (W) x 179 mm (H)
Weight	Sensor: 0.72 kg; Transmitter: 0.65 kg
Cable Length	Standard 3 m; Maximum up to 30 m (cable length between sensor and electronics assemblies)

\* Consult the factory for other process connection requirements.

## Dimensional Drawings

FOR REFERENCE ONLY

Model CPM-8803-1 with 1/4" fluid connection and Mini sensor option illustrated.



Model Ordering Code											Description	
CPFM-	8803-*	-	*	*	-	**	X	X	*	-***		
Range Code	8803-1										50–1500 g/min	
	8803-2										150–4000 g/min	
		-										
Display			D								With Local LCD Display	
			N									Without Display
Process Connection Size			2								1/4" OD	
			3									3/8" OD
Process Connection Type			T								Tube Ends (Standard)	
			Z									Custom (Consult Factory)
Interconnecting Cable Length			03								3 m	
			05									5 m
			ZZ									
Reserved							X					
Reserved								X				
Sensor Space Saver Option									X		Standard Size	
									M		Mini Size Option	
											-XXX	Unique PN Identifier

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**Corporate Headquarters**

1060 S Rogers Circle  
Boca Raton, FL 33487  
P: (561) 995-0595 F: (561) 995-0622

**West Coast Headquarters**

2329 Zanker Road  
San Jose, CA 95131  
P: (408) 970-3419 F: (408) 970-3426

**Asia Pacific Headquarters**

35 Marsiling Industrial Estate Road 3, # 02-06  
Singapore 739257  
P: +65 6482 3533 F: +65 6484 4231