

CPFM-8800 Coriolis Mass Flow Meter



PSG
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 **MALEMA**

Where Innovation Flows



CPFM-8800 SERIES CORIOLIS MASS FLOW METERS

Patented Coriolis Mass Flow Meter with PFA Wetted Parts, Designed for Measuring Liquids in High-Purity Applications

The CPFM-8800 Series Coriolis Mass Flow Meter by Malema provides superior performance regardless of changes in density, viscosity and, temperature. The CPFM-8800 is the only Coriolis flow meter in the market constructed with PFA. PFA meets requirements for all wetted parts for high purity semiconductor applications which includes DI water, harsh chemicals, and CMP polishing slurries. Designed with either 1/4" or 3/8" port sizes, the CPFM-8800 has two models with flow rate ranges of 50 to 1,500 grams per minute and 150 to 4,000 grams per minute respectively.

Hence, the CPFM-8800 series significantly improves process efficiency and performance.

- Minimizes costly downtime
- Improves yield throughput
- Increases operational profitability

Superior Accuracy – Regardless of Density, Viscosity, Gases, or Temperature

The CPFM-8800 Series leverages the Coriolis principle to simultaneously measure mass flow, density and temperature with exceptional precision of +/-1%. Additionally, the CPFM is highly tolerant of fluids containing entrapped gases, measuring the flow with up to 30% presence of bubbles.

Operation

The CPFM-8800 consists of two measuring tubes, a drive coil and two sensors positioned on either side of the drive coil attached to each of the measuring tubes. When the meter is energized, the drive coil induces vibrations in the measuring tubes, causing them to oscillate and generate a sine wave. This sine wave is captured by the sensors. As liquid flows through the measuring tubes, the Coriolis effect induces a phase shift in the sine wave, detected by the sensors. The magnitude of this phase shift is directly proportional to the mass flow rate. Additionally, density measurement is achieved by analyzing the frequency of vibration, while temperature measurement is obtained using an integrated temperature sensor.

Features

- High accuracy - controls flow rate to within $\pm 1\%$ of reading; ideal for fluid blending and/or dispense applications and reduces chemical consumption
- Flow 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%
- All Perfluoroalkoxy (PFA) wetted part construction – ensures compatibility with UHP liquid chemicals, and DI water
- Patented Coriolis technology, offering the only plastic Coriolis flow controller in the market
- Operates and measures two-phase flow conditions with gas volumetric void functions in excess of 30%

Applications:

- Highly corrosive chemicals
- Slurry and chemicals containing bubbles
- Fluids with vary density and viscosity
- CMP slurries or solutions containing solid contents
- Surfactants

Measurement Specifications

Set Point Accuracy	±1% of rate (flow rates between 10 - 100% of Max. Range Value) ±1% of rate ± Z.O.S. (flow rates below 10% of Max. Range Value)
Temperature	Ambient: 0 – 50°C Fluid: 18 – 50°C*
Maximum Operating Pressure	80 psig (max)

* Consult factory for higher temperature applications.

MODEL	Measurement Range		Zero Offset Stability (Z.O.S.)
	Minimum Range Value	Maximum Range Value	
8803-1	50 g/min	1,500 g/min	2 g/min
8803-2	150 g/min	4,000 g/min	3 g/min

Electrical Specifications

Supply Voltage	24 VDC ±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

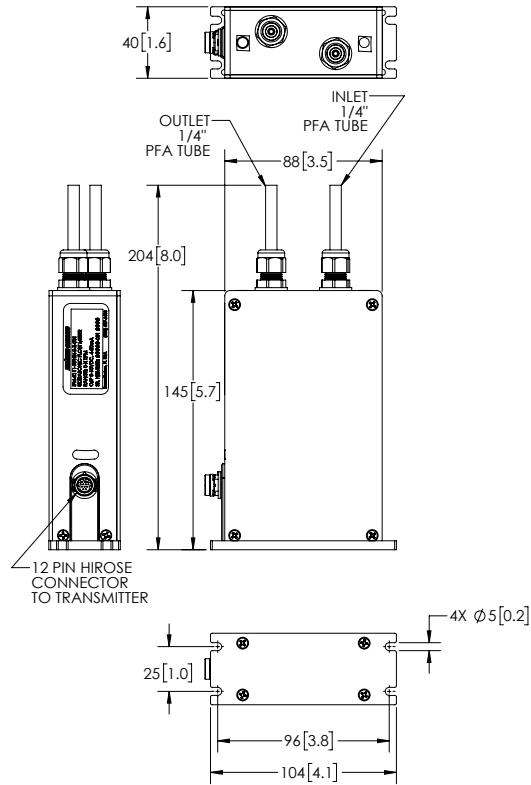
Process Connections	1/4" or 3/8" tube connection*
Wetted Material	Daikin 211 SH (Similar to Perfluoroalkoxy (PFA) 440)
Sensor Dimensions	Mini option: 104 mm (L) x 40 mm (W) x 204 mm (H)
Transmitter Dimension	Display option: 155 mm (L) x 50 mm (W) x 179 mm (H)
Weight	Sensor: 0.72 kg; Transmitter: 0.65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

* Consult the factory for other process connection requirements.

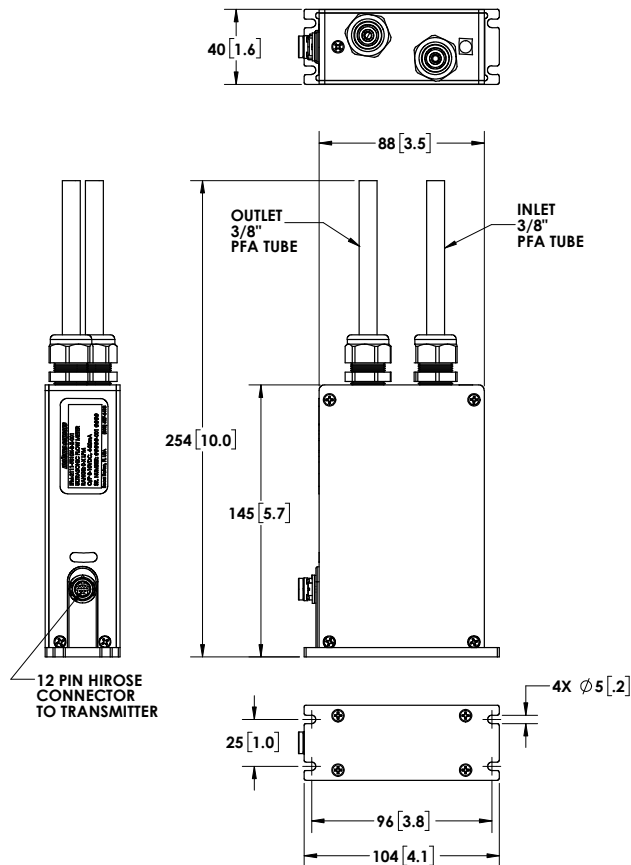
Dimensional Drawings

FOR REFERENCE ONLY

Model CPFM-8803-1 with 1/4" fluid connection illustrated.



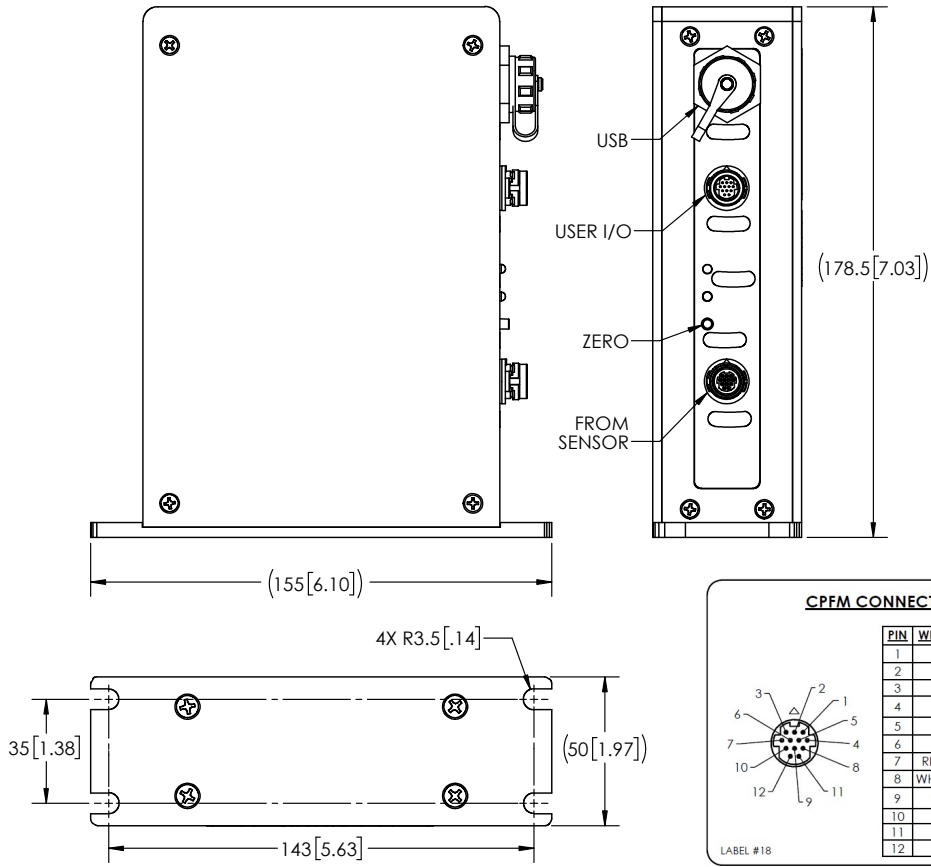
Model CPFM-8803-1 with 3/8" fluid connection illustrated.



Dimensional Drawings

FOR REFERENCE ONLY

Model CPFM-8800-1 control box.



Ordering Information

Model Ordering Code												Description	
CPFM	-	8803-*	-	*	*	*	**	*	*	X	*	****	
Range Code	-	8803-1											Measuring Range: 50-1500 g/min (1/4" Process Connection Only); Note: 4mA =0 g/min and 20mA=1500 g/min
	-	8803-2											Measuring Range:150-4000 g/min (3/8" Process Connection only); Note: 4mA =0 g/min and 20mA=4000 g/min
			-										
Display				D									With Local LCD Display
				N									Without Display
Process Connection					2								1/4"
					3								3/8"
Connection Type						T							Tube Ends
						F							Female Flare
						P							Female Pillar
Interconnecting Cable Length							03						3 meters
							05						5 meters
I/O Cable Length								03					3 meters
								05					5 meters
								ZZ					Custom cable length (30 meters Max.), consult factory
									X				
Ordering Extention (Standard and Custom options)												-S01	Standard Version
												-XXX	For any custom options, factory will assign 3 digit unique ID in place of XXX



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DS-CPFM8800-42020152

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