

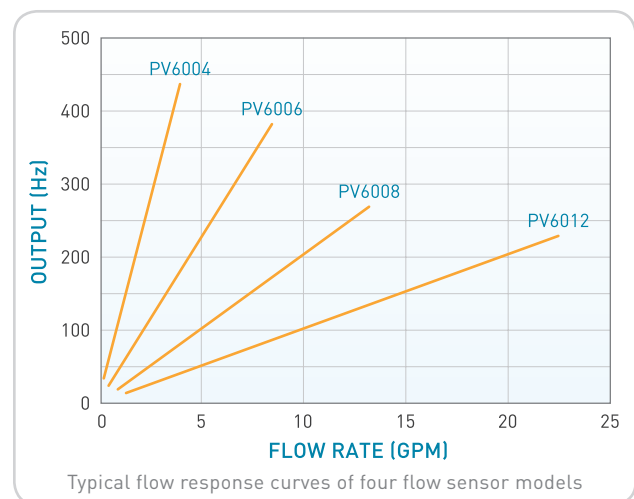
Vortex Flow Meters

Compact PPA vortex flow meters with optional temperature measurement capability



- » Flow ranges from 0.2 to 22 GPM / 0.9 to 85 LPM
- » Accuracy of better than 3% of flow range
- » Liquid temperatures from -40 to 212°F / -40 to 100°C
- » Compatible with Galden®, Fluorinert™ and other advanced heat-transfer fluids
- » Rugged glass fiber-reinforced PPA construction
- » No moving parts – performance is not affected by contaminants in fluid!
- » 0–10 VDC or 4–20 mA analog output or pulse output for easy interfacing with your PLC
- » Directly interface to batching, data-logging and multi-channel controller accessories
- » Optional digital display for local indication of liquid flow rate
- » Specialized calibration available to account for viscosity effects of fluid and operating temperature
- » Optional temperature measurement capability with integrated Pt1000 RTD sensor
- » Materials of construction are FDA-approved for contact with food and drinking water

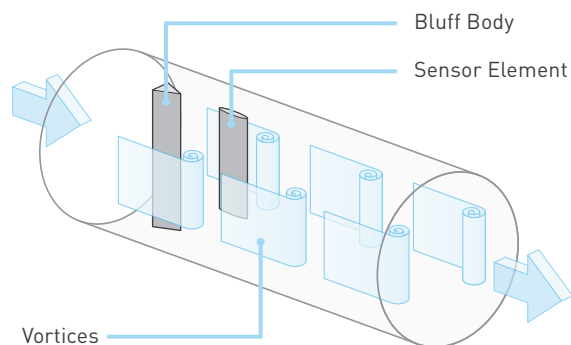
Proteus Vortex Flow Meters utilize the vortex principle to provide accurate, reliable and cost-effective measurement of heat-transfer fluids and other liquids. An in-line sensor detects the frequency of vortices shed by a bluff body in the flow stream and generates a pulse output signal that is directly proportional to the instantaneous flow rate of the liquid.



How It Works

As liquid flows around a bluff body inside the flow channel, swirling vortices are formed and carried downstream at the velocity of the flowing liquid. Alternating localized high- and low-pressure zones characteristic of a vortex stream are detected by a piezoelectric crystal that produces a small pulse each time a vortex passes the sensor element. The number of vortices formed is directly proportional to the linear velocity of the liquid passing through the instrument.

Proteus Vortex Flow Meters are available with pulse, 4–20 mA or 0–10 VDC output, or with a compact digital display for local indication of the instantaneous liquid flow rate.



Cost-Effective Temperature Measurement

An optional Pt1000 RTD sensor integrated into the bluff body provides direct measurement of liquid temperature without requiring additional probes or fittings. Temperature information is transmitted as a resistance signal in instruments with pulse or current output or as 0–10 VDC in instruments with voltage output.

Flow Ranges and Connections

Base Model Number	PV6004	PV6006	PV6008	PV6012
Flow Range (GPM)	0.24 to 4.0	0.48 to 8.5	0.92 to 13	1.3 to 22
Flow Range (LPM)	0.90 to 15	1.8 to 32	3.5 to 50	5.0 to 85
Frequency Range (Hz)	~34 to ~437	~24 to ~382	~19 to ~269	~14 to ~229
Connection Size	1/4"	3/8"	1/2"	3/4"
Connection Type	Stainless steel FNPT threaded fittings • Brass brazing fittings			

Performance Characteristics

Output Type	Pulse	Current	Voltage
Fluid Temperatures	-40 to 212 °F / -40 to 100 °C		
Ambient Temperature	5.0 to 185 °F / -15 to 85 °C		
Pressure Limit	175 psi / 1200 kPa at 104 °F / 40 °C • 90 psi / 600 kPa at 212 °F / 100 °C		
Pressure Drop	< 3 psi at maximum flow rate		
Fluid Types	Water, water/glycol mixtures, Galden®, Fluorinert™, silicone oils, etc.		
Flow Sensor	Piezoelectric sensor element		
Output – Flow	Square pulse frequency	4–20 mA	0–10 VDC
Accuracy – Flow ¹	< 1.5% of range at < 50% of flow range • < 3% of measured value at > 50% of flow range		
Temperature Sensor ²	Pt1000 RTD (DIN EN 60751 Class B)		
Output – Temperature ²	Resistance		0–10 VDC
Accuracy – Temperature ²	± 0.3 K at T = 0 °C • ± 0.3 K ± 0.005 * T at T ≠ 0 °C		± 0.3 K ± 0.005 * T
Response Time	< 5 ms		< 500 ms
Input Voltage	4.75–33 VDC	8–33 VDC	11.5–33 VDC
Current Consumption	< 6 mA	–	< 5 mA
Enclosure Protection	IP65 / NEMA 4X		
Standards and Compliance	CE marked • RoHS compliant • Materials of construction: NSF-51, NSF-61		
Cable Specifications	Length: 6.6 ft / 2 m • Flammability Rating: V-0		

¹ For water with a temperature range of 41–212 °F / 5–100 °C.

² With optional Pt1000 RTD sensor.

Digital Display Specifications

Ambient Temperature	32 to 131 °F / 0 to 55 °C
Output – Flow	N/A
Output – Temperature	Resistance
Input Voltage	24 VDC ± 10%

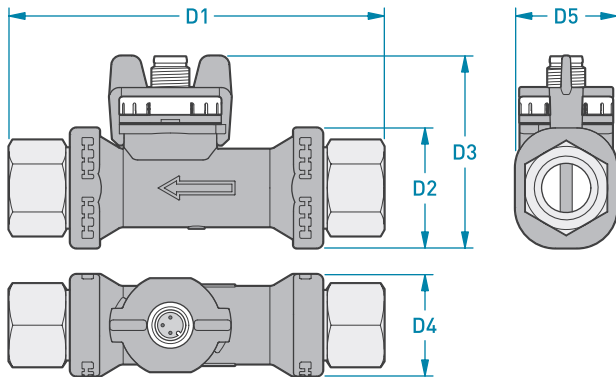
Wetted Materials

Flow Body	PPA (Polyphthalamide PA6T/61 - 40% Glass fiber)
Sensor Element	ETFE (Ethylene tetrafluoroethylene)
O-Rings	EPDM (Ethylene propylene diene monomer)
Fittings	FNPT: 303 Stainless steel • Brazing: Brass

Model Numbers

Base Model Number		PV6004	S	T	A
Connection Type	<ul style="list-style-type: none"> » Stainless steel FNPT fittings S » Brass brazing fittings B 				
Temperature Measurement	<ul style="list-style-type: none"> » With temperature sensor T » Without temperature sensor [blank] 				
Flow Output / Digital Display	<ul style="list-style-type: none"> » 0–10 VDC output A » 4–20 mA output AI » Digital display D » Pulse output [blank] 				

Product Dimensions



MODEL	D1	D2	D3	D4	D5
PV6004	4.0 in 102.3 mm	1.3 in 32.9 mm	2.3 in 59.0 mm	1.1 in 28.9 mm	1.2 in 30.2 mm
PV6006	4.2 in 107.2 mm	1.3 in 32.9 mm	2.3 in 57.3 mm	1.1 in 28.9 mm	1.2 in 30.2 mm
PV6008	4.6 in 117.1 mm	1.5 in 39.0 mm	2.5 in 62.4 mm	1.3 in 33.0 mm	1.2 in 30.2 mm
PV6012	5.7 in 144.1 mm	1.7 in 43.0 mm	2.6 in 66.3 mm	1.5 in 37.4 mm	1.2 in 30.2 mm

Proteus: Customization Experts

Bring us your specifications and let our applications specialists create a flow management solution to meet your exact requirements.

Proteus' world-class calibration capability allows us to deliver instruments with temperature- and fluid-specific calibrations and viscosity characterization to help you control your most critical processes.

Contact us at tech@proteusind.com or (650) 964-4163 for immediate assistance!

PID Controllers

Florite process monitors and controllers provide accurate and reliable process control capability.

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