

# **Industrial Flow Sensor Series 4000**

# Impeller PVC & PVDF Ultra Pure Water Pulse & Analog

#### **DESCRIPTION**

The Series 4000 flow sensor is an in-line, flow-through design using a tangential six bladed impeller.

The Badger Meter® Series 4000 is available in 1/2", 3/4", and 1" pipe sizes and is molded of PVC or PVDF materials. The compact design allows the Series 4000 to replace old style magnetic sensors with little or no piping changes.

The proprietary non-magnetic detection circuit is available with two output: a low impedance 3-wire 5 volt DC square wave signal (that can be pulled up to 20 volts) capable of traveling up to 2000 feet without amplification, or a 2-wire loop powered 4-20 mA current analog signal. These two signal formats are compatible with most data acquisition or PLC equipment. Badger Meter also manufactures digital displays, scalers, transmitters, and control relays for use with the Series 4000.

PVDF versions are compatible with all PVDF piping systems including SYGEF, KYNAR, SUPER PROLINE, and SANITECH. Adapters are available for use with other plastic or metallic piping systems.

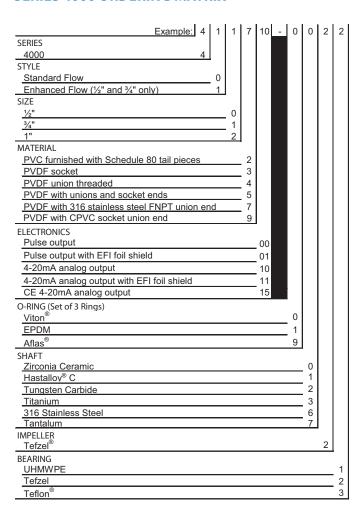
### **PRODUCT FEATURES**

- 4-20 mA Analog output programmable in field.
- Low Flow capabilities: Enhanced versions can accurately measure flow rates as low as 0.25 FPS.
- Flow detection electronics can be serviced or replaced without opening the pipe. No exposure to wetted parts.
- Impeller bearings and shaft can be easily replaced without removing the sensor from the pipe.
- Documented operating service life in high temperature ultrapure water. Over 40 months of continuous 24 hr/day operation.
- Superior particle-shedding performance verified by independent laboratory testing. Particle sizes from 0.1 micron to 1.0 micron representing "on wafer" metallic contamination (ELYMAT) and liquid-born particles were monitored.
- CE tested and approved by independent laboratory.





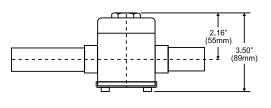
#### **SERIES 4000 ORDERING MATRIX**

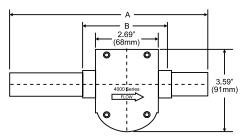


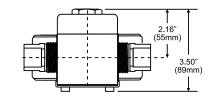


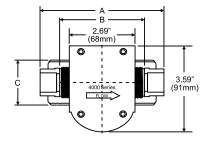
### **SPECIFICATIONS**

	Mechanical Specifications						
ominal Pipe Size 1/2" (20 mm), 3/4" (25 mm), 1" (32 mm)							
End Connections	PVC: Plain end pipe PVDF: Socket weld/union						
Standard Flow Range	Flow Range 120 fps						
Low Flow Range 0.258fps							
Accuracy	Better than 1%						
Repeatability	± 0.5%						
May Tama Dating	PVC: 140° F (60° C)						
Max Temp Rating	PVDF: 220° F (104° C)						
M D D-4i	PVC: 350 psi @ 73° F						
Max Pressure Rating	PVDF: 275 psi @ 65° F						
	Electrical Specifications						
Cable	Digital Output 3 wire						
Cable	Analog Output 2 wire						
Signal Digital Output	Digital Output 5 volt CMOS and LSTTL compatible						
Analog Output	<b>put</b> 420 mA analog output with offset compensation for ripple less than 0.25% of full scale.						
	Power						
Digital Output	Supply voltage 920V DC						
Digital Output	Supply current 2 mA maximum						
	10V DC minimum to 35V DC maximum. The combination of loop power supply voltage and loop						
Analog Output	series resistance must insure that the device voltage remains within these limits over the 420						
	mA output span.						
Accessories	Series A4000 programming kit contains software and Model A301 programming cable.						
ACCE33011E3	Model A4000-20 programming kit with 20 foot cable.						









PVC			PVDF			
Model	Α	В	Model	Α	В	С
1/2"	8.77" ± 0.25" (222 mm ± 6.35 mm)	4.33" (104 mm)	1/2"	5.03" (128 mm)	3.54" (90 mm)	1.85" (47 mm)
3/4"	10.57" ± 0.25" (268 mm ± 6.35 mm)	4.69" (119 mm)	3/4"	5.55" (141 mm)	3.92" (100 mm)	2.24" (57 mm)
1"	13.03" ± 0.25" (331 mm ± 6.35 mm)	5.40" (137 mm)	1"	6.10" (155 mm)	4.32" (110 mm)	2.52" (64 mm)



The analog output is controlled by an on-board microprocessor and digital circuitry producing precise drift free signals. The unit is programmed from a PC using Windows® based software and a connection cable. Units may be pre-programmed at the factory or field programmed. All programming information is stored in non-volatile memory in the sensor.

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