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.

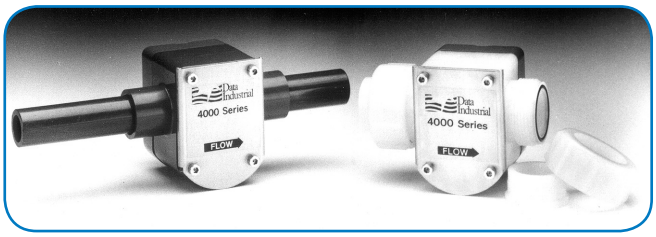
The Badger Meter® Series 4000 is available in 1/2", 3/4", and 1" pipe sizes and is molded of PVC or PVDF materials. The compact design allows the Series 4000 to replace old style magnetic sensors with little or no piping changes.

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 ultra-pure 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

Example:	4	1	1	7	10	-	0	0	2	2
SERIES											
4000	4										
STYLE											
Standard Flow		0									
Enhanced Flow (½" and ¾" only)		1									
SIZE											
½"			0								
¾"			1								
1"			2								
MATERIAL											
PVC furnished with Schedule 80 tail pieces				2							
PVDF socket				3							
PVDF union threaded				4							
PVDF with unions and socket ends				5							
PVDF with 316 stainless steel FNPT union end				7							
PVDF with CPVC socket union end				9							
ELECTRONICS											
Pulse output					00						
Pulse output with EFI foil shield					01						
4-20mA analog output					10						
4-20mA analog output with EFI foil shield					11						
CE 4-20mA analog output					15						
O-RING (Set of 3 Rings)											
Viton®							0				
EPDM							1				
Aflas®							9				
SHAFT											
Zirconia Ceramic								0			
Hastalloy® C								1			
Tungsten Carbide								2			
Titanium								3			
316 Stainless Steel								6			
Tantalum								7			
IMPELLER											
Tefzel®									2		
BEARING											
UHMWPE											1
Tefzel											2
Teflon®											3

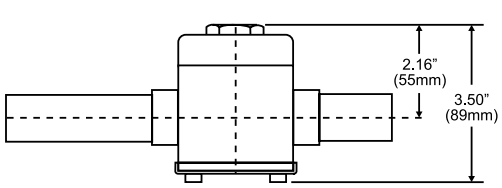
Badger Meter

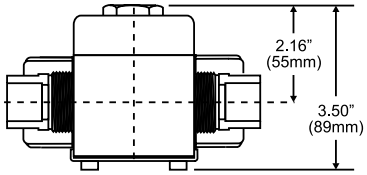
SEN-DS-00333-EN-02 (August 2013)

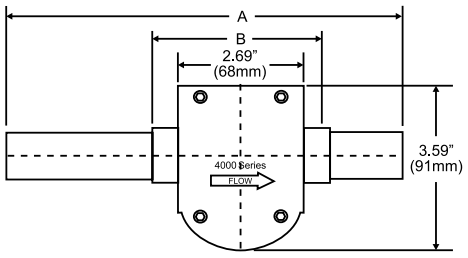
Product Data Sheet

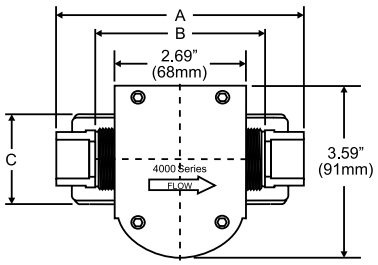
SPECIFICATIONS

Mechanical Specifications	
Nominal 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	1…20 fps
Low Flow Range	0.25…8fps
Accuracy	Better than 1%
Repeatability	± 0.5%
Max Temp Rating	PVC: 140° F (60° C) PVDF: 220° F (104° C)
Max Pressure Rating	PVC: 350 psi @ 73° F PVDF: 275 psi @ 65° F
Electrical Specifications	
Cable	Digital Output 3 wire Analog Output 2 wire
Signal Digital Output	5 volt CMOS and LSTTL compatible
Analog Output	4…20 mA analog output with offset compensation for ripple less than 0.25% of full scale.
Power	
Digital Output	Supply voltage 9…20V DC Supply current 2 mA maximum
Analog Output	10V DC minimum to 35V DC maximum. The combination of loop power supply voltage and loop series resistance must insure that the device voltage remains within these limits over the 4…20 mA output span.
Accessories	Series A4000 programming kit contains software and Model A301 programming cable. Model A4000-20 programming kit with 20 foot cable.









PVC			PVDF			
Model	**A**	**B**	**Model**	**A**	**B**	**C**
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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Legacy Document Number: DTB-062-01