

# IP800-SERIES

## INSERTION PADDLEWHEEL FLOW SENSOR



### APPLICATIONS

Industrial water/wastewater treatment

Cooling water monitoring

Industrial fluid control

Chemical proportioning

### Features

- Low-friction, long-life jewel bearings
- One moving part
- Fully field-repairable
- Choice of materials for compatibility with a variety of chemicals
- Fits 1/2" to 8" pipe
- Fixed depth in fitting ensures proper placement in pipe

The **IP800-Series** are impeller (or "paddlewheel") insertion meters designed for use with a wide variety of liquids in pipe sizes 1/2" to 8". Sensors are available in brass, 316 stainless steel, PVC, and polypropylene. Bodies are machined from a solid rod for maximum precision. High-quality jewel bearings and nickel-bound tungsten carbide shafts are used for extreme low friction and long life. Low-flow performance is good, although other Seametrics flow meters are recommended where extremely low flows are being measured.

The rotation of the rotor is detected by a non-drag Hall-effect sensor. Output is a current-sinking pulse, which can be sent long distances (up to 2,000 feet) without a transmitter. This signal can be connected directly to PLC's, counters, and computer cards, as well as a variety of Seametrics controls and displays.

Seametrics IP meters are ideal for chemical proportioning applications. If no display is required, a simple divider such as the PD10 provides adjustable pump pacing. For rate and total display, a modular system of electronics can be installed directly on the flow sensor or mounted remotely. The FT430 (externally powered with pulse), FT440 (loop powered), and FT450 (battery powered) all provide digital rate and total displays, as well as a programmable pulse; the FT440 also provides a 4-20 mA analog output. Electronic modules can be wall- or meter- mounted.

The IP800-Series require special fittings that ensure correct depth placement in the pipe. Fittings come in a variety of materials for compatibility with specific applications. Tee fittings are individually wet-calibrated at the factory and marked with the K-factor (pulses per gallon). Saddle fittings must be field-installed on the pipe and do not come wet-calibrated. K-factors for saddles are based on factory-testing.

**Contact Your Supplier**

# IP800-SERIES INSERTION PADDLEWHEEL FLOW SENSOR



## Features

Electronics Module, Cover and Data Logger (Optional) .....

Housing Screw .....  
(connect ground wire to one)

Cable Gland Strain Relief .....

Powder-Coated Cast Aluminum Housing .....  
Included when meter mounted electronics are ordered

Retaining Slot (for U-Clip) .....  
(for easy installation at correct depth setting)

O-Ring (EPDM, Viton® optional) .....

Sensor Body .....

Jewel Bearings for superior low-flow performance .....

Rotor (PVDF) .....

### High Pressure



## Specifications\*

<b>Pipe Size</b>		1/2" to 8"		
<b>Power</b>		<b>Low Power:</b> 6-36 Vdc/< 2 mA <b>Micropowered (-04 Option):</b> 3.1-16 Vdc/60 µA @ 3.6 Vdc		
<b>Sensor</b>		<b>Low Power:</b> Digital Magnetoresistive <b>Micropowered (-04 Option):</b> Giant Magnetoresistance (GMR)		
<b>Materials</b>	<b>Optional Housing</b>	Powder-coated cast aluminum		
	<b>Sensor Body</b>	Brass, 316 Stainless Steel, PVC, or Polypropylene		
	<b>O-ring</b>	EPDM (Viton® optional)		
	<b>Rotor</b>	PVDF (Kynar®)		
	<b>Shaft</b>	Kynar® /Tungsten Carbide (Kynar® /Ceramic or Kynar® /Silicon Carbide optional)		
	<b>Bearings</b>	Ruby jewel		
<b>Maximum</b>		<b>Brass</b>	<b>316 Stainless Steel</b>	<b>PVC or Polypropylene</b> (See Pressure vs. Temp. Chart)
	<b>Pressure</b>	200 psi (14 bar)	200 psi (14 bar)	175 psi (12 bar) @ 75° F (24° C)
	<b>High Pressure</b>	Not available	400 psi (28 bar)	Not available
	<b>Temperature</b>	200° F (93° C)	200° F (93° C)	130° F (55° C)
<b>Flow Velocity</b>		0.3 to 30 ft/sec (0.09 to 9.14 m/sec)		
<b>Accuracy</b>		± 1.5% of full scale		
<b>Output Transistor Maximum Current Sinking</b>		150mA (low power version only)		
<b>Cable</b>		#22 AWG 3-con, 18' (6m); 2,000' (610m) maximum cable run Note: 50' (15m) maximum for battery powered or micropowered versions.		
<b>Environmental</b>		See meter mounted electronics specification for rating		
<b>Regulatory</b>		CE Mark		

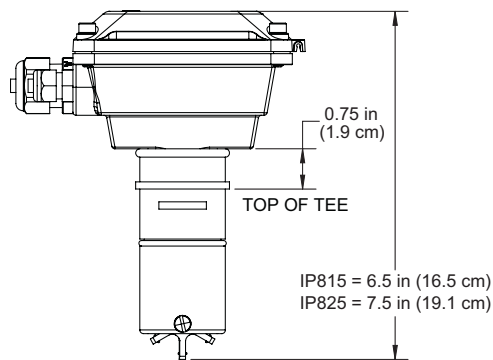
\*Specifications subject to change • Please consult our website for current data ([www.seametrics.com](http://www.seametrics.com)).

Kynar is a registered trademark of Arkema, Inc., Viton is a registered trademark of DuPont Corporation.

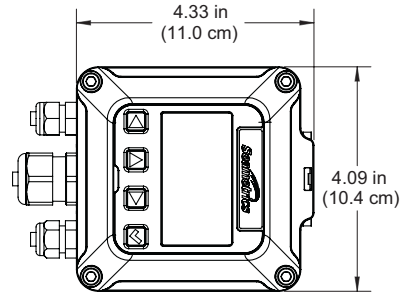
## Flow Range

Nominal Pipe Size	1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"
<b>Min GPM</b>	0.28	0.5	0.8	1.9	3.1	6.9	12	27	46.8
<b>Min LPM</b>	1.06	1.89	3.03	7.2	11.7	26.1	45	102	177
<b>Max GPM</b>	28	50	80	190	314	691	1190	2700	4680
<b>Max LPM</b>	106	189	302	719	1188	2615	4504	10221	17716

## Dimensions



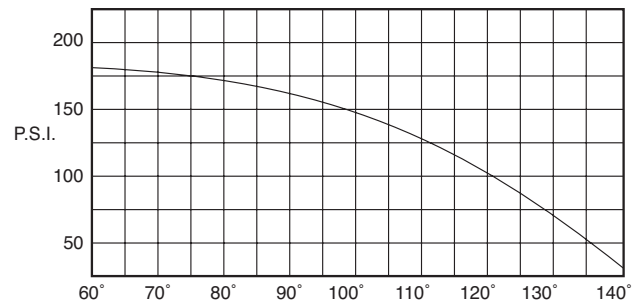
NOTE:  
 Housing Optional



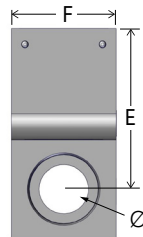
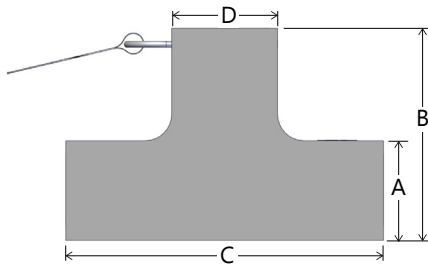
## Available Fittings

	Tee	Saddle	Weld	Braze	Sweat Tee
<b>Bronze</b>	1/2" - 4"	3" - 4"	x	3" - 8"	1/2" - 4"
<b>PVC</b>	1/2" - 2"	3" - 8"	x	x	x
<b>Stainless Steel</b>	1/2" - 2" 304SS	x	3" - 8" 316SS	x	x
<b>Carbon Steel</b>	1/2" - 2"	x	3" - 8"	x	x
<b>Ductile Iron</b>	x	3" - 8"	x	x	x

## Pressure vs. Temperature (PVC/Polypro)



## PVC Block Tee Fitting (Figure 1)



## PVC Tee Fittings (Figure 2)

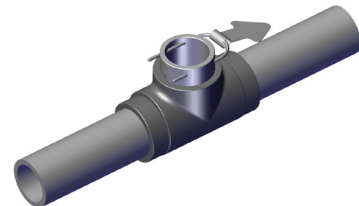
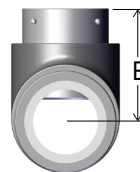
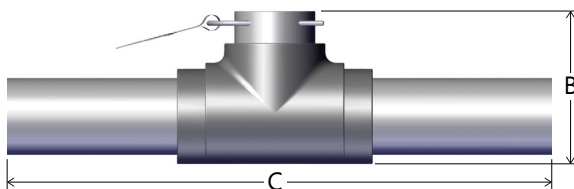


Figure	Pipe Size	A	B	C	D	E	F	Ø
1	1/2"	1.50" (3.81 cm)	3.80" (9.65 cm)	6.00" (15.24 cm)	2.00" (5.08 cm)	3.15" (8.00 cm)	2.00" (5.08 cm)	0.83" (2.11 cm)
1	3/4"	1.90" (4.83 cm)	4.00" (10.16 cm)	6.00" (15.24 cm)	2.00" (5.08 cm)	3.05" (7.75 cm)	2.00" (5.08 cm)	1.06" (2.69 cm)
1	1"	1.88" (4.77 cm)	4.00" (10.16 cm)	6.00" (15.24 cm)	2.00" (5.08 cm)	3.06" (7.77 cm)	2.00" (5.08 cm)	1.325" (3.36 cm)
2	1 1/2"	—	4.50" (11.43 cm)	19.4" (49.28 cm) (nominal)	—	3.35" (8.51 cm)	—	—
2	2"	—	4.90" (12.45 cm)	19.9" (50.55 cm) (nominal)	—	3.45" (8.76 cm)	—	—

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**INSERTION PADDLEWHEEL**  
**FLOW SENSOR**



## How to Order

Sensor Only	Description	Size	Sensor Material	Options
	Sensor Only.	1/2" - 3" = IP810 4" - 8" = IP820	Brass = B 316 Stainless Steel = S PVC = P Polypro = Y	Rotor with Ceramic Shaft, PVDF, Kynar® = -01 Micropower Pickup (Required for use with FT450) = -04 Standard Power, LMI 4-pin Connector = -06 Standard Power, Seametrics Control Connector = -07 *Immersible = -40 Viton® O-Ring = -60 Rotor with Kynar®/Silicon Carbide Shaft = -68 Roytronic® Series A Pump 5-pin Connector = -106 **High Pressure (Stainless Only) = -HP
FT430 Mounted on Sensor	Description	Size	Sensor Material	Options
	Rate & total indicator with pulse, externally powered (FT430) mounted on the sensor.	1/2" - 3" = IP813 4" - 8" = IP823	Brass = B 316 Stainless Steel = S PVC = P Polypro = Y	Rotor with Ceramic Shaft, PVDF, Kynar® = -01 Tamper Evident Kit = -32 Viton® O-Ring = -60 Non-resettable Total = -64 Rotor with Kynar®/Silicon Carbide Shaft = -68 Dual Relay Output = -98 Hinged Display Cover = -126 **High Pressure (Stainless Only) = -HP
DL76 Mounted on Sensor <sup>1</sup>	Description	Size	Sensor Material	Options
	Data logger (DL76) mounted on the sensor.	1/2" - 3" = IP816 4" - 8" = IP826	Brass = B 316 Stainless Steel = S PVC = P Polypro = Y	Rotor with Ceramic Shaft, PVDF, Kynar® = -01 Micropower Pickup = -04 Tamper Evident Kit = -32 Viton® O-Ring = -60 Rotor with Kynar®/Silicon Carbide Shaft = -68 **High Pressure (Stainless Only) = -HP
FT450 Mounted on Sensor	Description	Size	Sensor Material	Options
	Rate & total indicator with pulse, battery powered (FT450) mounted on the sensor.	1/2" - 3" = IP817 4" - 8" = IP827	Brass = B 316 Stainless Steel = S PVC = P Polypro = Y	Rotor with Ceramic Shaft, PVDF, Kynar® = -01 Tamper Evident Kit = -32 Viton® O-Ring = -60 Non-resettable Total = -64 Rotor with Kynar®/Silicon Carbide Shaft = -68 Hinged Display Cover = -126 **High Pressure (Stainless Only) = -HP
FT440 Mounted on Sensor	Description	Size	Sensor Material	Options
	Rate & total indicator with pulse & 4-20 mA output, loop powered (FT440) mounted on the sensor.	1/2" - 3" = IP819 4" - 8" = IP829	Brass = B 316 Stainless Steel = S PVC = P Polypro = Y	Rotor with Ceramic Shaft, PVDF, Kynar® = -01 Tamper Evident Kit = -32 Viton® O-Ring = -60 Non-resettable Total = -64 Rotor with Kynar®/Silicon Carbide Shaft = -68 Dual Relay Output = -98 Hinged Display Cover = -126 **High Pressure (Stainless Only) = -HP

\* Immersible to maximum of 3 ft (1m), up to 2 weeks

\*\*Requires appropriate fitting.

Kynar is a registered trademark of Arkema, Inc. Roytronic is a registered trademark of Milton Roy Company. Viton is a registered trademark of DuPont Corporation.

<sup>1</sup> **DL76 configured units will be retired 12/31/2020**

**User is responsible for reviewing end use application with their supplier for product suitability.**