

FEATURES

- Wide flow range
- One moving part
- Hot tap available
- Modular electronics compatible
- Easily depth adjustable for 3-40" pipe

APPLICATIONS

- Clean water
- Large pipes
- Aquariums, water parks
- Water & wastewater monitoring

GENERAL INFORMATION

The **IP100/200-Series** are adjustable depth insertion paddlewheels that come in brass, PVC or 316 stainless models to fit 3" to 40" pipe. Adapters mate with standard 1-1/2" (110/210) or 2" (150/250 or PVC110/210) NPT threaded fittings such as saddles and weldolets which may be purchased either locally or from Seametrics.

Ruby bearings and a non-drag Hall-effect sensor give these meters the widest flow range of any of the paddlewheel types. A sensor detects the passage of miniature magnets in the six rotor blades. The resulting square-wave signal can be sent for hundreds of feet over unshielded cable without a transmitter and connected directly to many PLC's and other controls without any additional electronics.

If desired, a modular system of electronics can be installed directly on the flow sensor or mounted remotely. The FT415 (battery powered) or FT420 (loop powered) flow indicator provides digital rate and total display, as well as programmable pulse output; the FT420 also provides a 4-20 mA analog output. If a display is not required, the A055 provides 4-20 mA analog output, and the PD10 provides a programmable pulse for pump pacing.

The "hot-tap" models (IP150/250) can be installed or serviced without shutting down the line by means of a 2" full-port isolation valve that comes with a nipple for installation on the pipe fitting. In most circumstances, no special tool is required.

FEATURES

- Modular electronics (optional)
 - rate/total/pulse/4-20 mA
 - blind 4-20 transmitter
 - pulse divider

18 Foot Cable

Rugged cast aluminum housing

Compression nut
for easy adjustment, secure locking

Adapter mates with
1-1/2" FNPT threaded fitting

Rotor housing

Removable jewel bearings
Rotor

IP110/210

3/4" diameter tubing
for low insertion force

2" Adapter
removes to mount
hot-tap machine

Full-port 2" ball valve
for sensor removal
(2" gate valve for PVC)

Adapter mates
with 2" FNPT
threaded fitting

Locking collar

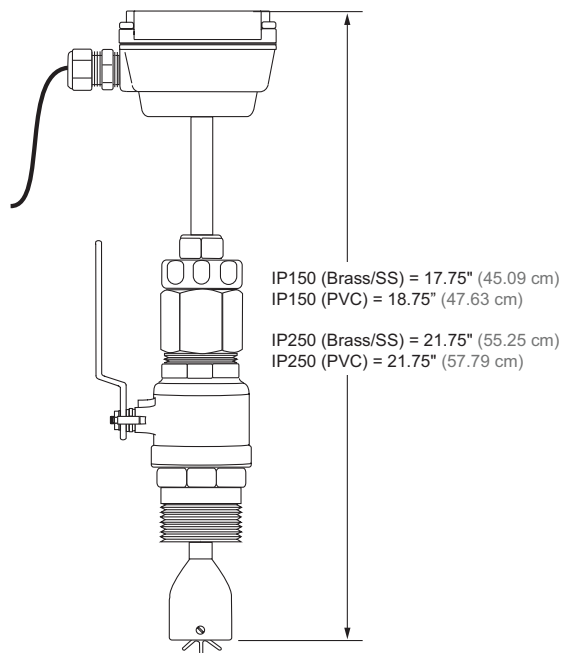
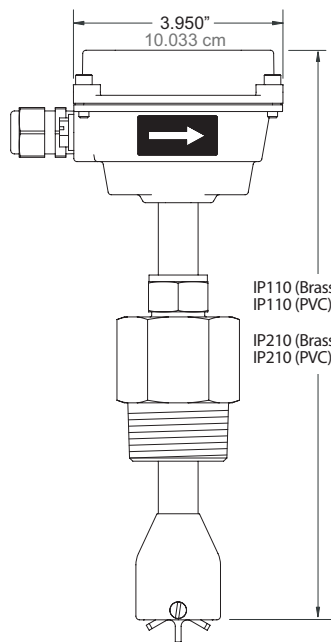
IP150/250

SPECIFICATIONS*

Power Source		Standard	Micropowered (-04 Option)	
Supply Voltage/Current		6-40 Vdc/< 2 mA	3.5-16 Vdc/60 μA @ 3.5 Vdc	
Sensor		Hall Effect sensor, 12 Vdc current sinking pulse		
Materials	Housing	Cast aluminum		
	Sensor Body	Brass, PVC or 316 SS		
	Rotor	PVDF (Kynar)		
	Shaft	Nickel-bound tungsten carbide (zirconia ceramic optional)		
	Bearings	Ruby jewel		
	Isolation Ball Valve	IP110/210 (Brass/SS)	IP150/250 (Brass/SS)	PVC 110/210/150/250
		None	Bronze (316SS optional)	(PVC uses gate valve)
Fitting Size Required		1.5" FNPT	2" FNPT	2" FNPT
Flow Range				
Accuracy		+/- 1.5% of full scale		
Maximum Temperature				
	Brass/SS	200° F (93° C)		
	PVC	130° F (55° C)		
Insertion Force				
	Brass/SS	200 psi (14 bar)		
	PVC	150 psi (10 bar)		
Maximum Pressure				
	Brass/SS	200 psi (14 bar)		
	PVC	150 psi (10 bar)		
Insertion Force		0.44 x pressure in pipe		
Power		5-24 Vdc, 1.5 mA (3.5 - 16 Vdc with -04 option)		
Cable		#22 AWG 3-con, 18' (6m); 2,000' (650m) maximum cable run		
Regulatory		CE Mark (Standard Power Only)		

*Specifications subject to change. Please consult our website for the most current data (www.seametrics.com).

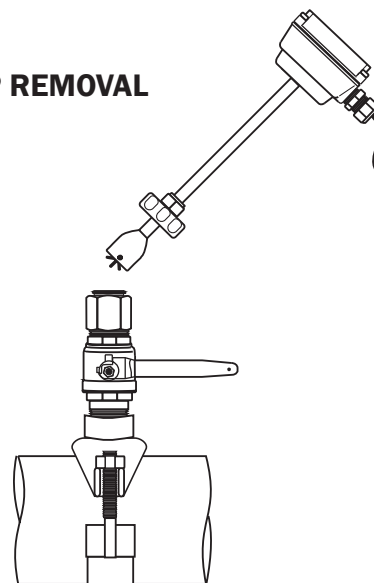
DIMENSIONS



HOT TAP INSTALLATION

Insertion and removal under pressure is possible due to the 2" full-port isolation valve, which comes with a nipple for installation on the pipe fitting. If it is necessary to do the initial installation under pressure, any standard hot tap drilling machine with 2" NPT adapter, such as a Transmate or a Mueller, can be used. Ordinarily, it is not necessary to use an installation tool, since the small-diameter tube can be controlled by hand at all but the highest pressures.

HOT TAP REMOVAL



FLOW RANGE

	3"	4"	6"	8"	10"	12"	16"	18"	24"	30"	36"	40"
GPM Min (.3ft/sec)	6.6	12	27	47	73	106	188	238	422	660	951	1,174
LPM Min (.09m/sec)	24.98	45.42	102.21	177.91	276.34	401.25	711.66	900.93	1597.44	2498.37	3599.93	4444.07
GPM Max (30ft/sec)	660	1200	2700	4700	7370	10600	18800	23800	42200	66000	95100	117400
LPM Max (9.1m/sec)	2498.37	4542.49	10220.61	17791.44	27898.48	40125.36	71165.74	90092.80	159744.40	249837.20	359992.70	444407.30



IP100/200-SERIES Insertion Paddlewheel Flow Sensor

HOW TO ORDER

Sensor Only					
Description	Size	Material	Standard Options		Hot Tap Options
Sensor Only.	3" - 12" = IP110 12" - 40" = IP210 Hot Tap 3" - 12" = IP150 12" - 40" = IP250	Brass = B 316 SS = S PVC = P	Rotor with Ceramic Shaft, PVDF, Kynar = -01 Brass Adapter Fitting 2" NPT = -02 SS Adapter Fitting 2" NPT = -02 Micropower Pickup = -04 Standard Power, LMI 4-pin Connector = -06 Std Power, Seametrics Ctrl Connector = -07 Brass Adapter 1 1/2" BSP = -23 SS Adapter 1 1/2" BSP = -24 Old Style Adapter 1 1/2" NPT = -35 Immersible = -40 12" Extension (210/250 Series Only) = -72 Roytronics Series-A 5-Pin Connector = -106		Rotor with Ceramic Shaft, PVDF, Kynar = -01 Micropower Pickup = -04 Standard Power, LMI 4-pin Connector = -06 Standard Power, Seametrics Control Connector = -07 316 SS Valve Assembly = -08 No Valve Assembly = -09 Immersible = -40 12" Extension (210/350 Series Only) = -72 Roytronics Series-A 5-Pin Connector = -106
FT420 Mounted on Sensor					
Description	Size	Material	Standard Options		Hot Tap Options
Rate & total indicator with pulse & 4-20 mA output, externally powered (FT420) mounted on the sensor.	3" - 12" = IP111 12" - 40" = IP211 Hot Tap 3" - 12" = IP151 12" - 40" = IP251	Brass = B 316 SS = S PVC = P	Rotor with Ceramic Shaft, PVDF, Kynar = -01 Brass Adapter Fitting 2" NPT = -02 SS Adapter Fitting 2" NPT = -02 Brass Adapter 1 1/2" BSP = -23 SS Adapter 1 1/2" BSP = -24 Tamper Evident Kit = -32 Old Style Adapter 1 1/2" NPT = -35 Immersible = -40 Non-resettable Total = -64 12" Extension (210/250 Series Only) = -72 Dual Relay Output = -98 Hinged Display Cover = -126		Rotor with Ceramic Shaft, PVDF, Kynar = -01 316 SS Valve Assembly = -08 No Valve Assembly = -09 Non-resettable Total = -64 12" Extension (210/350 Series Only) = -72 Dual Relay Output = -98 Hinged Display Cover = -126
A055 Mounted on Sensor					
Description	Size	Material	Standard Options		Hot Tap Options
Blind 4-20 mA analog transmitter (A055) mounted on the sensor.	3" - 12" = IP112 12" - 40" = IP212 Hot Tap 3" - 12" = IP152 12" - 40" = IP252	Brass = B 316 SS = S PVC = P	Rotor with Ceramic Shaft, PVDF, Kynar = -01 Brass Adapter Fitting 2" NPT = -02 SS Adapter Fitting 2" NPT = -02 Standard Power, LMI 4-pin Connector = -06 Brass Adapter 1 1/2" BSP = -23 SS Adapter 1 1/2" BSP = -24 Old Style Adapter 1 1/2" NPT = -35 Immersible = -40 12" Extension (210/250 Series Only) = -72 Roytronics Series-A 5-Pin Connector = -106		Rotor with Ceramic Shaft, PVDF, Kynar = -01 Standard Power, LMI 4-pin Connector = -06 316 SS Valve Assembly = -08 No Valve Assembly = -09 12" Extension (210/350 Series Only) = -72 Roytronics Series-A 5-Pin Connector = -106
FT415 Mounted on Sensor					
Description	Size	Material	Options		Hot Tap Options
Rate & total indicator with pulse & 4-20 mA output, battery powered (FT415) mounted on the sensor.	3" - 12" = IP114 12" - 40" = IP214 Hot Tap 3" - 12" = IP154 12" - 40" = IP254	Brass = B 316 SS = S PVC = P	Rotor with Ceramic Shaft, PVDF, Kynar = -01 Brass Adapter Fitting 2" NPT = -02 SS Adapter Fitting 2" NPT = -02 Brass Adapter 1 1/2" BSP = -23 SS Adapter 1 1/2" BSP = -24 Tamper Evident Kit = -32 Old Style Adapter 1 1/2" NPT = -35 Immersible = -40 Non-Resettable Total = -64 12" Extension (210/250 Series Only) = -72 Hinged Display Cover = -126		Rotor with Ceramic Shaft, PVDF, Kynar = -01 316 SS Valve Assembly = -08 No Valve Assembly = -09 Tamper Evident Kit = -32 Non-resettable Total = -64 12" Extension (210/350 Series Only) = -72 Hinged Display Cover = -126
DL76 Mounted on Sensor					
Description	Size	Material	Options		Hot Tap Options
Data logger (DL76) mounted on the sensor.	3" - 12" = IP116 12" - 40" = IP216 Hot Tap 3" - 12" = IP156 12" - 40" = IP256	Brass = B 316 SS = S PVC = P	Rotor with Ceramic Shaft, PVDF, Kynar = -01 Brass Adapter Fitting 2" NPT = -02 SS Adapter Fitting 2" NPT = -02 Brass Adapter 1 1/2" BSP = -23 SS Adapter 1 1/2" BSP = -24 Tamper Evident Kit = -32 Old Style Adapter 1 1/2" NPT = -35 Immersible = -40		Rotor with Ceramic Shaft, PVDF, Kynar = -01 316 SS Valve Assembly = -08 No Valve Assembly = -09 Tamper Evident Kit = -32 12" Extension (210/350 Series Only) = -72
PD10 Mounted on Sensor					
Description	Size	Material	Options		Hot Tap Options
Pulse Divider (PD10) mounted on the sensor.	3" - 12" = IP118 12" - 40" = IP218 Hot Tap 3" - 12" = IP158 12" - 40" = IP258	Brass = B 316 SS = S PVC = P	Rotor with Ceramic Shaft, PVDF, Kynar = -01 Brass Adapter Fitting 2" NPT = -02 SS Adapter Fitting 2" NPT = -02 LMI Pump 4-pin Connector = -06 Brass Adapter 1 1/2" BSP = -23 SS Adapter 1 1/2" BSP = -24 Old Style Adapter 1 1/2" NPT = -35 10 Ft. Cable for LMI Connector = -37 Immersible = -40 Roytronics Series-A 5-Pin Connector = -106		Rotor with Ceramic Shaft, PVDF, Kynar = -01 LMI Pump 4-pin Connector = -06 316 SS Valve Assembly = -08 No Valve Assembly = -09 12" Extension (210/350 Series Only) = -72 Roytronics Series-A 5-Pin Connector = -106

**Requires appropriate fitting.

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