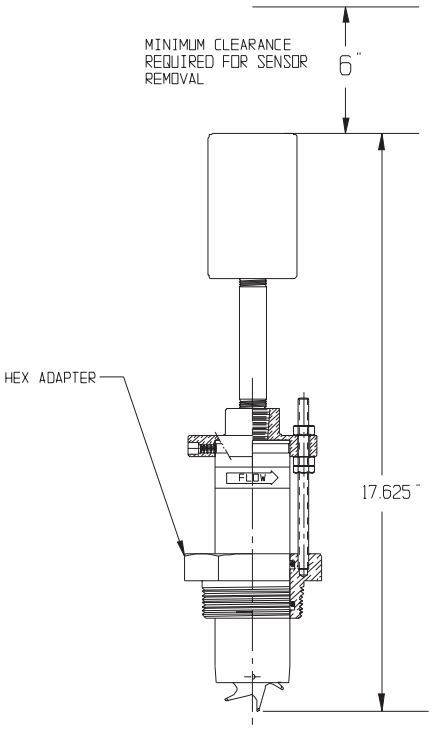
Series 200 Analog and Scaled Pulse Output Flow Sensors

Data Industrial Impeller flow sensors feature an optional analog or scaled pulse output. The option includes a Series 300 microprocessor based transmitter mounted in a weathertite metallic enclosure close coupled to a Series 200 flow sensor. Series 200 flow sensors feature a six bladed impeller design with a proprietary non-magnetic sensing mechanism. The forward swept impeller shape provides higher, more consistent torque and is less prone to be fouled by water borne debris. The forward curved shape coupled with the absence of magnetic drag provides improved operation and repeatability even at lower flow rates. this is especially true where the impeller is exposed to metallic or rust particles found in steel or iron pipes. As the liquid flow turns the impeller, a low impedance square wave signal is transmitted with a frequency proportional to the flow rate. For hydronic heating loops or condensate return lines that operate above 220°F (105°C) we offer new flow sensors rated at 285°F (140°C) continuous service or 305°F (150°C) peak temperature at pressure ratings as high as 400psi.

The **analog output option** is a 4-wire powered, programmable transmitter capable of providing a linear 4-20mA analog signal.

The **scaled pulse output option** is a 4-wire, programmable transmitter capable of providing a scaled units/pulse signal.

Series 220B and 220SS



With an onboard microcontroller and digital circuitry, the analog or digital output is programmed with Windows® software program on a PC (not provided). This eliminates the need to adjust potentiometers and produces precise, accurate and drift free signals. This saves both time and money by lowering overall maintenance time.

1. **Tee Mounted Sensors:**
   250B & 228 are in-line tee type models available in sizes ranging from ½" to 2½" NPT.

2. **Insert Sensors:**
   220B (Brass) & 220SS (Stainless Steel) model may be installed in any pipe size or material from 3" diameter and up.

3. **Hot Tap Sensors:**
   The Model 225B (Brass) insert sensor with gate type isolation valve is for commercial installations on new piping that does not require a wet tap. The Models 226B (Brass) and 226SS (Stainless Steel) feature a 400psi ball valve for higher pressure service and hot tap installations. All Hot Tap style sensors (Series 225 & 226) can be installed or removed from lines 3" and up, without interrupting flow by using the HTT insertion/removal tool.

Data Industrial Corporation, 11 Industrial Drive, P.O. Box 740, Mattapoisett, MA 02739, Telephone: (508) 758-6390 FAX: (508) 758-4057
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Specifications

Recommended Design Flow Range
— 0.5 to 30 ft/sec for all except 250 sensors
— 0.3 to 15 ft/sec for 250 tee sensors
— Initial detection below 0.3 ft/sec

Accuracy
— 1% of full scale

Linearity
— 1% of full scale

Transient Suppression
— Sensor input, power input, and pulse input implemented to withstand 5000 volt 0.5 µs, 100 kHz ring wave

Analog Output Power
— Loop Input Voltage 9-35 VDC

Analog Load Resistance
— Max 750 Ω @ 24 VDC

Output Response Time (Analog)
— Varies with filter

Scaled Pulse Output Power
— 12-30 VAC, 45 mA max
— 12-40 VDC, 30 mA max
— Reverse and over voltage protected to 40 VDC

Pulse Output (Scaled Pulse Output Option)
— Open collector transistor pulse in any standard or custom flow total units
— Adjustable to 50 mS to 1.0 second pulse output width in 50 mS increments
— Maximum sinking current: 100 mA @ 36 VDC

Temperature Rating (Electronics Option A, B, E, F)
— 221°F (105°C) continuous service

Temperature Rating (Electronics Option C, D)
— 285°F (140°C) continuous service
— 305°F (150°C) peak temperature (limited duration)

Pressure Ratings

	At 100°F	At 300°F
220SS	400 psi	325 psi
220B	400 psi	325 psi
225B	300 psi	210 psi
226B	400 psi	250 psi
226SS	400 psi	300 psi
228B	200 psi	165 psi
228CB	175 psi	140 psi
250B	400 psi	325 psi

Series 200 Analog & Scaled Pulse Output Flow Sensor Ordering Matrix

Example:	2	20	BR	0	0	A	-	1	2	1	1
STYLE											
Short Insert		20									
Hot Tap Insert-Gate Valve		25									
Hot Tap Insert-Ball Valve		26									
Tee Mounted		28									
Venturi Tee Mount		50									
MATERIAL											
Brass			BR								
Stainless Steel			SS								
PVC			PV								
PVDF			PF								
Tee - Carbon Steel Sensor Brass			CB								
Tee - Carbon Steel Sensor Stainless Steel			CS								
PVC Sleeve w/Stainless Steel			PVS								
SIZE											
Insert Style				00							
1"				10							
1.25"				12							
1.5"				15							
2"				20							
2.5"				25							
3"				30							
4"				40							
ELECTRONICS HOUSING											
PPS					0						
PVDF					1						
ELECTRONICS											
Standard with Analog Output						A					
Standard with Scaled Pulse Output						B					
High Temperature with Analog Output						C					
High Temperature with Scaled Pulse Output						D					
High Voltage / Noise Filter (24V) with Analog Output						E					
High Voltage / Noise Filter (24V) with Scaled Pulse Output						F					
O-RING											
Viton 494								0			
EPDM 692								1			
Kalrez 4079								2			
Food Grade Silicon								3			
Neoprene								4			
Chemraz 505								5			
Teflon Encapsulated Viton								6			
Teflon Encapsulated Silicone								7			
Buna N								8			
Aflas								9			
SHAFT											
Zirconia Ceramic "unhipped"									0		
Hastalloy C									1		
Tungsten Carbide									2		
Titanium									3		
Monel									5		
316 Stainless Steel									6		
Tantalum									7		
Zirconia Ceramic "hipped"									8		
IMPELLER											
Nylon										1	
Tefzel										2	
BEARING											
Pennlon (UHMWPE)											1
Tefzel											2
Teflon											3

Wetted Materials for all sensors
— (see ordering matrix)

Sensor Sleeve and Hex Adapter for 220BR
— Sleeve: Admiralty Brass, UNS C44300
Hex Adapter: Bronze

Sensor Sleeve and Hex Adapter for 220SS
— 316 Series Stainless Steel

Sensor Sleeve and Hex Adapter for 225BR and 226BR
— Sleeve: Admiralty Brass, UNS C44300
Hex Adapter: Valve Bronze, UNS C83600

Sensor Sleeve and Hex Adapter for 226SS
— 316 Series Stainless Steel

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