

The Data Industrial Series 228 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 than four bladed impeller designs 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. The signal can travel up to 2000' between the flow sensor and the display unit without the need for amplification. All sensors except irrigation versions are supplied with 20' of 2-conductor 20 AWG shielded U.L. type PTLTC 105°C cable.



## Series 228 Tee Sensors

The tee mounted flow sensors consist of a standard 220BR or 220SS mounted in a 2" or 2.5" tee.

- Model 228B - brass/bronze sensor mounted in a bronze tee.
- Model 228CB - brass/bronze sensor mounted in a cast iron tee.
- Model 228CS - stainless steel sensor mounted in a cast iron tee.
- Model 228SS - stainless steel sensor mounted in a stainless steel tee.

**228 Series Metal Tee Sensors Ordering Matrix (2" to 2½")**

Example: 2   28   BR   20   0   5   -   0   2   1   1	
<b>STYLE</b>	
Tee Mounted Insert Sensor ( 2" and 2.5" only)	28
<b>MATERIAL</b>	
Brass/Bronze	BR
Stainless Steel ( 2" and 2.5" only)	SS
Tee - Carbon Steel Sensor Brass	CB
Tee - Carbon Steel Sensor Stainless Steel	CS
<b>Size</b>	
2"	20
2.5"	25
<b>Electronics Housing</b>	
PPS	0
<b>ELECTRONICS</b>	
Magnetic	2
FM/CSA Approved	4
Standard	5
IR-Irrigation	6
<b>O-RING</b>	
Viton®	0
EPDM	1
Buna N	8
<b>SHAFT</b>	
Zirconia Ceramic	0
Hastalloy C	1
Tungsten Carbide	2
Titanium	3
Monel	5
316 Stainless Steel	6
Tantalum	7
<b>IMPELLER</b>	
Nylon	1
Tefzel®	2
<b>BEARING</b>	
Pennlon	1
Tefzel®	2
Teflon®	3

Viton®, Teflon®, Tefzel® are registered trademarks of Dupont Dow Elastomers



## Specifications

### Wetted Materials (except tees)

- See Ordering Matrix

### Sensor Sleeve and Hex Adapter for 228BR and 228CB

- Sleeve: Admiralty Brass, UNS C44300; Hex Adapter: Valve Bronze, UNS C83600

### Sensor Sleeve and Hex Adapter for 228SS and 228CS

- 300 Series Stainless Steel

### Tee for 228BR

- Cast Bronze, Class 125 Per ASME B16.15, and Copper Coupling

### Tee for 228SS

- Cast 316 Stainless, Class 150

### Tee for 228CB and 228CS

- Cast Iron, Class 125 Per ASME B16.4

### Temperature Ratings

- Standard Version:  
221°F (105°C) continuous service
- Irrigation Version:  
150°F (66°C) continuous service
- High Temperature Version:  
285°F (140.6°C) continuous service  
305°F (150°C) peak temperature  
(limited duration)

### Pressure

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

### Recommended Design Flow Range

- 0.5 to 30 ft/sec

### Accuracy

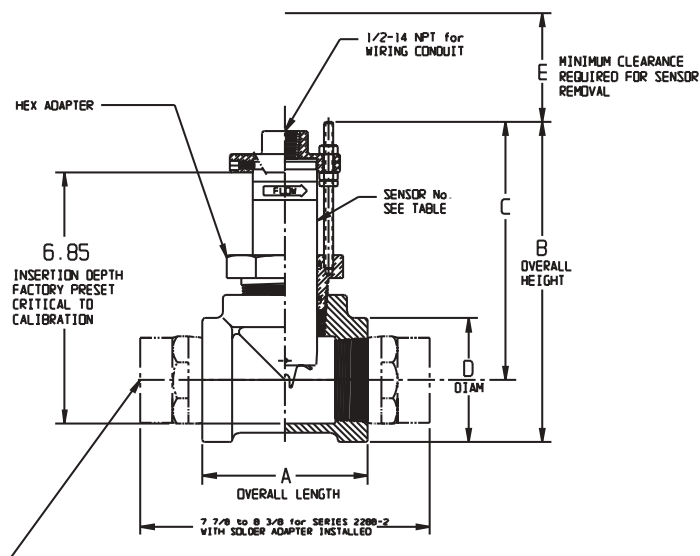
- $\pm 1.0\%$  of full scale over recommended design flow range

### Repeatability

- $\pm 0.3\%$  of full scale over recommended design flow range

### Linearity

- $\pm 0.2\%$  of full scale over recommended design flow range



TWO (2) 2 inch ADAPTERS, THREAD TO SOLDER, SUPPLIED WITH 220B-2 ONLY

NOTE- DIMENSIONS "B" AND "C" MAY VARY  $\pm 1/4$  inch, DEPENDING UPON MAKE-UP ON PIPE THREADS.

228CB-2.5	SEE MATRIX	71881T	2.5-8	4.88	9	7	4	6
228B-2.5	SEE MATRIX	71883T	2.5-8	4.75	8.78	7	3.56	6
228SS-2	SEE MATRIX	71138T	2-11.5	4.5	6.38	6.88	3	6
228CS-2	SEE MATRIX	71876T	2-11.5	4.5	8.57	6.88	3.38	6
228CB-2	SEE MATRIX	71876T	2-11.5	4.5	8.57	6.88	3.38	6
228B-2	SEE MATRIX	71879T	2-11.5	4.25	8.35	6.88	2.94	6
SERIES No COMPLETE	SENSOR No.	TEE No.	NPT	A	B	C	D	E

### Transducer Excitation

- Quiescent current 600uA @ 8VDC to 35VDC max.
- Quiescent voltage ( $V_{high}$ )  
Supply Voltage  $-(600uA \times \text{Supply impedance})$
- ON State ( $V_{Low}$ ) Max. 1.2VDC @ 40mA current limit (15Ω + 0.7VDC)

### Electrical Cable for Standard Sensor Electronics

- 20 feet of 2-conductor 20 AWG shielded U.L. type PTLC wire provided for connection to display or analog transmitter unit. Rated to 105°C. May be extended to a maximum of 2000 feet with similar cable and insulation appropriate for application.

### Electrical Cable for IR Sensor Electronics

- 48 inches of U.L. Style 116666 copper solid AWG 18 wire w/direct burial insulation. Rated to 105°C.

