

DESCRIPTION

The Data Industrial Series 228 flow sensors from Badger Meter® 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 feet between the flow sensor and the display unit without the need for amplification. All sensors, except irrigation versions, are supplied with 20 feet of 2-conductor 20 AWG shielded UL type PTL C 221° F (105° C) cable.

MATERIALS

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

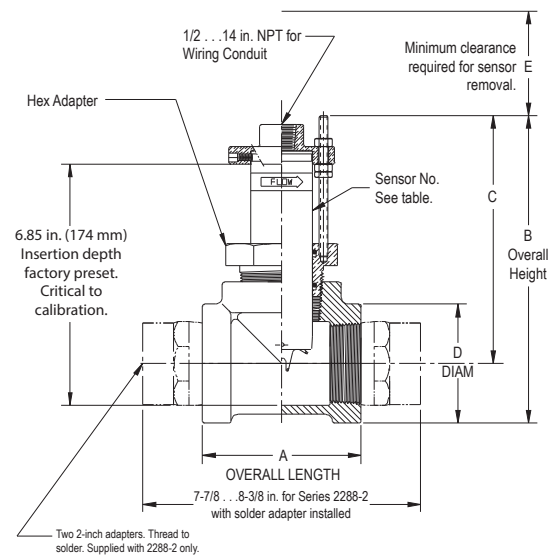
Model 228BR	Brass/bronze sensor mounted in a bronze tee
Model 228SS	Stainless steel sensor mounted in a stainless steel tee
Model 228CB	Brass/bronze sensor mounted in a cast iron tee



SPECIFICATIONS

Wetted Materials (except tees)	See ordering matrix	
Sensor Sleeve and Hex Adapter for 228BR, 228CB	<i>Sleeve</i>	Admiralty brass, UNS C44300
	<i>Hex Adapter</i>	Valve bronze, UNS C83600
Sensor Sleeve and Hex Adapter for 228SS	Series 300 stainless steel	
Tee for 228BR	Cast bronze, Class 125 per ASME B16.4	
Tee for 228SS	Cast 316 stainless, Class 150	
Tee for 228CB	Cast iron, Class 125 per ASME B16.4	
Temperature Ratings	<i>Standard Version</i>	221° F (105° C) continuous service
	<i>Irrigation Version</i>	150° F (66° C) continuous service
Pressure at 100° F	228B: 200 psi; 228CB: 175 psi; 228SS: 300 psi	
Recommended Design Flow Range	0.5...30 ft/sec for 228	
Accuracy	±1.0% of full scale over recommended design flow range	
Repeatability	±0.3% of full scale over recommended design flow range for 228	
Linearity	±0.2% of full scale over recommended design flow range for 228	
Transducer Excitation	<i>Quiescent Current</i>	600µA at 8V DC to 35V DC max.
	<i>Quiescent Voltage</i>	(V _{High})
	<i>Supply Voltage</i>	600µA * supply impedance
	<i>ON State (V_{Low}) Max.</i>	1.2V DC at 40 mA current limit (15 Ω + 0.7V DC)
Electrical Cable for Standard Sensor Electronics	20 feet of 2-conductor 20 AWG shielded UL type PTL C wire provided for connection to display or analog transmitter unit. Rated to 221° F (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 UL Style 116666 copper solid AWG 18 wire with direct burial insulation. Rated to 221° F (105° C).	

DIMENSIONS



Series No. Complete	Sensor No.	Tee No.	NPT	A	B *	C *	D	E
228CB-2.5	See matrix	71881T	2.5-8	4.98 in. (126 mm)	9 in. (229 mm)	7 in. (178 mm)	4 in. (101 mm)	6 in. (152 mm)
228BR-2.5		71883T	2.5-8	4.75 (121 mm)	8.78 (223 mm)	7 in. (178 mm)	3.56 (90 mm)	6 in. (152 mm)
2288SS-2		711338T	2.11-8	4.5 (114 mm)	5.38 (137 mm)	5.88 (149 mm)	3 in. (76 mm)	6 in. (152 mm)
228CB-2		71876T	2.11-8	4.5 (114 mm)	5.38 (137 mm)	5.88 (149 mm)	3 in. (76 mm)	6 in. (152 mm)
228BR-2		71879T	2.11-8	4.25 (108 mm)	8.35 (212 mm)	5.88 (149 mm)	2.94 in. (75 mm)	6 in. (152 mm)

* Dimensions may vary ±0.25 in., depending on makeup of pipe threads.

PART NUMBER MATRIX

Example: 2 28 BR 20 0 5 - 1 2 1 1 1											
STYLE											
Tee Mounted Insert Sensor	28										
MATERIAL											
Brass (2" and 2.5" Only)	BR										
Stainless Steel (2" Only)	SS										
Carbon Steel Tee, Brass Sensor	CB										
SIZE											
2"	20										
2.5"	25										
ELECTRONICS HOUSING											
PPS	0										
ELECTRONICS											
CSA Approved	4										
Standard Flow (STANDARD)	5										
IR-Irrigation	6										
High Temperature	8										
O-RING											
Viton®	0										
EPDM (STANDARD)	1										
Buna N	8										
SHAFT											
Zirconia Ceramic	0										
Tungsten Carbide (STANDARD)	2										
316 Stainless Steel	6										
IMPELLER											
Nylon (STANDARD)	1										
Tefzel™	2										
BEARING											
UHMWPE (STANDARD)	1										
Tefzel®	2										
Teflon®	3										

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