

DESCRIPTION

The 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 PTLC 221° F (105° C) cable.

MATERIALS

The 228SS tee-mounted flow sensor consists of a standard 220SS sensor mounted in a 2 inch stainless steel tee.

SPECIFICATIONS



Wetted Materials (except tees)	See "Part Number Construction" on page 3	
Sensor Sleeve and Hex Adapter	Series 300 stainless steel	
Tee for 228SS	Cast 316 stainless, Class 150, per MSS SP-114	
Temperature Ratings	<i>Standard Version</i>	221° F (105° C) continuous service
	<i>Irrigation Version</i>	150° F (66° C) continuous service
Pressure Ratings	Temperature (F)	Pressure (psi)
	-20...150	300
	200	265
	250	225
	300	165
Recommended Design Flow Range	0.5...30 ft/sec	
Accuracy	±1.0% of full scale over recommended design flow range	
Repeatability	±0.3% of full scale over recommended design flow range	
Linearity	±0.2% of full scale over recommended design flow range	
Transducer Excitation	Supply voltage = 8V DC min. 35V DC max.	
	Quiescent current = 600 uA (typical)	
	OFF State (V_{High}) = Supply voltage - (600 μ * Supply impedance)	
	ON State (V_{Low}) = 1.2V DC @ 40 mA (15 Ω + 0.7V DC)	
Electrical Cable for Standard Sensor Electronics	20 ft (6 m) of 2-conductor 20 AWG shielded UL type PTLC 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 in. (122 cm) of UL Style 116666 copper solid AWG 18 wire with direct burial insulation. Rated to 221° F (105° C).	

DIMENSIONS

228SS Standard Sensor

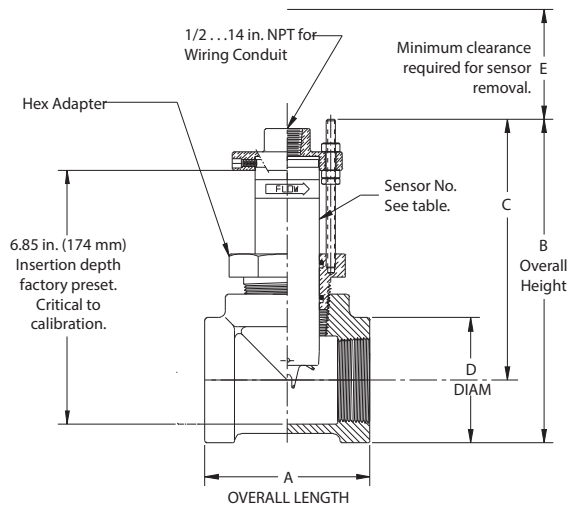


Figure 1: Standard 228SS flow sensor

Series No.	Tee No.	NPT Threads per inch	A	B *	C *	D	E
228SS	711338T	11.5	4.5 in. (114 mm)	5.38 in. (137 mm)	5.88 in. (149 mm)	3 in. (76 mm)	6 in. (152 mm)

* Dimensions (B, C) may vary ± 0.25 in., depending on the makeup of the pipe threads.

228SS High Temperature Sensor

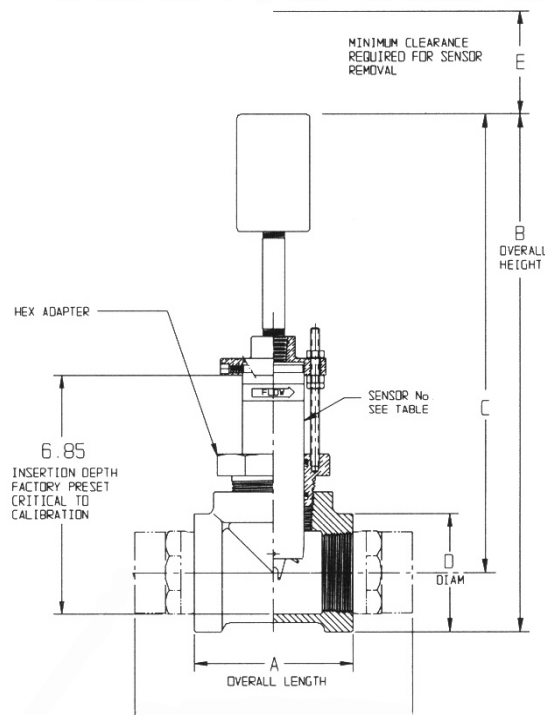


Figure 2: High temperature 228SS flow sensor

Series No.	Tee No.	NPT Threads per inch	A	B *	C *	D	E
228SS	711338T	11.5	4.5 in. (114 mm)	18.88 in. (480 mm)	17.38 in. (441 mm)	3 in. (76 mm)	6 in. (152 mm)

* Dimensions (B, C) may vary ± 0.25 in., depending on the makeup of the pipe threads.

PART NUMBER CONSTRUCTION

Standard Sensor

Example: 2		28	SS	20	0	5	-	1	2	1	1
STYLE											
Tee Mounted Insert Sensor		28									
MATERIAL											
Stainless Steel			SS								
SIZE											
2"				20							
ELECTRONICS HOUSING											
PPS					0						
ELECTRONICS											
Standard Flow (STANDARD)						5					
IR-Irrigation						6					
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

High Temperature Sensor

Example: 2		28	SS	20	4	8	-	0	2	2	3
STYLE											
Tee Mounted Insert Sensor		28									
MATERIAL											
Stainless Steel			SS								
SIZE											
2"				20							
ELECTRONICS HOUSING											
PEEK					4						
ELECTRONICS											
High Temperature						8					
O-RING											
Viton®								0			
SHAFT											
Tungsten Carbide									2		
IMPELLER											
Tefzel®										2	
BEARING											
Teflon®											3

Control. Manage. Optimize.

Data Industrial is a registered trademark of Badger Meter, Inc. Other trademarks appearing in this document are the property of their respective entities. Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2018 Badger Meter, Inc. All rights reserved.

www.badgermeter.com

The Americas | Badger Meter | 4545 West Brown Deer Rd | PO Box 245036 | Milwaukee, WI 53224-9536 | 800-876-3837 | 414-355-0400
México | Badger Meter de las Americas, S.A. de C.V. | Pedro Luis Ogazón N°32 | Esq. Angelina N°24 | Colonia Guadalupe Inn | CP 01050 | México, DF | México | +52-55-5662-0882
Europe, Eastern Europe Branch Office (for Poland, Latvia, Lithuania, Estonia, Ukraine, Belarus) | Badger Meter Europe | ul. Korfantego 6 | 44-193 Knurów | Poland | +48-32-236-8787
Europe, Middle East and Africa | Badger Meter Europa GmbH | Nurtinger Str 76 | 72639 Neuffen | Germany | +49-7025-9208-0
Europe, Middle East Branch Office | Badger Meter Europe | PO Box 341442 | Dubai Silicon Oasis, Head Quarter Building, Wing C, Office #C209 | Dubai / UAE | +971-4-371 2503
Slovakia | Badger Meter Slovakia s.r.o. | Racianska 109/B | 831 02 Bratislava, Slovakia | +421-2-44 63 83 01
Asia Pacific | Badger Meter | 80 Marine Parade Rd | 21-06 Parkway Parade | Singapore 449269 | +65-63464836
China | Badger Meter | 7-1202 | 99 Hangzhong Road | Minhang District | Shanghai | China 201101 | +86-21-5763 5412
Switzerland | Badger Meter Swiss AG | Mittelholzerstrasse 8 | 3006 Bern | Switzerland | +41-31-932 01 11