

## Flow Transmitter for Liquids / Gases (W, X, Y and Z Options)

Sturdy in-line metal construction flow meter can be fitted with a 4-20mA, Hi/Lo alarm (N.O.) relays, or 0-1000Hz frequency linear output signal for interfacing with remote indicators, computers, controllers and alarms.



### Features and Benefits

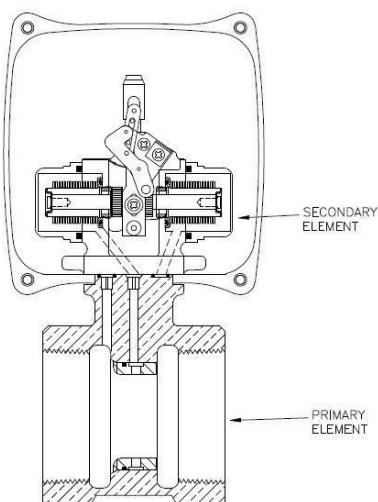
- 3.5" (90mm) 270° analog dial for reading at a glance
- Suitable for use with opaque and clear fluids.
- Measures 6:1 range with  $\pm 3\%$  F.S. accuracy
- Liquid flow ranges from 4 GPH (15 l/h) in 1/2" flow meter to 3000 GPM (12000 l/m) in 8" flow meter.
- Gas flow ranges from 40 SCFH (1 Nm<sup>3</sup>/h) in 1/2" flow meter to 20,000 SCFM (600Nm<sup>3</sup>/m) in 8" flow meter.

### Applications

- Compressed Gas Monitoring
- VFD – (Variable Frequency Drive Cooling)
- Lube Oil Petrochemical Industry

### Principle of Operation

Our differential pressure flow meters are based on the premise that the pressure drop across the meter is proportional to the square of the flow rate. The flow rate is obtained by measuring the pressure differential and extracting the square root. The transmitter option uses a solid-state sensor (Hall Effect) to detect the position of the pointer and lever mechanism which provide the desired linear output signal.



### Specifications

	Standard	Options
<b>Housing</b>	Polycarbonate	Aluminum
<b>Body</b>	Bronze	Monel 316 SS
<b>Bellows</b>	Bronze	Monel 316 SS Inconel
<b>Seals</b>	Buna-N	Viton EPR Teflon
<b>Crystal</b>	Polycarbonate	Glass Plastic
<b>Gear Movement Pressure</b>	Bronze	316 SS
	Maximum	180 psig
	Minimum	10 psig
<b>Temperature</b>		
	Maximum	212°F
	Minimum	-30°F
		350°F
		-80°F

### Transmitter

<b>Accuracy</b>	
Horizontal Flow	$\pm 3\%$ F.S. Above 30% F.S.
Vertical Flow	$\pm 5\%$ F.S. Above 30% F.S.
<b>Repeatability</b>	$\pm 1\%$ F.S.
<b>Ambient Temp.</b>	120°F, 50°C
<b>Current Output</b>	4-20mA into 800 ohms max.
<b>Contact Rating (Hi / Lo)</b>	3.0 amp @ 24V, 1.0 amp @ 117V, 0.5 amp @ 230V
<b>Frequency Output</b>	1000Hz F.S. 5V peak, 270 $\mu$ s time
<b>Power Input</b>	24Vdc per meter (customer provided)

## Model Number System

The example **1/2"-71-R-10-ADW** describes a 1/2" pipe size, 7000 series threaded connection, bronze material, flow from left to right, flow rate of 10 GPM, Options - Viton seals (A), Gasket case (D) and 4-20mA output signal (W).

<u>1/2"</u>	-	<u>7</u>	-	<u>1</u>	-	<u>R</u>	-	<u>10</u>	-	<u>ADW</u>
Pipe Size		Series		Material		Flow Direction		Flow Rate		Options
1/4"	(8mm)	7000 Series		1 - Bronze		L – Right to Left		See Flow Chart		See Table
1/2"	(15mm)	8000 Series		2 - Monel		R – Left to Right				
3/4"	(20mm)			3 - SST		VUR – Vertical Up Flow Dial Right				
1"	(25mm)					VUL - Vertical Up Flow Dial Left				
1 1/2"	(40mm)					VDR - Vertical Down Flow Dial Right				
2"	(50mm)					VDL - Vertical Up Flow Dial Left				
2 1/2"	(65mm)									
3"	(80mm)									
4"	(100mm)									
5"	(125mm)									
6"	(150mm)									
8"	(200mm)									

## Table of Options

		Liquids				Gases		Liquids			Gases	
		Size	GPM	LPM	SCFM	Nm <sup>3</sup> /h	Size	GPM	LPM	SCFM	Nm <sup>3</sup> /h	
A	Viton Seals											
B	EPR Seals											
B2	Teflon Seals	1/4	2	8	10	15	2 1/2	60	240	600	1000	
C	Calibrated for Specific Gravity	1/4	3	10	20	30	2 1/2	100	400	800	1200	
D	Gasketed Case	1/4	4	15	30	50	2 1/2	150	600	1000	1500	
D2	Gasketed Case w/Condulet						2 1/2	200	800	1200	2000	
E	Non-Standard Flow Rate											
ES	Low Flow Rate (Below 2 GPM)	1/2	2	8	10	15	3	200	800	1000	1500	
F	Aluminum Housing w/Plastic Dial Crystal	1/2	3	10	20	30	3	300	1000	2000	3000	
F2	Aluminum Housing w/Glass Dial Crystal	1/2	4	15	30	50	3	400	1500	3000	5000	
G	Custom Scales and Dials	1/2	6	25	40	80	3	500	2000	4000	6000	
H	High Pressure Service (400 psig max.)	1/2	10	40	60	100						
I	Compressed Gas Service									SCFM	Nm <sup>3</sup> /m	
P	Panel Mount	3/4	6	25	60	100	4	300	1000	1500	50	
R2	Remote Readout, Brass (Mech. Indicator)	3/4	10	40	100	150	4	400	1500	3000	100	
R3	Remote Readout, 316 SS (Mech. Indicator)	3/4	15	60	150	200	4	600	2400	5000	150	
T	Expanded Temperature (-80°F-350°F max.)	3/4	20	80	200	300	4	800	3000	6000	200	
V	High Viscosity Service (5-500 cps)											
W	4-20mA DC (linear)	1	15	60	150	250	5	300	1000	1500	50	
X	Hi/Lo Alarm Relays	1	20	80	200	400	5	400	1500	3000	100	
Y	Frequency Output 0-1000Hz	1	30	120	300	500	5	600	2400	5000	150	
Z	Combination of W, X, Y	1	40	150	400	600	5	800	3000	6000	200	

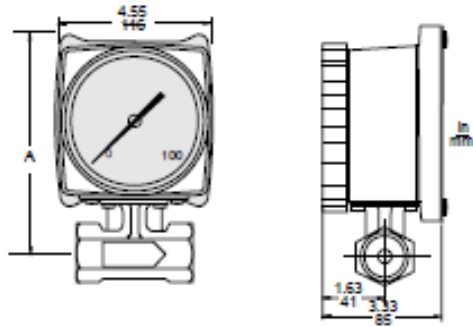
## Flow Ranges – Series 7000 & 8000

### Low Flow Rates – Option ES

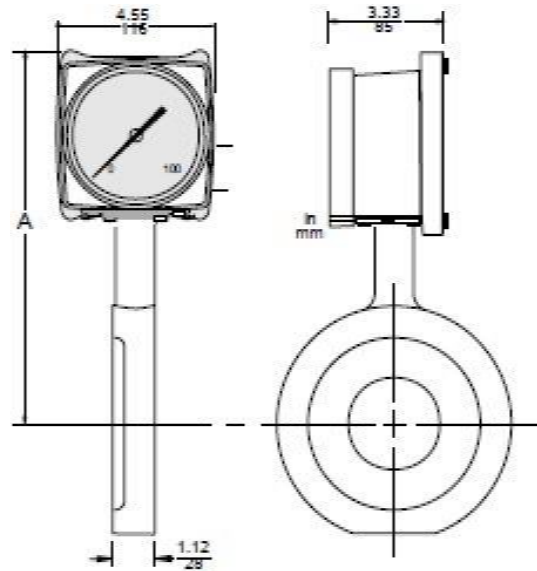
Size	GPH	l/h	cc/m	1 1/2	30	120	300	500	6	600	2400	3000	100
1/2	4	15	200	1 1/2	40	150	400	600	6	800	3000	5000	150
1/2	6	20	300	1 1/2	60	240	600	1000	6	1000	4000	8000	250
1/2	10	40	400	1 1/2	100	400	800	1200	6	2000	8000	15000	400
1/2	6	20	300	2	40	150	400		8	600	2400	5000	150
1/2	10	40	400	2	60	240	600		8	1000	4000	8000	250
1/2	15	60	600	2	100	400	800		8	2000	8000	15000	400
1/2	20	80	1000	2	150	600	1000		8	3000	12000	20000	600
1/2	30	120	2000	2	200	800	1200						
1/2	40	150	3000										
1/2	60	240	4000										
1/2	100	400	6000										

Note: Available with 1/2" 7000 Series Only

## 7000 Series – 1/4" to 3" Connections



## 8000 Series – 1/2" to 8" Connection



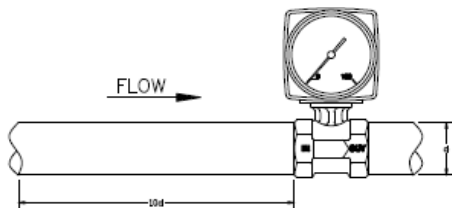
### Dimensions

Nominal Sizes		Series 7000 – A		Series 8000 - A	
In	mm	In	mm	in	mm
1/4	08	5.95	151	n/a	n/a
1/2	15	5.95	151	6.62	168
3/4	20	5.95	151	7.06	179
1	25	6.07	154	7.25	184
1 1/2	40	6.39	162	7.81	198
2	50	6.80	172	8.00	203
2 1/2	65	n/a	n/a	8.54	217
3	80	7.48	190	8.87	225
4	100	n/a	n/a	9.95	252
5	125	n/a	n/a	10.36	263
6	150	n/a	n/a	11.05	280
8	200	n/a	n/a	12.30	311

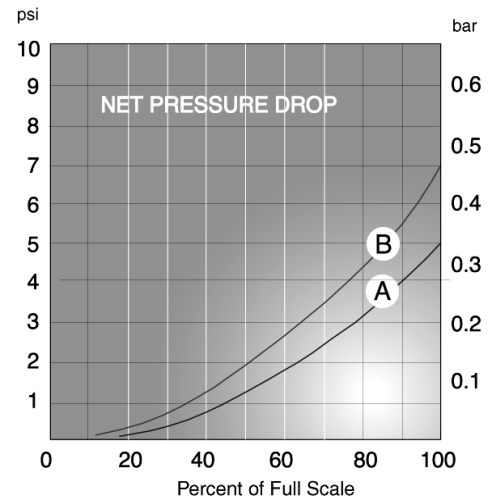
Note: Dimensions are based on bronze meters.

### Piping Requirements

The site selected should provide at least 10 pipe diameters of straight meter sized pipe between the meter inlet and any upstream fitting such as elbow, tee or valve.



### Pressure Drop Characteristics



Curve A – Bronze Bellows  
Curve B – Monel, SS, Inconel Bellows

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