

## Digital Display Flow Meter for Liquids / Gases

(RW3, RW3-1, RW3-2, RW3-3 & RW3-4 Options)

The digital display is a 2-wire loop powered flow meter with a built in wet/wet differential pressure sensor which provides a 4-20mA signal and scaled pulse output and large LCD display.

### Features and Benefits

- Displays instantaneous flow rate, total and accumulated total
- Large LCD 17mm (0.67") and 8mm (0.31") for flow rate and total
- Measures 6:1 range with  $\pm 3\%$  F.S. accuracy
- Scaled pulse output according to accumulated total
- 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.

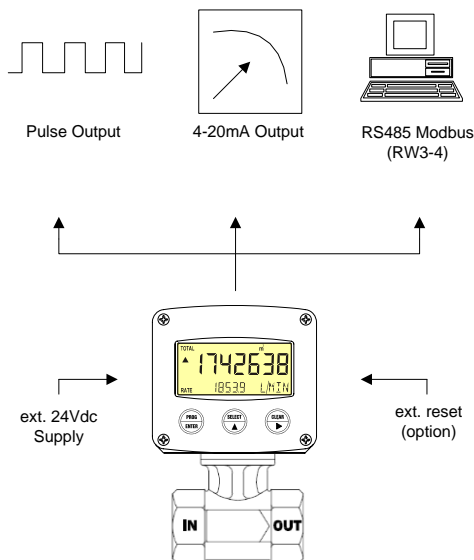
### Applications

- Power and Gas (Utility Industry)
- Process Control for Liquids and Gases
- O2 (Oxygen) Service Applications
- Biodiesel Blending Process

### Principle of Operation

The wet/wet pressure sensor detects the differential pressure created through the calculated flow nozzle. A scaled pulse output according to the accumulated total. Requires a 24Vdc supply not included (option PS-24).

#### Overview Typical Application – RW3-4 Shown



### Specifications

	Standard	Options
<b>Housing</b>	GRP	Aluminum
<b>Body</b>	Bronze	316 SS
<b>DP Sensor</b>	316 SS	n/a
<b>Seals</b>	Buna-N	Viton
<b>Accuracy</b>	$\pm 3\%$ F.S.	
<b>Repeatability</b>	$\pm 1\%$ F.S.	
<b>Pressure</b>		
Maximum	180 psig	400 psig
Minimum	10 psig	10 psig
<b>Temperature</b>		
Maximum	212°F	n/a
Minimum	-30°F	n/a

### Electrical Specifications

#### Power Input

100mA, 24Vdc power supply 20-30 Vdc Input loop powered from 4-20mA signal. Voltage drop 2.6V max.

#### Display

High intensity reflective numeric and alpha numeric LCD, UV resistant. User definable, 8 times / sec -30 secs.

Password Protected, 7 and 11-digit various symbols and measuring units

#### Signal Inputs

Full Scale Range 4-20mA DC

Loop Voltage Drop 2.6 Volts max at 20mA

Update Time 4 times / sec.

Span 0.001 / 999,999 with available decimal position

16 Bit resolution error < 0.01mA /  $\pm 0.05\%$  F.S.

Low cutoff supplied to inhibit indication at low flow rates

#### Signal Outputs

The pulse output transmitting accumulated total

Type one passive transistor output (NPN) max 500Hz pulse length user definable between 1 msec up to 10 sec.

## Model Number System

The example **1/2"-71-R-10-RW3-4** describes a 1/2" pipe size, 7000 series threaded connection, bronze material, flow from left to right, flow rate of 10 GPM, Options – 1 single pole double throw (1S2 option).

<u>1/2"</u>	-	<u>7</u>		<u>1</u>	-	<u>R</u>	-	<u>10</u>	-	<u>RW3-4</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

## Flow Ranges – Series 7000 & 8000

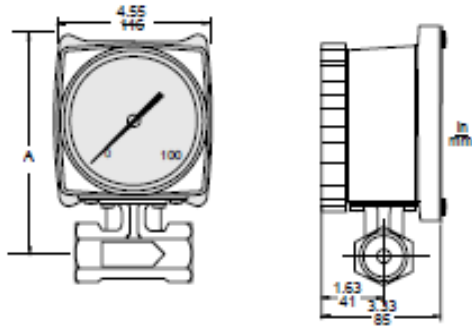
A	Viton Seals		Liquids				Gases		Liquids			Gases	
C	Calibrated for Specific Gravity		Size	GPM	LPM	SCFM	Nm³/h	Size	GPM	LPM	SCFM	Nm³/h	
E	Non-Standard Flow Rate												
ES	Low Flow Rate (Below 2 GPM)		1/4	2	8	10	15	2 1/2	60	240	600	1000	
H	High Pressure Service (400 psig max.)		1/4	3	10	20	30	2 1/2	100	400	800	1200	
I	Compressed Gas Service		1/4	4	15	30	50	2 1/2	150	600	1000	1500	
								2 1/2	200	800	1200	2000	
R2	Remote Readout, Brass (Mech. Ind.)												
R3	Remote Readout, 316 SS (Mech. Ind.)		1/2	2	8	10	15	3	200	800	1000	1500	
RW3	Digital Display Flow Rate & Total (non-linear 4-20mA signal)		1/2	3	10	20	30	3	300	1000	2000	3000	
			1/2	4	15	30	50	3	400	1500	3000	5000	
RW3-1	Digital Display Flow Rate & Total (linear 4-20mA signal +Hart)		1/2	6	25	40	80	3	500	2000	4000	6000	
			1/2	10	40	60	100						
RW3-2	Digital Display Flow Rate & Total +Alarm (w/non-linear 4-20mA signal)		3/4	6	25	60	100	4	300	1000	1500	50	
			3/4	10	40	100	150	4	400	1500	3000	100	
RW3-3	Digital Display Flow Rate & Total +Alarm (linear 4-20mA signal +Hart)		3/4	15	60	150	200	4	600	2400	5000	150	
			3/4	20	80	200	300	4	800	3000	6000	200	
RW3-4	Digital Display Flow Rate & Total +Modbus (linear 4-20mA signal +Hart)		1	15	60	150	250	5	300	1000	1500	50	
			1	20	80	200	400	5	400	1500	3000	100	
V	High Viscosity Service (5-500 cps)		1	30	120	300	500	5	600	2400	5000	150	
			1	40	150	400	600	5	800	3000	6000	200	

## Low Flow Rates – Option ES

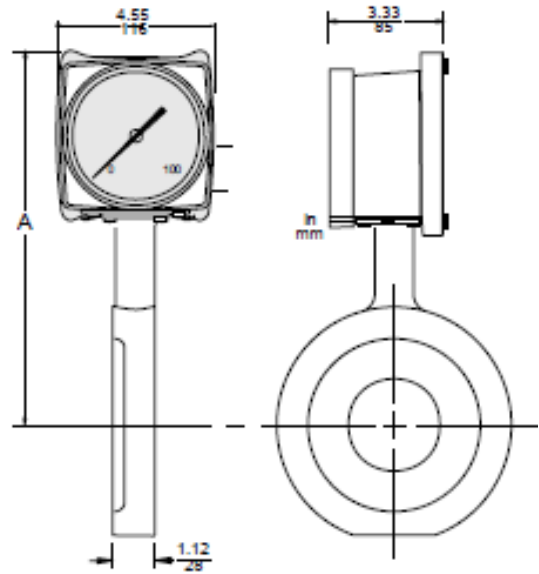
Size	GPH	l/h	cc/m	1 1/2	30	120	300	500	6	600	2400	3000	100
1/2	4	15	200	1 1/2	40	150	400	600	6	800	3000	5000	150
1/2	6	20	300	1 1/2	60	240	600	1000	6	1000	4000	8000	250
1/2	10	40	400	1 1/2	100	400	800	1200	6	2000	8000	15000	400
1/2	15	60	600	2	40	150	400		8	600	2400	5000	150
1/2	20	80	1000	2	60	240	600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



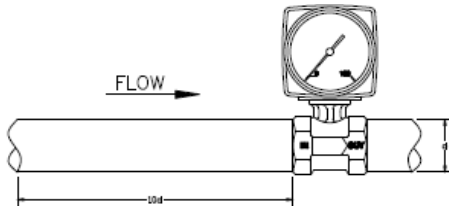
### Dimensions

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

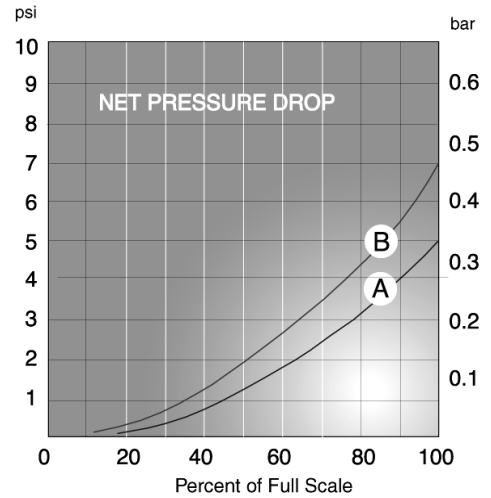
Note: Dimensions are based on bronze meters.

### 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