

### F-2000

**Machined In-line Fitting**  
**Remote Mount Display**  
**Three Display Options:**

- Rate & Total Display Only
- Rate, Total, Analog output
- Rate, Total, Process Control

**Four Connection Options:**  
**Slip glue, Female NPT,**  
**Socket Fusion, Butt Fusion.**



### Features:

- High accuracy digital paddlewheel technology.
- 3/8", 1/2", 3/4", 1", 1-1/2", and 2" pipe sizes.
- Flow rate from .4 to 300 GPM (1 to 1000 LPM)
- Rate and total flow display.
- Optional Process Control alarm or batch processing relay.
- Optional 4-20mA or 0-10VDC output.
- Large, 8 digit LCD display, up to 4 decimal places.
- Remote mount display on panel, pipe or wall.
- Very low pressure drop.
- Total reset function can be disabled.
- Front panel security lock-out.
- Field programmable.

### Specifications:

**Max. Psi (bar):** .....300 PSI (20 bar) @ 70° F (21° C)  
**Max. fluid temp.:**  
 (PP and PVDF adapters): 200° F (93° C) @ 0 PSI  
 (PVC adapters): 140° F (60° C) @ 0 PSI  
**Max. ambient temp.:** .....14° to 110° F / -10° to 43° C  
**Full scale accuracy:** ..... +/- 1%  
**Max pressure drop:** .....8 PSI (varies per model)

**Power input:** .....6-24VDC  
 Model RT units only: 4 AA batteries or AC/DC transformer  
 All units: ..... AC/DC transformer  
**Signal Distance:** ..... AC sine wave sensor = 200 ft (60 m)  
 Optional Hall Effect sensor = 1 mile (1.6 km)  
**Signal Cable:** .....3 conductor shielded. Included 25 ft. (7.6 m)  
**Enclosure:** .....NEMA 4X (IP56)  
**Approx ship wt:** .....5 lb. (2.3 kg)

### Materials of Construction:

**Pipe fitting body:**.....Available in Polypropylene, PVDF  
**Pipe fitting adapters:** .....Available in Polypropylene, PVDF, PVC  
**Union Nuts:**.....Anodized Aluminum

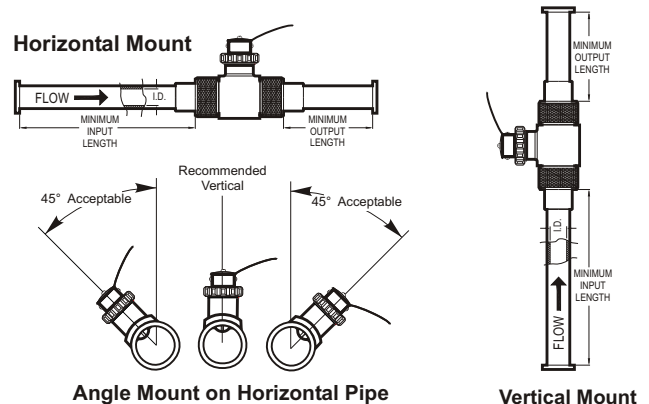
**Sensor, paddlewheel, axle:** ..PVDF  
**Sensor O-ring seals:**.....Viton<sup>®</sup> (optional EP)

### Installation Requirements:

#### Minimum Straight Pipe Length Requirements

The meter's accuracy is affected by disturbances such as pumps, elbows, tees, valves, etc., in the flow stream. Install the meter in a straight run of pipe **as far as possible** from any disturbances. The distance required for accuracy will depend on the type of disturbance.

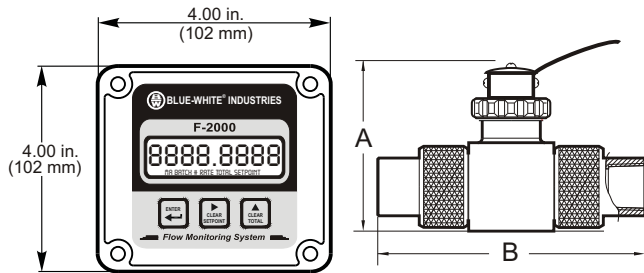
Type Of Disturbance	Minimum Inlet Pipe Length	Minimum Outlet Pipe Length
Flange	10 X Pipe I.D.	5 X Pipe I.D.
Reducer	15 X Pipe I.D.	5 X Pipe I.D.
90° Elbow	20 X Pipe I.D.	5 X Pipe I.D.
Two Elbows -1 Direction	25 X Pipe I.D.	5 X Pipe I.D.
Two Elbows -2 Directions	40 X Pipe I.D.	5 X Pipe I.D.
Pump Or Gate Valves	50 X Pipe I.D.	5 X Pipe I.D.



#### Mounting location

- The meter is designed to withstand outdoor conditions. A cool, dry location, where the unit can be easily serviced is recommended.
- The meter can be mounted on horizontal or vertical runs of pipe. Mounting at the vertical (twelve o'clock) position on horizontal pipe is recommended. Mounting anywhere around the diameter of vertical pipe is acceptable, however, the pipe must be completely full of water at all times. Back pressure is essential on downward flows. See the minimum straight length of pipe requirement chart above.
- The meter can accurately measure flow from either direction.

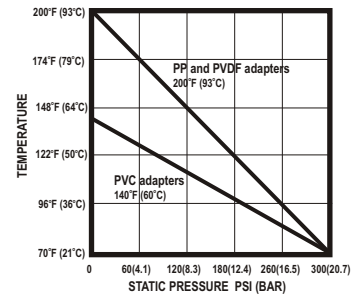
#### Dimensions:



Pipe Size	A	B
3/8"	7-3/8" (187)	4-1/4" (108)
1/2"	7-3/8" (187)	4-1/4" (108)
3/4"	7-3/8" (187)	4-1/4" (108)
1"	7-3/8" (187)	4-1/4" (108)
1-1/2"	9-3/8" (238)	5-1/16" (129)
2"	11-3/8" (289)	5-3/8" (137)

Inches (mm)

Maximum Temperature vs. Pressure



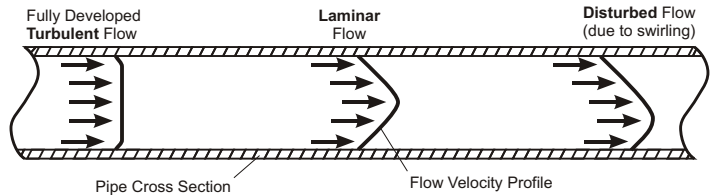
#### Flow Stream Requirements:

Measuring accuracy requires a fully developed **turbulent** flow profile. Pulsating, swirling and other disruptions in the flow stream will effect accuracy. Flow conditions with a **Reynolds Number** greater than 4000 will result in a fully developed **turbulent** flow. A Reynolds Number less than 2000 is **laminar** flow and may result in inaccurate readings.

$$\text{REYNOLDS NUMBER} = \frac{3160 \times Q \times G}{D \times V}$$

Where:

- Flow rate of the fluid in GPM = Q
- Specific gravity of the fluid = G
- Pipe inside diameter in inches = D
- Fluid viscosity in centepoise = V



#### Model Number Matrix:

**RT P 1 50 PG 1 GM 1**

<b>Display Function</b> RT = Rate and Total flow AO = Rate, Total, 4-20mA PC = Rate, Total, Relay AP = Rate, Total, 4-20mA, relay	<b>Calibration Flow Range</b> 1 = Range 1 (see pipe data) 2 = Range 2 (see pipe data) 3 = Range 3 (see pipe data) 4 = Range 4 (see pipe data) 5 = Range 5 (see pipe data) 6 = Range 6 (see pipe data)
<b>Display Mount / Sensor Type</b> S = Display mounted on AC coil sensor P = Display remote mount, AC coil sensor H = Display remote mount, Hall Effect sensor	<b>Calibration Units</b> GM = U.S. Gal per min GH = U.S. Gal per hour OM = U.S. Oz per min FM = Cubic Ft per min AD = Acre Ft per day LM = Liters per min LH = Liters per hour MH = Cubic Mtr per hour IM = Imperial Gal per min IH = Imperial Gal per hour
<b>Power</b> B = Battery holder with 4 AA cells (RT models only) 1 = U.S. Transformer, 115V60Hz/15Vdc, NEMA5/15 plug 2 = Europe Transformer, 230V50Hz/15Vdc, CEE 7/VI plug 3 = U.S. Transformer, 230V60Hz/15Vdc, NEMA 5/15 plug 4 = U.S. Transformer, 115V60Hz and Battery back-up 5 = Europe Transformer, 230V50Hz and Battery back-up 6 = U.S. Transformer, 230V60Hz and Battery back-up X = No Selection (Customer must supply power)	<b>Pipe Fitting type and Material</b> P = PP body U.S. F/NPT K = PVDF body U.S. F/NPT PG = PP body PVC inch Slip weld/glue PS = PP body inch Socket Fusion PB = PP body inch Butt Fusion KS = PVDF body inch Socket Fusion KB = PVDF body inch Butt Fusion
<b>Pipe Size</b> 38 = 3/8 inch 50 = 1/2 inch 75 = 3/4 inch 10 = 1 inch 15 = 1-1/2 inch 20 = 2 inch	

#### Pipe Size, Flow Range and Display Model Options:

##### 115v AC Models with Polypropylene Pipe Fitting and PVC Slip Adapter

Pipe Size M/NPT	GPM MODELS				LPM MODELS			
	GPM flow Range	RATE & TOTAL DISPLAY Model Number	ANALOG OUTPUT Model Number	PROCESS CONTROL Model Number	LPM flow Range	RATE & TOTAL DISPLAY Model Number	ANALOG OUTPUT Model Number	PROCESS CONTROL Model Number
3/8"	.8 to 8	RTP138PG1GM1	AOP138PG1GM1	PCP138PG1GM1	3 to 30	RTP138PG1LM1	AOP138PG1LM1	PCP138PG1LM1
3/8"	.4 to 4	RTP138PG2GM2	AOP138PG2GM2	PCP138PG2GM2	1 to 10	RTP138PG2LM2	AOP138PG2LM2	PCP138PG2LM2
1/2"	2 to 20	RTP150PG1GM1	AOP150PG1GM1	PCP150PG1GM1	7 to 70	RTP150PG1LM1	AOP150PG1LM1	PCP150PG1LM1
1/2"	.5 to 5	RTP150PG2GM2	AOP150PG2GM2	PCP150PG2GM2	2 to 20	RTP150PG2LM2	AOP150PG2LM2	PCP150PG2LM2
3/4"	4 to 40	RTP175PG1GM1	AOP175PG1GM1	PCP175PG1GM1	15 to 150	RTP175PG1LM1	AOP175PG1LM1	PCP175PG1LM1
3/4"	.8 to 8	RTP175PG2GM2	AOP175PG2GM2	PCP175PG2GM2	3 to 30	RTP175PG2LM2	AOP175PG2LM2	PCP175PG2LM2
1"	6 to 60	RTP110PG1GM1	AOP110PG1GM1	PCP110PG1GM1	25 to 250	RTP110PG1LM1	AOP110PG1LM1	PCP110PG1LM1
1"	2 to 20	RTP110PG2GM2	AOP110PG2GM2	PCP110PG2GM2	7 to 70	RTP110PG2LM2	AOP110PG2LM2	PCP110PG2LM2
1-1/2"	1 to 10	RTP115PG1GM1	AOP115PG1GM1	PCP115PG1GM1	4 to 40	RTP115PG1LM1	AOP115PG1LM1	PCP115PG1LM1
1-1/2"	6 to 60	RTP115PG2GM2	AOP115PG2GM2	PCP115PG2GM2	25 to 250	RTP115PG2LM2	AOP115PG2LM2	PCP115PG2LM2
1-1/2"	15 to 150	RTP115PG3GM3	AOP115PG3GM3	PCP115PG3GM3	60 to 600	RTP115PG3LM3	AOP115PG3LM3	PCP115PG3LM3
2"	2 to 20	RTP120PG1GM1	AOP120PG1GM1	PCP120PG1GM1	7 to 70	RTP120PG1LM1	AOP120PG1LM1	PCP120PG1LM1
2"	6 to 60	RTP120PG2GM2	AOP120PG2GM2	PCP120PG2GM2	25 to 250	RTP120PG2LM2	AOP120PG2LM2	PCP120PG2LM2
2"	15 to 150	RTP120PG3GM3	AOP120PG3GM3	PCP120PG3GM3	60 to 600	RTP120PG3LM3	AOP120PG3LM3	PCP120PG3LM3
2"	30 to 300	RTP120PG4GM4	AOP120PG4GM4	PCP120PG4GM4	100 to 1000	RTP120PG4LM4	AOP120PG4LM4	PCP120PG4LM4

