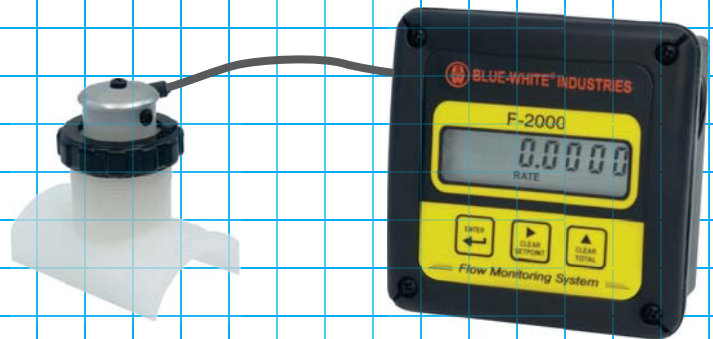


### F-2000

**Saddle Fitting**  
**Remote Mount Display**  
**Three Display Options:**

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



### Features:

- High accuracy digital paddlewheel technology.
- 1-1/2" thru 12" and 50mm thru 315mm pipe sizes.
- Flow rate from 15 to 8000 GPM (70 to 27000 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.
- No significant pressure drop.
- Total reset function can be disabled.
- Front panel security lock-out.
- Field programmable.

### Specifications:

#### Pipe Requirements:

(Inch dimensions) .....IPS pipe size (ASTM-D-1785)  
 (Metric dimensions) .....Metric pipe size (DIN 8062)  
**Max. Psi (bar):** .....300 PSI (20 bar) @ 70° F (21° C)  
**Max. fluid temp.:** .....PVDF saddle, 200° F (93° C) @ 0 PSI  
 .....PVC saddle, 140° F (60° C) @ 0 PSI  
**Max. ambient temp.:** .....14° to 110° F / -10° to 43° C  
*Note: Temperature & Pressure ratings of meter only. Actual pipe rating may vary.*  
**Max pressure drop:** .....0 PSI (No significant pressure drop)

**Full scale accuracy:** ..... +/- 1%

**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:** .....4 lb. (1.8 kg)

### Materials of Construction:

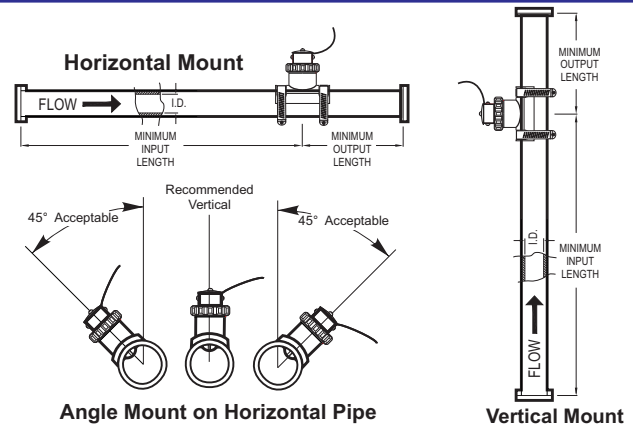
**Saddle:** .....PVDF or PVC  
**Sensor, paddlewheel, axle:** .....PVDF  
**Sensor & saddle O-ring seals:** .....Viton<sup>®</sup> (optional EP)  
**Pipe Clamp:** .....300 series Stainless Steel

### 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.

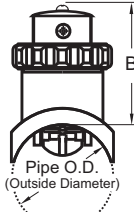
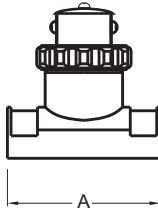
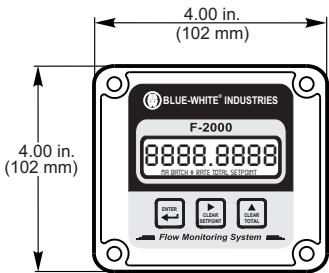
Type Of Disturbance	Minimum Inlet Pipe Length	Minimum Outlet Pipe Length
Flange	10 X Pipe I.D.	5 X Pipe I.D.
Reducer	15 X Pipe I.D.	5 X Pipe I.D.
90° Elbow	20 X Pipe I.D.	5 X Pipe I.D.
Two Elbows -1 Direction	25 X Pipe I.D.	5 X Pipe I.D.
Two Elbows -2 Directions	40 X Pipe I.D.	5 X Pipe I.D.
Pump Or Gate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

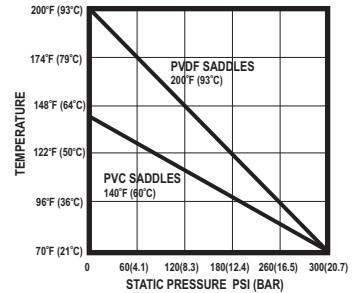
#### Dimensions:



Pipe Size	A	B
1-1/2" (50mm)	3-3/16" (81)	2-9/16" (65)
2" (63mm)	3-3/16" (81)	2-9/16" (65)
2-1/2" (75mm)	3-3/16" (81)	2-1/2" (64)
3" (90mm)	3-3/16" (81)	2-1/2" (64)
4" (110mm)	3-3/16" (81)	2-1/2" (64)
6" (160mm)	3-3/16" (81)	2-7/16" (62)
8" (200mm)	3-3/16" (81)	2-7/16" (62)
10" (250mm)	4-1/2" (114)	2-1/4" (57)
12" (315mm)	4-1/2" (114)	2-1/4" (57)

Inches (mm)

Maximum Temperature vs. Pressure



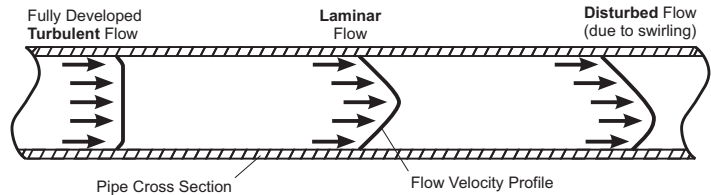
#### Flow Stream Requirements:

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 40 A4 GM 1

**Display Function**  
 RT = Rate and Total flow  
 AO = Rate, Total, 4-20mA  
 PC = Rate, Total, Relay  
 AP = Rate, Total, 4-20mA, relay

**Display Mount / Sensor Type**  
 S = Display mounted on AC coil sensor  
 P = Display remote mount, AC coil sensor  
 H = Display remote mount, Hall Effect sensor

**Power**  
 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)

Pipe Size	
15 = 1.5"	05 = 50mm
20 = 2"	06 = 63mm
25 = 2.5"	08 = 75mm
30 = 3"	09 = 90mm
40 = 4"	11 = 110mm
60 = 6"	16 = 160mm
80 = 8"	20 = 200mm
100 = 10"	25 = 250mm
120 = 12"	31 = 315mm

**Pipe size, type and saddle material**  
**IPS SCH40 PIPE**  
 K4 = 1.5", 2", 3" PVDF  
 A4 = 2.5", 4", 6", 8", 10", 12" PVC  
**IPS SCH80 PIPE**  
 K8 = 1.5", 2", 3" PVDF  
 A8 = 2.5", 4", 6", 8", 10", 12" PVC  
**METRIC PN 10 PIPE**  
 K0 = 50, 63, 90mm PVDF  
 A0 = 75, 110, 160, 200, 250, 315mm PVC  
**METRIC PN 16 PIPE**  
 K6 = 50, 63, 90mm PVDF  
 A6 = 75, 110, 160, 200mm PVC

**Calibration Flow Range**  
 1 = Range 1  
 (Saddle units are offered in only one range)

**Calibration Units**  
 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

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

##### Models for U.S. IPS sch40 Pipe (ASTM 1785)

Pipe Size	GPM Flow Range	M3/HR Flow Range	Rate & Total Model Number	Analog Output Model Number	Process Control Model Number
1.5"	15 to 150	3.5 to 34.5	RTP115K4*1	AOP115K4*1	PCP115K4*1
2"	30 to 300	6.9 to 69.0	RTP120K4*1	AOP120K4*1	PCP120K4*1
2.5"	40 to 400	9.2 to 92.0	RTP125A4*1	AOP125A4*1	PCP125A4*1
3"	60 to 600	13.8 to 138	RTP130K4*1	AOP130K4*1	PCP130K4*1
4"	100 to 1000	23.0 to 230	RTP140A4*1	AOP140A4*1	PCP140A4*1
6"	250 to 2500	57.5 to 575	RTP160A4*1	AOP160A4*1	PCP160A4*1
8"	400 to 4000	92.0 to 920	RTP180A4*1	AOP180A4*1	PCP180A4*1
10"	600 to 6000	138 to 1380	RTP1100A4*1	AOP1100A4*1	PCP1100A4*1
12"	800 to 8000	184 to 1840	RTP1120A4*1	AOP1120A4*1	PCP1120A4*1

##### Models for METRIC PN10 Pipe (DIN 8062)

Pipe Size	LPM Flow Range	M3/HR Flow Range	Rate & Total Model Number	Analog Output Model Number	Process Control Model Number
50mm	70 to 700	4.2 to 42.0	RTP105K0*1	AOP105K0*1	PCP105K0*1
63mm	110 to 1100	6.6 to 66.0	RTP106K0*1	AOP106K0*1	PCP106K0*1
75mm	150 to 1500	9.0 to 90.0	RTP108A0*1	AOP108A0*1	PCP108A0*1
90mm	230 to 2300	13.8 to 138	RTP109K0*1	AOP109K0*1	PCP109K0*1
110mm	350 to 3500	21.0 to 210	RTP111A0*1	AOP111A0*1	PCP111A0*1
160mm	720 to 7200	43.2 to 432	RTP116A0*1	AOP116A0*1	PCP116A0*1
200mm	1150 to 11500	69.0 to 690	RTP120A0*1	AOP120A0*1	PCP120A0*1
250mm	1700 to 17000	102 to 1020	RTP125A0*1	AOP125A0*1	PCP125A0*1
315mm	2700 to 27000	162 to 1620	RTP131A0*1	AOP131A0*1	PCP131A0*1

\* calibration units