

F-2000

Molded In-line 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.
- 3/8", 1/2", 3/4", 1", 1-1/2", and 2" male pipe threads.
- Flow rate from .4 to 200 GPM (1 to 700 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. working pressure:300 PSI (20 bar) @ 70° F (21° C)

Max. fluid temperature:200° F (93° C) @ 0 PSI

Max. ambient temperature: ..14° to 110° F/ -10° to 43° C

Full scale accuracy:+/- 1%

Power requirement:16-24VDC

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)

Max pressure drop: 8 PSI (varies per model)

Enclosure: NEMA 4X (IP56)

Approx ship wt: 2 lb. (.91 kg)

Materials of Construction:

Pipe fitting:Polypropylene (options: PVDF)

Sensor, paddlewheel, axle: ..PVDF

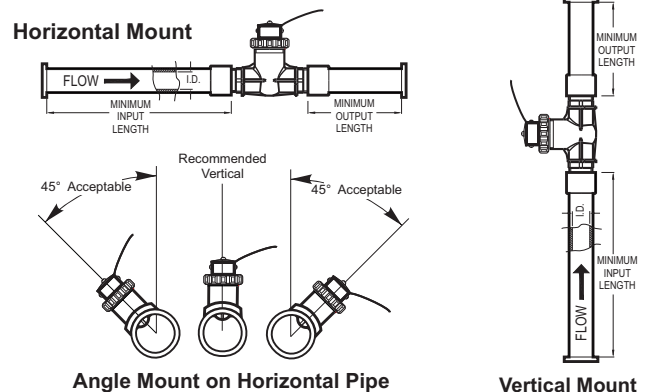
Sensor O-ring seals:Viton[®] (optional EP)

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.

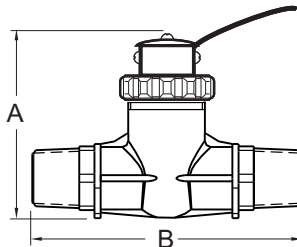
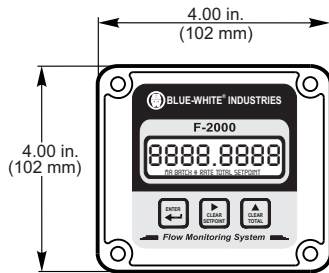
Type Of Disturbance	Minimum Inlet Pipe Length	Minimum Outlet Pipe Length
Flange	10 X Pipe I.D.	5 X Pipe I.D.
Reducer	15 X Pipe I.D.	5 X Pipe I.D.
90° Elbow	20 X Pipe I.D.	5 X Pipe I.D.
Two Elbows -1 Direction	25 X Pipe I.D.	5 X Pipe I.D.
Two Elbows -2 Directions	40 X Pipe I.D.	5 X Pipe I.D.
Pump Or Gate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

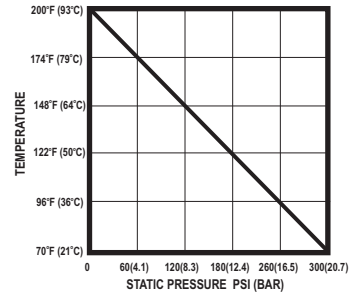
Dimensions:



Pipe Size	A	B
3/8"	3-3/4" (95)	4-3/4" (121)
1/2"	3-3/4" (95)	5-1/8" (130)
3/4"	4" (102)	5-1/4" (133)
1"	4" (102)	5-5/8" (143)
1-1/2"	4-1/2" (114)	6-1/2" (165)
2"	4-3/4" (121)	6-3/4" (171)

Inches (mm)

Maximum Temperature vs. Pressure



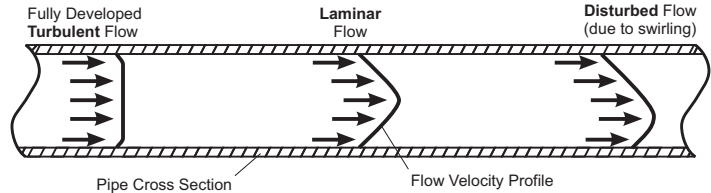
Flow Stream Requirements:

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	M1	GM	1
<p>Display Function</p> <p>RT = Rate and Total flow AO = Rate, Total, 4-20mA PC = Rate, Total, Relay AP = Rate, Total, 4-20mA, relay</p> <p>Display Mount / Sensor Type</p> <p>S = Display mounted on AC coil sensor P = Display remote mount, AC coil sensor H = Display remote mount, Hall Effect sensor</p> <p>Power</p> <p>B = Battery holder with 4 AA cells 1 = U.S. Transformer, AC 115V60Hz/15Vdc, NEMA5/15 plug 2 = Europe Transformer, AC 230V50Hz/15Vdc, CEE 7/VI plug 3 = U.S. Transformer, AC 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)</p> <p>Pipe Size</p> <p>38 = 3/8 inch 50 = 1/2 inch 75 = 3/4 inch 10 = 1 inch 15 = 1-1/2 inch 20 = 2 inch</p> <p>Pipe Fitting type and Material</p> <p>M1 = PP body Male NPT, flow range #1 M2 = PP body Male NPT, flow range #2 M3 = PP body Male NPT, flow range #3 M4 = PP body Male NPT, flow range #4 F1 = PVDF body Male NPT, flow range #1 F2 = PVDF body Male NPT, flow range #2 F3 = PVDF body Male NPT, flow range #3 F4 = PVDF body Male NPT, flow range #4</p> <p>Calibration Flow Range</p> <p>1 = Range 1 (see pipe fitting range data) 2 = Range 2 (see pipe fitting range data) 3 = Range 3 (see pipe fitting range data) 4 = Range 4 (see pipe fitting range data) 5 = Range 5 (see pipe fitting range data) 6 = Range 6 (see pipe fitting range data)</p> <p>Calibration Units</p> <p>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</p>						

Pipe Size, Flow Range and Display Model Options:

115v AC Models with Polypropylene Pipe Fitting

Pipe Size M/NPT	GPM flow Range	LPM flow Range	M3/HR flow Range	OZ/M flow Range	RATE & TOTAL DISPLAY Model Number	ANALOG OUTPUT Model Number	PROCESS CONTROL Model Number
3/8"	.8 to 8	3 to 30	.2 to 1.8	106 to 1058	RTP138M1*1	AOP138M1*1	PCP138M1*1
3/8"	.4 to 4	1 to 10	.1 to 0.6	35 to 353	RTP138M2*2	AOP138M2*2	PCP138M2*2
1/2"	2 to 20	7 to 70	.4 to 4.2	247 to 2469	RTP150M1*1	AOP150M1*1	PCP150M1*1
1/2"	.5 to 5	2 to 20	.1 to 1.2	71 to 705	RTP150M2*2	AOP150M2*2	PCP150M2*2
3/4"	3 to 30	11 to 110	.7 to 6.6	388 to 3880	RTP175M1*1	AOP175M1*1	PCP175M1*1
3/4"	.8 to 8	3 to 30	.2 to 1.8	106 to 1058	RTP175M2*2	AOP175M2*2	PCP175M2*2
1"	5 to 50	20 to 200	1.2 to 12	705 to 7054	RTP110M1*1	AOP110M1*1	PCP110M1*1
1"	2 to 20	7 to 70	.4 to 4.2	247 to 2469	RTP110M2*2	AOP110M2*2	PCP110M2*2
1-1/2"	4 to 40	15 to 150	.9 to 9	529 to 5291	RTP115M1*1	AOP115M1*1	PCP115M1*1
1-1/2"	6 to 60	25 to 250	1.5 to 15	882 to 8818	RTP115M2*2	AOP115M2*2	PCP115M2*2
1-1/2"	10 to 100	40 to 400	2.4 to 24	1411 to 14108	RTP115M3*3	AOP115M3*3	PCP115M3*3
2"	4 to 40	15 to 150	.9 to 9	529 to 5291	RTP120M1*1	AOP120M1*1	PCP120M1*1
2"	6 to 60	25 to 250	1.5 to 15	882 to 8818	RTP120M2*2	AOP120M2*2	PCP120M2*2
2"	10 to 100	40 to 400	2.4 to 24	1411 to 14108	RTP120M3*3	AOP120M3*3	PCP120M3*3
2"	20 to 200	70 to 700	4.2 to 42	2469 to 24689	RTP120M4*4	AOP120M4*4	PCP120M4*4

* calibration units