

Blue-White[®]

Industries, Ltd.

DigiFlo Digital Paddlewheel Meters

Engineering and Technical Data

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

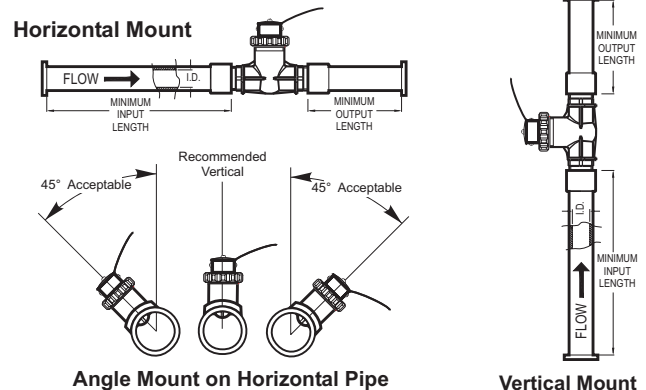
Sensor O-ring seals:Viton[®] (optional EP)

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.



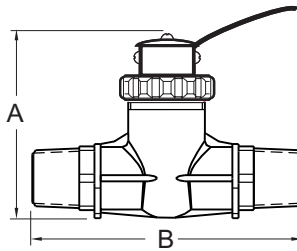
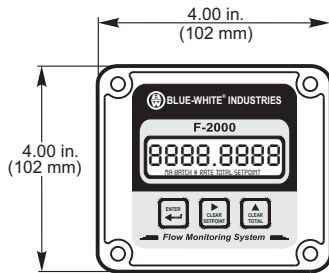
Mounting location

- 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.

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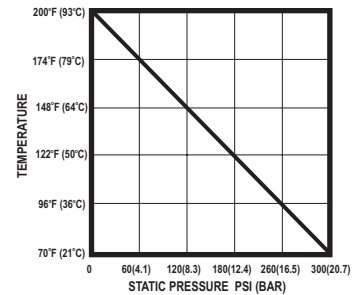
Dimensions:



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



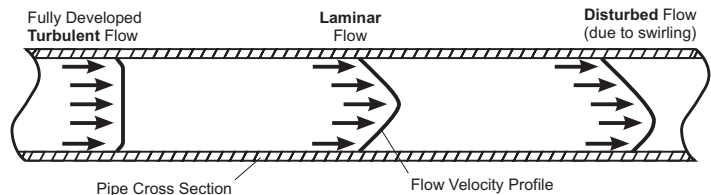
Flow Stream Requirements:

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 centipoise = V



Model Number Matrix:

RT P 2 50 MB1 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 1 = U.S. Transformer, AC 115V60Hz/15Vdc, NEMA5/15 plug 2 = Europe Transformer, AC 230V50Hz/15Vdc, CEE 7/VI1 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)	Pipe Size 38 = 3/8 inch 50 = 1/2 inch 75 = 3/4 inch 10 = 1 inch 15 = 1-1/2 inch 20 = 2 inch	Pipe Fitting type and Material MB1 = PP body British BSPT, range #1 MB2 = PP body British BSPT, range #2 MB3 = PP body British BSPT, range #3 MB4 = PP body British BSPT, range #4 FB1 = PVDF body British BSPT, range #1 FB2 = PVDF body British BSPT, range #2 FB3 = PVDF body British BSPT, range #3 FB4 = PVDF body British BSPT, range #4 M1 = PP body U.S. NPT, range #1 M2 = PP body U.S. NPT, range #2 M3 = PP body U.S. NPT, range #3 M4 = PP body U.S. NPT, range #4 F1 = PVDF body U.S. NPT, range #1 F2 = PVDF body U.S. NPT, range #2 F3 = PVDF body U.S. NPT, range #3 F4 = PVDF body U.S. NPT, range #4	Calibration Flow Range 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)	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
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Pipe Size, Flow Range and Display Model Options:

230V50HZ AC Models with Polypropylene Pipe Fitting

Pipe Size M/NPT	Models With BSPT Threads Display in Imperial Gallons per Minute				Models With U.S. NPT Threads Display in Liters per Minute.			
	IGM 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	RTP238MB1IM1	AOP238MB1IM1	PCP238MB1IM1	3 to 30	RTP238M1LM1	AOP238M1LM1	PCP238M1LM1
3/8"	.4 to 4	RTP238MB2IM2	AOP238MB2IM2	PCP238MB2IM2	1 to 10	RTP238M2LM2	AOP238M2LM2	PCP238M2LM2
1/2"	2 to 20	RTP250MB1IM1	AOP250MB1IM1	PCP250MB1IM1	7 to 70	RTP250M1LM1	AOP250M1LM1	PCP250M1LM1
1/2"	.5 to 5	RTP250MB2IM2	AOP250MB2IM2	PCP250MB2IM2	2 to 20	RTP250M2LM2	AOP250M2LM2	PCP250M2LM2
3/4"	3 to 30	RTP275MB1IM1	AOP275MB1IM1	PCP275MB1IM1	11 to 110	RTP275M1LM1	AOP275M1LM1	PCP275M1LM1
3/4"	.8 to 8	RTP275MB2IM2	AOP275MB2IM2	PCP275MB2IM2	.3 to 30	RTP275M2LM2	AOP275M2LM2	PCP275M2LM2
1"	5 to 50	RTP210MB1IM1	AOP210MB1IM1	PCP210MB1IM1	20 to 200	RTP210M1LM1	AOP210M1LM1	PCP210M1LM1
1"	2 to 20	RTP210MB2IM2	AOP210MB2IM2	PCP210MB2IM2	7 to 70	RTP210M2LM2	AOP210M2LM2	PCP210M2LM2
1-1/2"	4 to 40	RTP215MB1IM1	AOP215MB1IM1	PCP215MB1IM1	15 to 150	RTP215M1LM1	AOP215M1LM1	PCP215M1LM1
1-1/2"	6 to 60	RTP215MB2IM2	AOP215MB2IM2	PCP215MB2IM2	25 to 250	RTP215M2LM2	AOP215M2LM2	PCP215M2LM2
1-1/2"	10 to 100	RTP215MB3IM3	AOP215MB3IM3	PCP215MB3IM3	40 to 400	RTP215M3LM3	AOP215M3LM3	PCP215M3LM3
2"	4 to 40	RTP220MB1IM1	AOP220MB1IM1	PCP220MB1IM1	15 to 150	RTP220M1LM1	AOP220M1LM1	PCP220M1LM1
2"	6 to 60	RTP220MB2IM2	AOP220MB2IM2	PCP220MB2IM2	25 to 250	RTP220M2LM2	AOP220M2LM2	PCP220M2LM2
2"	10 to 100	RTP220MB3IM3	AOP220MB3IM3	PCP220MB3IM3	40 to 400	RTP220M3LM3	AOP220M3LM3	PCP220M3LM3
2"	20 to 200	RTP220MB4IM4	AOP220MB4IM4	PCP220MB4IM4	70 to 700	RTP220M4LM4	AOP220M4LM4	PCP220M4LM4