

• **FB-1200 DUAL TURBINE •**  
**BI-DIRECTIONAL**  
**INSERTION FLOW METER**  
**FREQUENCY OUTPUT**



**DESCRIPTION**

Made in the USA

ONICON insertion turbine flow meters are suitable for measuring electrically conductive water-based liquids. The FB-1200 model provides a high-resolution frequency output for flow rate as well as a binary (digital) dry contact output for flow direction for connection to an ONICON display or Btu meter.

**APPLICATIONS**

- Primary/secondary decoupling loop (bypass)
- HVAC thermal storage tank
- Domestic water tank charge/discharge

**GENERAL SPECIFICATIONS**

**ACCURACY**

- ± 0.5% of reading at calibrated velocity
- ± 1% of reading from 3 to 30 ft/s (10:1 range)
- ± 2% of reading from 0.4 to 20 ft/s (50:1 range)

**SENSING METHOD**

Electronic impedance sensing  
(non-magnetic and non-photoelectric)

**PIPE SIZE RANGE**

2½" through 72" nominal diameter

**SUPPLY VOLTAGE**

24 ± 4 V AC/DC at 70 mA

**LIQUID TEMPERATURE RANGE**

Standard: 180° F continuous, 200° F peak  
High Temp: 280° F continuous, 300° F peak  
Meters operating above 250° F require 316 SS construction option

**AMBIENT TEMPERATURE RANGE**

-5° to 160° F (-20° to 70° C)

**OPERATING PRESSURE**

400 PSI maximum

**PRESSURE DROP**

Less than 1 PSI at 20 ft/s in 2½" pipe,  
decreasing in larger pipes and lower velocities

**OUTPUT SIGNALS PROVIDED**

- Directional Contact Output
- Isolated solid state dry contact
- Contact rating: 100 mA, 50 V
- Switch closed when flow is in direction of arrow
- Latches at 0.18 ft/s
- Switches within 20 seconds of direction change
- Frequency Output
- 0 – 15 V peak pulse, typically less than 300 Hz

(continued on back)

**CALIBRATION**

Every ONICON flow meter is wet calibrated in a flow laboratory against primary volumetric standards that are directly traceable to N.I.S.T. A certificate of calibration accompanies every meter.

**FEATURES**

**Unmatched Price vs Performance** - Custom calibrated, highly accurate instrumentation at very competitive prices.

**Excellent Long-term Reliability** - Patented electronic sensing is resistant to scale and particulate matter. Low mass turbines with engineered jewel bearing systems provide a mechanical system that virtually does not wear.

**Industry Leading Two-year "No-fault" Warranty** - Reduces start-up costs with extended coverage to include accidental installation damage (miswiring, etc.) Certain exclusions apply. See our complete warranty statement for details.

**Installation Flexibility** - Patented dual turbine models deliver outstanding accuracy in short pipe runs.

**Simplified Hot Tap Insertion Design** - Standard on every insertion flow meter. Allows for insertion and removal by hand without system shutdown.

**OPERATING RANGE FOR  
COMMON PIPE SIZES**

**0.17 TO 20 ft/s**

±2% accuracy begins at 0.4 ft/s

Pipe Size (Inches)	Flow Rate (GPM)
2 ½	2.5 - 230
3	4 - 460
4	8 - 800
6	15 - 1,800
8	26 - 3,100
10	42 - 4,900
12	60 - 7,050
14	72 - 8,600
16	98 - 11,400
18	120 - 14,600
20	150 - 18,100
24	230 - 26,500
30	360 - 41,900
36	510 - 60,900

## FB-1200 SPECIFICATIONS cont.

### MATERIAL

Wetted metal components:

Standard: Electroless nickel plated brass

Optional: 316 stainless steel

### ELECTRONICS ENCLOSURE

Standard: Weathertight aluminum enclosure

Optional: Submersible enclosure

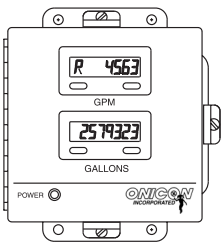
### ELECTRICAL CONNECTIONS

5-wire for frequency output

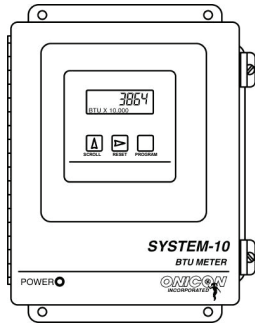
Standard: 10' of cable with ½" NPT conduit connection

Optional: plenum rated cable

## ALSO AVAILABLE



Display Modules

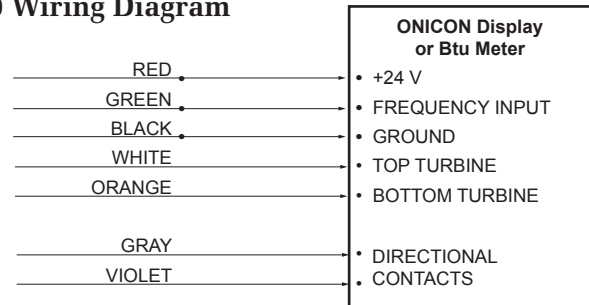


Btu Measurement Systems

## FB-1200 Wiring Information

WIRE COLOR	DESCRIPTION	NOTES
RED	(+) 24 V AC/DC supply voltage, 70 mA	Connect to power supply positive
BLACK	(-) Common ground (Common with pipe ground)	Connect to power supply negative
GREEN	(+) Frequency output signal: 0-15 V peak pulse	Signal for ONICON display or Btu meter
GRAY	Dry contact directional output - indicates flow direction	Contact closed when flow is in direction of arrow on meter
VIOLET		
DIAGNOSTIC SIGNALS		
ORANGE	Bottom turbine frequency	These signals are for diagnostic purposes - connect to local display or Btu meter
WHITE	Top turbine frequency	

## FB-1200 Wiring Diagram



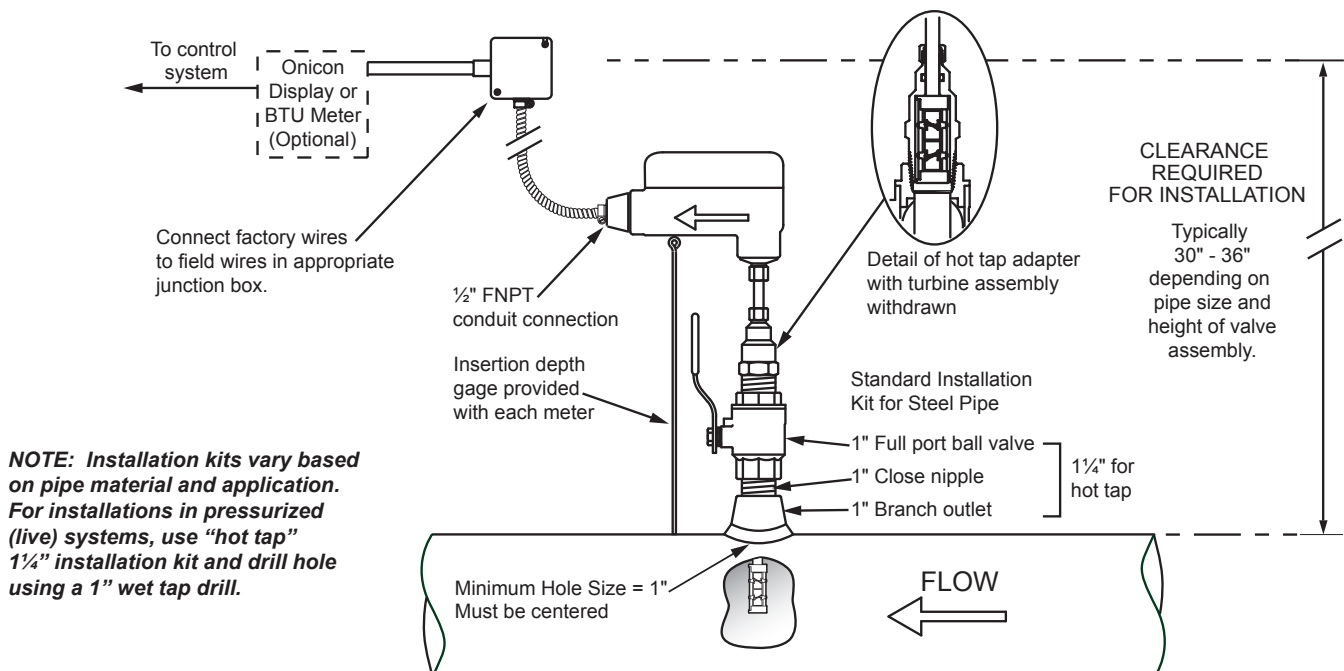
**NOTE:** Black wire is common with the pipe ground (typically earth ground).

## Typical Meter Installation

(New construction or scheduled shutdown)

• Acceptable to install in vertical pipe

• Position meter anywhere in upper 240° for horizontal pipe



**NOTE:** Installation kits vary based on pipe material and application. For installations in pressurized (live) systems, use "hot tap" 1 1/4" installation kit and drill hole using a 1" wet tap drill.