

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



Made in the USA

DESCRIPTION

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

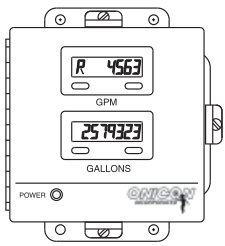
ELECTRICAL CONNECTIONS

5-wire for frequency output

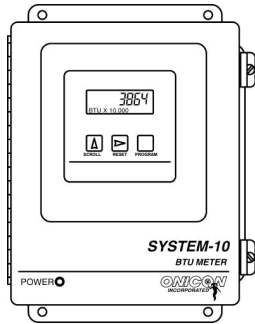
Standard: 10' of cable with 1/2" NPT conduit connection

Optional: plenum rated cable

ALSO AVAILABLE



Display Modules

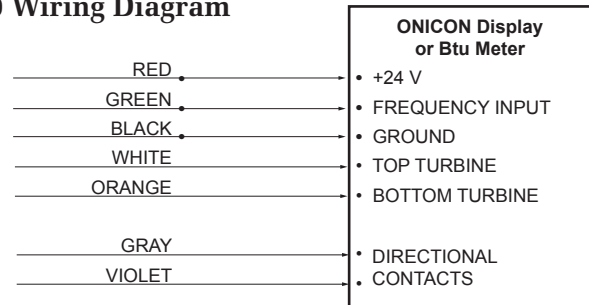


Btu Measurement Systems

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



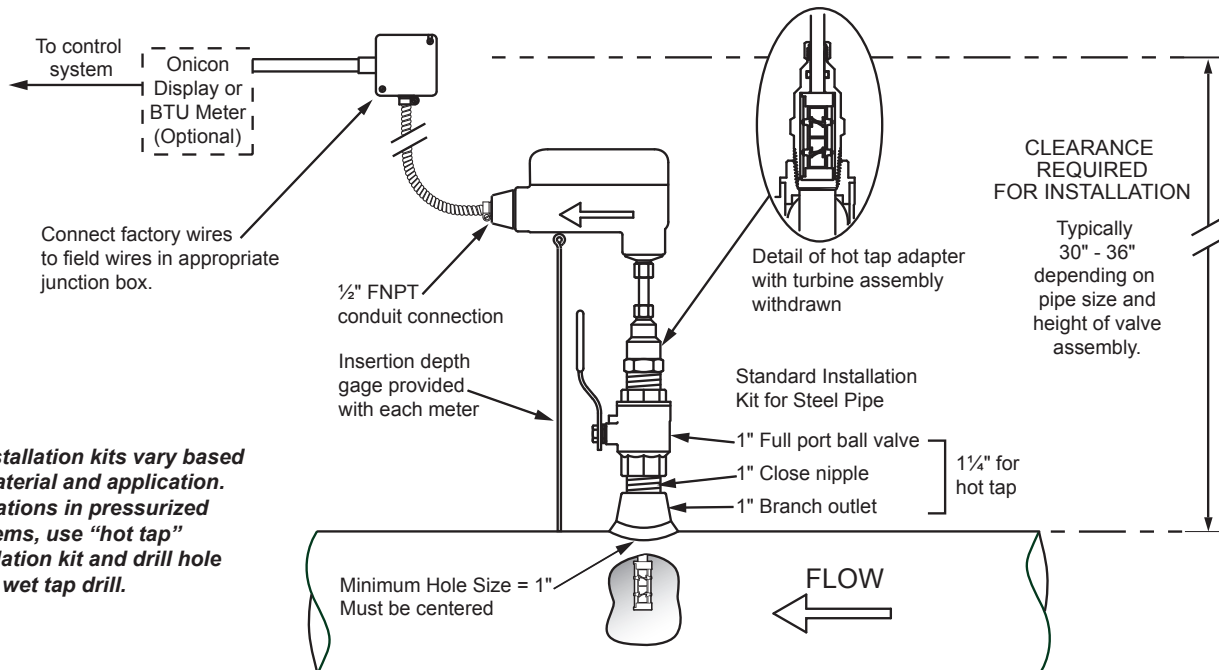
NOTE: Black wire is common with the pipe ground (typically earth ground).

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.