

• **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

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 stainless steel 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, 50V
 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

CALIBRATION

Every ONICON flow meter is wet-calibrated in our flow laboratory against primary volumetric standards directly traceable to NIST. Certification of calibration is included with 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)
2½	2.5 - 230
3	4 - 460
4	8 - 800
6	15 - 1800
8	26 - 3100
10	42 - 4900
12	60 - 7050
14	72 - 8600
16	98 - 11,400
18	120 - 14,600
20	150 - 18,100
24	230 - 26,500
30	360 - 41,900
36	510 - 60,900

(continued on back)

FB-1200 SPECIFICATIONS cont.

MATERIAL

- Wetted metal components
 - Standard: Electroless nickel plated brass
 - Optional: 316 stainless steel

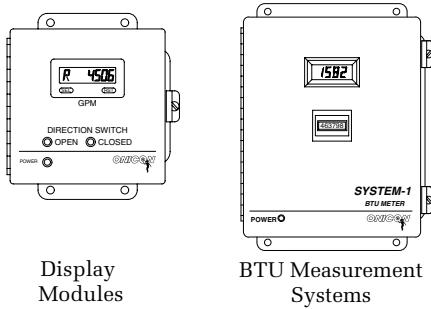
ELECTRONICS ENCLOSURE

- Standard: Weathertight aluminum enclosure
- Optional: Submersible enclosure

ELECTRICAL CONNECTIONS

- 5-wire minimum for directional switch and frequency output
- Standard: 10' of cable with 1/2" NPT conduit connection
- Optional: Plenum rated cable

ALSO AVAILABLE

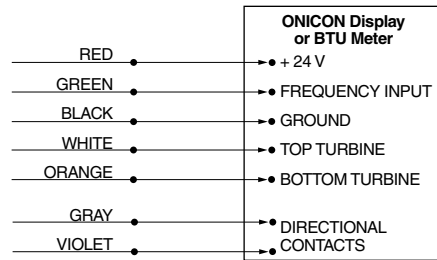


FB-1200 Wiring Information

WIRE COLOR CODE		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	
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

Flow Meter into ONICON Display or BTU Meter

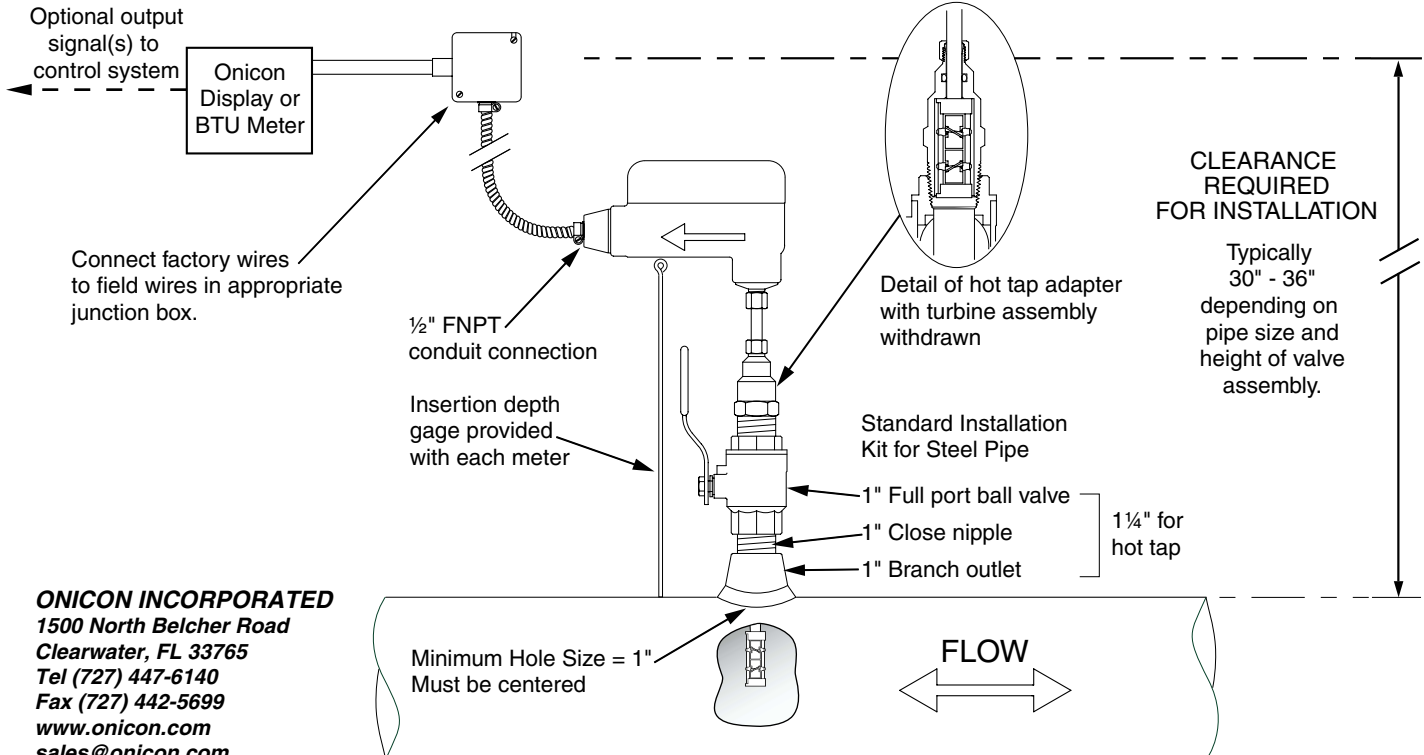
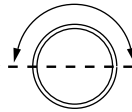


NOTE: Black wire is common with the pipe ground (typically earth ground).

Typical Meter Installation

(New construction or scheduled shutdown)

- Acceptable to install in vertical pipe
- Position meter anywhere in upper 180° for horizontal pipe



CLEARANCE REQUIRED FOR INSTALLATION

Typically 30" - 36" depending on pipe size and height of valve assembly.

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