

• **FB-1230 DUAL TURBINE** •
BI-DIRECTIONAL
INSERTION FLOW METER
SCALED OUTPUT



Made in the USA

DESCRIPTION

ONICON insertion turbine flow meters are suitable for measuring electrically conductive water-based liquids. The FB-1230 model provides binary (digital) dry contact output signals for flow direction and total.

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

SCALED CONTACT OUTPUT

Isolated solid state dry contact
 Contact rating: 100 mA, 50V
 Contact duration:
 50 ms or 300 ms, jumper selectable

FREQUENCY OUTPUT

0-15 V peak pulse, typically less than 300 Hz

(continued on back)

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

FB-1230 SPECIFICATIONS cont.

MATERIAL

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

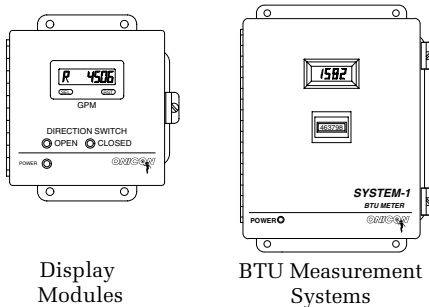
ELECTRONICS ENCLOSURE

- Standard: Weathertight aluminum enclosure
- Optional: Submersible enclosure

ELECTRICAL CONNECTIONS

- 6-wire minimum for directional switch and scaled flow signal switch output
- Frequency output requires an additional wire
- Standard: 10' of cable with 1/2" NPT conduit connection
- Optional: Plenum rated cable

ALSO AVAILABLE

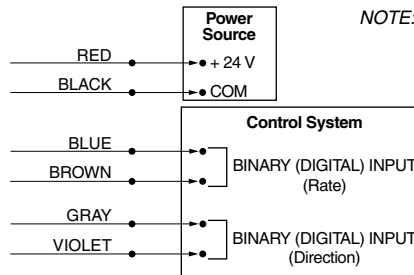


FB-1230 Wiring Information

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	Required when meter is connected to local display or BTU meter
BLUE	Dry contact scaled output	Scaled to provide one pulse per desired unit value
BROWN		
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-1230 Wiring Diagram

Flow Meter into Control System (No Display or BTU Meter)

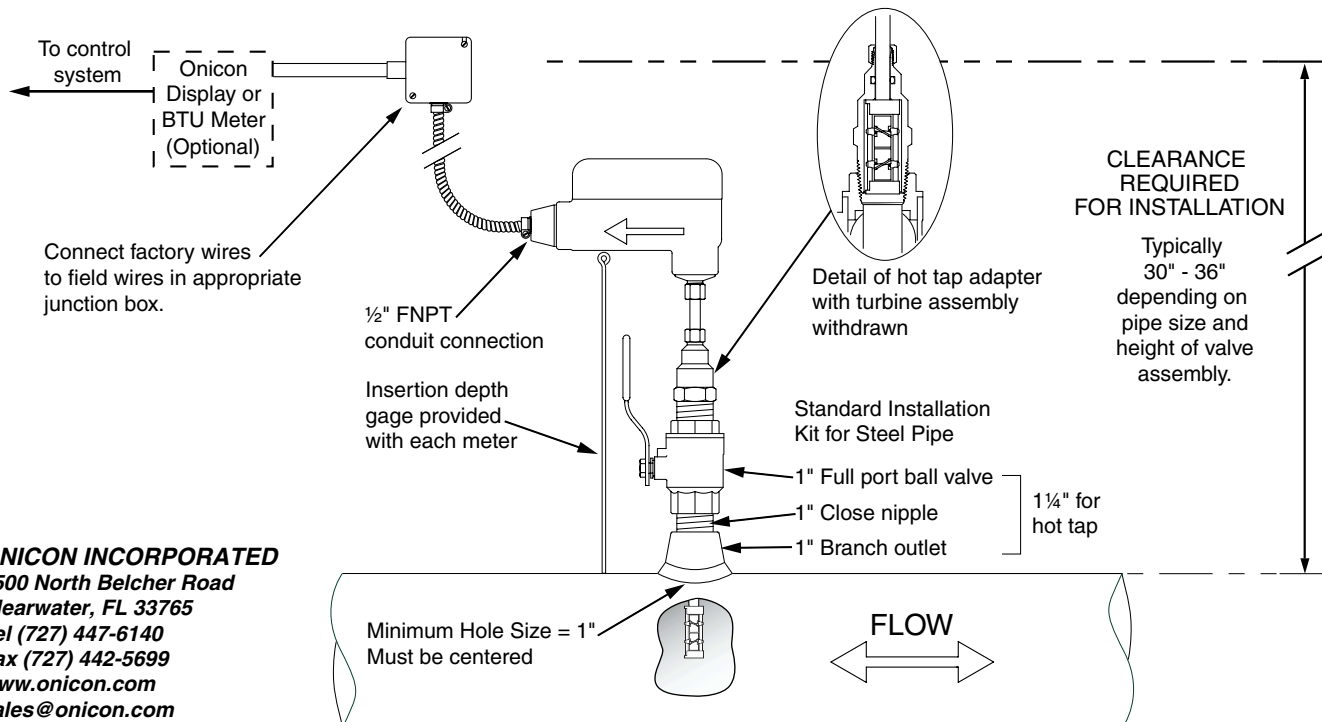
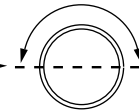


- NOTE: 1. Black wire is common with the pipe ground (typically earth ground).
 2. Frequency output required for ONICON display module or BTU meter, refer to wiring diagram for peripheral device.

Typical Meter Installation

(New construction or scheduled shutdown)

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



ONICON INCORPORATED
 1500 North Belcher Road
 Clearwater, FL 33765
 Tel (727) 447-6140
 Fax (727) 442-5699
 www.onicon.com
 sales@onicon.com

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.