ONICON insertion turbine flow meters are suitable for measuring electrically conductive water-based liquids. The F-1211 model provides isolated 4-20 mA and 0-10 V analog output signals that are linear with the flow rate.

APPLICATIONS
- Closed loop chilled water, hot water, condenser water & water/glycol/brine solutions for HVAC
- Process water & water mixtures
- Domestic water (NSF/ANSI 61/372 version*)

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 80 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
Analog Outputs (Isolated)
Jumper selectable: 4-20 mA / 0-10V / 0-5V
Frequency Output
0 – 15 V peak pulse

(continued on back)

CALIBRATION
Every ONICON flow meter is wet calibrated in our 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.

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

<table>
<thead>
<tr>
<th>OPERATING RANGE FOR COMMON PIPE SIZES</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.17 TO 20 ft/s</td>
</tr>
<tr>
<td>±2% accuracy begins at 0.4 ft/s</td>
</tr>
</tbody>
</table>

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

FLOW AND ENERGY MEASUREMENT
F-1211 SPECIFICATIONS

**MATERIAL**
- Wetted metal components:
  - Standard: Electroless nickel plated brass
  - Optional: 316 stainless steel
  - Optional: NSF/ANSI 61/372 version*

**ELECTRONICS ENCLOSURE**
- Standard: Weathertight aluminum enclosure
- Optional: Submersible enclosure

**ELECTRICAL CONNECTIONS**
- 4-wire minimum for analog output
  - Standard: 10' of cable with ½" NPT conduit connection
  - Optional: Indoor DIN connector with 10' of plenum rated cable

**ALSO AVAILABLE**
- Power Source
  - • + 24 V
  - • COM
- Control System
  - • ANALOG SIGNAL INPUT
  - • SIGNAL GROUND

**F-1211 WIRING INFORMATION**

<table>
<thead>
<tr>
<th>WIRE COLOR</th>
<th>DESCRIPTION</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED (+)</td>
<td>24 V AC/DC</td>
<td>Connect to power supply positive</td>
</tr>
<tr>
<td>BLACK (-)</td>
<td>Common ground</td>
<td>Connect to power supply negative</td>
</tr>
<tr>
<td>GREEN (+)</td>
<td>Frequency output signal: 0-15 V peak pulse</td>
<td>Required when meter is connected to local display or Btu meter</td>
</tr>
<tr>
<td>BLUE (+)</td>
<td>Analog signal</td>
<td>Jumper Selectable: 4-2 mA / 0-10V / 0-5V</td>
</tr>
<tr>
<td>BROWN (-)</td>
<td>Analog signal</td>
<td></td>
</tr>
</tbody>
</table>

**DIAGNOSTIC SIGNALS**
- ORANGE: Bottom turbine frequency
  - These signals are for diagnostic purposes - connect to local display or Btu meter
- WHITE: Top turbine frequency

**F-1211 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 240° for horizontal pipe

**NOTE:**
Installation kits vary based on pipe material and application.
For installations in pressurized (live) systems, use "hot tap" 1¼" installation kit and drill hole using a 1" wet tap drill.