DESCRIPTION

ONICON insertion turbine flow meters are suitable for measuring electrically conductive water-based liquids. The F-1210 model provides non-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

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 50 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°F to 160°F (-20°C 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 Output (non-isolated)
Voltage output: 0-10 V (0-5 V available)
Current output: 4-20 mA
Frequency Output
0 – 15 V peak pulse, typically less than 300 Hz

(continued on back)
### F-1210 SPECIFICATIONS cont.

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

**ELECTRONICS ENCLOSURE**
- Standard: Weather tight aluminum enclosure
- Optional: Submersible enclosure

**ELECTRICAL CONNECTIONS**
- 3-wire minimum for 4-20 mA or 0-10 V output
- Second analog output and/or frequency output requires additional wires
  - Standard: 10′ of cable with ½″ NPT conduit connection
  - Optional: Indoor DIN connector with 10′ of plenum rated cable

### F-1210 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 supply voltage, 50 mA</td>
<td>Connect to power supply positive</td>
</tr>
<tr>
<td>BLACK</td>
<td>(-) Common ground (Common with pipe ground)</td>
<td>Connect to power supply negative &amp; analog input ground</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: 4-20 mA (non-isolated)</td>
<td>Both signals may be used independently</td>
</tr>
<tr>
<td>BROWN</td>
<td>(+) Analog signal: 0-10 V (non-isolated)</td>
<td></td>
</tr>
</tbody>
</table>

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

### ALSO AVAILABLE

Display Modules  
Btu Measurement Systems

### F-1210 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
- Connect factory wires to field wires in appropriate junction box.

**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.