

• **F-1110 SINGLE TURBINE •**  
**INSERTION FLOW METER**  
**ANALOG OUTPUT**



Made in the USA

**DESCRIPTION**

ONICON insertion turbine flow meters are suitable for measuring electrically conductive water-based liquids. The F-1110 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**

1¼" 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° to 160° F (-20° to 70° C)

**OPERATING PRESSURE**

400 PSI maximum

**PRESSURE DROP**

Less than 1 PSI at 20 ft/s in 1½" pipe,  
 decreasing in larger pipes and lower velocities

**OUTPUT SIGNALS PROVIDED**

Analog Outputs (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)

**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.

**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)
1 ¼	0.8 - 95
1 ½	1 - 130
2	2 - 210
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

## F-1110 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

3-wire for frequency output

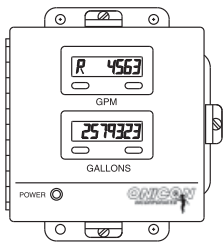
Standard: 10' of cable with 1/2" NPT conduit connection

Optional: Indoor DIN connector with 10' of plenum rated cable

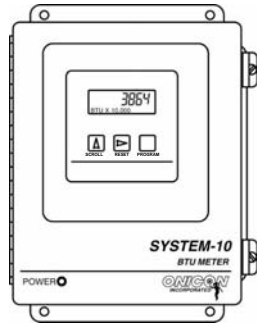
## F-1110 Wiring Information

WIRE COLOR	DESCRIPTION	NOTES
RED	(+) 24 V AC/DC supply voltage, 50 mA	Connect to power supply positive
BLACK	(-) Common ground (Common with pipe ground)	Connect to power supply negative & analog input ground
GREEN	(+) Frequency output signal: 0-15 V peak pulse	Required when meter is connected to local display or Btu meter
BLUE	(+) Analog signal: 4-20 mA (non-isolated)	Both signals may be used independently.
BROWN	(+) Analog signal: 0-10 V (non-isolated)	

## ALSO AVAILABLE



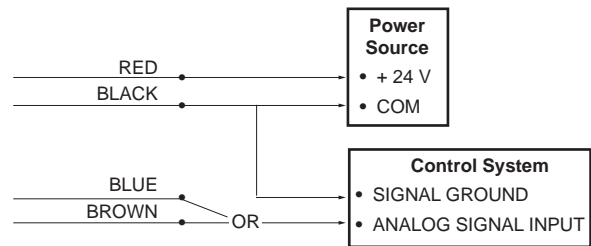
Display Modules



Btu Measurement Systems

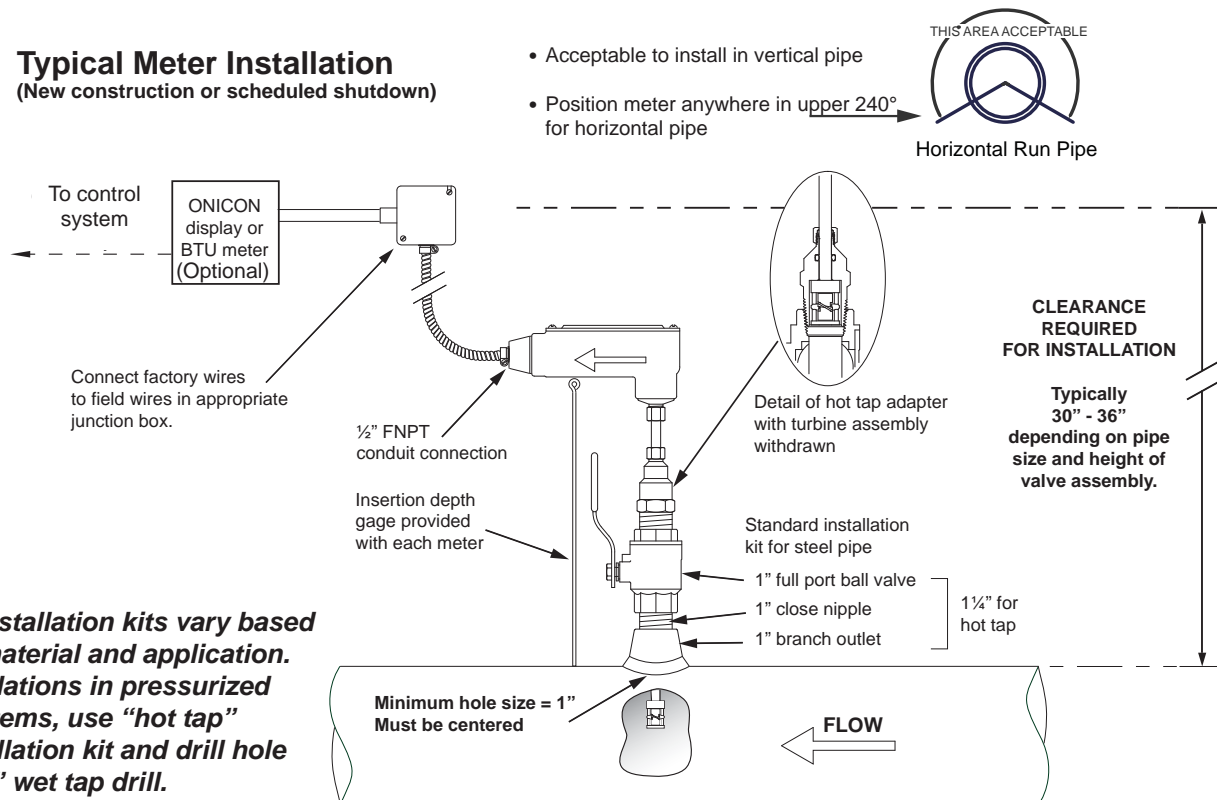
## F-1110 Wiring Diagram

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)



**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.**