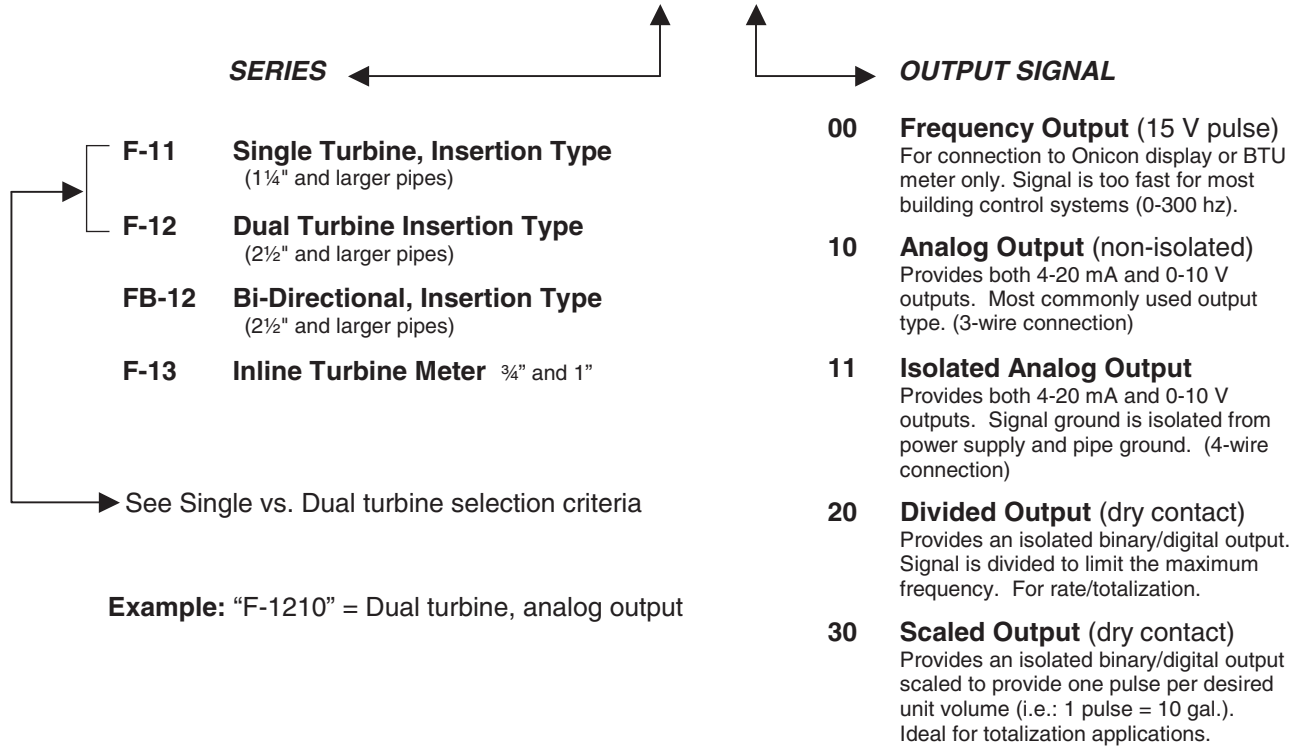


TURBINE FLOW METER SELECTION GUIDE

I. MODEL NUMBERING SYSTEM

Format: F(B)-XX YY



II. INSTALLATION HARDWARE

Purchase of installation kit with the flow meter (insertion type) is **strongly recommended** to prevent installation problems. Installation hardware kits are listed immediately after insertion type flow meters.

III. CALIBRATION DATA

ONICON flow meters are custom calibrated for each application. **Pipe size, material, flow range, etc. is required for all meters.** Use order form and fax or e-mail directly to ONICON Incorporated. Order forms are provided in the product catalog and can be downloaded from ONICON's website (you may also use your own spreadsheet, etc. to submit calibration data). Contact ONICON for assistance with calibration data questions.

IV. PERIPHERAL DEVICES AVAILABLE

Display Modules: See D-1200 Series Display Modules
BTU Meters: See System-10, System-2 and System-30 Series BTU Meters (different order forms for these)

V. APPLICATIONS ASSISTANCE

Contact ONICON or your local sales representative for applications questions.



• **F-1100 SINGLE TURBINE •**
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 F-1100 model provides a high-resolution frequency output for connection to an ONICON Display or BTU Meter.

APPLICATIONS

- Chilled water, hot water, condenser water, and water/glycol/brine for HVAC
- Process water and 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

SUPPLY VOLTAGE

24±4 V AC/DC at 30 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 1½" pipe,
 decreasing in larger pipes and lower velocities

OUTPUT SIGNAL PROVIDED:

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.

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)
1¼	0.8 - 95
1½	1 - 130
2	2 - 210
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

F-1100 SPECIFICATIONS cont.

MATERIAL

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

ELECTRONICS ENCLOSURE

- Standard: Weathertight aluminum enclosure
- Optional: Submersible enclosure

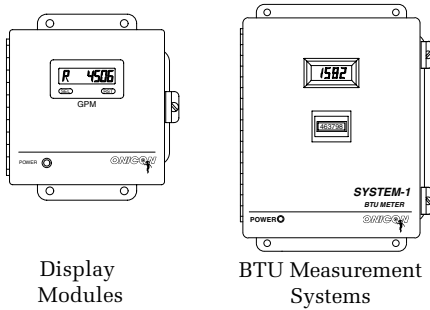
ELECTRICAL CONNECTIONS

- 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

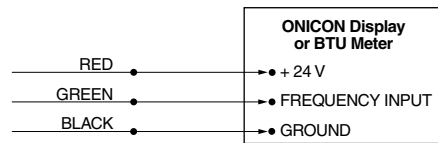
F-1100 Wiring Information

WIRE COLOR CODE		NOTES
RED	(+) 24 V AC/DC supply voltage, 30 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	Signal for ONICON Display or BTU meter

ALSO AVAILABLE



F-1100 Wiring Diagram

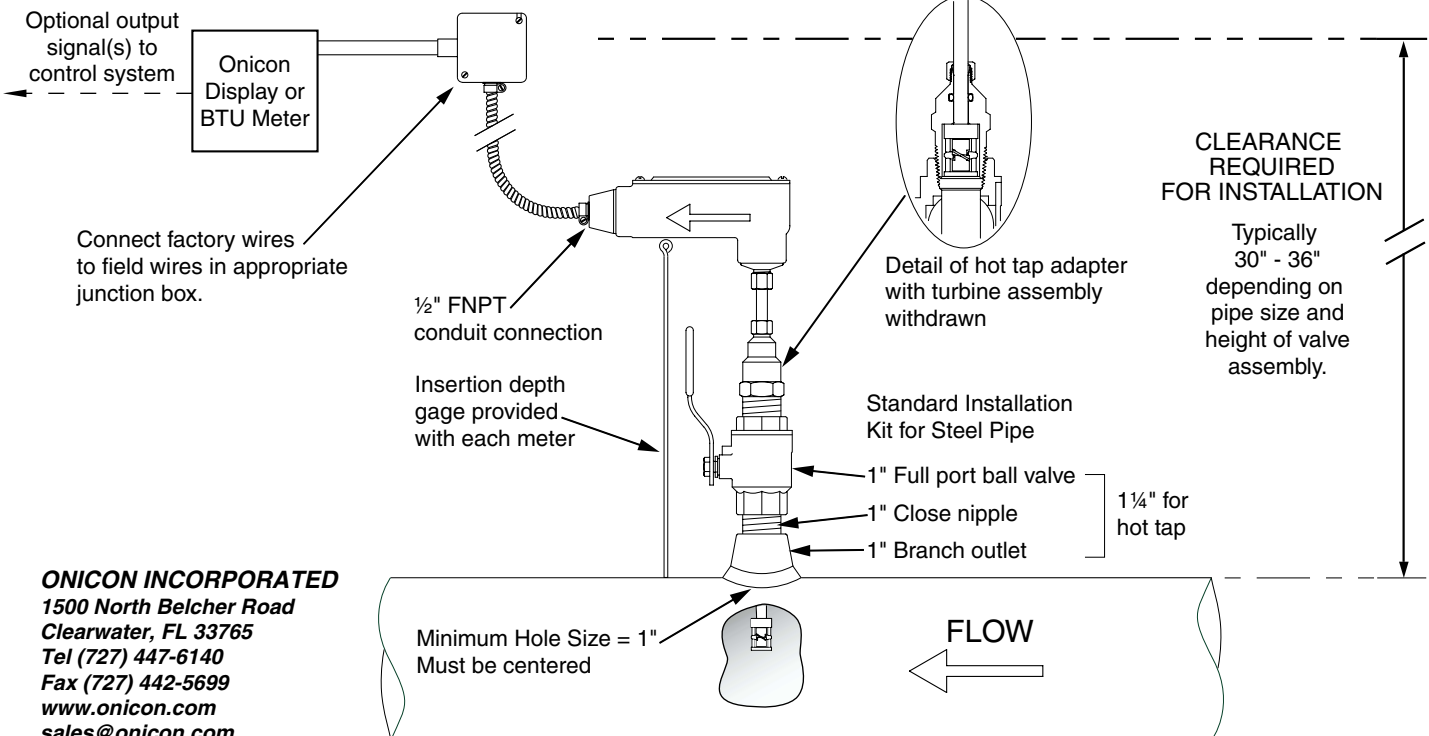
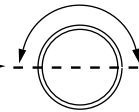


Note: Black wire is common with the pipe ground (typically earth ground).

Typical Meter Installation

(New construction or scheduled shutdown)

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

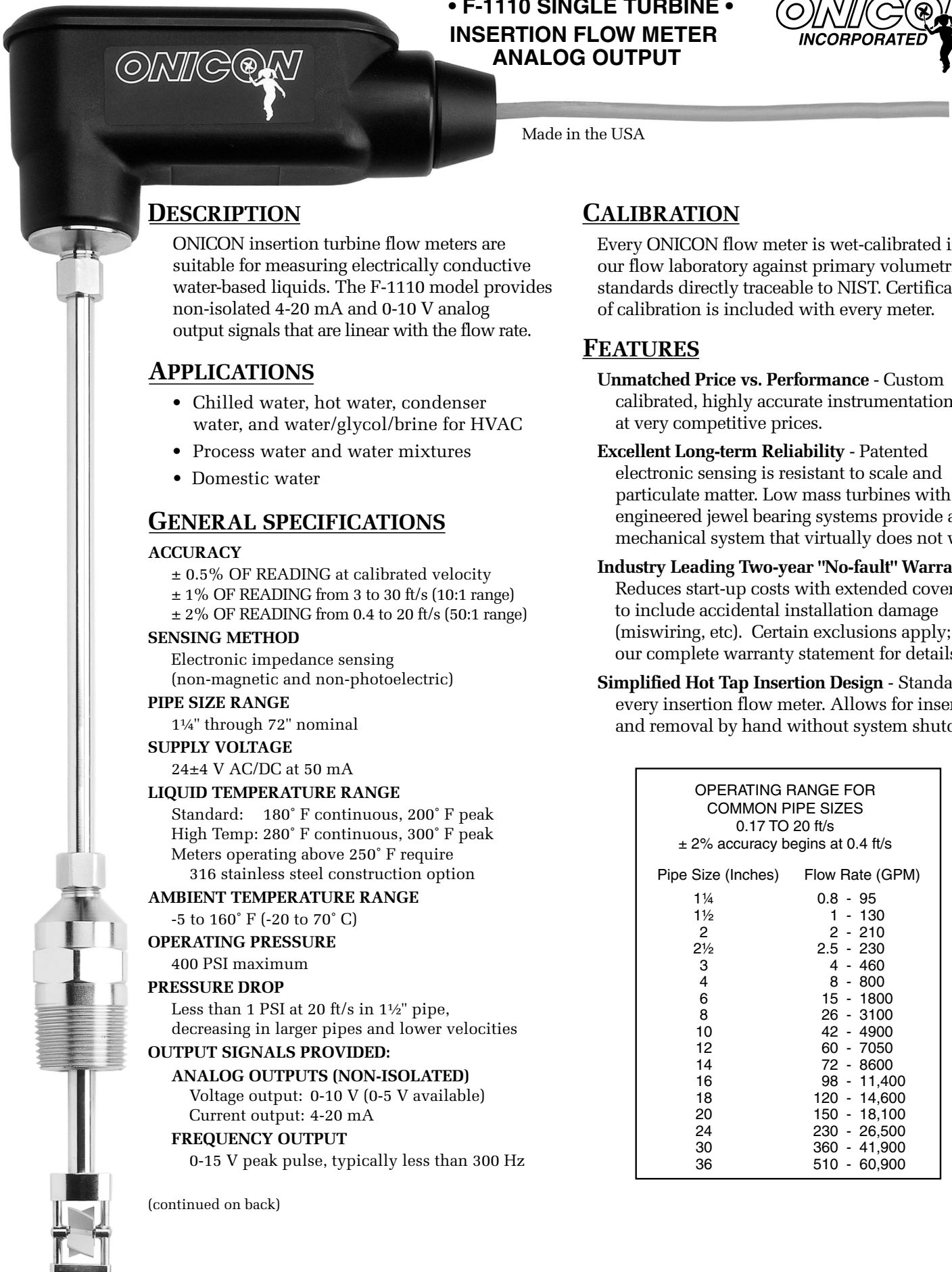


CLEARANCE REQUIRED FOR INSTALLATION

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

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.



**• 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

- Chilled water, hot water, condenser water, and water/glycol/brine for HVAC
- Process water and 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

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 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 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 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.

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)
1¼	0.8 - 95
1½	1 - 130
2	2 - 210
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

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

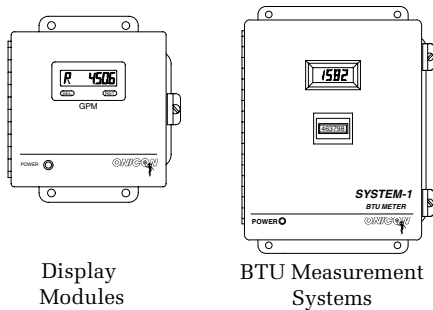
ELECTRICAL CONNECTIONS

- 3-wire 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 1/2" NPT conduit connection
- Optional: Indoor DIN connector with 10' of plenum rated cable

F-1110 Wiring Information

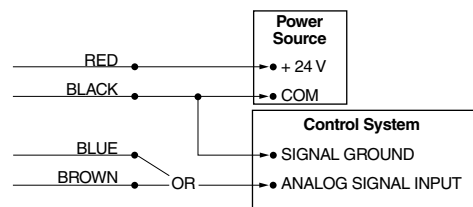
WIRE COLOR CODE		NOTES
RED	(+) 24 V AC/DC supply voltage, 50 mA	Connect to power supply positive
BLACK	(-) Common ground (Common with pipe ground)	Connect to power supply negative & analog input ground
GREEN	(+) Frequency output signal: 0-15 V peak pulse	Required when meter is connected to local display 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



F-1110 Wiring Diagram

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

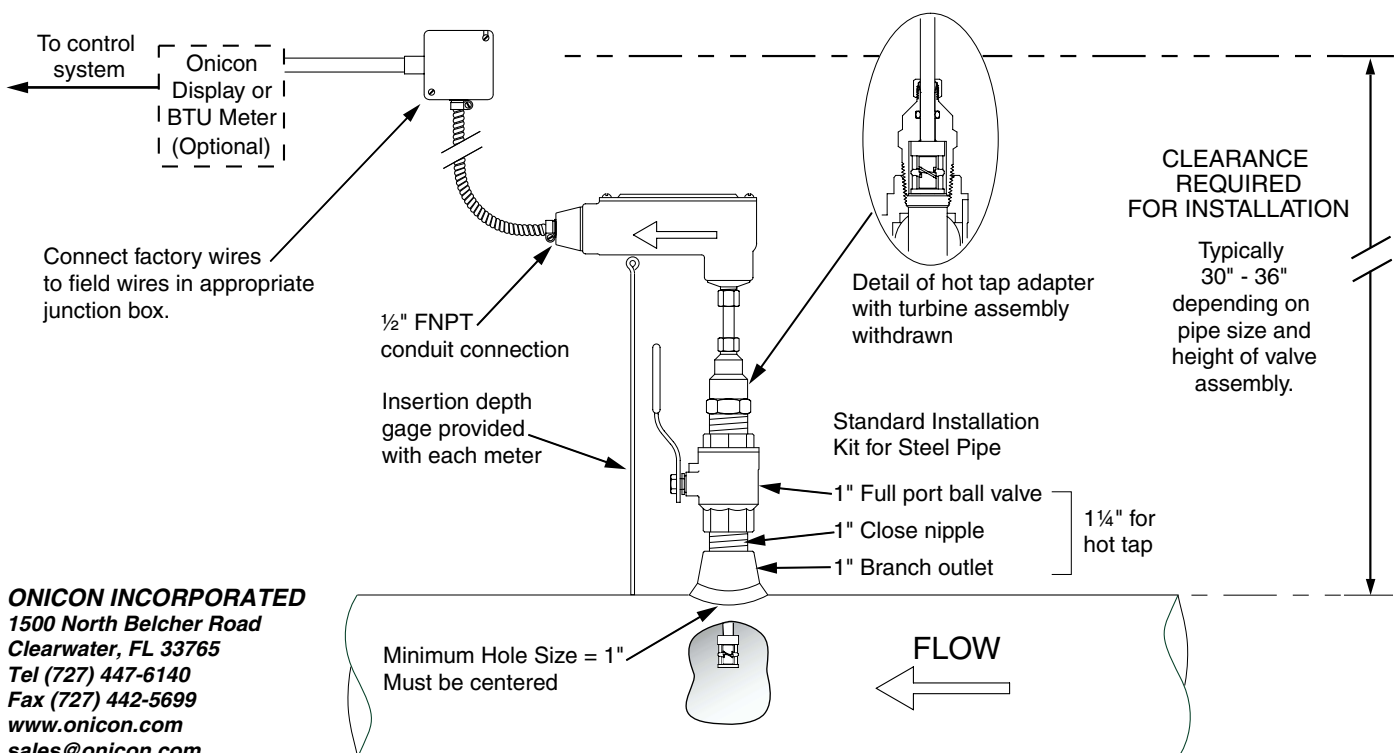


- NOTE: 1. Black wire is common with the pipe ground (typically earth ground).
 2. Frequency output required for ONICON display module or BTU meter, refer to wiring diagram for peripheral device.

Typical Meter Installation

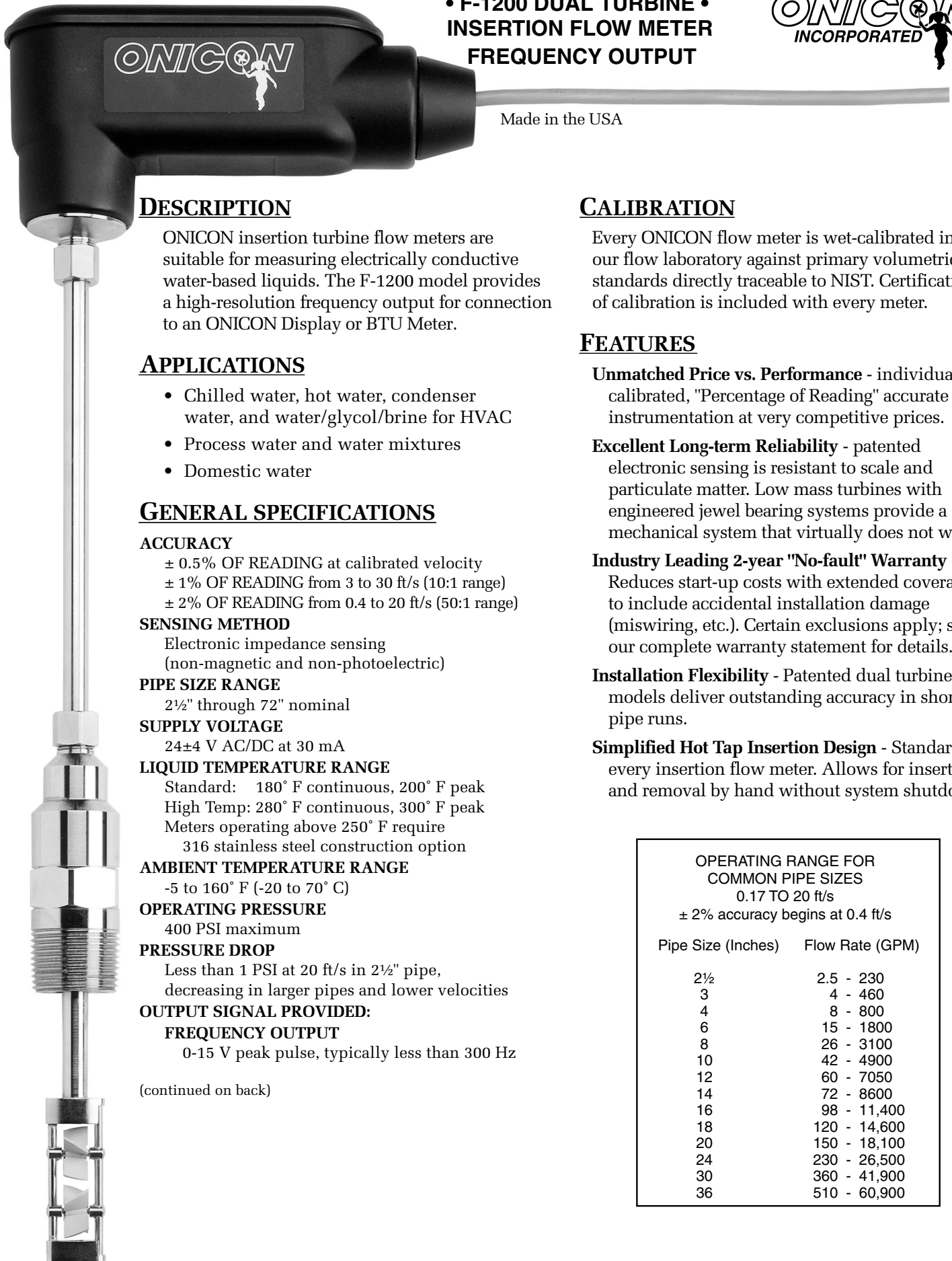
(New construction or scheduled shutdown)

- 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.



**• F-1200 DUAL TURBINE •
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 F-1200 model provides a high-resolution frequency output for connection to an ONICON Display or BTU Meter.

APPLICATIONS

- Chilled water, hot water, condenser water, and water/glycol/brine for HVAC
- Process water and 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

SUPPLY VOLTAGE

24±4 V AC/DC at 30 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 SIGNAL PROVIDED:

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 - individually calibrated, "Percentage of Reading" 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 2-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

F-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

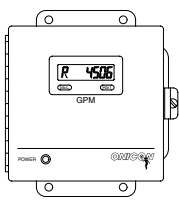
ELECTRICAL CONNECTIONS

- 3-wire minimum for frequency output
- Standard: 10' of cable with 1/2" NPT conduit connection
- Optional: Indoor DIN connector with 10' of plenum rated cable

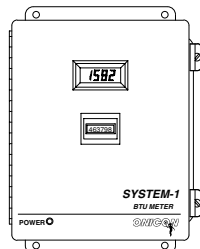
F-1200 Wiring Information

WIRE COLOR CODE		NOTES
RED	(+) 24 V AC/DC supply voltage, 30 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	Signal for ONICON Display or BTU meter
DIAGNOSTIC SIGNALS		
ORANGE	Bottom turbine frequency	These signals are for diagnostic purposes - connect to local display or BTU Meter
WHITE	Top turbine frequency	

ALSO AVAILABLE

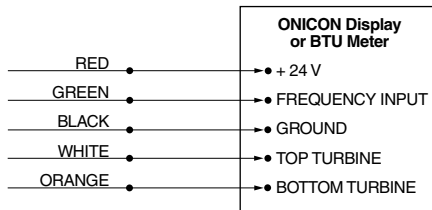


Display Modules



BTU Measurement Systems

F-1200 Wiring Diagram

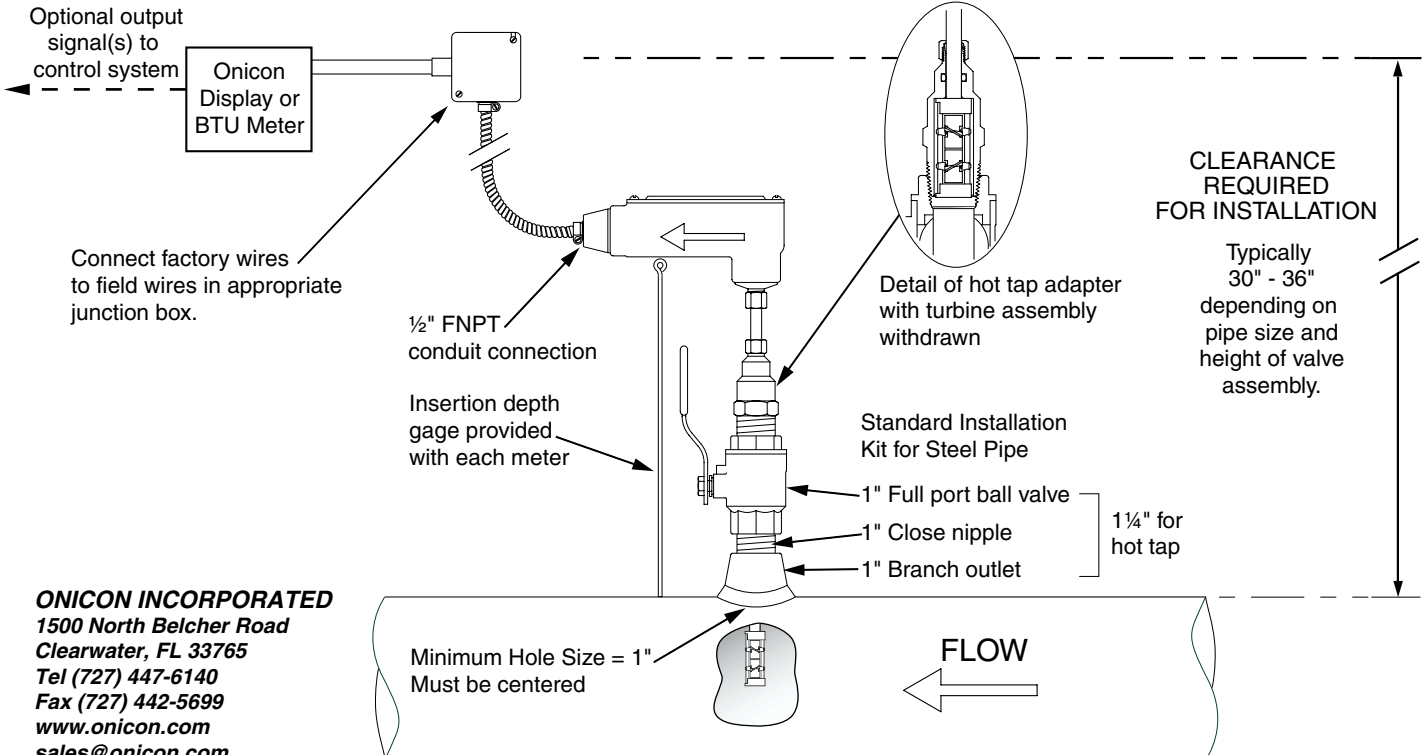


NOTE: Black wire is common with the pipe ground (typically earth ground).

Typical Meter Installation

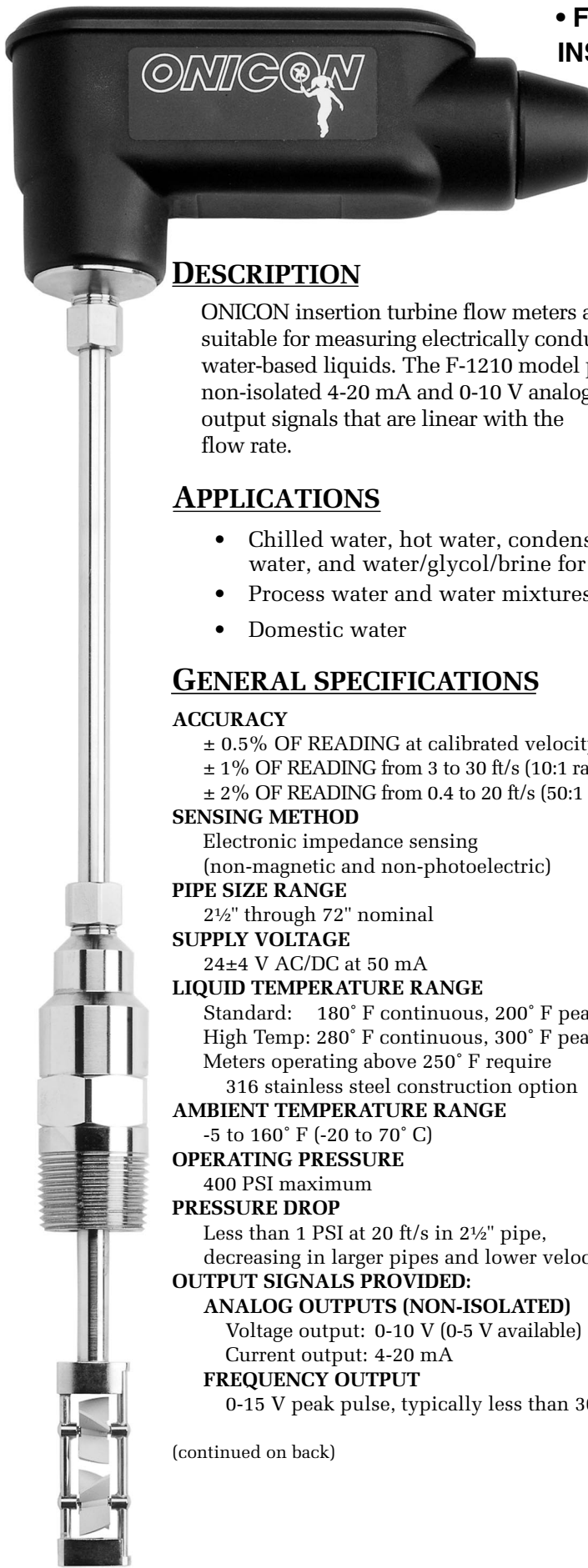
(New construction or scheduled shutdown)

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



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.



• **F-1210 DUAL 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-1210 model provides non-isolated 4-20 mA and 0-10 V analog output signals that are linear with the flow rate.

APPLICATIONS

- Chilled water, hot water, condenser water, and water/glycol/brine for HVAC
- Process water and 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

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 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:

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 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

F-1210 SPECIFICATIONS cont.

MATERIAL

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

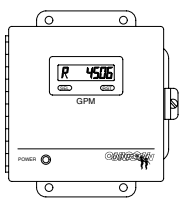
ELECTRONICS ENCLOSURE

- Standard: Weathertight aluminum enclosure
- Optional: Submersible enclosure

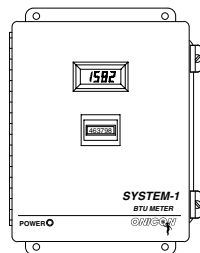
ELECTRICAL CONNECTIONS

- 3-wire 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 1/2" NPT conduit connection
- Optional: Indoor DIN connector with 10' of plenum rated cable

ALSO AVAILABLE



Display Modules



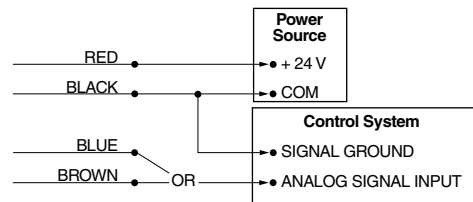
BTU Measurement Systems

F-1210 Wiring Information

WIRE COLOR CODE		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)	
DIAGNOSTIC SIGNALS		
ORANGE	Bottom turbine frequency	These signals are for diagnostic purposes - connect to local display or BTU Meter
WHITE	Top turbine frequency	

F-1210 Wiring Diagram

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

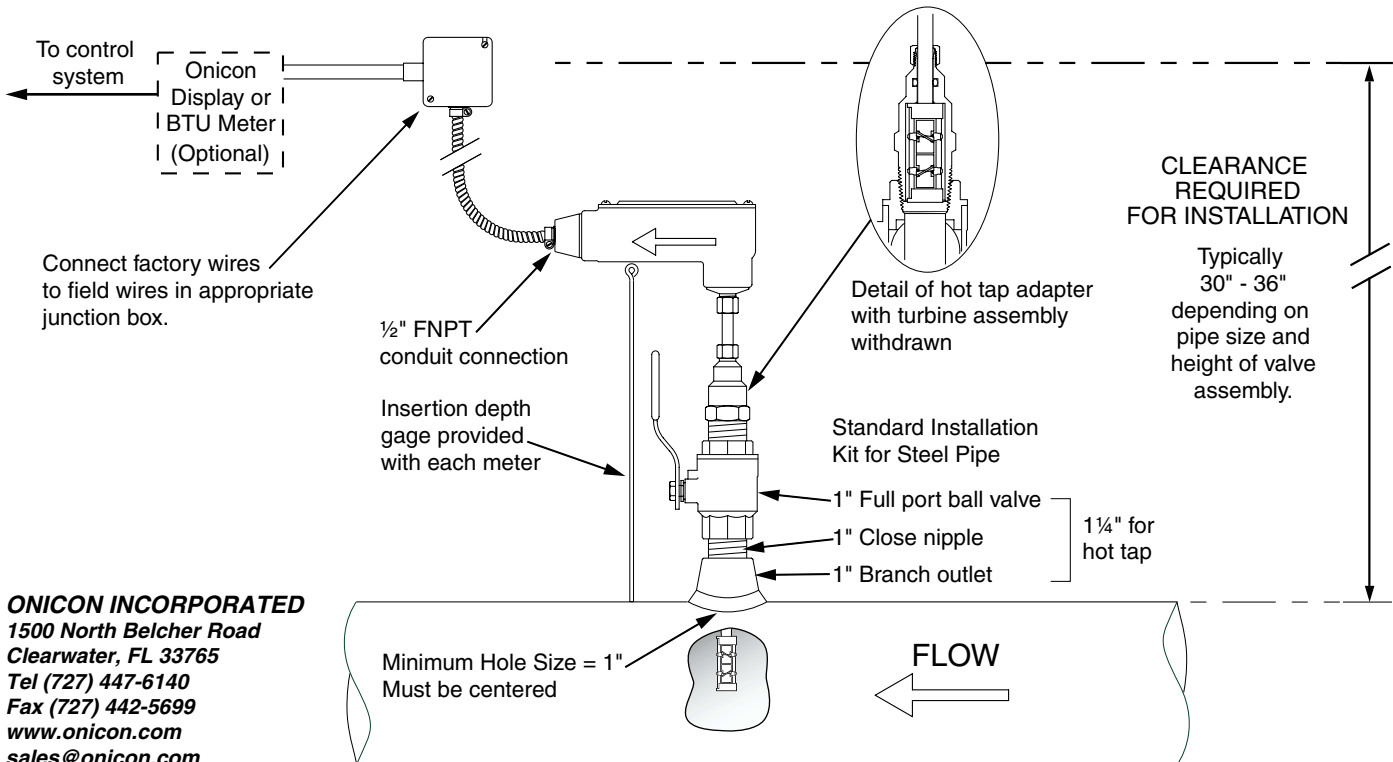


- NOTE: 1. Black wire is common with the pipe ground (typically earth ground).
 2. Frequency output required for ONICON display module or BTU meter, refer to wiring diagram for peripheral device.

Typical Meter Installation

(New construction or scheduled shutdown)

- Acceptable to install in vertical pipe
- Position meter anywhere in upper 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.

• **INLINE FLOW METER •**
MODEL F-1300 TURBINE
FREQUENCY OUTPUT



Made in the USA

DESCRIPTION

ONICON inline turbine flow meters are suitable for measuring electrically conductive water-based liquids. The F-1300 model provides a high-resolution frequency output for connection to an ONICON Display or BTU Meter.

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.

APPLICATIONS

- Chilled water, hot water, condenser water, and water/glycol/brine for HVAC
- Process water and water mixtures
- Domestic water

GENERAL SPECIFICATIONS

ACCURACY

- ± 0.5% OF READING at calibrated velocity
- ± 2% OF READING from 0.8 to 38 GPM (50:1 range)

SENSING METHOD

Electronic impedance sensing
(non-magnetic and non-photoelectric)

PROCESS CONNECTIONS

Threaded or sweat union fittings
¾" or 1"

SUPPLY VOLTAGE

24±4 V AC/DC at 30 mA

LIQUID TEMPERATURE RANGE

Standard: 180° F continuous, 200° F peak
High Temp: 280° F continuous, 300° F peak

AMBIENT TEMPERATURE RANGE

-5 to 160° F (-20 to 70° C)

OPERATING PRESSURE

400 PSI maximum

PRESSURE DROP

3 PSI at maximum flow rate

OUTPUT SIGNAL PROVIDED:

FREQUENCY OUTPUT

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

MATERIAL

Brass housing and stem
Sapphire bearings and tungsten carbide shaft

ELECTRONICS ENCLOSURE

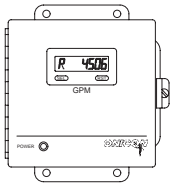
Weather-tight aluminum enclosure

ELECTRICAL CONNECTIONS

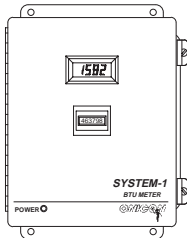
3-wire for frequency output
Standard: 10' of cable with ½" NPT conduit connection

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

Also Available



Display Modules

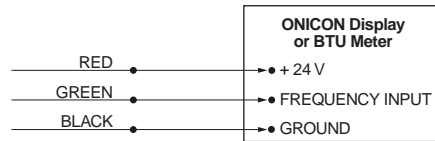


BTU Measurement Systems

F-1300 Wiring Information

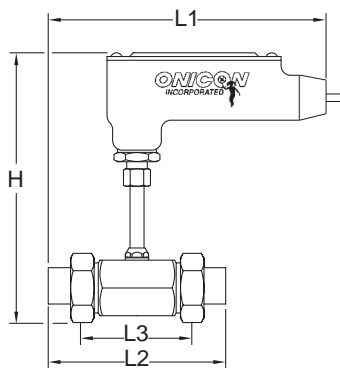
WIRE COLOR CODE		NOTES
RED	(+) 24 V AC/DC supply voltage, 30 mA	Connect to power supply positive
BLACK	(-) Common ground (Common with pipe ground)	Connect to power supply negative
GREEN	(+) Frequency output signal: 0-15 V peak pulse	Signal for ONICON Display or BTU meter

F-1300 Wiring Diagram

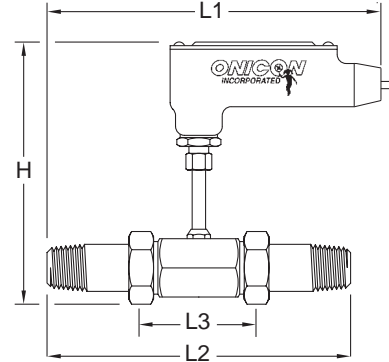


Note: Black wire is common with the pipe ground (typically earth ground).

Inline Flow Meter Dimensions



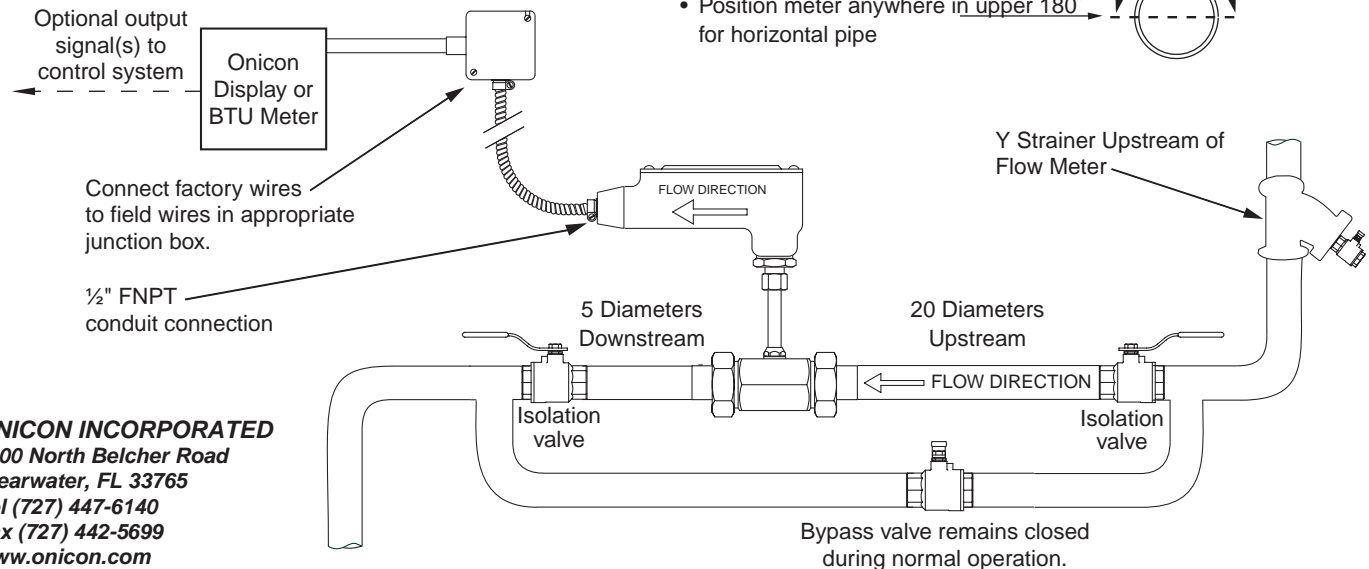
Sweat		Threaded
9"	L1	10 1/4"
5 3/8"	L2	8 5/8"
3 1/4"	L3	3 1/4"
8"	H	8"
2"	MAX WIDTH	2"



Typical Meter Installation

(New construction or scheduled shutdown)

- Flush piping system thoroughly before installing meter
- 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

• **INLINE FLOW METER •**
MODEL F-1310 TURBINE
ANALOG OUTPUT



Made in the USA

DESCRIPTION

ONICON inline turbine flow meters are suitable for measuring electrically conductive water-based liquids. The F-1310 model provides non-isolated 4-20 mA and 0-10 V analog output signals that are linear with the flow rate.

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.

APPLICATIONS

- Chilled water, hot water, condenser water, and water/glycol/brine for HVAC
- Process water and water mixtures
- Domestic water

GENERAL SPECIFICATIONS

ACCURACY

- ± 0.5% OF READING at calibrated velocity
- ± 2% OF READING from 0.8 to 38 GPM (50:1 range)

SENSING METHOD

Electronic impedance sensing
(non-magnetic and non-photoelectric)

PROCESS CONNECTIONS

Threaded or sweat union fittings
3/4" or 1"

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

AMBIENT TEMPERATURE RANGE

-5 to 160° F (-20 to 70° C)

OPERATING PRESSURE

400 PSI maximum

PRESSURE DROP

3 PSI at maximum flow rate

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

MATERIAL

Brass housing and stem
Sapphire bearings and tungsten carbide shaft

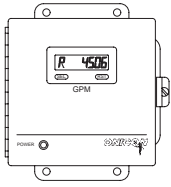
ELECTRONICS ENCLOSURE

Weathertight aluminum enclosure

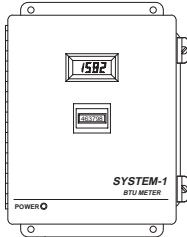
ELECTRICAL CONNECTIONS

3-wire minimum for 4-20mA or 0-10V output
Standard: 10' of cable with 1/2" NPT conduit connection
Optional: Indoor DIN connector with 10' of plenum rated cable

Also Available



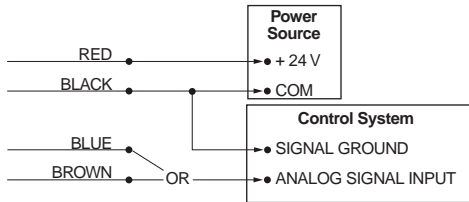
Display Modules



BTU Measurement Systems

F-1310 Wiring Diagram

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

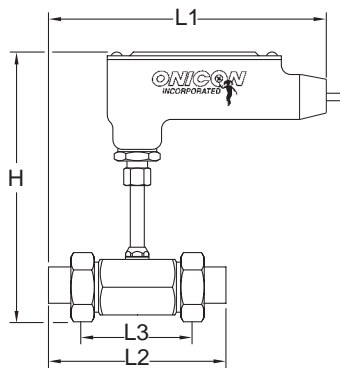


- NOTE: 1. Black wire is common with the pipe ground (typically earth ground).
 2. Frequency output required for ONICON display module or BTU meter, refer to wiring diagram for peripheral device.

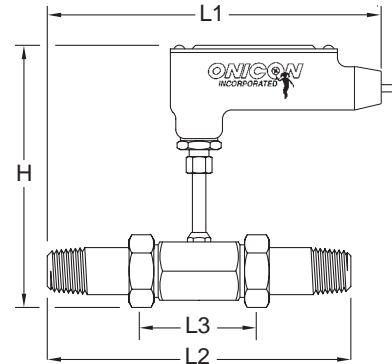
F-1310 Wiring Information

WIRE COLOR CODE		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)	

Inline Flow Meter Dimensions

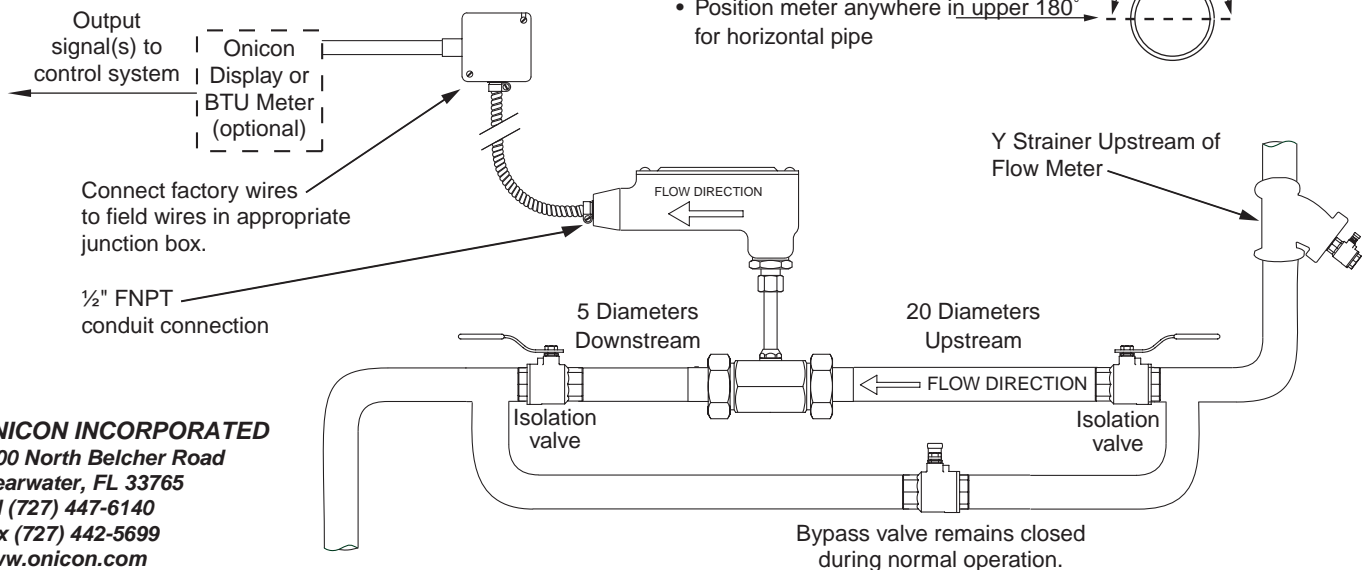


Sweat		Threaded
9"	L1	10 1/4"
5 3/8"	L2	8 5/8"
3 1/4"	L3	3 1/4"
8"	H	8"
2"	MAX WIDTH	2"



Typical Meter Installation

(New construction or scheduled shutdown)



- Flush piping system thoroughly before installing meter
- 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