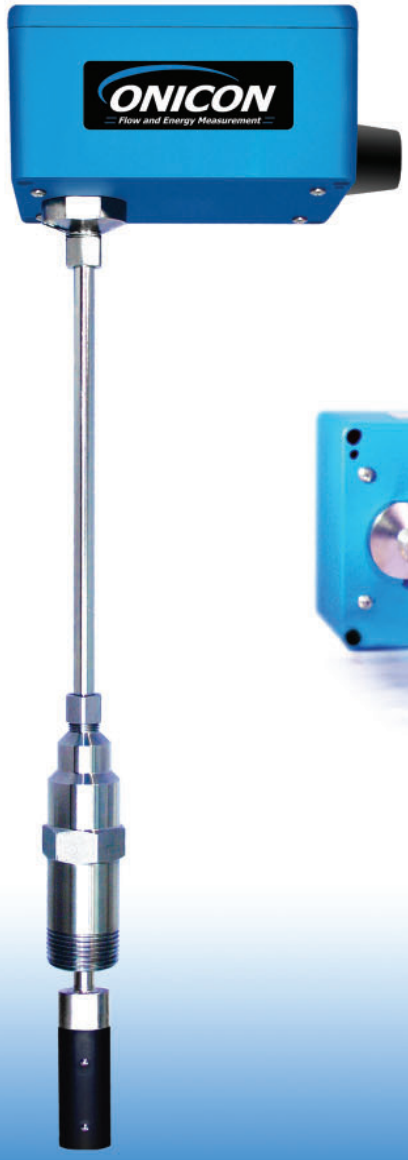
F-3500 SERIES
Insertion Electromagnetic Flow Meter



ONICON's F-3500 series insertion electromagnetic flow meters are suitable for measuring electrically conductive liquids in a wide variety of applications. Each F-3500 provides a single analog output for flow rate, a high resolution frequency output to drive peripheral devices, a scalable pulse output for totalization, and an empty pipe alarm signal.

ONICON
Flow and Energy Measurement

• F-3500 SERIES •
INSERTION ELECTROMAGNETIC FLOW METER

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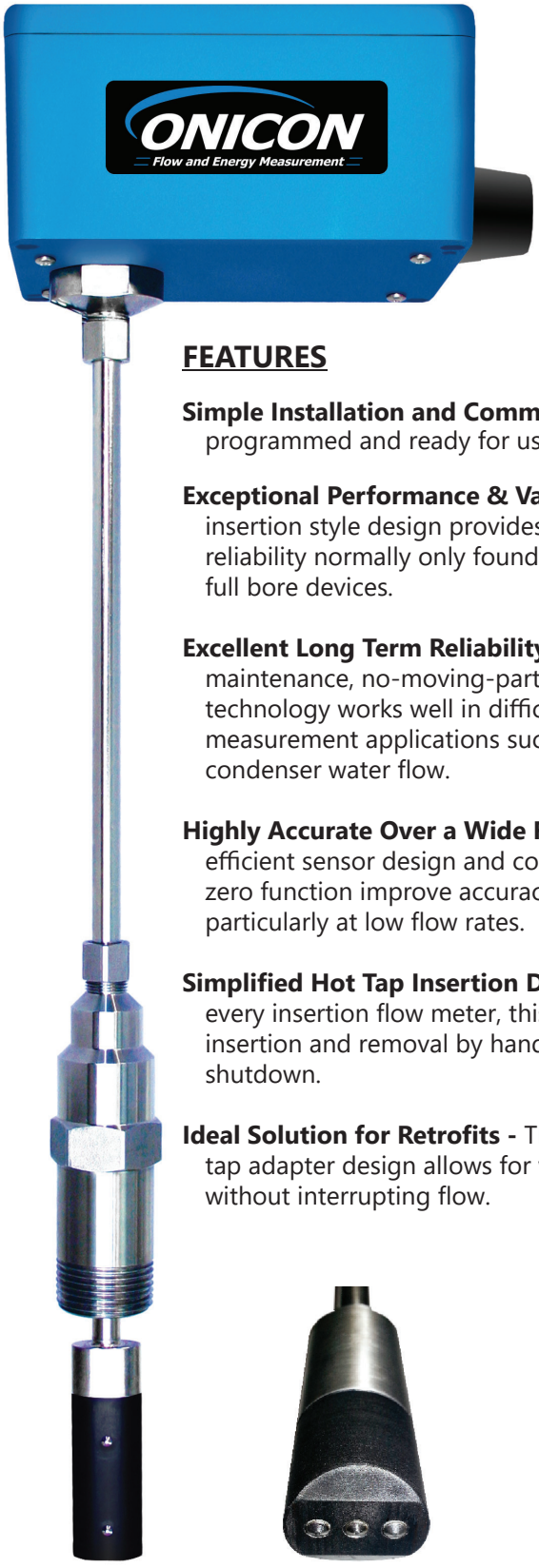

Standard Configuration

FEATURES

Simple Installation and Commissioning - Factory programmed and ready for use upon delivery.

Exceptional Performance & Value - Cost-effective insertion style design provides accuracy and reliability normally only found in more expensive full bore devices.

Excellent Long Term Reliability - Low maintenance, no-moving-parts flow sensing technology works well in difficult flow measurement applications such as open loop condenser water flow.

Highly Accurate Over a Wide Flow Range - Highly efficient sensor design and continuous auto-zero function improve accuracy and sensitivity, particularly at low flow rates.

Simplified Hot Tap Insertion Design - Standard on every insertion flow meter, this feature allows for insertion and removal by hand without a system shutdown.

Ideal Solution for Retrofits - The innovative hot tap adapter design allows for wet tapping pipes without interrupting flow.

Small Pipe Configuration

DESCRIPTION

ONICON Incorporated's F-3500 series insertion electromagnetic flow meters are suitable for measuring electrically conductive liquids in a wide variety of applications. Each F-3500 provides a single analog output for flow rate, a high resolution frequency output to drive peripheral devices, a scalable pulse output for totalization, and an empty pipe alarm signal.

Two versions of the F-3500 are now available. The standard configuration F-3500 is suitable for pipe sizes ranging from 3" to 72" in diameter. The small pipe configuration F-3500 is suitable for pipes ranging in size from 1¼" to 2½" in diameter.

Optional remote displays and BTU measurement systems are also available for both versions.

APPLICATIONS

- Accurate, reliable flow measurement for HVAC applications
- Ideal for monitoring open loop condenser water flow
- Hot tap design simplifies domestic water retrofit installations
- Cost-effective way to monitor flow in larger pipe sizes
- Suitable for use in water and water/glycol systems

CALIBRATION

Every ONICON flow meter is wet calibrated in a flow laboratory against standards that are directly traceable to NIST*. A certificate of calibration accompanies every meter.

ONICON's F-3500 Insertion Electromagnetic Flow Meter combined with the System-20 BTU Meter forms an energy measurement system with unsurpassed accuracy and reliability.

*National Institute of Standards and Technology

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GENERAL SPECIFICATIONS

ACCURACY
± 1.0% of reading from 2 - 20 ft/s
± 0.02 ft/s below 2 ft/s

FLOW RANGE
0.1 ft/s to 20 ft/s (200:1 turndown)

SENSING METHOD
Electromagnetic sensing (no moving parts)

PIPE SIZE RANGE
Standard Configuration: 3 - 72" nominal diameter
Small Pipe Configuration: 1¼ - 2½" nominal diameter

INPUT POWER
20 - 28 VDC, 250 mA at 24 VDC
20 - 28 VAC, 60 Hz, 6 VA

LIQUID TEMPERATURE RANGE
15°F to 250°F

AMBIENT TEMPERATURE RANGE
-20°F to 150°F

OPERATING PRESSURE
400 psi maximum

PRESSURE DROP
Standard Configuration: 0.1 psi at 12 ft/s in 3" pipe, decreasing as line size increases
Small Pipe Configuration: 0.33 psi at 8 ft/s in 1.25" pipe, decreasing as the line size increases

OUTPUT SIGNALS PROVIDED

Analog Output (Isolated)
Selectable: 4-20 mA, 0-10 V or 0-5 V

Frequency Output
0-15 V peak pulse, 0-500 Hz

Scalable Pulse Output
Isolated solid state dry contact
Contact rating: 50 VDC, 100 mA maximum
Pulse Duration: 0.5, 1, 2 or 6 seconds

MATERIAL
Wetted metal components: 316 Stainless Steel
Sensor head: XAREC
Optional: NSF/ANSI 61/372 version

ELECTRONICS ENCLOSURE
Weathertight NEMA 4 aluminum enclosure

ELECTRICAL CONNECTIONS
10' of PVC jacketed cable with ½" NPT conduit connection
Dedicated earth wire required
4-wire minimum for power and analog output
Additional wires required for pulse, frequency and alarm outputs

OPERATING RANGE FOR COMMON PIPE SIZES 0.1 to 20 ft/s

Pipe Size (inches)	Flow Rate (GPM)
1 ¼	0.4 - 95
1 ½	0.6 - 130
2	1.0 - 200
2 ½	1.1 - 230
3	2.4 - 460
4	4 - 800
6	9 - 1,800
8	16 - 3,100
10	24 - 4,900
12	35 - 7,050
14	42 - 8,600
16	55 - 11,400
18	70 - 14,600
20	86 - 18,100
24	125 - 26,500
30	223 - 41,900
36	304 - 60,900

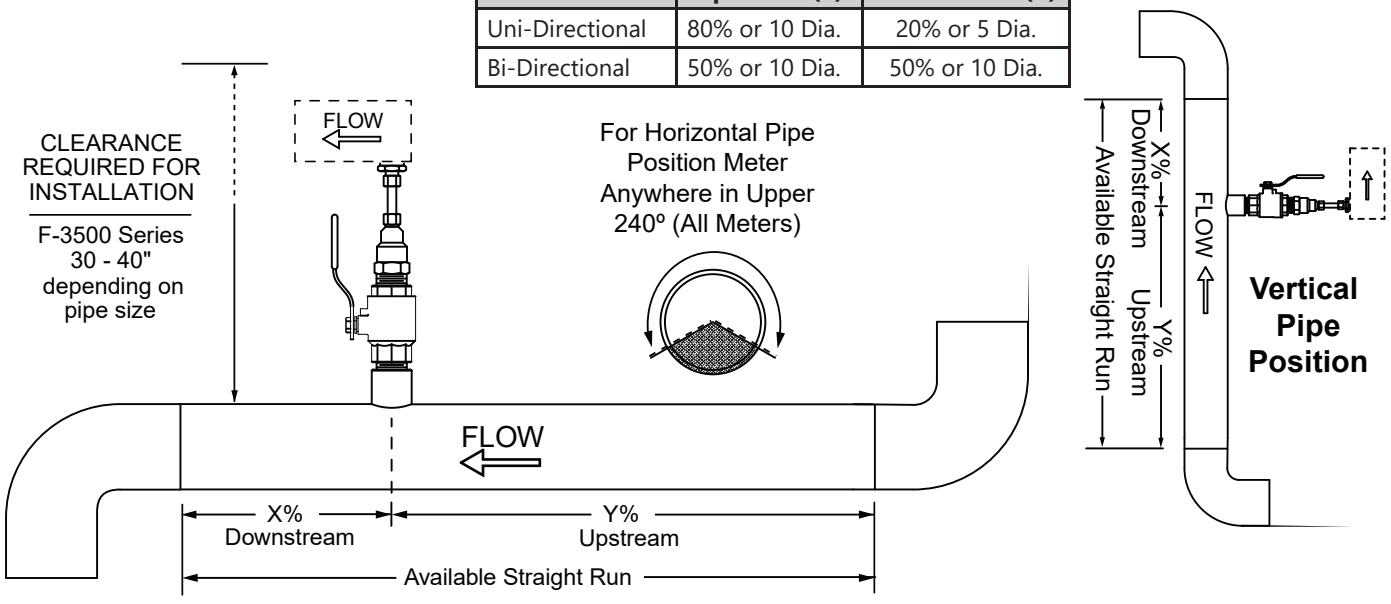
APPROVALS

ELECTROMAGNETIC INSERTION FLOW METER
NSF/ANSI 61 <MH60590>
ALSO CLASSIFIED
IN ACCORDANCE WITH
NSF/ANSI 372

NOTE: Specifications are subject to change without notice.

STRAIGHT RUN INFORMATION

Minimum Installation Recommendation Table		
Meters	**Upstream (Y)**	**Downstream (X)**
Uni-Directional	80% or 10 Dia.	20% or 5 Dia.
Bi-Directional	50% or 10 Dia.	50% or 10 Dia.



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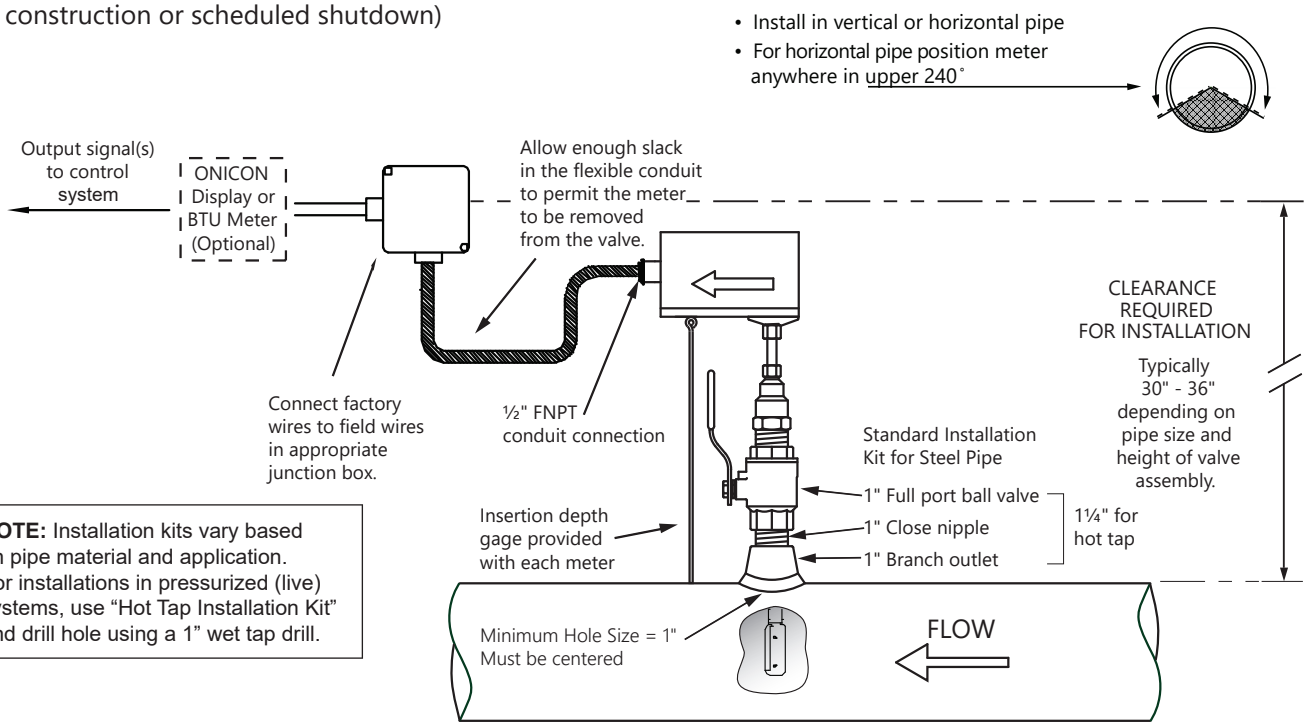
TYPICAL METER INSTALLATION

(New construction or scheduled shutdown)



NOTE: Installation kits vary based on pipe material and application. For installations in pressurized (live) systems, use "Hot Tap Installation Kit" and drill hole using a 1" wet tap drill.

METER ORDERING INFORMATION

Meter Model Number Coding = F-35AA-BB-CC-DEFG(-SPC)

F-35AA = Insertion Electromagnetic Flow Meter

00 = Insertion electromagnetic flow meter

BB = Outputs

11 = Frequency, isolated analog, scaled pulse and alarm (dry contacts)

12 = Frequency, isolated analog, bi-directional, scaled pulse and alarm (dry contacts)*

CC = Pipe Size Range and Meter Length

A1 = 1.25 - 2.5" (F-3500 Small Pipe)

C3 = 3.0 - 10.0"

D4 = 3.0 - 16.0"

E5 = 3.0 - 22.0"

F6 = 3.0 - 72"

**For 3" and larger pipes*

D = Process Connection

1 = 1" NPT adapter. ⅜" stem

E = Wetted Material

1 = 316 SS, XAREC, Viton, Temp < 150°F

2 = 316 SS, XAREC, FKM, Temp ≤ 250°F

3 = 316 SS, XAREC, EPDM, NSF rated for domestic water

F = Electronics Enclosure

1 = NEMA 4 weathertight enclosure

G = Wiring Connection

1 = 10' PVC jacketed cable, pig tail with **½**" conduit adapter

SPC = Special Configuration

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