FT-3400 SERIES
INSERTION ELECTROMAGNETIC FLOW METERS

FT-3400 series flow meters combine the convenience of an insertion style design with the reliability of electromagnetic flow measurement. They are ideal for measuring flow in a wide variety of applications.

• Chilled Water • Heating Hot Water • Domestic/Municipal Water • Condenser Water •

We believe in our products, so should you.
1 YEAR NO FAULT WARRANTY
3 YEAR MANUFACTURER WARRANTY

Engineered • Wet Calibrated • Factory Configured

Measure with Confidence

No-Fault Warranty • On-Time Delivery • Customer Support

DESCRIPTION

ONICON's FT-3400 series insertion electromagnetic flow meters are suitable for measuring electrically conductive liquids in a wide variety of applications. Each FT-3400 provides current and voltage analog output for flow rate, a high-resolution frequency output to drive peripheral devices, a scalable pulse output for totalization, and a master alarm signal.

Standard sensor for a 3" - 72" pipe

Small Pipe Sensor for 1.25" - 2.5" pipe

Two versions of the FT-3400 are available. The standard sensor configuration is suitable for pipes from 3" to 72" and the small pipe sensor configuration which is suitable for 1.25" to 2.5" pipes. Both configurations are available for unidirectional or bidirectional applications. The bidirectional version of the FT-3400 provides an additional contact output for flow direction.

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

APPLICATIONS

- Chilled water
- Heating hot water
- Condenser water
- Domestic/municpal water
- Water/glycol

FEATURES

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

Exceptional Performance & Value - Insertion style design provides cost-effective solution for accurate and reliable flow measurement in larger pipe sizes.

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, 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.

CALIBRATION

Every ONICON flow meter is wet calibrated in a flow laboratory against standards that are directly traceable to National Institute of Standards and Technology (N.I.S.T.). A certificate of calibration accompanies every meter.

Multiple FT-3400 Insertion Electromagnetic Flow Meters combined with the System-1000 Flow & Energy Measurement System provide unsurpassed accuracy and reliability readings on a local display with a single network output.

SPECIFICATIONS*

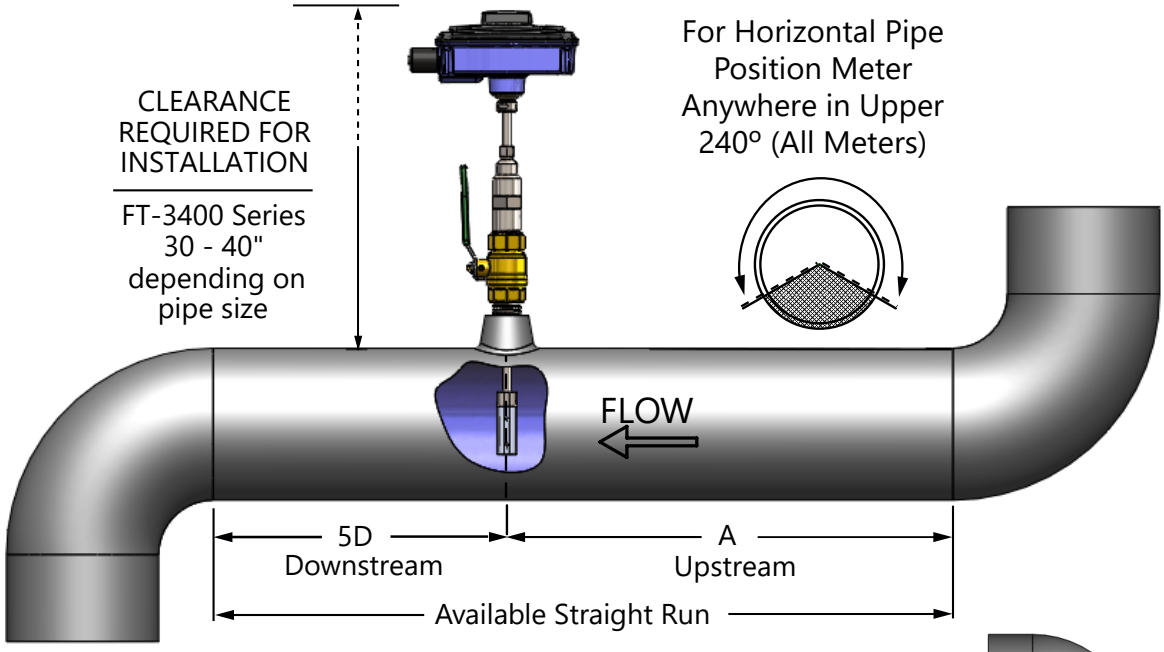
MODEL FT-3400		
PERFORMANCE	ACCURACY	Standard Sensor ±1.0% of reading from 2 - 20 ft/s ±0.02 ft/s below 2 ft/s Small Pipe Sensor ±1.0% of reading from 1.6 - 16 ft/s ±0.016 ft/s below 1.6 ft/s
	MINIMUM CONDUCTIVITY	25 µS/cm
INPUT POWER	20 - 28 VDC, 400 mA at 24 VDC 20 - 28 VAC, 60 Hz, 10 VA	
I/O SIGNAL	ANALOG OUTPUT (ISOLATED)	One 4-20mA analog output and one 2-10V or 1-5V analog output, with 2mA and 1V or 0.5V specifically allocated for alarm conditions.
	FREQUENCY OUTPUT	0-15 V peak pulse, 0-500 Hz
	SCALABLE PULSE OUTPUT	Isolated solid state dry contact Contact rating: 30 V, 1.2A Pulse Duration: 0.5, 1, 2 or 6 seconds
ELECTRONICS ENCLOSURE	Weathertight NEMA 4 aluminum enclosure	
ELECTRICAL CONNECTIONS	10' or 25' of PVC jacketed cable with ½" NPT conduit connection	
	Male, M12 x 1, Right angle, A-code	
FLOW RANGE	0.1 ft/s to 20 ft/s (200:1 turndown)	
SENSING METHOD	Electromagnetic sensing (no moving parts)	
PIPE SIZE RANGE	AVAILABLE OPTIONS	Standard Sensor: 3" - 72" nominal diameter Small Pipe Sensor: 1.25" - 2.5" nominal diameter
LIQUID TEMPERATURE RANGE	15°F to 250°F	
AMBIENT TEMPERATURE RANGE	-20°F to 150°F	
OPERATING PRESSURE	400 psi maximum	
PRESSURE DROP	0.1 psi at 12 ft/s in 3" pipe, decreasing as line size increases	
MATERIAL	Wetted metal components: 316 Stainless Steel Sensor head: XAREC Optional: NSF/ANSI 61/372 version	
APPROVAL	UL	UL ANSI/NSF 61 & 372 Drinking Water Safety UL 50 Standard for Enclosures for Electrical Equipment UL 61010-1 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use
	CE	IEC 61000-6-2 Power-Frequency Magnetic Field, Radiated Immunity and Electrostatic Discharge. IEC 61000-6-4 Radiated Emissions EN 301 489-17 Radiated Emissions, RF Immunity, and Electrostatic Discharge EN 301 328 Wideband transmission systems
	FCC: Part 15, Subpart B	

*Specifications subject to change without notice.

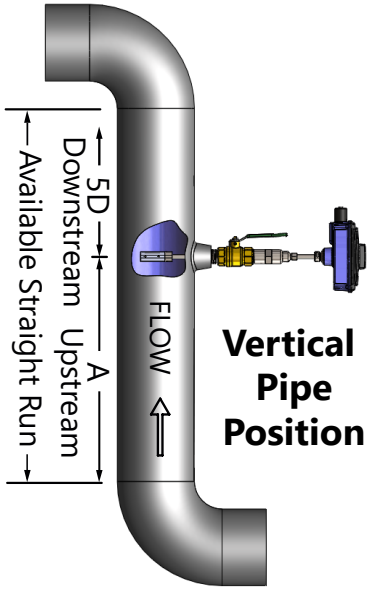
OPERATING RANGE FOR COMMON PIPE SIZES

OPERATING RANGE FOR COMMON PIPE SIZES*					
PIPE SIZE (inches)	**FLOW RATE (GPM) (0.1 ft/s to 16 ft/s)**	**PIPE SIZE (inches)**	**FLOW RATE (GPM) (0.1 ft/s to 20 ft/s)**	**PIPE SIZE (inches)**	**FLOW RATE (GPM) (0.1 ft/s to 20 ft/s)**
1¼	0.4 - 72	3	2.4 - 460	16	55 - 11,400
1½	0.6 - 99	4	4 - 800	18	70 - 14,600
2	1.0 - 164	6	9 - 1,800	20	86 - 18,100
2½	1.1 - 234	8	16 - 3,100	24	125 - 26,500
		10	24 - 4,900	30	223 - 41,900
		12	35 - 7,050	36	304 - 60,900
		14	42 - 8,600	42	416 - 83,300

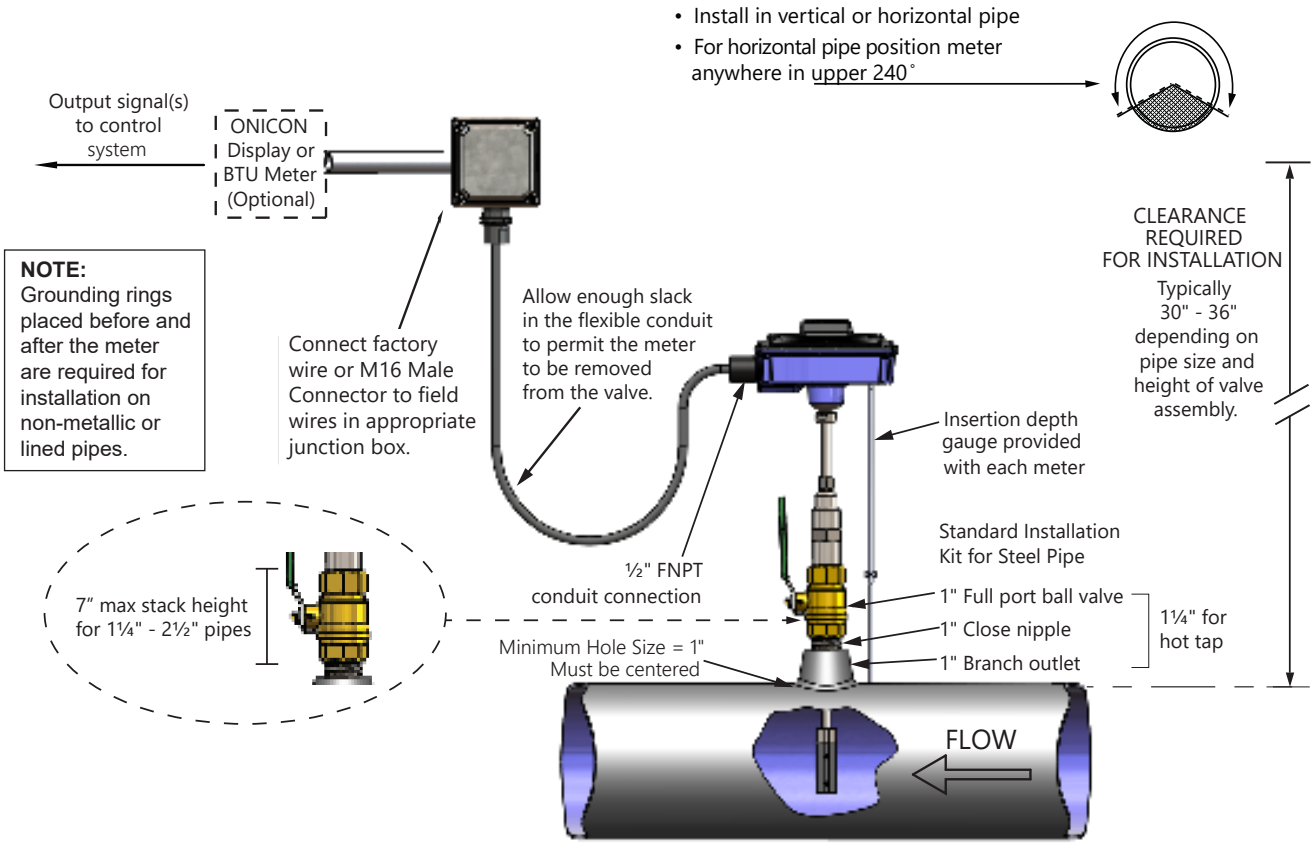
STRAIGHT RUN INFORMATION



Upstream obstruction	(A) Minimum straight run required upstream of meter location
Single bend preceded by ≥ 9 diameters of straight pipe	10 Diameters
Pipe size reduction / expansion in straight pipe run	10 Diameters
Single bend preceded by ≤ 9 diameters of straight pipe	15 Diameters
Outflowing tee / Pump outflow	20 Diameters
Multiple bends out of plane	30 Diameters
Inflowing tee	30 Diameters
Control / Modulating valve	30 Diameters



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" 1¼ inch installation kit and drill hole using a 1 inch wet tap drill.

METER ORDERING INFORMATION
FT-3400 Meter Model Number Codification = FT-3400-ABC-DEEF

FT-3400 = Insertion Electromagnetic Flow Meter

A = Meter Configuration & I/O
1 = Frequency, Pulse, Iso Analog, 24V AC/DC
2 = Frequency, Pulse, Iso Analog, **Dir Contact**, 24V AC/DC

B = Communications
0 = No Communications Module

C = Bluetooth (Coming Soon)
0 = No Bluetooth Module

D = Enclosure Type and Process Connection
1 = NEMA 4 Enclosure with 10' PVC Cable
2 = NEMA 4 Enclosure with 25' PVC Cable
3 = NEMA 4 Enlclosure with a Male, M12 x 1, Right angle, A-code

EE = Pipe Size Range and Meter Length
A2 for pipes 1.25 - 2.5" (20" stem)
C3 for pipes 3 - 10" (18" stem)
D4 for pipes 3 - 16" (20" stem)
E5 for pipes 3 - 22" (22" stem)
F6 for pipes 3 - 72" (24" stem)
F7 for pipes 3 - 72" (26" stem)
F8 for pipes 3 - 72" (28" stem)
G1 for pipes 12 - 72" (30" stem)
G2 for pipes 12 - 72" (34" stem)

F = Wetted Material
1 = **Temp < 150°F**, 316 SS, XAREC, Viton
2 = **Temp ≤ 250°F**, 316 SS, XAREC, FKM, Viton
3 = **Temp < 180°F**, 316 SS, XAREC, EPDM, **NSF rated**