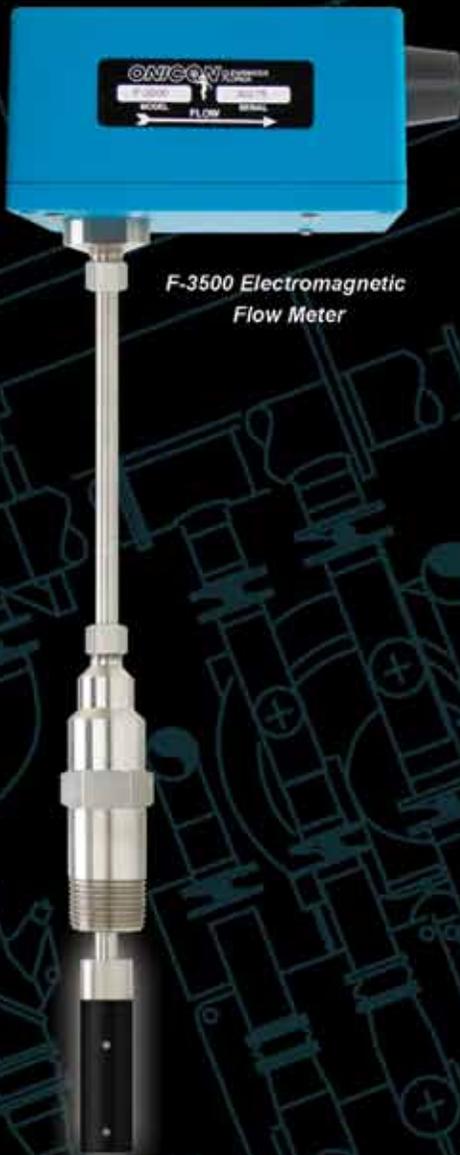


# BTU METERS FLOW METERS



Chilled Water • Hot Water • Domestic Water • Steam • Natural Gas

*Engineered performance . . . Sensibly priced*



F-3500 Electromagnetic  
Flow Meter



System-10 BTU Meter

BACnet® • LONWORKS® • MODBUS® • Metasys® • Apogee®

## Flow Measurement Technologies

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ONICON offers a full line of inline, insertion style and clamp-on flow meters as well as networkable BTU meters and flow displays. Our flow meters and temperature sensors are individually wet-calibrated, and all products are delivered fully programmed for your application and ready to use. This attention to detail simplifies installation and maximizes performance.

While we offer a full line of meters, ONICON is widely recognized for our innovative hand-insertable insertion style flow meters. This unique design has advantages not found in other meter types.

- They can be installed or removed in a matter of minutes without the need for specialized tools.
- Our insertion meters are ideal for wet-tap installations where it is not practical to interrupt flow.
- They are priced independent of pipe size, making them an excellent value when installed in larger pipes.
- Use of our insertion style meters simplifies periodic flow calibration and maintains traceability in measurement accuracy.

### Turbine Liquid Flow Meters

ONICON turbine liquid flow meters are designed for performance and value. Each meter is provided with highly linear low mass turbines, polished tungsten carbide turbine shafts, precision sapphire shaft bearings and a patented turbine rotation sensing circuit that does not add drag. The result is a meter that is:

- Accurate over a wide flow range and continues to operate at low flows that other meters cannot read.
- Very reliable in clean closed loop systems with negligible bearing and shaft wear, even after many years of continuous service.



### Electromagnetic Liquid Flow Meters

ONICON electromagnetic liquid flow meters are designed for the most demanding applications. Inherently linear by design, electromagnetic flow meters utilize pulsating magnetic fields to accurately measure flow in all kinds of conductive liquids. ONICON electromagnetic flow meters are designed with advanced filtering and proprietary signal processing circuitry to maximize performance and reliability. The result is a meter that is:

- Highly accurate over a wide flow range and with excellent low flow performance.
- Very reliable even with difficult to measure liquids.
- Low maintenance by design and has no moving parts.

# Flow Measurement Technologies



## Vortex Flow Meters

ONICON vortex flow meters are the perfect choice for mass flow measurement of steam. The standard version of the meter is loop powered and provided with integral temperature compensation. This allows for mass flow measurement of saturated steam without the need for an external flow computer. It may also be provided with integral pressure compensation. In this configuration the same meter is capable of measuring superheated steam. By providing integral compensation and the capability to compute mass flow the result is a meter that is:

- Cost effective, accurate and reliable.
- A one-piece design that is simple to install and operate.
- Delivered fully programmed and ready to use.

## Clamp-on Ultrasonic Flow Meters

ONICON clamp-on transit time ultrasonic flow meters are installed without penetrating the pipe wall and this makes them ideal for those special applications where it is impractical to install insertion or inline flow meters. Instead of penetrating the pipe wall, a pair of precision matched ultrasonic signal transducers that are tuned to the acoustic properties of the pipe accurately measure flow through the pipe wall. The result is a meter that is:

- Ideal for retrofit applications.
- Capable of measuring flow independent of the conductivity of the liquid.
- Meets all safe drinking water standards.
- Suitable for use with liquid temperatures up to 450°F.



## Thermal Mass Flow Meters

ONICON thermal mass flow meters provide accurate, reliable standardized volumetric flow measurement of natural gas, compressed air and other industrial gases. They are available as inline and insertion style meters, with or without a local display. The “no moving parts” design measures mass flow directly to provide standardized volumetric flow data without the need for temperature or pressure compensation. They are also provided with a unique method for field validation of the existing calibration. The result is a meter that is:

- Ideal for retrofit applications since the insertion version of the meter can be installed without disrupting gas service.
- Low maintenance by design and has no moving parts.
- Capable of accurately measuring a wide range of flows and very low flow rates.



# Flow Measurement Applications

Applications	Turbine Meters		Electromagnetic Meters			Ultrasonic Meters	Vortex Mass Meters	Thermal Mass Meters
	F-1100 / F-1200	F-1300	F-3100	F-3200	F-3500	F-4200	F-2500	F-5100
Chilled water	✓		✓			✓		
Heating water	✓		✓			✓		
Heating water >280° F						✓	✓	
Condenser water - Closed loop	✓		✓			✓		
Condenser water - Open loop			✓			✓		
Domestic (potable) water	✓		✓			✓		
Gray water / Surface water			✓					
Well water			✓			✓		
Seawater			✓			✓		
Process liquids			F-3100 / F-3200			✓		
Steam condensate (pumped)	✓		✓			✓		
Steam							✓	
Process gases								✓
Compressed air								✓
Natural gas								✓
Meter Series	F-1100 / F-1200	F-1300	F-3100	F-3200	F-3500	F-4200	F-2500	F-5100
Meter Style	Insertion	Inline	Inline	Inline	Insertion	Clamp-on	Inline	Inline / Insertion
Insertion meter pipe size range	1¼" - 72"				3" - 72"	½" - 42"		1" - 24"
Inline meter sizes		¾" & 1"	¼" - 48"	¼" - 48"			½" - 12"	¼" - 4"
Accuracy (% of reading)	1%	1%	0.4%	0.2%	1%	1%	1.5%	1%
Bi-directional flow capability	Yes (FB-1200)	No	Yes	Yes	Yes (FB-3500)	Yes	No	Yes
Requires system shut-down to install	No	Yes	Yes	Yes	No	No	Yes	No
Overall flow range (velocity)	0.17 - 30 ft/sec	0.17 - 30 ft/sec	0.1 - 33 ft/sec	0.1 - 33 ft/sec	0.1 - 20 ft/sec	0.1 - 40 ft/sec	~10 - 250 ft/sec	5 - 35,000 SFPM



## BTU Meters

Accurate energy measurement is essential for managing complex central energy plants and campus environments. ONICON BTU meters provide that accuracy. Each BTU meter is provided with two bath-calibrated temperature sensors. And, when purchased with any of ONICON's individually wet-calibrated flow meters, the accuracy of the entire BTU measurement system is directly traceable to N.I.S.T. standards. This eliminates all of the hidden errors that make it difficult to define accuracy when energy calculations are done using individual sensors connected to network controllers.

ONICON offers two models of BTU meters. The System-10 BTU Meter is provided as a wall mounted instrument with a local display. Current based (mA) signals interconnect the temperature sensors to the BTU meter and allow for extended wire lengths without impacting accuracy. The System-30 has a compact design with an integral turbine flow sensor. It offers the accuracy of the System-10 in a cost effective design for small pipe applications. Both models provide a pulse output for totalization and optional analog outputs for rate data, as well as a wide variety of serial communication options for connection to data acquisition and control networks.

BTU Meter Applications	System-10	System-30
Chilled Water	✓	✓
Heating Water ≤ 200° F	✓	✓
Heating Water > 200° F	✓	
Condenser Water - Closed Loop	✓	✓
Condenser Water - OpenLoop	✓	
Domestic (potable) Water	✓	
Steam Condensate (pumped)	✓	



Available Network Protocols							
Device	BACnet®		LON	MODBUS-RTU®		JCI - N2 Metasys®	Siemens - P1 Apogee®
	IP	MS/TP		RS485	TCP		
System-10	✓	✓	✓	✓	✓	✓	✓
System-30		✓	✓	✓		✓	✓
D-100	✓	✓	✓	✓	✓	✓	✓



System-30

## Display Modules



ONICON displays offer a simple cost effective way to turn any flow meter into a complete flow measurement station. Display options range from simple wall mounted indicators for rate and/or total to sophisticated network interface options like the D-100.

The D-100 is a flexible platform designed to solve difficult data acquisition problems. The basic D-100 provides a totalizing input for almost any flow meter. Additionally, analog rate and pulse input options are also available making the D-100 ideal for providing network access to utility metering data. The D-100 is available with a wide variety of serial communications options for connection to data acquisition and control networks.

