

• **F-3200 SERIES •**  
**INLINE ELECTROMAGNETIC**  
**FLOW METER**



Wafer style meter  
is also available



*Faraday's Law states that a voltage will be induced in a conductor (the conductive fluid) when it passes through a magnetic field (generated by the meter) and that voltage will be directly proportional to the velocity of the conductor (the fluid). This voltage is measured by electrodes on opposite sides of the flow tube and used to calculate the flow velocity.*

## **DESCRIPTION**

ONICON F-3200 series inline electromagnetic flow meters are suitable for measurement of electrically conductive liquids in a wide variety of applications. Inherently bi-directional, each F-3200 flow meter is equipped with ONICON's advanced transmitter option. The F-3200 provides a single analog 4-20 mA output for flow rate and two programmable pulse outputs. The advanced transmitter is also equipped with a graphic display that may be used to monitor short term trend data or to facilitate batch processing functions using the optional relay output module.

## **APPLICATIONS**

- Chilled water, hot water, condenser water & water/glycol/brine solutions used in HVAC
- Bi-directional flow for primary/secondary bypass
- Process flow with conductivity greater than 5  $\mu\text{S}/\text{cm}$
- Domestic/municipal water

## **GENERAL SPECIFICATIONS**

### **ACCURACY**

Accurate to within:

- $\pm 0.2\%$  of reading from 1.6 to 33 ft/s
- $\pm 0.0033$  ft/s from 0.033 to 1.6 ft/s

(continued on back)

## **CALIBRATION**

Every ONICON F-3200 series flow meter is wet calibrated in a flow laboratory against standards that are directly traceable to international standards. A certificate of calibration accompanies every meter.

## **FEATURES**

**Exceptional Performance & Accuracy** - F-3200 series meters deliver  $\pm 0.2\%$  of reading accuracy with as little as 3 diameters of straight pipe upstream of the meter, a level of performance unmatched by other products.

**Easy to Install and Use** - Every ONICON meter is individually calibrated, configured and programmed using customer specific application data. Complex field programming is not required.

**Excellent Long Term Reliability** - ONICON electromagnetic flow meters have no moving parts. In addition, state-of-the-art electronics and proprietary noise filtering algorithms ensure years of accurate, trouble-free performance. This makes them the ideal choice for critical measurement applications or applications where water quality is less than ideal.

**Installation Flexibility** - The F-3200 is an ideal choice for difficult installations as it only requires 3 diameters of straight pipe upstream and 2 diameters downstream for proper operation, in most applications.

**Redundant Outputs** – For critical installations, meters equipped with the redundant output option provide complete signal redundancy for all three output signals from the flow meter. This option includes an additional integral transmitter with dedicated connections to the main processor, providing a cost effective alternative to a second, redundant flow meter.



*For energy measurement applications, specify the F-3200 flow meter together with the System-10 BTU Meter to form an energy measurement system with unsurpassed accuracy and reliability.*

## GENERAL SPECIFICATIONS (cont.)

### SENSING METHOD

Electromagnetic sensing (no moving parts)

### AMBIENT TEMPERATURE RANGE

-4° to 140° F

### OUTER BODY MATERIAL OPTIONS

- Carbon Steel, painted
- 316 Stainless Steel

### FLOW TUBE (internal)

304 Stainless Steel

### CONNECTION TYPES AVAILABLE

- ANSI Class 150 Flange
- ANSI Class 300 Flange
- Wafer

### ELECTRICAL CONNECTIONS

- Use 18-22 AWG shielded cable

### FLUID CONDUCTIVITY

- 5 µS/cm minimum

### POWER SUPPLY OPTIONS

- 100 - 240 VAC, 45 - 66 Hz, 12 VA typical
- 18 - 45 VDC, 10 W typical
- Or 18 - 45 VAC, 45 - 66 Hz, 12 VA typical

### DISPLAY

Backlit 16 character, 8 line graphic LCD displays: flow rate and velocity, flow direction and totals, short term trend data and error messages.

### OUTPUT SIGNALS PROVIDED

- Isolated 4 - 20 mA analog output for flow rate
- (2) Isolated programmable digital/pulse outputs (configurable for frequency, pulse, alarm or directional flow)
- **Optional** Redundant output option with second isolated analog output for flow rate and two additional isolated programmable pulse outputs
- **Optional** MODBUS RTU (RS485)
- **Optional** HART

### ELECTRONICS ENCLOSURE

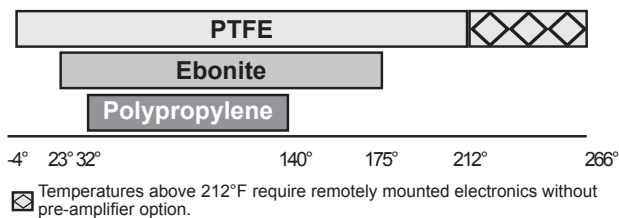
- Painted aluminum housing, NEMA 6 (IP67)
- **Optional** Remote mount w/o pre-amplifier, maximum distance from sensor - up to 325 ft @ conductivities ≥ 200 µS/cm
- **Optional** Remote mount with pre-amplifier, maximum distance from sensor - 1640 ft

### MAXIMUM OPERATING PRESSURE

230 - 580 psi depending on liner material and flange rating (Consult ONICON when higher pressure ratings are required)

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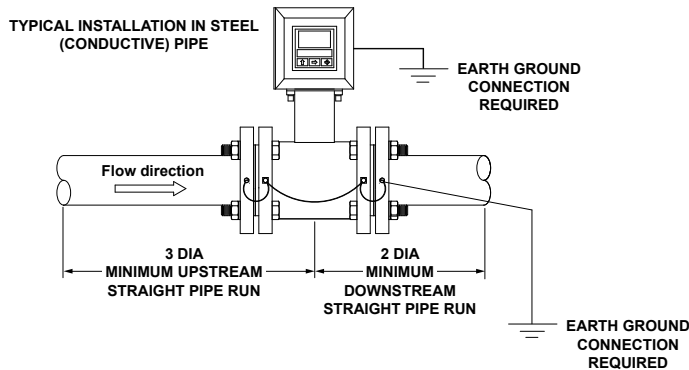
### Liner Material vs. Operating Temperature (°F)



### Liner Material vs. Meter Size

PTFE																				
Polypropylene								Ebonite												
1"	1.5"	2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	40"	42"	48"

Meter Sizes in Inches (other sizes available upon request)



### OPERATING RANGE

Meter Size (Inches)	Flow Rate (GPM) (0.1 ft/sec* - 33 ft/sec)
1	0.2 - 79
1.25	0.4 - 130
1.5	0.6 - 203
2	0.9 - 317
2.5	1.6 - 536
3	2.4 - 812
4	3.8 - 1,268
5	5.9 - 1,981
6	8.5 - 2,853
8	15 - 5,072
10	24 - 7,925
12	34 - 11,412
14	47 - 15,533
16	61 - 20,288
18	77 - 25,678
20	95 - 31,701
24	137 - 45,649
30	214 - 71,326
36	308 - 102,710
40	380 - 126,803
42	417 - 139,800
48	547 - 182,596

\*Note: The default low flow cut-off is set for 0.1 ft/sec

### F-3200 Model Numbering System

#### F-32BB - CDE

##### BB = Meter Size in Inches

01 = 1" 05 = 5"  
13 = 1.25" 06 = 6"  
15 = 1.5" 08 = 8"  
02 = 2" 10 = 10"  
25 = 2.5"  
03 = 3" Above 10":  
04 = 4" BB = meter size

##### C = Body Material & Liner Material

1 = Carbon steel / PTFE  
2 = Carbon steel / Polypropylene  
3 = Carbon steel / Ebonite

##### D = Wafer or Flange Connection

0 = Wafer  
1 = ANSI 150 Flange  
3 = ANSI 300 Flange

##### E = Integral or Remote Mount

###### Electronics Enclosure

1 = Integral Mount  
2 = Remote Mount w/o pre-amplifier  
3 = Remote Mount with pre-amplifier

Default configurations include the following:

- (2) 316 SS electrodes
- Viton o-rings on polypropylene lined meters