

• **F-3200 SERIES** •
**IN-LINE 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 in-line 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 4-20mA 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 5µS/cm
- Domestic/municipal water

GENERAL SPECIFICATIONS

ACCURACY

- Accurate to within:
- ± 0.2% of reading from 3.3 to 33 ft/s
 - ± 0.75% of reading from 1 to 3.3 ft/s
 - ± 0.0075 ft/s at flows less than 1 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 ± 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.

Advanced Design Features - The F-3200 is equipped with a multifunction user interface and graphic display. Advanced programming options include an empty pipe detector, auto-zero and auto-calibration capabilities. A number of alarm options are also available.

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.



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

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 - 20mA analog output for flow rate
- (2) Programmable digital/pulse outputs (configurable for frequency, pulse or directional flow)
- (Optional) Auxiliary transmitter with second analog output for flow rate and two additional programmable pulse outputs
- (Optional) MODBUS RTU (RS485)
- (Optional) HART

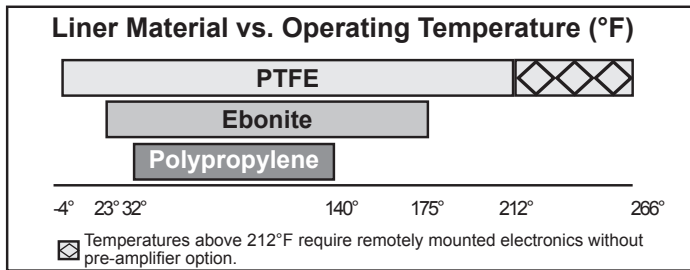
ELECTRONICS ENCLOSURE

- Painted aluminum housing, NEMA 6 (IP67)
- (Optional) Remote mount w/o pre-amplifier, maximum distance from sensor - 65ft
- (Optional) Remote mount with pre-amplifier, maximum distance from sensor - 1640ft

MAXIMUM OPERATING PRESSURE

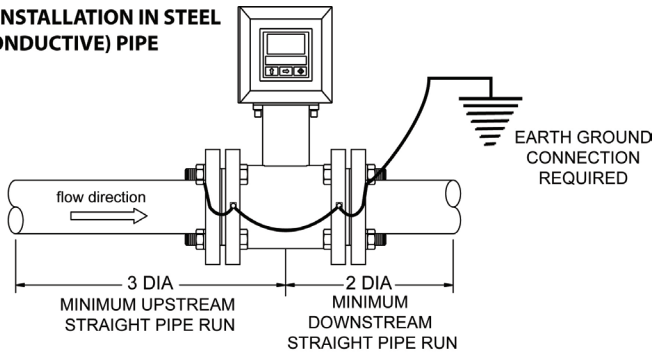
230 - 580 psi depending on liner material and flange rating (Consult ONICON when higher pressure ratings are required)

APPROVALS



| 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) | | | | | | | | | | | | | | | | | | | | |

TYPICAL INSTALLATION IN STEEL (CONDUCTIVE) PIPE



OPERATING RANGE

| Meter Size (Inches) | Flow Rate (GPM) (0.1 ft/sec* - 33 ft/sec) |
|---------------------|---|
| 1 | 0.3 - 89 |
| 1.5 | 0.6 - 210 |
| 2 | 1.0 - 345 |
| 2.5 | 1.5 - 493 |
| 3 | 2.3 - 761 |
| 4 | 4.0 - 1311 |
| 5 | 6.2 - 2060 |
| 6 | 9.0 - 2975 |
| 8 | 16 - 5151 |
| 10 | 25 - 8119 |
| 12 | 35 - 11,645 |
| 14 | 43 - 14,197 |
| 16 | 57 - 18,806 |
| 18 | 73 - 24,062 |
| 20 | 91 - 29,965 |
| 24 | 132 - 43,712 |
| 30 | 210 - 69,185 |
| 36 | 304 - 100,479 |
| 40 | 378 - 124,577 |
| 42 | 417 - 137,596 |
| 48 | 547 - 180,535 |

*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" 06 = 6"
 - 15 = 1.5" 08 = 8"
 - 02 = 2" 10 = 10"
 - 25 = 2.5"
 - 03 = 3" Above 10":
 - 04 = 4" BB = meter size
 - 05 = 5"
 - ◇ **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

1500 North Belcher Road, Clearwater, FL 33765 • Tel (727) 447-6140 • Fax (727) 442-5699

www.onicon.com • sales@onicon.com