DATASHEET

# HEFM

H SERIES SENSORS


Pre-attached grounding rings included

## Highlights

- Measurement is independent of fluid density, viscosity, temperature, pressure, and conductivity
- Provides best-in-class seamless PTFE lining material
- Two measuring points inside the meter with no moving parts to eliminate pressure drop
- Capable of measuring electric conductive liquid and fluids with low solid contents
- Accuracy: ± 0.2 % Conforms to Class 0.3 accuracy tolerance of 0.2 % as defined in the NIST Handbook 44, Section 3.30 for Liquid-Measuring Devices
- Output signal options:
  RS485 Modbus / 4-20 mA / 2-8 KHz Pulse Output
- Wide measurement range & high efficiency
- Minimal upstream/downstream piping requirements:
  5 pipe diameters upstream
  2 pipe diameters downstream
- Backlit LCD with integral push button interface
- Advanced features including smart self-detection and self-diagnosis for checking magnetized signal, empty pipe, and contaminated electrode
- Provides various options of electrode materials, grounding options, and more
- Low power consumption
- Ambient temperature: -40 to 70 °C (-40 to 158 °F)
  LCD: -20 to 70 °C (-4 to 158 °F)
- Process/lining temperature: -20 to 120 °C (-4 to 248 °F)
- IP67 protection, robust construction and materials
- Class I, Division 2 (Zone 2)

## Measure Flow with Confidence

## Ordering Information

H E F M 0 1 - 0 3 0 A C - L D 2 L

**Mounting Type**
01 = Direct Mount
02 = Remote Mount Head with 33 ft (10 m) Ext. Cable

**Tube Size**

| | |
|---|---|
| 005 = 0.5" / 13 mm | 040 = 4" / 100 mm |
| 010 = 1" / 25 mm | 050 = 5" / 125 mm |
| 015 = 1.5" / 40 mm | 060 = 6" / 150 mm |
| 020 = 2" / 50 mm | 080 = 8" / 200 mm |
| 025 = 2.5" / 65 mm | 100 = 10" / 250 mm |
| 030 = 3" / 80 mm | 120 = 12" / 300 mm |

**Process Connection Type**
A = ANSI B16.5 Class 150
B = ANSI B16.5 Class 300

**Flange Sensor Material**
A = 304 SS
C = Carbon Steel (Default)
L = 316L SS

**Electrode Material**
H = Hastelloy Alloy (C-276)
L = 316L SS

**Power Supply**
D = 24 Vdc

**Grounding Material**
H =Hastelloy Alloy (C-276)
L = 316L SS

# Technical Specifications

| HARDWARE | |
|---|---|
| Device Functionality | · Electromagnetic Flow Meter (RS485 Modbus, 4-20 mA, or 2-8 KHz Pulse Output) |
| Configuration | · Integral LCD with Push Button Interface or Modbus |
| Accuracy | · ± 0.2 % |
| Fluid Conductivity | · > 5 µS/cm (AC Power), > 20 µS/cm (24 Vdc) |
| Measuring Scope | · 0.328 ft/sec (0.1 meters/sec) to 32.8 ft/sec (10 meters/sec) |
| Current Output Accuracy | · 0.1% of Pulse Output Accuracy; Temperature Coefficient (0.01 %/°C or 0.0056 %/°F) |
| Maximum Operating Pressure | · Class 150: 0.5" to 12": 285 psi<br>· Class 300: 0.5" to 12": 740 psi<br>The final pressure rating depends on the temperature.<br>Refer to ANSI B16.5 Class 150 or 300 specifications table in the User Guide. |
| Current Output Mode | · Active (Loop Power is Not Required) |
| Analog Output | · 4-20 mA |
| Maximum Load of Current Output | · < 700 Ω |
| Alarming Current | · 3.6 mA or 22 mA |
| Frequency Output Scope | · 2-8 KHz |
| Pulse Width / Pulse Mode | · Automatic (Pulse Width 50 %) / NPN Transistor Output 32 Vdc/200 mA |
| Time Constant | · 1-100 s |
| Control Output (DO) | · NPN Transistor Output 32 Vdc/200 mA; 2-CH |
| Control Input (DI) | · Dry Contact ON < 200 Ω; 1,000 Ω < OFF; 1-CH |
| Interface / Baud Rate | · RS485 Modbus / 1200-57,600 bps |
| Local LCD Display | · 128 x 64 Pixel Backlit Type |
| Lining Material | · PTFE (-20 to 120 °C / -4 to 248 °F), Seamless |

| CERTIFICATIONS & COMPLIANCE | |
|---|---|
| Safety | · Class I Division 2, Group A, B, C, D T6...T4* Ex ec IIC T6...T4 Gc<br>· Class I Zone 2, AEx ec IIC T6...T4 Gc<br>· IECEx CSA 23.0024X |

| MECHANICAL SPECIFICATIONS | |
|---|---|
| Mechanical (WxDxH) / Net Weight (Per Tube Size) | · 0.5" ANSI 150 lbs: 3.5" x 7.9" x 8.9" / 10.1 lbs \| ANSI 300 lbs: 3.8" x 7.9" x 9.1" / 11.2 lbs<br>· 1" ANSI 150 lbs: 4.2" x 7.9" x 9.5" / 13.4 lbs \| ANSI 300 lbs: 4.9" x 7.9" x 9.8" / 16.1 lbs<br>· 1.5" ANSI 150 lbs: 5" x 7.9" x 12.1" / 14.3 lbs \| ANSI 300 lbs: 6.1" x 7.9" x 12.7" / 20 lbs<br>· 2" ANSI 150 lbs: 6" x 7.9" x 12.6" / 18.3 lbs \| ANSI 300 lbs: 6.5" x 7.9" x 12.9" / 22.8 lbs<br>· 2.5" ANSI 150 lbs: 7" x 7.9" x 13.5" / 23.8 lbs \| ANSI 300 lbs: 7.9" x 7.9" x 13.8" / 28.2 lbs<br>· 3" ANSI 150 lbs: 7.5" x 7.9" x 13.8" / 27 lbs \| ANSI 300 lbs: 8.3" x 7.9" x 14.2" / 36.3 lbs<br>· 4" ANSI 150 lbs: 9" x 9.8" x 15.5" / 39.3 lbs \| ANSI 300 lbs: 10" x 9.8" x 16" / 58.7 lbs<br>· 5" ANSI 150 lbs: 10" x 9.8" x 16" / 46.2 lbs \| ANSI 300 lbs: 11" x 9.8" x 16.5" / 72.7 lbs<br>· 6" ANSI 150 lbs: 11" x 11.8" x 18.3" / 59.6 lbs \| ANSI 300 lbs: 12.5" x 11.8" x 18.9" / 96.6 lbs<br>· 8" ANSI 150 lbs: 13.5" x 13.8" x 20.1" / 94 lbs \| ANSI 300 lbs: 15" x 13.8" x 21.3" / 149.1 lbs<br>· 10" ANSI 150 lbs: 16" x 15.8" x 22.6" / 144.8 lbs \| ANSI 300 lbs: 17.5" x 15.8" x 23.9" / 218 lbs<br>· 12" ANSI 150 lbs: 19" x 19.7" x 23.4" / 220.5 lbs \| ANSI 300 lbs: 20.5" x 19.7" x 24.1" / 321.9 lbs |
| Connection Fitting | · Two 1/2" NPT Female |
| Enclosure Casing Material | · Aluminum; IP67 |

| ELECTRICAL SPECIFICATIONS (Specify When Ordering) | |
|---|---|
| DC Power Input / Consumption | · DC 24 Vdc, 32 Vdc Max / RS485: 3 W; 4-20 mA: 3.8 W |

| GENERAL SPECIFICATIONS | |
|---|---|
| Operating Conditions | · Ambient Temperature: -40 °C to 70 °C (-40 °F to 158 °F)<br>· LCD Screen -20 °C to 70 °C (-4 °F to 158 °F)<br>· Humidity: 0 to 99 %, Non-Condensing |
| Warranty | · 2-Year Parts and Labor |

## FLOW RATES

| Tube Size (in) | Flow Span Default BBL/D (GPM) | Flow Span Min BBL/D (GPM) | Flow Span Max BBL/D (GPM) | Tube Size (in) | Flow Span Default BBL/D (GPM) | Flow Span Min BBL/D (GPM) | Flow Span Max BBL/D (GPM) |
|---|---|---|---|---|---|---|---|
| 0.5 | 960 (28) | 9.6 (0.28) | 960 (28) | 4 | 42,000 (1225) | 426 (12.4) | 42,681 (1245) |
| 1 | 2600 (75.8) | 26 (0.76) | 2667 (77.8) | 5 | 66,000 (1925) | 666 (19.4) | 66,690 (1945) |
| 1.5 | 6800 (198) | 68 (2.0) | 6829 (199) | 6 | 96,000 (2800) | 960 (28.0) | 96,033 (2801) |
| 2 | 10,000 (292) | 106 (3.1) | 10,670 (311) | 8 | 170,000 (4959) | 1707 (49.8) | 170,726 (4980) |
| 2.5 | 18,000 (525) | 180 (5.2) | 18,032 (526) | 10 | 260,000 (7583) | 2667 (77.8) | 266,760 (7780) |
| 3 | 27,000 (787) | 273 (8.0) | 27,316 (797) | 12 | 380,000 (11,083) | 3841 (112.0) | 384,134 (11,204) |



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