



TELEDYNE HASTINGS INSTRUMENTS

MODELS

*Model HFM-200 with LFE
(Laminar Flow Element)*

FEATURES

- Range — 25 to 15,000 slm (N₂ Equivalent)
- Accuracy in Nitrogen ±1% of Full scale
- Modular Construction
- NIST Traceable Calibration

APPLICATIONS

- Bulk Gas Handling
- Furnace Fuel Measurement
- R&D and Process Flows
- Leak Testing

BENEFITS

- High Capacity
- Low Pressure Drop
- Linear Response



HFM-200 with Laminar



DESCRIPTION

The Teledyne Hastings Instruments (THI) Model HFM Mass Flowmeter represents a culmination of years of experience in designing and manufacturing reliable, high quality mass flow instruments.

The HFM Series of flow instruments is based on a modular design. At the heart of each instrument is an insulated thermal transfer sensor which provides enhanced zero stability. This sensor is designed to be removable/replaceable in the field to virtually eliminate long down time due to clogging. Additionally, the HFM design features an integral filter and an easily replaceable closed loop electronics card.*

All of these standard features, when coupled with the instrument's inherent linear response to flow changes and THIs' long-proven reputation for quality, result in the finest flow meters and flow controllers available today.

Design Features (cont)

Model HFM-200 with LFE
 THI Model HFM-200 Flow meters with an LFE offer the user fast, accurate measurement of high-capacity gas flows, in ranges from 25 slm up to 15,000 slm. Our laminar flow elements (smoothed, flanged, or threaded) are available in various sizes from 3/8" up to 8". Used in conjunction with the standard HFM Flowmeter, these units can be combined to measure full-scale flows up to 15,000 slm and feature a typical pressure drop of 4.5" of water at full-scale flow.

Optional Features

- Fittings – Flanges,
 Smooth Pipe,
 Pipe Thread
- Oxygen Cleaning

Accessories

- Power Supplies/Readouts
 Available with
 Totalizer
 Alarms
- Cables: 8', 25', 50', & 100'

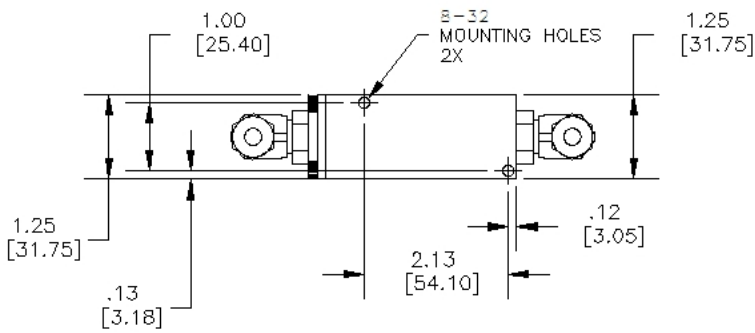
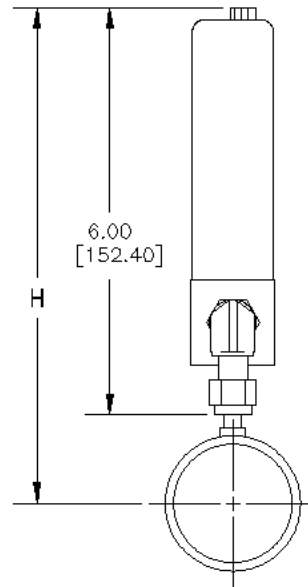
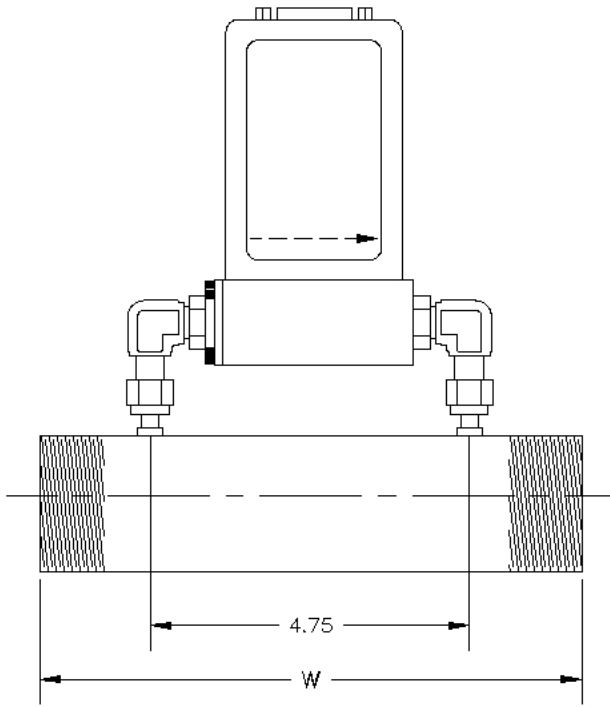
| <i>HFM-200 with LFE</i> | |
|--------------------------------------|---|
| Accuracy ¹ | ± 1% of Full Scale |
| Repeatability | ± 0.05% of Full Scale |
| Pressure Coefficient | (Span) 0.0067%/psi (N ₂) |
| Leak Integrity | < 1x10 ⁻⁷ sccs He |
| Operating Temperature | 0 - 60°C |
| Temperature Coefficient | Zero ± 0.035%C of F.S. (0-60°C) Span ± 0.05%C of Rdg (0-60°C) |
| FS Flow Ranges | Flows from 0-25 slm up to 0-15,000 slm (N ₂ Equiv.) ² |
| Power Requirements (± 15 V) | ± (14-16) VDC @ ±30mA (< 1 Watt) |
| Power Requirements (+24V) | (14-32) VDC (< 1.9 Watt) |
| Available Outputs | 0 - 5 VDC, 4 - 20 mA; 0-20 mA |
| Connector (+/- 15 VDC) | 15-pin subminiature D |
| Connector (+24 VDC) | 9-pin subminiature D |
| *Attitude Sensitivity | Zero < 0.25% of FS |
| Wetted Materials | 316SS, Viton®, 87/13 Au/Ni Braze |
| Fittings | See Selection Chart |
| Standard Working Pressure | 150 psig for flanged LFEs 500 psig for threaded or smooth LFEs |
| Working Pressure (transducer) | 500 psig |
| *N₂ @ 44.7 psia | |

Hastings Instruments reserves the right to change or modify the design of its equipment without any obligation to provide notification of change or intent to change.

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- 1 See Product Manual for critical information on instrument accuracy and the use of GCFs (gas conversion factors). Stated accuracy is for nitrogen or other gas specific calibration and use with this gas only.
- 2 Reduced accuracy above 12,000 slm (N₂ equivalent)

Outline Drawing



| MODEL # | HEIGHT | WIDTH |
|---------|----------------|----------------|
| LS-D37 | 6.71 [170.43] | 8.00 [203.20] |
| LS-D5 | 6.80 [172.72] | 8.00 [203.20] |
| LS-D75 | 6.90 [175.26] | 8.00 [203.20] |
| LS-1 | 7.03 [178.56] | 8.00 [203.20] |
| LS-1D5 | 7.33 [186.18] | 8.00 [203.20] |
| LS-2 | 7.56 [192.02] | 8.00 [203.20] |
| LS-3 | 8.13 [206.50] | 10.00 [254.00] |
| LS-4F | 8.63 [219.20] | 10.00 [254.00] |
| LS-6F | 9.69 [246.13] | 10.00 [254.00] |
| LS-8F | 10.54 [267.72] | 10.00 [254.00] |

HFM-200 Selection Chart

| | | | | | | |
|-----------|----------|--------|----------|---------|------------------|----------|
| Model No. | C. Board | Output | Fittings | O'Rings | Working Pressure | Cal Type |
| HFM-200 | | | 05 | | 01 | |

| Order No. | Options |
|-----------|-----------|
| C. Board | |
| 01 | Standard |
| 02 | 24 VDC ** |

| | |
|------------------|-----------------|
| Output - 0-20 Ma | |
| 01 | 0-5 Volts (Std) |
| 02 | 4-20 mA *** |

| | |
|----------|------------|
| Fittings | |
| 05 | 1/4" Elbow |

| | |
|---------|-------------|
| O'Rings | |
| 01 | Viton (std) |
| 02 | Kalrez |
| 03 | Neoprene |
| 04 | Buna-N |

| | |
|------------------|----------------|
| Working Pressure | |
| 01 | 500 psig (Std) |

| | |
|------------------|--------------------|
| Calibration Type | |
| 01 | NIST 5 point (Std) |
| 02 | NIST 10 Point |
| 03 | NIST 20 Point |
| 04 | Curve Fit |

** No RF Rejection - 0 -5 volts only

*** Not available with fast response

Laminar-Selection Chart

| | | | |
|------------------|-------------------------|--------------|-----------------|
| Model No. | Type/ Series | Range | Fittings |
| LS Series | 01 | | |

| | |
|------------------|----------------|
| Order No. | Options |
| | Pinout |
| 01 | LS Series |

| Range | |
|-------|-----------------------|
| 01 | 10-25 SLM 3/8" Dia |
| 02 | 30-50 SLM 1/2" Dia |
| 03 | 60-100 SLM 3/4" Dia |
| 04 | 125-200 SLM 1.0" Dia |
| 05 | 225-400 SLM 1.5" Dia |
| 06 | 450-750 SLM 2.0" Dia |
| 07 | 850-1500 SLM 3.0" Dia |
| 08 | 2500 SLM 4.0" Dia * |
| 09 | 6000 SLM 6.0" Dia * |
| 10 | 10000 SLM 8.0" Dia * |

| Fittings | |
|----------|----------|
| 01 | NPT Male |
| 02 | Smooth |
| 03 | Flanges |

* Must be flange version

Range Information

Each calibration will require the following information:

Range: _____

Flow Units: _____

Gas: _____

*Std Conditions: _____

* For volumetric units the standard temperature and pressure of the unit is also required 0°C & 760 Torr will be used when other values are not specified.

** No RF Rejection - 0-5 volts only

*** Not available with fast response



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