

TELEDYNE HASTINGS

HIGH CAPACITY FLOWMETERS AND CONTROLLERS

INSTRUMENTS

Models HFM-306, HFC-308

FEATURES

This product bulletin lists specifications, options, and features which are to be used for discussion purposes only. Evaluation versions of this instrument may be available, but the performance characteristics may be significantly different than those listed here. Contact Teledyne Hastings Instruments for updated information.

- **Range — 2500-10,000 slm (Air Equivalent)**
- **$\pm 3.0\%$ of Full-Scale Accuracy¹**
- **Rapid Settling Times:**
HFM-306 ≤ 0.4 seconds
HFC-308 ≤ 3.0 seconds
- **Operating Pressures to 500 PSI**
- **NIST Traceable Calibration**
- **Class 1, Div. 2 Enclosures Available**

APPLICATIONS

- Gas Blending/Delivery Systems
- R&D and Process Flows
- Petrochemical
- Fuel Cell



HFM-306



HFC-308

DESIGN FEATURES

Teledyne Hastings Instruments (THI) products represent over 55 years of experience in the design and manufacture of mass flow products. The 300 Series is a culmination of this experience with patented technologies that make these the finest flowmeters and controllers available today.

The THI 300 Series Mass Flow Products are designed to accurately measure mass flow without corrections or compensations for gas pressure and temperature. The HFM-306/HFC-308 versions are accurate to better than $\pm 3.0\%$ of full scale. THI mass flow instruments do not require any periodic maintenance under normal operating conditions with clean gas. The HFM-306/HFC-308 series includes a flow straightening section which helps establish well-defined flow for higher accuracy. An innovative valve design gives stable performance while providing excellent response to changing set points. Instruments are normally calibrated with the appropriate standard calibration gas (air), then a correction factor is used.

The 300 Series products contain a number of features that set them apart from other available instruments: (1) They are inherently linear; no linearization circuitry is employed. Should recalibration in the field be desired (a calibration standard is required), the customer needs to simply set the zero and span points. (2) The output signal is linear for very large overflows and will not come back on scale when a flow an order of magnitude over the full scale flow rate is measured. (3) The instrument incorporates a removable/replaceable sensor module. (4) The unit has very fast settling times.



TELEDYNE INSTRUMENTS

Hastings Instruments

A Teledyne Technologies Company

MODELS HFM-306/HFC-308

DESIGN FEATURES (cont)

Optional Features

Fittings—VCR[®], VCO[®] and Swagelok[®]
Cleaned for oxygen service

Accessories

Power supplies/readouts
Flow totalizers
Alarm set points
Interconnecting cables

*Note: After changing components, instruments require recalibration to meet accuracy specifications.

COMMON SPECIFICATIONS HFM-306/HFC-308

Accuracy ¹	± 3.0% of F.S.
Repeatability	± 0.2% of F.S.
Maximum Operating Pressure	500 psi
Pressure Coefficient	0.015%/psi (N ₂) (0-500 psig)
Leak Integrity	< 1x10 ⁻⁹ sccs He
Temperature Coefficient (zero)	< 0.079%/°C of F.S. (0-60°C)
Temperature Coefficient (span)	< 0.092%/°C of reading (15-50°C)
Standard Output	0-5 VDC
Optional Output	4-20 mA
Connector	15-pin subminiature D
Attitude Sensitivity of Zero	< 0.2% of F.S. (N ₂ @ 19.7 psia)
Attitude Sensitivity of Span	< 0.06% of reading (N ₂ @ 19.7 psia)

SPECIFICATIONS HFM-306

Settling Time	≤ 0.4 sec (0% to 100% F.S.)
Power Requirement	±15 VDC @ ±55 mA; +24 VDC
Wetted Materials	302 SS, 316 SS, Nickel 200
Weight (approx.)	38 lb (___ kg)

SPECIFICATIONS HFC-308

Settling Time	≤ 2.0 sec (10% to 100% F.S.)
Power Requirement	±15 VDC @ ±150 mA; +24 VDC
Wetted Materials	302 SS, 316 SS, Nickel 200, Viton, Kalrez [®] (valve seat)
Setpoint Input	0-5 VDC (standard)/4-20 mA (optional)
Weight (approx.)	38 lb (___ kg)

Teledyne 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.

¹See 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.

Kalrez[®] is a registered trademark of Dupont Dow Elastomers L.L.C.

Swagelok[®] is a registered trademark of Crawford Company.

VCR[®] is a registered trademark of Cajon Company.

VCO[®] is a registered trademark of Cajon Company.

Viton[®] is a registered trademark of Dupont Dow Elastomers L.L.C.

Model HFM-306

Drawings to come in future bulletins

Model HFC-308

MODELS HFM-306/HFC-308

Selection Chart

Typical instrument ordering/options number:

Model No.	Circuit Board	Output	Fittings	Seals	Pressure	Calibration Type	Input Voltage	Enclosure
HFM-306	01	01	02	01	01	01	01	01

Order No.	Options
Circuit Board	
01	Pinout H (Standard)
02	Pinout U
Output	
01	0-5 Volts (Standard)
02	4-20mA
Fittings	
01	Swagelok (Standard)
02	Sanitary
03	Pipe Thread
04	Flange

Order No.	Options
Seals	
01	Viton (Standard)
02	Kalrez®
03	Neoprene
04	Buna N
Pressure	
01	500 psi (Standard)
Calibration Type	
01	NIST 5 Point (Standard)
02	NIST 10 Point
03	NIST 20 Point
04	Curve

Order No.	Options
Input Voltage	
01	±15 VDC (Standard)
02	+24 VDC
Enclosure	
01	Standard
02	Class 1, Div. 2

Range Information

Range _____

Flow Units _____

Gas _____

Standard Conditions* _____

*Referenced to standard temperature and pressure (0°C and 760 Torr, respectively).

Selection Chart

Typical instrument ordering/options number:

Model No.	Circuit Board	Output	Fittings	Seals	Pressure	Calibration Type	Valve	Input Voltage	Enclosure
HFC-308	01	01	02	01	01	01	01	01	01

Order No.	Options
Circuit Board	
01	Pinout H (Standard)
02	Pinout U
Output	
01	0-5 Volts (Standard)
02	4-20mA
Fittings	
01	Swagelok (Standard)
02	Sanitary
03	Pipe Thread
04	Flange

Order No.	Options
Seals	
01	Viton (Standard)
02	Kalrez®
03	Neoprene
04	Buna N
Pressure	
01	500 psi (Standard)
Calibration Type	
01	NIST 5 Point (Standard)
02	NIST 10 Point
03	NIST 20 Point
04	Curve

Order No.	Options
Valve	
01	Normally Closed (Standard)
02	Normally Open
Input Voltage	
01	±15 VDC (Standard)
02	+24 VDC
Enclosure	
01	Standard
02	Class 1, Div. 2

Range Information

Range _____

Flow Units _____

Gas _____

Standard Conditions* _____

*Referenced to standard temperature and pressure (0°C and 760 Torr, respectively).

Your Customer Service Representative



TELEDYNE INSTRUMENTS

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