



TELEDYNE HASTINGS INSTRUMENTS
Everywhere you look™

HFM-200 Flow Meter

HFC-202 Flow Controller

GENERAL PURPOSE FLOW METERS AND FLOW CONTROLLERS

FEATURES

- $\pm 1\%$ of Full-Scale Accuracy¹
- Input Power +/- 15 VDC or +24 VDC (specify when ordering)
- Available Flow Ranges:
0 - 10 sccm up to 0 - 25 slm (N2 Equivalent)
- NIST Traceable Calibration

APPLICATIONS

- Gas Blending
- Environmental Monitoring
- Thin Film Deposition
- Leak Testing
- Medical Research
- Chromatography
- R&D

BENEFITS

- Excellent Stability
- Proven Reliability
- Outstanding Zero Stability

Flow Meters and Flow Controllers



DESCRIPTION

The Teledyne Hastings Instruments (THI) Model HFM Mass Flowmeter and HFC Mass Flow Controller represent over 65 years of experience in designing and manufacturing reliable, high quality flow instruments.

The HFM/HFC 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.

The instrument's inherent linear response to flow changes and THI's long-proven reputation for quality, result in the finest flow meters and flow controllers available today.

Instruments are normally calibrated with the appropriate standard calibration gas (nitrogen), then a gas conversion factor is used to adjust the output the intended gas. Special calibration for other gases, such as oxygen, helium and argon, are available upon special request.



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Specifications and Standards

Options:

Fittings –

VCR®

VCO®

Swagelok®

Seals -

Kalrez®

Neoprene

Buna-N

Output -

0-5 VDC

4-20 mA

Cleaned for Oxygen service

EMC

EN 61326-1

Accessories

Power Supplies available with:

Integral Flow Totalizer

Alarm Set Points

Interconnecting cables



THCD-100 Power Supply & Display

COMMON SPECIFICATIONS HFM-200/HFC-202

Accuracy¹	± 1.0% of F.S.
Repeatability	± 0.05% of F.S.
Standard Operating Pressure	500 psi
High Pressure Option	1000 psi
Pressure Coefficient	+0.0067% /psi
Leak Integrity	< 1x10 ⁻⁹ sccs He
Operating Temperature	-10°C - 65°C
Temperature Coefficients	Zero ± 0.035% C of F.S. (0-60°C) Span ± 0.05% C of Rdg (0-60°C)
Standard Output	0 - 5 VDC
Optional Outputs	4 - 20 mA
Connector (±15 VDC)	15-pin subminiature D
Connector (+24 VDC)	9-pin subminiature D

SPECIFICATIONS HFM-200

Power Requirements (±15 VDC)	± (14-16) VDC @ ±30mA (< 1 Watt)
Power Requirements (+24 VDC)	(14-32) VDC (< 1.9 Watt)
Wetted Materials²	316 SS, Viton®, 82/18 Au/Ni Braze, Trace Ag solder
Weight (approx.)	1.45 lb (0.66 kg)

SPECIFICATIONS HFC-202

Power Requirements (±15 VDC)	± (14-16) VDC @ +60mA/-185 mA (< 3 Watt)
Power Requirements (+24 VDC)	(14-32) VDC (< 4.2 Watt)
Wetted Materials²	302 SS, 316 SS, Nickel, Viton®, 82/18 Au/Ni Braze, Trace Ag solder, Kalrez® (Valve Seat)
Setpoint Input	0-5 VDC (Std) /4-20mA (optional)
Weight (approx.)	1.65 lb (0.75 kg)

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.

Viton® is a registered trademark of DuPont Performance Elastomers

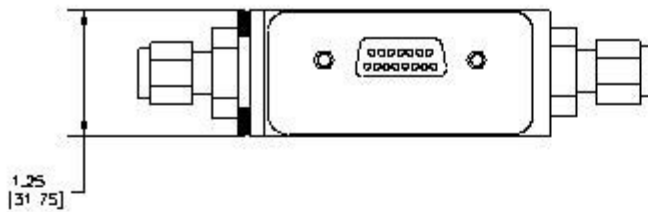
Kalrez® is a registered trademark of DuPont Dow Elastomers

VCR® is a registered trademark of Swagelok Company.

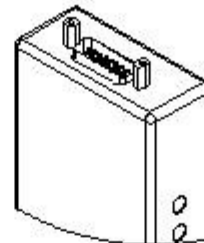
¹ See Product Manual for critical information on instrument accuracy and the use of GCFs (gas conversion factors). Stated accuracy is for nitrogen or other gas specific calibration and use with this gas only.

² See Selection Chart for optional materials. Viton is standard O-ring.

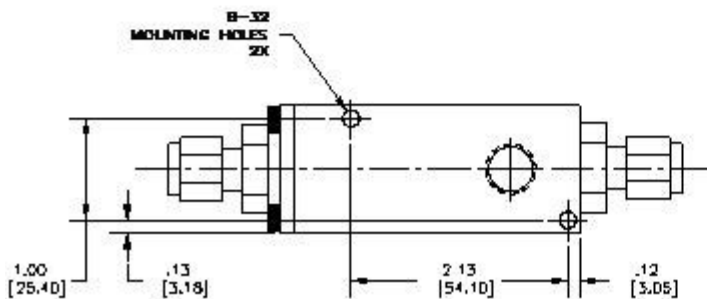
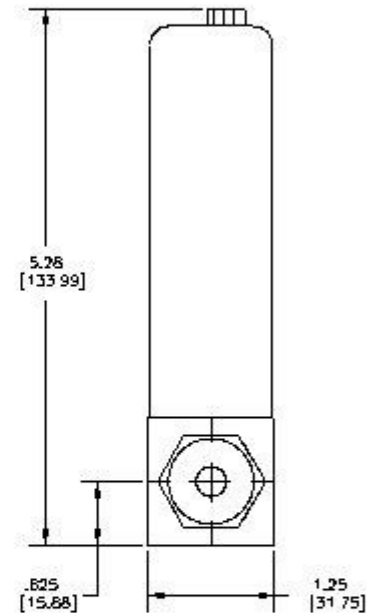
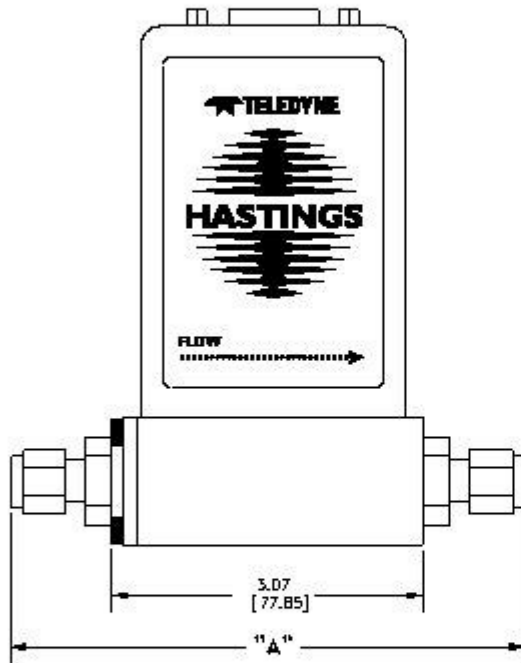
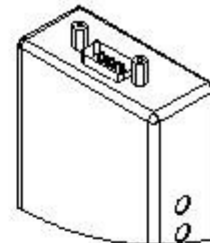
Outline Drawings



±15 VOLT
(15 PINS)



24 VOLT
(9 PINS)



FITTING TYPE	DIM "A"
9/16" - 18 FEMALE	3.00 [76.20]
SWAG 1/8" W NUT	4.84 [122.94]
SWAG, 1/4" W NUT	5.02 [127.51]
SWAG, 3/8" W NUT	5.14 [130.56]
SWAG 1/8" BARE	4.32 [109.73]
SWAG, 1/4" BARE	4.44 [112.78]
SWAG, 3/8" BARE	4.58 [115.82]
SWAG 1/4" x 9/16-18 CLAND ELBOW	5.41 [137.41]
SWAG 6MM x 9/16-18	5.11 [129.79]
VCR FACE 1/4"	4.88 [123.95]
VCO FACE 1/4"	4.90 [124.46]

Selection Chart

Model No.		Circuit Board	Output	Fittings	O-Rings	Working Pressure	Cal
HFM-200							
HFC-202							

Options

Circuit Board	
01	Standard (± 15 VDC)
03	24 VDC Supply

Output	
01	0-5 Volts (Std)
02	4-20 mA ** (Output Only)
03	4-20 mA I/O

Fittings	
01	1/4" Swagelok (Std)
02	1/8" Swagelok
03	1/4" VCR®
04	1/4" VCO®
05	1/4" Elbow
06	No fittings 9/16-18 Fem.
07	6mm Swagelok
08	3/8" Swagelok

O-Rings	
01	Viton® (Std)
02	Kalrez®
03	Neoprene
04	Buna-N

Working Pressure	
01	500 psig (Std)
02	1000 psig

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

Range Information

Range _____

Flow Units _____

Gas _____

Upstream Pressure (min/max) _____

Downstream Pressure (min/max) _____

Is downstream pressure dependent on flow resistance? Y/N _____

** 0-5 VDC Input

STP _____ **°C & 760 Torr**

Standard Temperature (OC) and pressure (760 Torr) assumed unless otherwise specified



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