



TELEDYNE HASTINGS INSTRUMENTS
Everywhereyoulook™

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
- 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 Flow Meter and HFC Mass Flow Controller represent over 75 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 -

Viton®

Kalrez®

Neoprene

Buna-N

Outputs -

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-101 Power Supply & Display

COMMON SPECIFICATIONS HFM-200/HFC-202

Accuracy ¹	± 1.0% of F.S.
Repeatability	± 0.05% of F.S.
Standard Operating Pressure High Pressure Option	500 psi 1000 psi
Pressure Coefficient	+0.0067% /psi
Leak Integrity	< 1x10 ⁻⁹ sccs He
Operating Temperature	-20°C - 70°C
Temperature Coefficients	Zero ± 0.035% F.S. / °C (-20 - 70°C) Span ± 0.06% F.S. / °C (-20 - 70°C)
Standard Output Optional Output	0 - 5 VDC 4 - 20 mA
Connector (±15 VDC) Connector (+24 VDC)	15-pin subminiature D 9-pin subminiature D

SPECIFICATIONS HFM-200

Power Requirements (±15 VDC) Power Requirements (+24 VDC)	± (13-36) VDC @ +55mA/-20 mA (< 2 Watt) (13-36) VDC (< 4 Watt)
Wetted Materials ²	316 SS, Viton®, Microbraz 50 and Silverbraz 45
Weight (approx.)	1.45 lb (0.66 kg)

SPECIFICATIONS HFC-202

Power Requirements (±15 VDC) Power Requirements (+24 VDC)	± (14-16) VDC @ +40mA / -175 mA (< 3 Watt) (14-32) VDC (< 4.2 Watt)
Wetted Materials ²	316 SS, 302 SS, Nickel, Microbraz 50 and Silverbraz 45 Braze materials, FKM Elastomer, Viton®, PTFE or Delrin
Setpoint Input	0-5 VDC (Std) /4-20mA (optional)
Weight (approx.)	1.65 lb (0.75 kg)

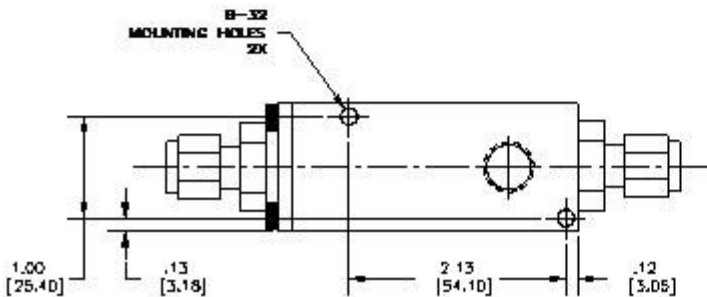
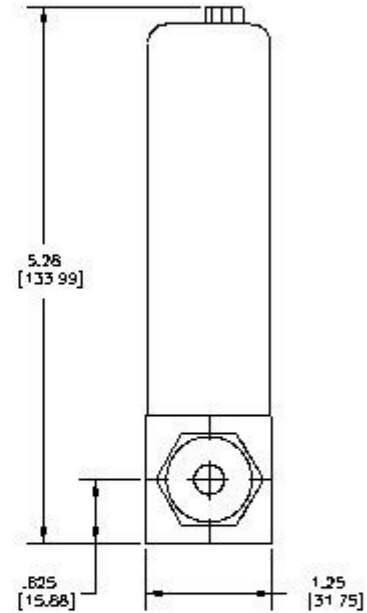
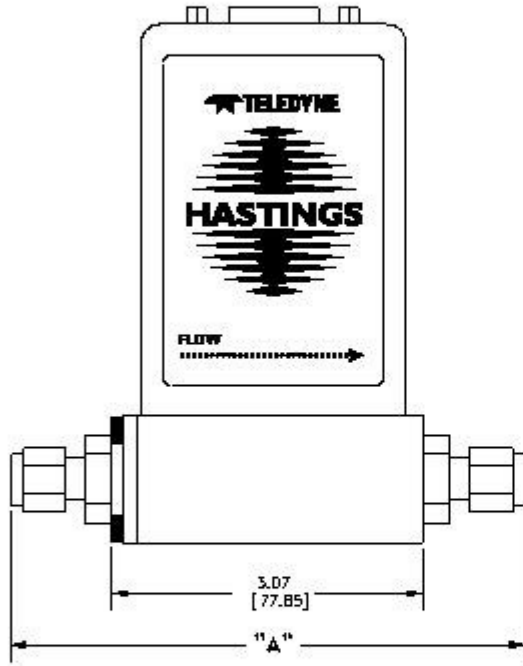
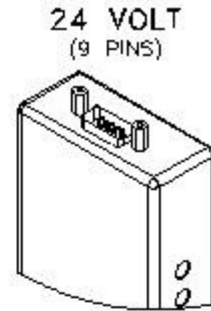
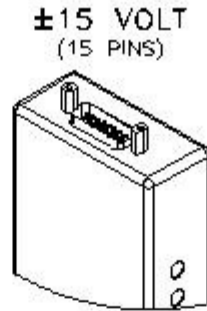
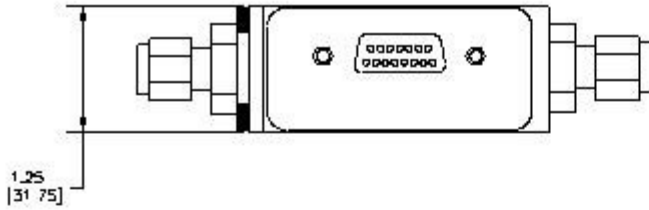
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Viton® is a registered trademark of DuPont Performance Elastomers
Kalrez® is a registered trademark of DuPont Dow Elastomers
VCR® is a registered trademark of Swagelok Company.

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



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	4.56 [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]

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 _____

STP _____ **°C & 760 Torr**

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

** 0-5 VDC Input

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