

0~1,000 SLM Digital Mass Flow Meter / Controller

HFM-D-301A MASS FLOW METER / HFC-D-303A MASS FLOW CONTROLLER

Medium Flow



Full Metal Body 의 Digital HFM 301A / HFC 303A 는 25 slm 부터 1,000 slm(N₂) 구간에서 높은 정확도 $\pm(0.5\% \text{ Rd} + 0.2\% \text{ F.S})$ 를 구현합니다. 아날로그 및 디지털 출력을 제공하며, 반복적으로 신뢰할 수 있는 정확한 가스 유량을 측정합니다. 센서와 밸브 및 오버 플로우에 대한 진단 및 자동 영점 기능을 가지고 있습니다. Data Logging Software 를 기본 제공해 드립니다.

Features (특징)

- Range 0~25 slm to 0~1,000 slm (N₂ Equivalent)
- Self-diagnostic Status LEDs
- Auto-Zero (HFC-D-303 Controller Only)
- Totalizer
- Large Diameter Sensor Tube (Low dp)
- Low Wetted Surface Area
- Operating Pressures to 500 psi or higher
- NIST Traceable Calibration

Applications and Industries (응용 분야)

- Leak Testing
- High Purity Gas Delivery
- Heat Treat
- Gas Blending
- Secondary Calibration Reference
- Fuel Cell R&D
- Environmental Monitoring

Flow Unit (유량 단위)

기준 STP : 0°C & 760 Torr / N₂

- SLM 25 ~ 1,000
- SCFH 52.97 ~ 2118.9
- Kg/Hr 1.87 ~ 74.99
- SM³/H 1.5 ~ 60
- Mole/Hr 66.92 ~ 2676.91

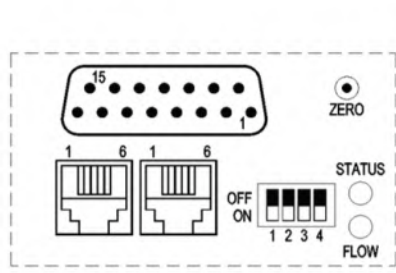
Specifications

HFM-D-301A (Meter)

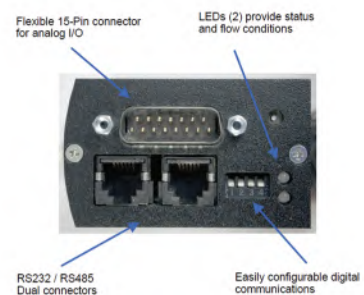
HFC-D-303A (Controller)

	HFM-D-301A (Meter)	HFC-D-303A (Controller)
Range	(L) 0~25 slm to 0~300 slm (N ₂) (H) 0~300 slm to 0~1,000 slm (N ₂)	(L) 0~25 slm to 0~300 slm (N ₂) (H) 0~300 slm to 0~1,000 slm (N ₂)
Accuracy	$\pm(0.5\% \text{ reading} + 0.2\% \text{ of full scale})$	$\pm(0.5\% \text{ reading} + 0.2\% \text{ of full scale})$
Repeatability	$\pm 0.15\% \text{ of F.S}$	$\pm 0.15\% \text{ of F.S}$
Maximum Working Pressure	500 psig (optional 1000 psig)	500 psig (optional 1000 psig)
Operating Temperature	-20~70°C in non-condensing environment	-20~70°C in non-condensing environment
Warm up time	30 min for optimum accuracy 6min within rated accuracy	30 min for optimum accuracy 6min within rated accuracy
Settling Time	Typically ≤ 1 seconds	Typically $< 1\sim 2$ seconds
Temperature Coefficient of Zero	$< \pm 0.2\% / ^\circ\text{C}$ of full scale max (-20~70°C)	N/A for controller with auto-zero enabled
Temperature Coefficient of Span	$< \pm 0.1\% / ^\circ\text{C}$ of reading max (-20~70°C)	$< \pm 0.1\% / ^\circ\text{C}$ of reading max (-20~70°C)
Attitude Sensitivity of Zero	$< 1.4\%$ of full scale (N ₂ @ 50 psig)	$< 1.4\%$ of full scale before autozero (N ₂ @ 50 psig)
Analog I/O (standard)	0~5 VDC	0~5 VDC
Analog I/O (optional)	0~10 VDC, 0~20 mA, 4~20 mA	0~10 VDC, 0~20 mA, 4~20 mA
Wetted Materials	316L SS, Nickel 200, 302 SS, PTFE, Viton	316L SS, Nickel 200, 302 SS, PTFE, Viton, Kalrez® (valve seat)
Weight (approx.)	3.6 lb. (1.6kg)	5.4 lb. (2.5kg)
Analog Connector	15 Pin D-sub	15 Pin D-sub
Digital Connector	Dual RJ-12, 6P6C modular jack	Dual RJ-12, 6P6C modular jack
Power Requirements	11~36 VDC @ 3.1 Watt (max), Unipolar or Bipolar (e.g. ± 15 VDC, ± 12 VDC)	11~36 VDC @ 6.7 Watt (max), Unipolar or Bipolar (e.g. ± 15 VDC, ± 12 VDC)

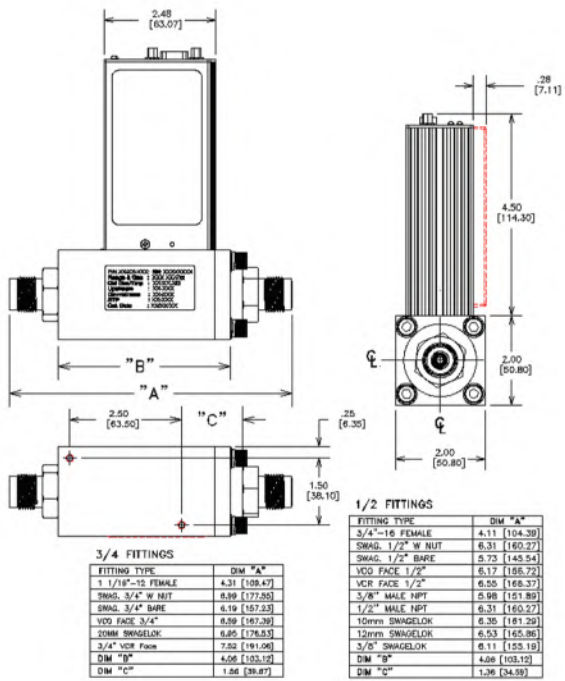
Pin Map



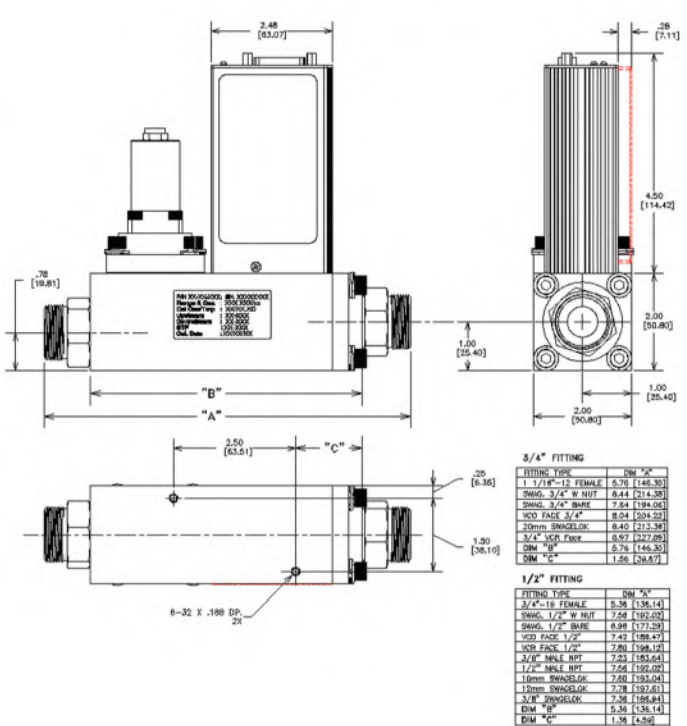
Pin #	
1	NC
2	NC
3	NC
4	NC
5	Signal Common
6	Signal Output
7	Ground
8	Valve Override
9	Power Common
10	NC
11	24V Power
12	Setpoint Common
13	External Input
14	Setpoint Input
15	External Input Common



Outline Drawings - HFM-D-301A



Outline Drawings - HFC-D-303A



Selection chart

Circuit Board 01 H Pin (Std)	Output 01 0-5 volt (Std) 02 0-10 volt 03 4-20 mA 04 0-20 mA	Small Base Fittings 01 1/2" VCR® 02 1/2" Swagelok (Std) 03 1/2" VCO® 06 3/8" Male NPT 07 1/2" Male NPT 08 3/4"-16 Fem S. Thread 10 10 mm Swagelok 12 12 mm Swagelok	Large Base Fittings 04 3/4" Swagelok (Std) 05 3/4" VCO® 09 1 1/16"-12 Female ST 11 3/4" VCR 13 20 mm Swagelok	Seals 01 Viton® (Std) 02 Kalrez® 03 Neoprene 04 Buna-N	Working Pressure 01 500 psig max (Std) 02 1000 psig	Calibration Options 01 N2 or Air 02 2 NIST Traceable Calibration Reports 03 3 NIST Traceable Calibration Reports 04 4 NIST Traceable Calibration Reports 05 5 NIST Traceable Calibration Reports 06 6 NIST Traceable Calibration Reports 07 7 NIST Traceable Calibration Reports 08 8 NIST Traceable Calibration Reports 09 9 NIST Traceable Calibration Reports 10 10 NIST Traceable Calibration Reports	Digital 01 RS 232 (Std) 02 RS 485								
								For Models HFM-D-301A HFC-D-303A	Circuit Board	Output	Fittings	Seals	Working Pressure	Calibration Options	Digital