

0~25 SLM Mass Flow Meter / Controller

HFM-300 MASS FLOW METER / HFC-302 MASS FLOW CONTROLLER

LOW FLOW



HFM 300 / HFC 302 는 Full Metal Body 의 기체용 질량 유량계 및 제어기 입니다.
 최대 허용 압력은 1,000 psig(옵션) 이며, 아날로그 출력을 지원합니다.
 낮은 압력 강하가 발생하도록 디자인되어 있습니다.
 0~10 sccm 에서 25 slm(N₂) 까지의 측정범위에 적합한 제품입니다.
 ±(0.75% of full scale / 5 sccm to 10 slm) 정확도
 ±(1.00% of full scale / 10 sccm to 25 slm) 정확도

Features (특징)

- Range .005~10 slm to 25 slm (N₂ Equivalent)
- ±0.75% of Full-Scale for .005 to 10 slm Accuracy
- ±1.0% of Full-Scale for 10 to 25 slm Accuracy
- All-Metal Seals
- Large Diameter Sensor Tube
- Low Wetted Surface Area
- NIST Traceable Calibration

Applications and Industries (응용 분야)

- Leak Testing
- Research
- Vapor Deposition
- R&D and Process Flows
- Semiconductor Processes
- Pollution Monitoring
- Gas Blending
- Chromatography

Flow Unit (유량 단위)

기준 STP : 0°C & 760 Torr / N₂

- SLM 0.005 ~ 25
- SCCM 5 ~ 25,000
- SCFH 0.01 ~ 52.97
- Kg/Hr ~ 1.87
- SM3/H ~ 1.5
- Mole/Hr 0.01 ~ 66.92

Specifications

HFM-300 (Meter)

HFC-302 (Controller)

	HFM-300 (Meter)	HFC-302 (Controller)
Range	5 sccm to 10 slm to 25 slm (N ₂)	5 sccm to 10 slm to 25 slm (N ₂)
Accuracy	±0.75% of F.S. 5 sccm to 10 slm	±0.75% of F.S. 5 sccm to 10 slm
	±1.00% of F.S. 10 slm to 25 slm	±1.00% of F.S. 10 slm to 25 slm
Repeatability	±0.07% of full scale	±0.07% of full scale
Standard Operating Pressure	500 psig	500 psig
High-Pressure Option	1000 psi (proof tested to 1500 psi)	1000 psi (proof tested to 1500 psi)
Pressure Coefficient	0.01% of reading/psi (N ₂)(0~50 psig)	0.01% of reading/psi (N ₂)(0~50 psig)
Leak Integrity	< 1x10 ⁻⁹ sccs He	< 1x10 ⁻⁹ sccs He
Temperature Coefficients	Zero : < 0.10%/°C of F.S (0~60°C)	Zero : < 0.10%/°C of F.S (0~60°C)
	Span : < 0.03%/°C of Rdg (15~60°C)	Span : < 0.03%/°C of Rdg (15~60°C)
Standard Flow Ranges	5, 10, 20, 50, 100, 200, 500 sccm	5, 10, 20, 50, 100, 200, 500 sccm
	1, 2, 5, 10, 20, 25 slm (N ₂ equivalent)	1, 2, 5, 10, 20, 25 slm (N ₂ equivalent)
Standard Output	0~5 VDC	0~5 VDC
Optional Outputs	4~20 mA	4~20 mA
Connector	15 Pin D-sub	15 Pin D-sub
Attitude Sensitivity of Zero	< 0.7% of F.S. (N ₂ @ 19.7 psia)	< 0.7% of F.S. (N ₂ @ 19.7 psia)
Attitude Sensitivity of Span	< 0.05% of reading (N ₂ @ 19.7 psia)	< 0.05% of reading (N ₂ @ 19.7 psia)
Settling Time	≤ 0.3 sec (0% to 100% F.S.) (0~10 slm)	≤ 0.75 sec (10% to 100% F.S.)
	≤ 0.5 sec (0% to 100% F.S.) (0~25 slm)	
Power Requirements	±15 VDC @ 55 mA	±15 VDC @ 150 mA
Wetted Materials	316L SS, Nickel 200, 302 SS	316L SS, Nickel 200, 302 SS, Kalrez® (Valve seat)
Setpoint Input		0~5 VDC (standard) / 4~20 mA (optional)
Weight (approx.)	1.95 lb (0.9 kg)	2.45 lb (1.1 kg)

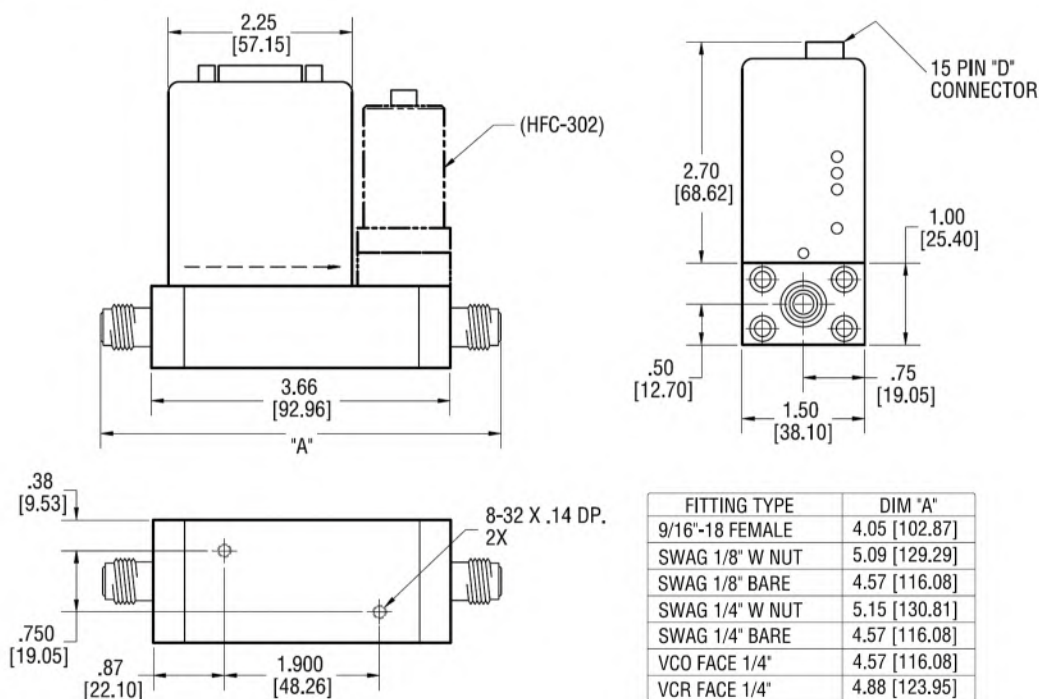
U Pinout

Pin #	
1	Signal Common
2	Do not use
3	Do not use
4	+15 VDC
5	
6	Output 0-5 VDC (4-20mA)
7	Signal Common
8	Case Ground
9	Valve Override
10	
11	-15VDC
12	External Input
13	Signal Common
14	Signal Common
15	Set Point 0-5 VDC (4-20mA)

H Pinout

Pin #	
1	Do not use
2	Do not use
3	Do not use
4	Do not use
5	Signal Common
6	Output 0-5 VDC (4-20mA)
7	Case Ground
8	Valve Override
9	-15VDC
10	Do not use
11	+15VDC
12	Signal Common
13	External Input
14	Set Point 0-5 VDC (4-20mA)
15	Do not use

Outline Drawings



HFM-300 Selection chart

Circuit Board		Fittings	
01	Pinout H (Standard)	01	1/4" VCR®
02	Pinout U	02	1/4" Swagelok (Standard)
03	Pinout M	03	1/8" Swagelok
		04	1/4" VCO®
Output		Pressure	
01	0-5 Volts (Standard)	01	500 psi (Standard)
02	4-20mA	02	1000 psi (1500 proof)
Calibration Type			
01	NIST 5 Point (Standard)		
02	NIST 10 Point		
03	NIST 20 Point		
04	Curve		

HFC-302 Selection chart

Circuit Board		Fittings	
01	Pinout H (Standard)	01	1/4" VCR®
02	Pinout U	02	1/4" Swagelok (Standard)
03	Pinout M	03	1/8" Swagelok
		04	1/4" VCO®
		05	Threaded End Cap
Output		Pressure	
01	0-5 Volts (Standard)	01	500 psi (Standard)
02	4-20mA	02	1000 psi (1500 proof)
03	I/O 4-20mA		
Calibration Type			
01	NIST 5 Point (Standard)		
02	NIST 10 Point		
03	NIST 20 Point		
04	Curve		

Model No.	Circuit Board	Output	Fittings	Pressure	Calibration Type
HFM-300	01	01	02	01	01

Model No.	Circuit Board	Output	Fittings	Pressure	Calibration Type
HFC-302	01	01	02	01	01