0~1,000 SLM Digital Mass Flow Meter / Controller
HFM-D-301B Mass Flow Meter / HFC-D-303B Mass Flow Controller

Medium Flow

Digital HFM 301B / HFC 303B 는
Teledyne Hastings 사의 300 시리즈 센서를 사용합니다.
0~25 slm 부터 0~1,000 slm(N_2) 구간에서
높은 정확도 ±(0.5% Rd + 0.2% F.S)를 구현합니다.
전면부의 컬러 터치 스크린 디스플레이로
유량을 측정 및 제어 할 수 있습니다.
24 VDC Jack 에 간단히 전원만 공급하면,
가스 유량의 측정 및 제어가 가능합니다.
Power Supply 및 Display 장치, Lead Line 등이
필요없이 단일 제품만으로도 사용이 가능합니다.
Data Logging Software 를 기본 제공해 드립니다.

Features (특징)

- Range 0~25 slm to 0~1,000 slm (N_2 Equivalent)
- Touchscreen Display /Control Option
- 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)

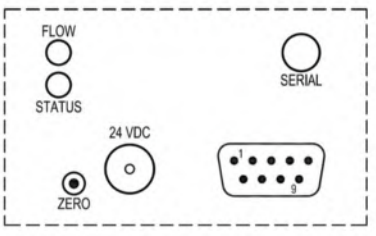
기준 STP : 0℃ & 760 Torr / N_2

·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

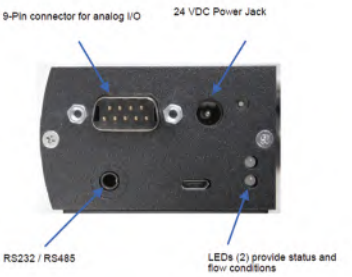
Specifications

	HFM-D-301B (Meter)	HFC-D-303B (Controller)
Range	(L) 0~25 slm to 0~300 slm (N_2)	(L) 0~25 slm to 0~300 slm (N_2)
	(H) 0~300 slm to 0~1,000 slm (N_2)	(H) 0~300 slm to 0~1,000 slm (N_2)
Accuracy	±(0.5% reading +0.2% of full scale)	±(0.5% reading +0.2% of full scale)
Repeatability	±0.15% of F.S	±0.15% of F.S
Maximum Working Pressure	500 psig (optional 1000 psig)	500 psig (optional 1000 psig)
Operating Temperature	-20~70℃ in non-condensing environment	-20~70℃ in non-condensing environment
Warm up time	30 min for optimum accuracy	30 min for optimum accuracy
	6min within rated accuracy	6min within rated accuracy
Settling Time	Typically ≤ 1 seconds	Typically < 1~2 seconds
Temperature Coefficient of Zero	<±0.2% / ℃ of full scale max (-20~70℃)	N/A for controller with auto-zero enabled
Temperature Coefficient of Span	<±0.1% / ℃ of reading max (-20~70℃)	<±0.1% / ℃ of reading max (-20~70℃)
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.)	3.7 lb. (1.7kg)	5.5 lb. (2.5kg)
Analog Connector	9 Pin D-sub	9 Pin D-sub
Digital Connector	Bayonet, 4-conductor TRRS 3.5mm jack	Bayonet, 4-conductor TRRS 3.5mm jack
Power Requirements (w/ display)	11~36 VDC @ 4.6 Watt (max)	11~36 VDC @ 8.2 Watt (max)*
	Unipolar or Bipolar (e.g.±15 VDC, ±12 VDC)	Unipolar or Bipolar (e.g.±15 VDC, ±12 VDC)
		*15 VDC min reqd. for 0~20 & 4~20 mA operation

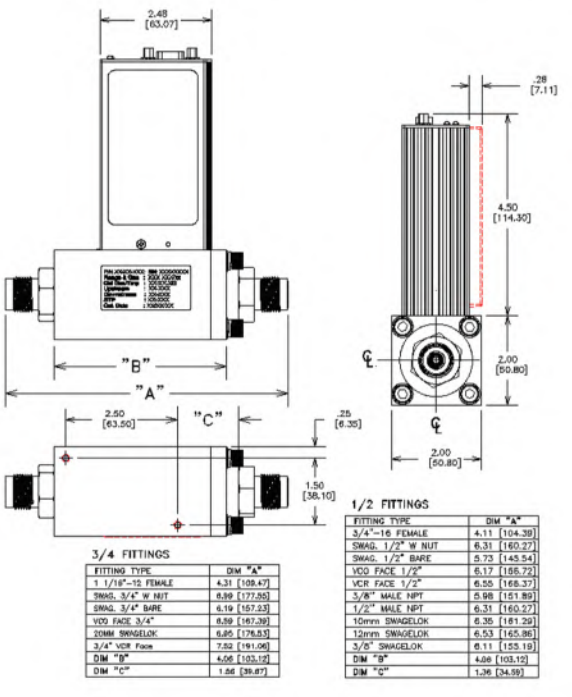
Pin Map



Pin #	
1	External Input
2	Signal Output
3	Set point Input
4	Power Common
5	NC
6	Valve Override
7	24V Power
8	Signal Common
9	Ground



Outline Drawings - HFM-D-301B



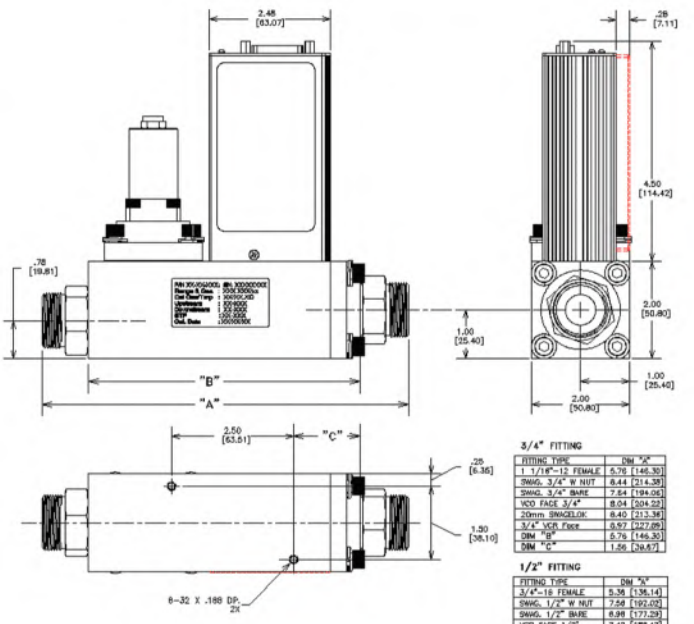
3/4 FITTINGS

FITTING TYPE	DIM "A"
1 1/16"-12 FEMALE	4.31 [109.47]
SWAG. 3/4" W NUT	6.99 [177.55]
SWAG. 3/4" BARE	6.19 [157.23]
VCO FACE 3/4"	6.59 [167.39]
20MM SWAGELOK	6.85 [174.03]
3/4" VCR Face	7.52 [191.06]
DIM "B"	4.06 [103.12]
DIM "C"	1.56 [39.67]

1/2 FITTINGS

FITTING TYPE	DIM "A"
3/4"-16 FEMALE	4.11 [104.39]
SWAG. 1/2" W NUT	6.31 [160.27]
SWAG. 1/2" BARE	5.73 [145.54]
VCO FACE 1/2"	6.17 [156.72]
VCR FACE 1/2"	6.55 [166.37]
3/8" MALE NPT	5.98 [151.89]
1/2" MALE NPT	6.31 [160.27]
10mm SWAGELOK	6.35 [161.29]
12mm SWAGELOK	6.53 [165.86]
3/8" SWAGELOK	6.11 [155.19]
DIM "B"	4.06 [103.12]
DIM "C"	1.36 [34.59]

Outline Drawings - HFC-D-303B



3/4" FITTING

FITTING TYPE	DIM "A"
1 1/16"-12 FEMALE	5.76 [146.30]
SWAG. 3/4" W NUT	8.44 [214.38]
SWAG. 3/4" BARE	7.64 [194.06]
VCO FACE 3/4"	8.04 [204.22]
20mm SWAGELOK	8.40 [213.36]
3/4" VCR Face	8.97 [227.86]
DIM "B"	5.76 [146.30]
DIM "C"	1.56 [39.67]

1/2" FITTING

FITTING TYPE	DIM "A"
3/4"-16 FEMALE	5.36 [136.14]
SWAG. 1/2" W NUT	7.56 [192.02]
SWAG. 1/2" BARE	6.98 [177.29]
VCO FACE 1/2"	7.42 [188.47]
VCR FACE 1/2"	7.80 [198.12]
3/8" MALE NPT	7.23 [183.64]
1/2" MALE NPT	7.56 [192.02]
10mm SWAGELOK	7.60 [193.04]
12mm SWAGELOK	7.78 [197.61]
3/8" SWAGELOK	7.36 [186.84]
DIM "B"	5.36 [136.14]
DIM "C"	1.36 [4.59]

Selection chart

Output	
01	0-5 volt (Std)
02	0-10 volt
03	4-20 mA
04	0-20 mA

Large Base Fittings	
04	¾" Swagelok (Std)
05	¾" VCO®
09	1 1/16"-12 Female ST
11	3/4" VCR
13	20 mm Swagelok

Working Pressure	
01	500 psig max (Std)
02	1000 psig

Digital	
01	RS232 (std)
02	RS485

Display	
01	Touchscreen Display
02	No Display (std)

Small Base Fittings	
01	½" VCR®
02	½" Swagelok (Std)
03	½" VCO®
06	3/8" Male NPT
07	½" Male NPT
08	¾"-16 Fem S. Thread
10	10 mm Swagelok
12	12 mm Swagelok
14	Surface Mount (meter only)

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

Calibration Records	
01	1 Calibration Certificate (Std)
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

Calibration Type	
01	NIST 5 Point (std)
02	NIST 10 Point
03	NIST 20 Point

For Models
HFM-D-301B
HFC-D-303B

Output	Fittings	Seals	Working Pressure	Calibration Records	Digital	Calibration Type	Display