



Mass Flow Meters
Portable Battery Powered Mass Flow Meter

One Instrument...Accurate...Repeatable for 30 On-Board Gases



30 factory installed, user selectable, gas calibrations:

- Air
- Argon
- Methane
- Carbon Monoxide
- Carbon Dioxide
- Ethane
- Hydrogen
- Helium
- Nitrogen
- Nitrous Oxide
- Neon
- Oxygen
- Propane
- Butane
- Acetylene
- Ethylene
- Iso-Butane
- Krypton
- Xenon
- Sulfur Hexafluoride
- 75% Argon + 25% CO2
- 90% Argon + 10% CO2
- 92% Argon + 8% CO2
- 98% Argon + 2% CO2
- 75% Argon + 25% Helium
- 75% Helium + 25% Argon
- 75% CO2 + 25% Argon
- Helistar® A1025
- Stargon® CS

Mass flow meters were designed to take the guess work out of precision gas flow measurement. Today, the demand for accurate and repeatable gas flow measurement is critical. Demand for mass flow meters is growing and customers are requiring that MFM's are easy to use, fast, reliable, accurate, cost effective and robust.

The APEX Mass Flow Meters have a user display to change gases, set the flow and display readings. The RS 232 interface allows control of 26 individual controllers or meters off one computer RS 232 port.

Users can also set/measure through the RS 232 port or via 0-5V, 0-10V or 4 -20 milliamps through the 9 pin din connector on top of the Apex Mass Flow Meter.

We are also pleased to offer a 9V battery powered Apex Mass Flow Meter for portable use.



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What makes us different?

- **30 User Selectable Gases**- More flexibility for the customer
- **Fast Response**- 10 millisecond response, 100 milliseconds to control
- **Addressable RS-232 Interface**- Measure 26 units with one RS-232 port
- **FlowVision Windows Software**- Control any MFM through a computer and graph flow
- **Pinpoint Accuracy**- 0.2% Full Scale plus 0.8% Reading, provides excellent accuracy
- **100-1 Turndown Ratio**- Combined with the pinpoint accuracy allows for lower flow readings
- **Flows as low as 0.5 sccm Full Scale**
- **Lower Cost** - More features but not more costly

Basic Specification	Meters	Controllers	Description
Accuracy	± 0.8% of Reading ±0.2% of Full Scale		At calibration conditions after tare
High Accuracy Option	± 0.4% of Reading ±0.2% of Full Scale		At calibration conditions after tare
Repeatability	± 0.2%		Full Scale
Operating Range	1% to 100% Full Scale		Measure and Control
Typical Response Time	10	100	Milliseconds (Adjustable)
Standard Conditions (STP)	25° C & 14.696PSIA		Mass Reference Conditions
Operating Temperature	-10 to + 50		° Celsius
Zero Shift	0.02%		Full Scale / ° Celsius / Atm
Span Shift	0.02%		Full Scale / ° Celsius / Atm
Humidity Range	0 to 100%		Non – Condensing
Flow Rate	128% Measurable	102.4% Controllable	Full Scale
Maximum Pressure	145		PSIG
Input /Output Signal Standard	RS-232 Serial & 0-5Vdc		
Input / Output Secondary	0-5 Vdc; 0-10Vdc;4-20mA		Pressure, Temperature or Flow
Electrical Connections	8 Pin		Mini Din
Sensitivity to Mounting Attitude	0%		Meters: Tare after installation required
Warm-up Time	< 1		Second
Wetted Materials	303 & 302 Stainless Steel, Viton®, Silicone RTV (Rubber), Glass Reinforced Nylon, Aluminum. Controllers ≤20SLPM Add: Brass, 410 Stainless Steel. Controllers >20SLPM Add: 410 & 416 Stainless Steel and Nickel		
Mechanical Dimensions	Mechanical Connections ¹	Meters	Controllers
≤ 50SCCM	10-32 UNF (European M-5)	3.9"H x 2.4"W x 1.1"D	3.9"H x 3.5"W x 1.1"D
50SCCM ≤ 20SLPM	1/8" NPT Female	4.2"H x 2.4"W x 1.1"D	4.2"H x 3.6"W x 1.1"D
20SLPM ≤ 100SLPM	1/4" NPT Female	4.4"H x 4.0"W x 1.6"D	4.7"H x 6.9"W x 2.3"D
100SLPM ≤ 250SLPM	1/2" NPT Female	5.0"H x 4.0"W x 1.6"D	5.0"H x 6.9"W x 2.3"D
>250SLPM ≤ 1500SLPM	3/4" NPT Female	5.0"H x 4.0"W x 1.6"D	5.6"H x 7.4"W x 2.3"D

1) VCR, SAE with O-ring face seals, BSPP, etc. also available

Standard Full Scale Flow Ranges ³		
0.5SCCM	100SCCM	50SLPM
1SCCM	500SCCM	100SLPM
2SCCM	1SLPM	250SLPM
5SCCM	2SLPM	500SLPM
10SCCM	5SLPM	1000SLPM
20SCCM	10SLPM	1500SLPM
50SCCM	20SLPM	

3) No charge alternate full scale ranges to increase accuracy (e.g. 2.5SLPM) or alternate units of measure (e.g. 133SCFH).

3) Full Scale range applies for all 30 gases and mixtures in the calibration table.

Standard Pressure Drop Across the Device in PSID ⁴		
Full Scale Flow	Meters	Controllers
0.5SCCM up to 1SCCM	0.5	0.5
>2SCCM up to 50SCCM,	1.0	1.0
>50SCCM up to 500SCCM	1.0	1.0
1SLPM	1.0	1.5
5SLPM	1.0	2.0
10SLPM	1.0	5.0
20SLPM	1.0	20.0
>20SLPM up to 50SLPM	2.0	2.5
100SLPM	2.5	5.0
250SLPM	4.0	10.0
500SLPM	4.0	4.1
1000SLPM	6.0	10.0
1500SLPM	9.0	23.3