

FlowStream®

FD Series



TYPICAL APPLICATIONS

- Burner Management
- Leak Tests
- Gas Consumption
- Gas Blending
- Shielding Gas
- Laboratory R & D
- Laser Cutting
- Die Casting

Features

- Mass flow measurement with integrated temperature and pressure correction
- Visual readout of flow rate or total, pressure, and temperature
- Programmable set points
- No moving parts reduces maintenance
- Wide turndown for precision measurement at low or high flow
- 10-point calibration (NIST Traceable certificate available)

General Description

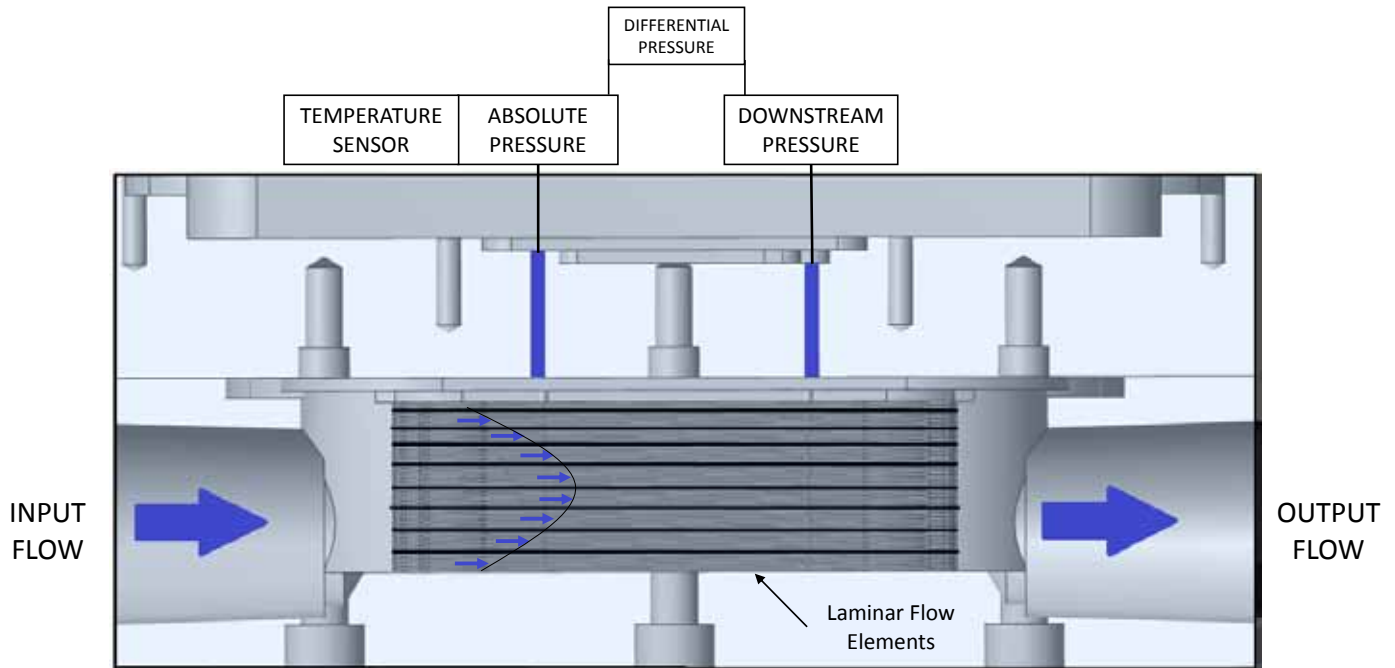
Laminar Flow Element differential pressure flowmeters are good for clean, dry, non-corrosive, non-condensing gasses. Corrected for temperature and pressure, it has a mass flow output. The USB serial data output make the meters suitable for laboratory and the internal lithium-polymer rechargeable battery is useful for portable measurement applications. NIST traceable and CSA units are Type 1 weatherproof. The accuracy is less than 1% of reading subject to limitations described in the Specifications section.

The integrated LCD display can indicate flow rate or total as well as gas temperature and pressure.

Calibration is done on air with empirically derived conversion factors. Oxygen cleaning optional.

Sizes range from 1/8 to 3/4 inch threaded connections. Anodized aluminum is the standard material for the meter body and 316 Stainless Steel is available for use where external corrosion is a factor.

Principles of Operation



PRINCIPLES OF OPERATION: Flow of gas through a Laminar Flow Element generates a differential pressure between the absolute and downstream pressure sensors. This differential pressure is proportional to the flow velocity and viscosity of the gas. Mass flow rate is determined by utilizing the temperature and absolute pressure sensor to compensate for density variations of the gas.

General Specifications

Flow Ranges

High Pressure Drop (2.6 psi)' 2 SLPM/ 5 SCFH F.S. to 1300 SLPM/2600 SCFH F.S.

Turndown Ratio: 400:1 (100:1 Turndown ratio available for units ranged under 20 SLPM/40 SCFH F.S.)

Accuracy: < +/- 1% of reading

Repeatability: 0.2% of full scale

Response Time: 100 msec

Gases: Air, Argon, Nitrogen, CO₂, Oxygen, Helium, Hydrogen, Methane, and user selectable

Gas Compatibility: Non-corrosive, non-condensing

Maximum Operating Pressure: 150 PSIG

Burst Pressure: 200 PSIG

Maximum Operating Temperature: 104 °F (40 °C)

Minimum Operating Temperature: 32 °F (0 °C)

Process Connections: 1/8"-1/4"-3/8"-1/2"-3/4" NPT female (SAE, BSPT, BSPP available also)

Display: Rate, total, pressure, temperature, multi-gas, alarms, multiple engineering units, battery status

Wetted Parts:

Sensors Ceramic, silicon, gold, epoxy, RTV

Flow Body Internals Stainless steel, anodized aluminum, Viton®

Enclosure Rating: Type 1

Note 1: Port to Port pressure drop at full-scale flow

Electrical Specifications

Supply Voltage: Direct USB powered, and Internal Lithium-Polymer rechargeable battery

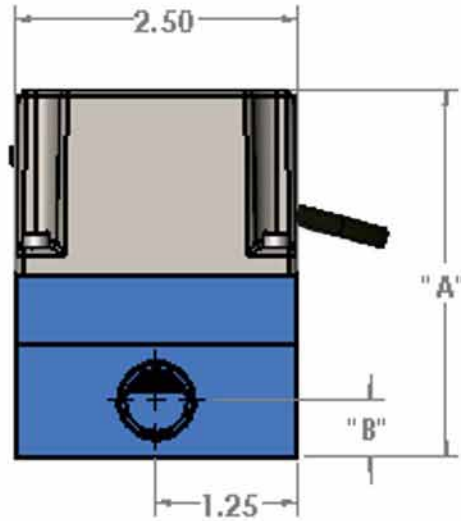
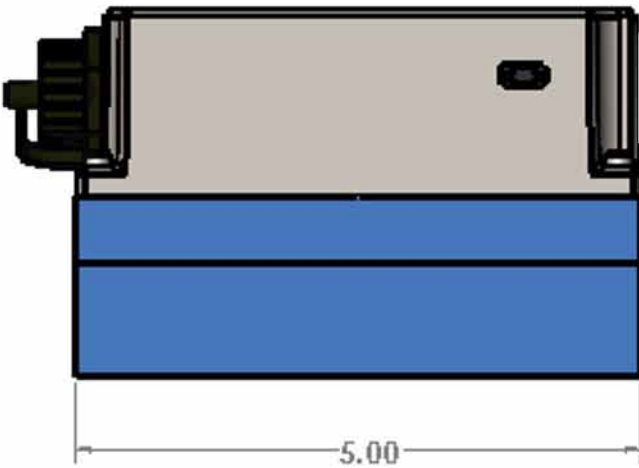
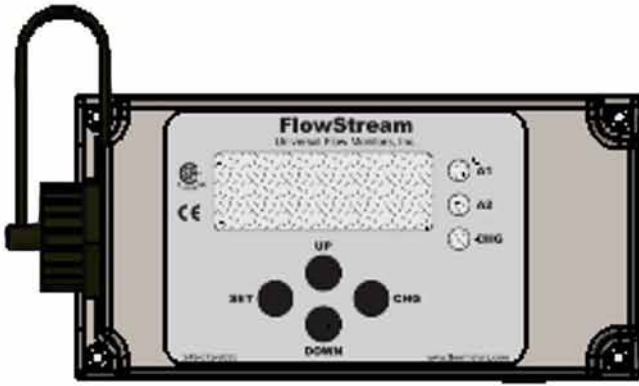
Output: Direct USB serial data to PC, or USB memory stick data-logging (16GB Flash Drive included)

Electrical Connection: Type A USB Receptacle

Battery Life: 40 hours of operation on full battery charge, 10 hours of operation when logging data to USB memory

Recharge Time: 2 hours to full charge (5 VDC/ 1A)

Installation Dimensions of FD Series



MODEL	DIM "A"	DIM "B"
100 slpm	3.00 Inches	0.38 Inches
250 slpm	3.25 Inches	0.50 Inches
500 slpm	3.50 Inches	0.63 Inches
1000 slpm	4.00 Inches	0.88 Inches



USB cable sold separately

How To Order Flowstream for a Single Gas

Select the appropriate symbols to build a model code:

Example: **FD- E F- 2 N- 360 SCFH- CO2- USB**

SERIES = **FD**

MATERIAL FOR METER BODY
 Anodized Aluminum = **E**
 316 Stainless Steel = **I**

SEALS
 Viton® = **F**

THREAD TYPE FOR THREADED PORT
 NPT = **N**
 SAE = **T**
 BSPT = **B**
 BSPP = **P**

PIPE SIZE in Inches	FLOW RANGE IN SLPM		FLOW RANGE IN SCFH	
	MIN FLOW	MIN/MAX F.S.	MIN FLOW	MIN/MAX F.S.
1/8 = 1	0.005	2.0	0.0125	5
	0.075	30	0.15	60
1/4 = 2	0.05	5	0.1	10
	0.45	180	0.9	360
3/8 = 3	0.45	180	0.9	360
	0.75	300	1.5	600
1/2 = 4	0.75	300	1.5	600
	1.75	700	3.5	1400
3/4 = 6	1.75	700	3.5	1400
	3.25	1300	6.5	2600

* Argon flow rates are 75% of the above values (multiply by 0.75) due to higher viscosity

GAS TYPE
 Air = **A**
 Argon* = **R**
 Carbon Dioxide = **CO2**
 Helium = **HE**
 Nitrogen = **N**
 Oxygen = **O**
 Hydrogen = **H**
 Methane = **M**

OUTPUT
 USB Serial Data Link = **USB**

SPECIAL OPTIONS
 CLEAN FOR OXYGEN SERVICE = **C1**
 VACUUM USE = **ZVAC**
 SPECIFIC PRESSURE (I.E. P10) = **P__**
 ACTUAL GAS CALIBRATION = **GAS**



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