

FlowStream®

FP Series



TYPICAL APPLICATIONS

- Burner Management
- Leak Tests
- Gas Consumption
- Gas Blending
- Shielding Gas
- 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

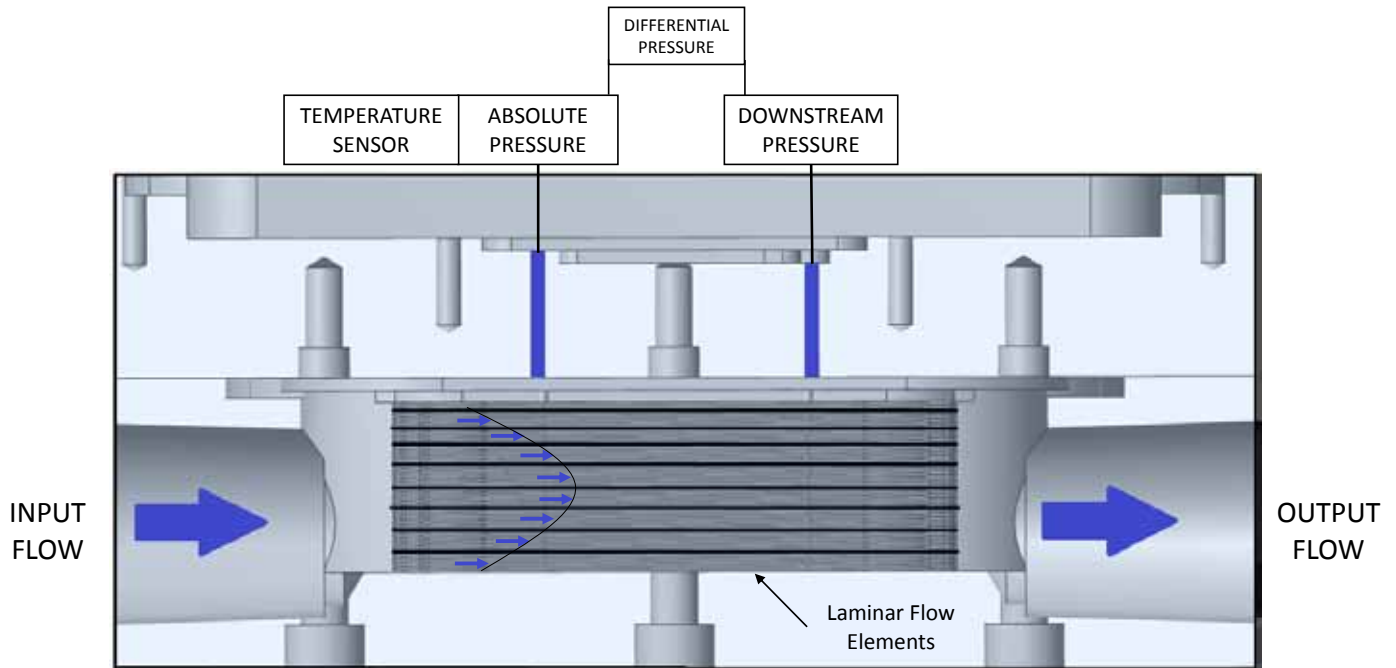
Laminar Flow Element differential pressure flowmeters are good for clean, dry, non-corrosive, non-condensing gasses. Corrected for temperature and pressure, it has a mass flow output. The analog (4-20 mA) output along with 2 programmable alarm set points make the meters suitable for process automation systems. NIST traceable and CSA units are Type 4 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)¹ 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: 25msec

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: 176 °F (80 °C)

Minimum Operating Temperature: -13 °F (-25 °C)

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

Display: LCD rate/total, pressure, temperature, multi-gas, alarms, multiple engineering units

Wetted Parts:

Sensors Ceramic, silicon, gold, epoxy, RTV

Flow Body Internals Stainless steel, anodized aluminum, Viton®

Enclosure Rating: Type 4

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

Electrical Specifications

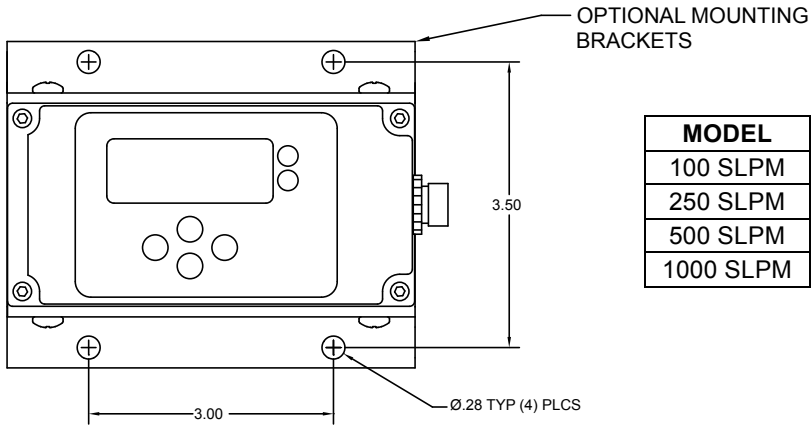
Supply Voltage: 10–24 VDC (loop-powered 4-20mA output)

Supply Current: 22 mA (max) for 4-20 mA loop-powered transmitters

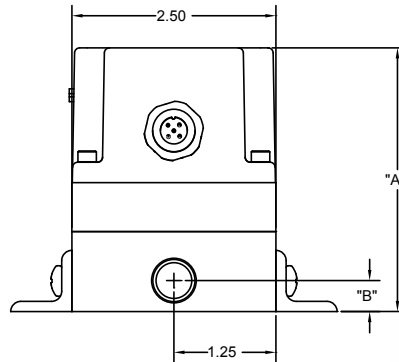
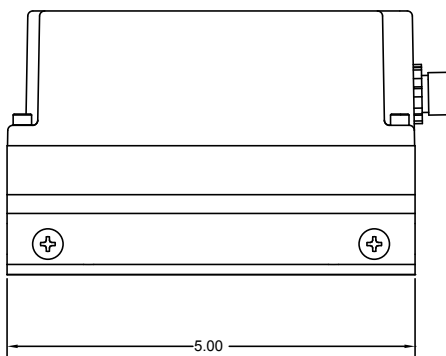
Output: 4-20 mA (2-wire loop powered) with 2 Alarms

Electrical Connection: 5-pin connector

Installation Dimensions of FP Series

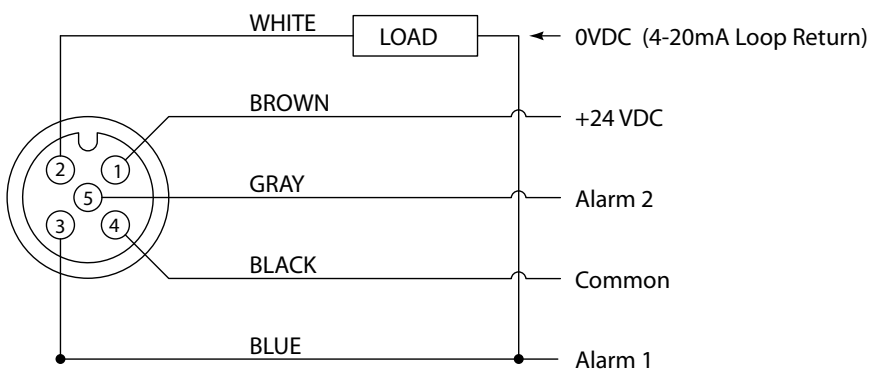


MODEL	DIM "A"	DIM "B"
100 SLPM	3.00"	0.38"
250 SLPM	3.25"	0.58"
500 SLPM	3.50"	0.63"
1000 SLPM	4.00"	0.88"



PIN CONNECTOR PINOUTS

FP



PIN CONFIGURATION:

- 1: +24VDC
- 2: 0VDC (4-20mA Loop Return)
- 3: Alarm 1
- 4: Common
- 5: Alarm 2

ACCESSORY CABLES AVAILABLE FOR PIN CONNECTOR METERS

Series	Description	Length in Meters	Part Number
FP	5 pin female	1	6241-1M
		3	6241-3M
		10	6241-10M

How To Order Flowstream for a Single Gas

Select the appropriate symbols to build a model code:

Example: **FP- E F- 2 N- 360 SCFH- CO2- X1B**

SERIES = **FP**

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

SEALS
 Viton® = **F**
 Buna N = **B**

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

PIPE SIZE IN INCHES		
	NPT	SAE, BSPT, BSPP
1/8	= 1	2
1/4	= 2	4
3/8	= 3	6
1/2	= 4	8
3/4	= 6	12

FLOW RANGE IN SLPM		FLOW RANGE IN SCFH	
MIN FLOW	MIN/MAX F.S.	MIN FLOW	MIN/MAX F.S.
0.005	2.0	0.0125	5
0.075	30	0.15	60
0.05	5	0.1	10
0.45	180	0.9	360
0.45	180	0.9	360
0.75	300	1.5	600
0.75	300	1.5	600
1.75	700	3.5	1400
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
 4-20 mA with 2 alarms = **X1B**

SPECIAL OPTIONS
 CLEAN FOR OXYGEN SERVICE = **C1**
 VACUUM USE = **ZVAC**
 SPECIFIC PRESSURE (I.E. P10) = **P__**
 ACTUAL GAS CALIBRATION = **GAS**
 (only available for: Helium, Nitrogen, CO2, Argon & Air)

ACCESSORIES
 MOUNTING BRACKETS = **8426-ASSY**



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