

## Gas Mass Flow Meters with Digital Display

### Features

- Direct monitoring of mass flow rate eliminates need for ancillary pressure and temperature sensing
- Digital display of mass flow rate on flow body or remote version for panel mounting
- Electronic output of mass flow rate for control or data-logging
- Fast response to changes in flow rate
- Large, straight sensor tube reduces contamination and maintenance down-time
- Platinum sensor eliminates zero drift and ensures long-term repeatability
- Primary standard calibration ensures starting point accuracy and NIST traceability
- CE Approved

**SIERRA**  
INSTRUMENTS  
THE MASS FLOW COMPANY



For information online...  
[www.sierrainstruments.com](http://www.sierrainstruments.com)

# Top-Trak® Model 822/824



### Description

**S**ierra Instruments' Top-Trak® Model 820 Mass Flow Meter is designed to replace volumetric flow rate devices at a comparable installed cost. No temperature or pressure corrections are required, as in the case of most other flow monitoring devices, such as rotometers, turbine meters or critical orifices.

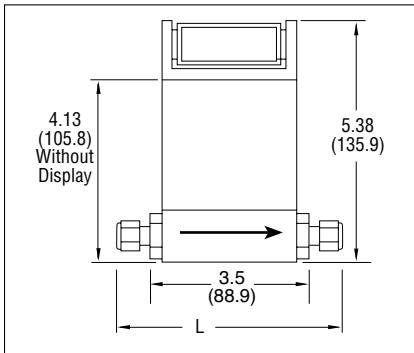
Available in flow ranges from 0 to 10 sccm up to 0 to 50 slpm, Top-Trak is suitable for any clean gas flow measurement application. Wetted surfaces are rugged 316 stainless steel, nickel plating, 6/6 reinforced Nylon® and Viton® "O" rings; all are corrosion-resistant.

The Model 820 measures and displays the mass flow rate directly in sccm or slpm. The integral instrument display is tiltable over 180° for easy viewing and can be removed for remote panel mounting. A 0 to 5 VDC or 4 to 20 mA output signal linearly proportional to gas mass flow rate is provided for recording, data-logging or control. This device is widely used in a variety of flow validation and calibration applications-by dozens of instrument OEMs and in a multitude of laboratory, test and analytical operations.

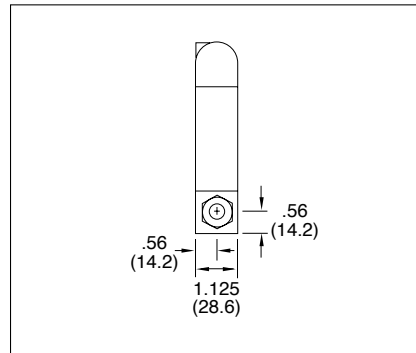
The information contained herein is subject to change without notice.

## Dimensional Specifications

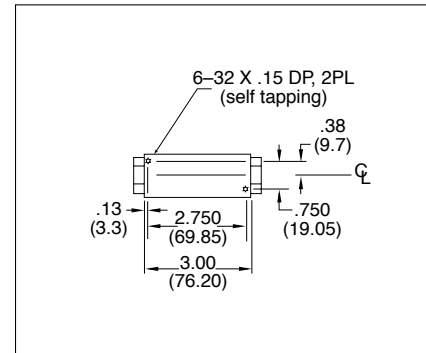
**Model 820—Side View**



**Model 820—Outlet View**



**Model 820 –Bottom View**



All dimensions are inches and in parentheses are millimeters. Certified drawings are available on request.

	FITTING SIZE		
	1/8-inch Compression	1/4-inch Compression	1/4-inch NPT
Dim. L	5.51 (140.0)	5.70 (144.8)	3.50 (88.9)

## Performance Specifications

### Accuracy

+/- 1.5% of Full Scale including linearity over 15° to 25°C and 5 to 60 psia (0.3 to 4 bara).

If the meter is mounted with a vertical (up or down) flow path the following accuracy de-rating applies:

Inlet Pressure Deviation <sup>2</sup>	OPERATING PRESSURE		
	50 psig	100 psig	150 psig
+/- 1 psig	+/- 1.5% of Full Scale	+/- 1.5% of Full Scale	+/- 1.5% of Full Scale
+/- 5 psig	+/- 3.8% of Full Scale	+/- 4.5% of Full Scale	+/- 5.3% of Full Scale
+/- 10 psig	+/- 6% of Full Scale	+/- 7.5% of Full Scale	+/- 9% of Full Scale

Notes: (1) Do not exceed 150 psig.

(2) Difference between inlet pressure and calibrated pressure. Do not exceed ± 10 psig.

### Repeatability

+/- 0.5% of Full Scale

### Temperature Coefficient

0.08% of Full Scale per °F (0.15% of Full Scale per °C), or better

### Pressure Coefficient

0.01% of Full Scale per psi (0.15% of Full Scale per bar), or better

### Response Time

800 ms time constant; six seconds (typical) within +/- 2% of final value over 25 to 100% of Full Scale

## Operating Specifications

### Gases

Most gases; check compatibility with wetted materials; specify when ordering

### Mass Flow Rates

0 to 10 sccm up to 0 to 50 slpm; flow ranges specified are for an equivalent flow of nitrogen at 760 mm Hg and 21°C (70°F); other ranges in other units are available (e.g., scfh or nm<sup>3</sup>/h)

### Gas Pressure

150 psig (10 barg) maximum;  
20 psig (1.4 barg) optimum

### Gas & Ambient Temperature

32 to 122°F (0 to 50°C)

### Leak Integrity

1 X 10<sup>-4</sup> atm cc/sec of helium maximum

### Pressure Drop

PRESSURE DROP	
Flow Rate	mbar
100 sccm	0.05
1 slpm	0.54
10 slpm	5.40
20 slpm	23
30 slpm	52
40 slpm	88
50 slpm	122

### Power Requirements

12 to 15 VDC, 15 VDC nominal, 100 mA maximum  
24 VDC optional

### Output Signal

Linear 0 to 5 VDC, 1000 ohms minimum load resistance  
Linear 4 to 20 mA, 500 ohms maximum loop resistance

### Display

3.5 digit LCD (0.6 in H); removable for remote mounting

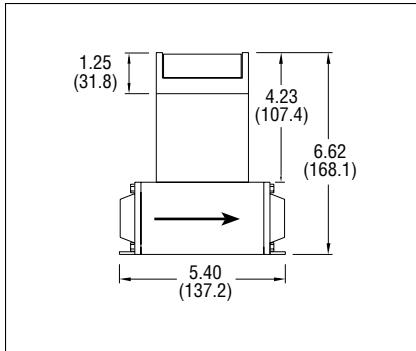
## Physical Specifications

### Wetted Materials

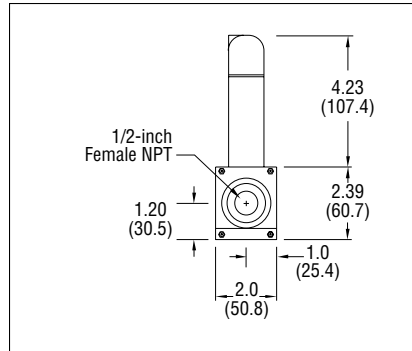
10% glass-filled Nylon<sup>®</sup> 6/6, 316 stainless steel, nickel plating,  
Viton<sup>®</sup> "O"-rings standard  
Neoprene<sup>®</sup> and 4079 Kalrez<sup>®</sup> "O"-rings optional

## Dimensional Specifications

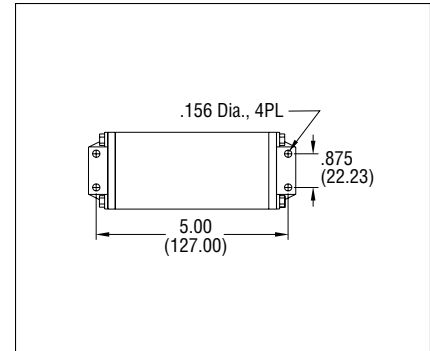
**Model 826—Side View**



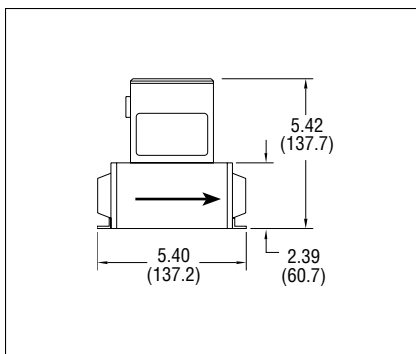
**Model 826—Outlet View**



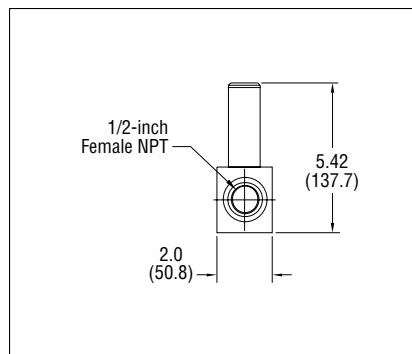
**Model 826—Bottom View**



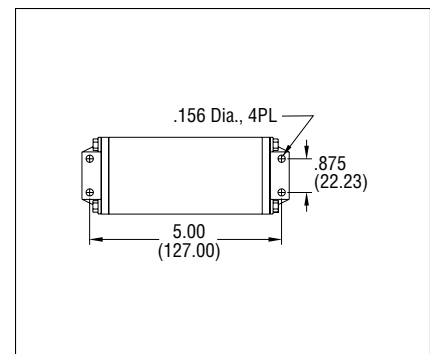
**Model 827—Side View**



**Model 827—Outlet View**



**Model 827—Bottom View**



All dimensions are inches and in parentheses are millimeters. Certified drawings are available on request.

## Performance Specifications

### Accuracy

+/- 1.5% of Full Scale including linearity over 15° to 25°C and 5 to 60 psia (0.3 to 4 bara)

### Repeatability

+/- 0.5% of Full Scale

### Temperature Coefficient

0.08% of Full Scale per °F (0.15% of Full Scale per °C), or better

### Pressure Coefficient

0.01% of Full Scale per psi (0.15% of Full Scale per bar), or better

### Response Time

800 ms time constant; six seconds (typical) to within +/- 2% of final value over 25 to 100% of Full Scale

## Operating Specifications

### Gases

Most gases; check compatibility with wetted materials; specify when ordering

### Mass Flow Rates

0 to 75 up to 0 to 175 slpm; flow range is for an equivalent flow of nitrogen at 760 mm Hg and 21°C (70°F); other ranges in other units are available (e.g., scfh or nm<sup>3</sup>/h)

### Gas Pressure

150 psig (10 barg) maximum;  
20 psig (1.4 barg) optimum

### Pressure Drop

15.0 mbar at 75 slpm  
67.8 mbar at 175 slpm

### Gas & Ambient Temperature

32 to 122°F (0 to 50°C)

### Leak Integrity

1 X 10<sup>-4</sup> atm cc/sec of helium maximum

### Power Requirements

12 to 18 VDC, 15 VDC nominal, 100 mA maximum  
24 VDC optional

### Output Signal

Linear 0 to 5 VDC, 1000 ohms minimum load resistance  
Linear 4 to 20 mA, 500 ohms maximum loop resistance

### Display

3.5 digit LCD (0.6 in H); removable for remote mounting

## Physical Specifications

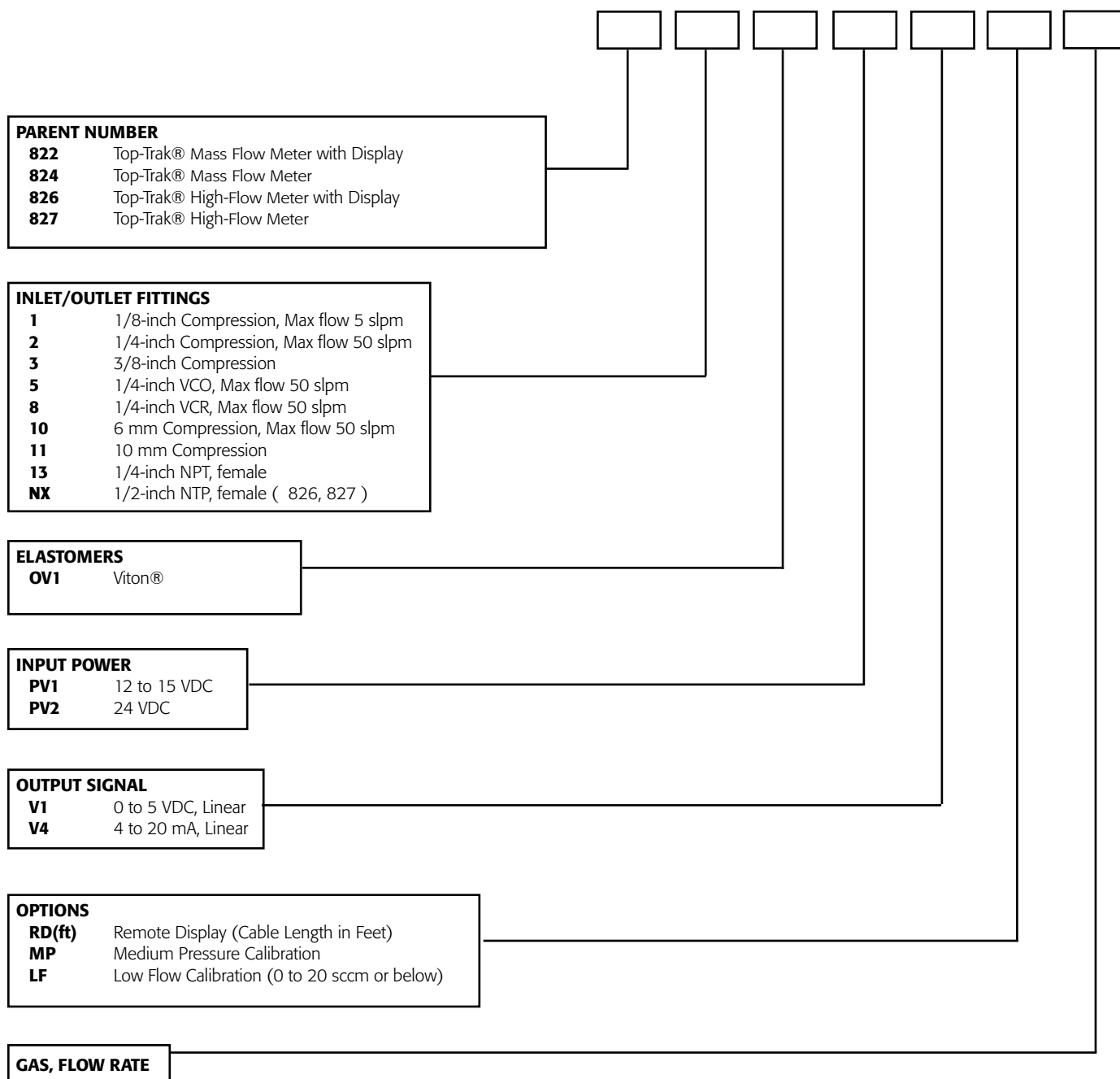
### Wetted Material

Anodized aluminum, 316 stainless steel, nickel plating, Viton® "O"-rings standard; Neoprene and 4079 Kalrez® "O"-rings optional

### STRAIGHT PIPE LENGTH REQUIREMENTS (In Number of Internal Diameters, D)

1/2 inch Female NPT, minimum, upstream	10 D
1/2 inch Female NPT, minimum, downstream	5 D

## Ordering the Model 822, 824, 826 or 827



**ACCESSORIES (Consult Factory)**

**CONNECTORS AND CABLES (Consult Factory)**

## High-Flow Gas Mass Flow Meters with Digital Display

### Features

- Direct monitoring of mass flow rate eliminates need for ancillary pressure and temperature sensing
- Digital display of mass flow rate on flow body or remote version for panel mounting
- Aluminum flow body accommodates most gases in flow rates up to 175 slpm
- Electronic output of mass flow rate available for control or data-logging
- Large, straight sensor tube reduces contamination and maintenance down-time
- Platinum sensor eliminates zero-drift and ensures long-term repeatability
- Primary standard calibration ensures starting point accuracy and NIST traceability
- CE Approved

# Top-Trak® Model 826/827



### Description

**S**ierra Instruments' Model 826/827 High-Flow Top-Trak® accurately measures the mass flow rate of most clean gases. Available in flow ranges from 0 to 75 slpm up to 0 to 175 slpm. Wetted surfaces are anodized aluminum with Viton® "O" rings, and all are corrosion-resistant.

The Model 826/827 measures and displays the mass flow rate directly in sccm or slpm. The instrument is available with or without a digital display, which is tilt-able over 180° for easy viewing and can be removed for remote panel mounting. A 0 to 5 VDC or 4 to 20 mA output signal linearly proportional to gas mass flow rate is provided for recording, data-logging or control. A 9-pin "D" connector for the output signal, input power, and remote display drive is standard.

Top-Trak's performance is unsurpassed: accuracy is 1.5% of Full Scale over a wide temperature and pressure range, and time response is two seconds to within 2% of final flow. This device is widely used in a variety of flow validation and calibration applications, by dozens of instrument OEMs, and in a multitude of laboratory, test and analytical operations.

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