

## Mass Flow Meters for Corrosive and Toxic Gases

### Features

- Direct monitoring of mass flow rate eliminates need for ancillary pressure and temperature sensing
- Stainless-steel flow body accommodates most corrosive and toxic gas applications
- Digital display of mass flow rate on flow body or in remote version for panel mounting
- Electronic output of mass flow rate 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



For information online...

[www.sierrainstruments.com](http://www.sierrainstruments.com)

# Top-Trak™ Model 822S



### Description

Sierra Instruments' Top-Trak™ Model 820S is designed for precise measurement of any process gas in ranges from 0 to 10 sccm to 0 to 500 slpm. Because all wetted materials are 316 stainless steel, the device accommodates most clean gases, including corrosives.

The Model 820S measures and displays the mass flow rate directly in any user defined gas mass units. The 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 linearly output signal proportional to gas mass flow rate is provided for recording, data-logging or control.

Top-Trak's outstanding accuracy is a function of a high-stability platinum flow sensor. This sensor has been continuously tested for over two years. The maximum deviation (drift) during that time was less than 0.5%. The sensor's large internal diameter also prevents the clogging and contamination often associated with capillary type thermal mass flow meters.

Top-Trak's broad range of sizes, electronics, process connections and input/output options provide flexibility, versatility and ultimately, the ideal instrument package for your specific application.

The information contained herein is subject to change without notice.

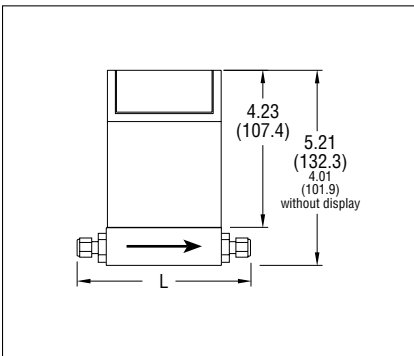
### Low Flow Body

FLOW RANGE		
	0 to 10 sccm	0-15 slm
Process Tubing	.25 (6.4)	.25 (6.4)

FITTING TYPE, .562-18 THREAD (1)			
	Compression .125 or .25	VCO(male) .25	VCR(male) .25
Dim. L	4.84 or 5.0 (122.9 or 127.0)	4.60 (116.8)	4.90 (124.5)

Note: (1) Metric fittings are available, consult factory.

### Model 820S-Side View

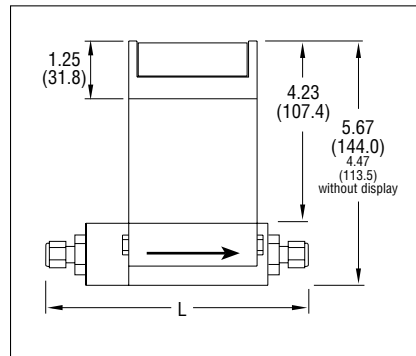


### Medium Flow Body

FLOW RANGE, slm		
	0 to 15	0 to 100
Process Tubing	.25 or .375 (6.4 or 9.5)	.25 or .375 (6.4 or 9.5)

FITTING TYPE, .562-18 THREAD (1)			
	Compression .25 or .375	VCO(male) .25 or .375	VCR(male) .25 or .375
Dim. L	6.27 or 6.39 (159.3 or 162.3)	5.81 or 6.25 (147.6 or 158.8)	6.13 or 6.43 (155.7 or 163.3)

### Model 820S-Side View

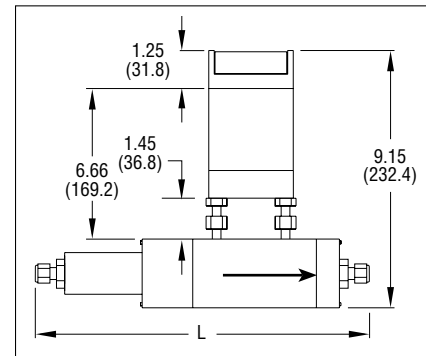


### High Flow Body

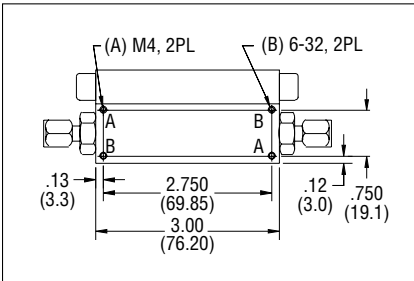
FLOW RANGE, slm		
	0 to 100	0 to 500
Process Tubing	.375 or .50 (9.5 or 12.7)	.50 (12.7)

FITTING TYPE, .75-16 THREAD (1)			
	Compression .375 or .50	VCO(male) .375	VCR(male) .375
Dim. L	11.89 or 12.17 (302 or 309.1)	11.75 (298.5)	12.19 (309.6)

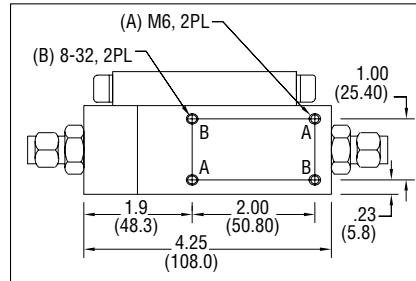
### Model 820S-Side View



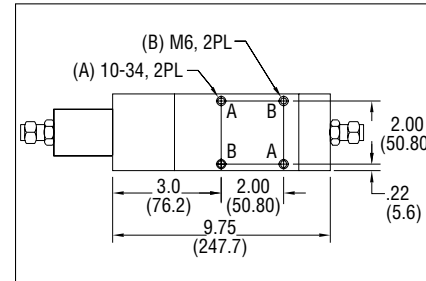
### Model 820S-Bottom View



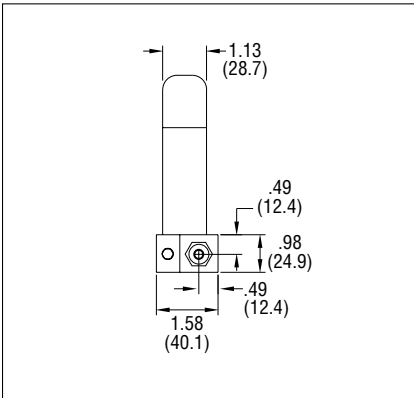
### Model 820S-Bottom View



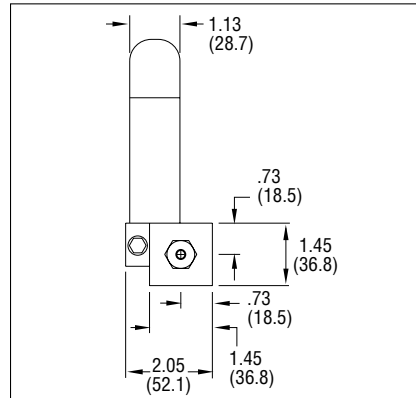
### Model 820S-Bottom View



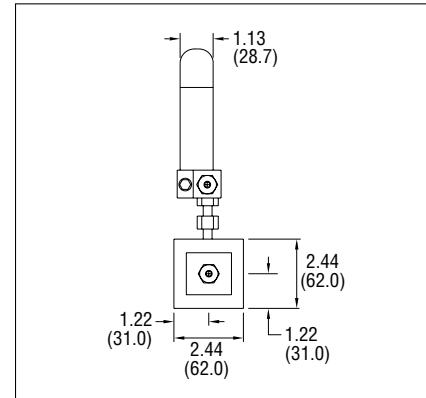
### Model 820S-Outlet View



### Model 820S-Outlet View



### Model 820S-Outlet View



## 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	± 7.5% of	± 9% of

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) 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 10 sccm to 0 to 500 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

500 psig (34 barg) maximum;  
1000 psig (69 barg) maximum available for low flow bodies only upon  
request, please consult factory.  
30 psig (2 barg) optimum

### Pressure Drop

820-S (low) . . . . . 0.08 psi (0.006 bar or 6 cm of water) differential max;  
15 slpm: 1.5 psi (0.10 bar or 105 cm of water)  
differential max  
820-S (med) . . . . . 0.08 psi (0.006 bar or 6 cm of water) differential max;  
100 slpm: 1.5 psi (0.10 bar or 105 cm of water)  
differential max  
820-S (high) . . . . . 0.08 psi (0.006 bar or 6 cm of water) differential max;  
300, 400 and 500 slpm: 2 psi (0.14 bar or 140 cm  
of water) differential max

### Gas & Ambient Temperature

32 to 122°F (0 to 50°C)

### Leak Integrity

5 X 10<sup>-9</sup> atm cc/sec of helium maximum

### Power Requirements

12 to 15 VDC, 15 VDC nominal, 100 mA maximum  
24 VDC optional, specify when ordering

### Output Signal

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

### Display (optional)

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

## Physical Specifications

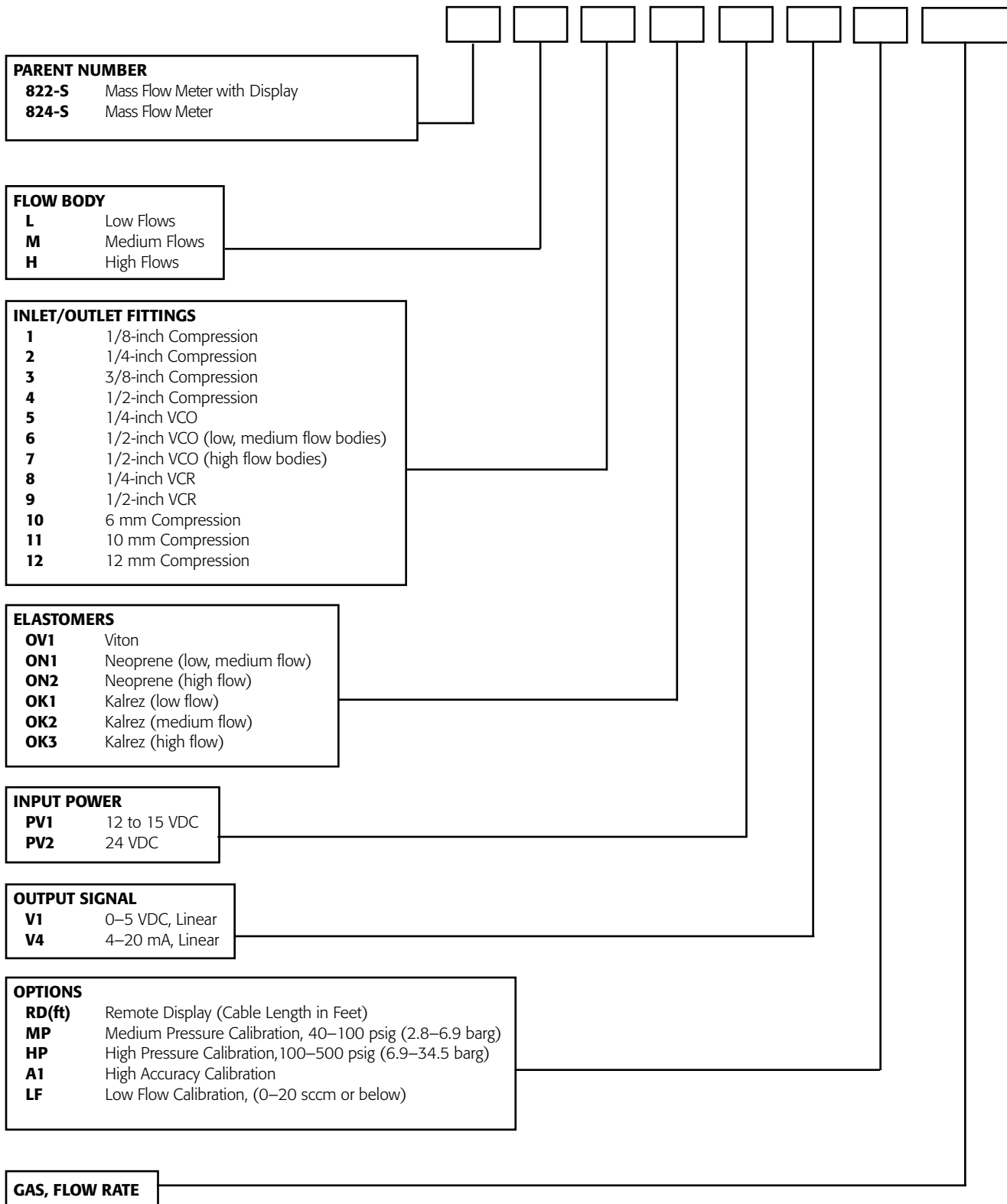
### Wetted Materials

316 stainless steel, Viton® "O"-rings standard  
Neoprene® and 4079 Kalrez® "O"-rings optional

### Options

See "Price List" for available CE options

## Ordering the Model 820-S



### ACCESSORIES (Consult Factory)