



# **Veriflo Flow Sentry**

## **Flow Verification System**



## Flow Verification System

Parker Hannifin Corporation's Veriflo Division presents the Flow Sentry. These unique devices provide an accurate flow measurement system that can be used to verify the flow rate of gas system flow controllers from 1 to 5000 sccm, N<sub>2</sub>.



## Features

- ▶ Flow Verification Accuracy  
1% of Set Point N<sub>2</sub>
- ▶ Repeatability  
See Curves
- ▶ Reports Gas Pressure, Temperature, and Flow Rate
- ▶ 3 Functions In One Component
- ▶ Compact. Able to Retrofit to Current Gas Systems

## Specifications

### Operating Conditions

Maximum Operating Pressure .....	110 psig
Proof Pressure .....	165 psig
Inlet Pressure	
Maximum .....	110 psig
Minimum .....	50 psig
Outlet Pressure Control Range .....	1 - 45 psia
Flow Verification Range*	
1 - 10 sccm N <sub>2</sub>	
10 - 100 sccm N <sub>2</sub>	
100 - 1000 sccm N <sub>2</sub>	
500 - 5000 sccm N <sub>2</sub>	
Ambient Temperature Range .....	0 - 50°C

### Functional Performance

Flow Verification Accuracy .....	1% Reading
Pressure Coefficient .....	0%
Temperature Coefficient .....	0%
Attitude Sensitivity .....	0%
Leakage	
External .....	<2 x 10 <sup>-10</sup> sccm He
Internal .....	<2 x 10 <sup>-6</sup> sccm He

### Electrical Interface

Command Signal .....	Digital
Output Signal .....	Digital
Input Power .....	+/- 15 vdc
Power Consumption .....	12 Watt Max
Electrical Connections	
Digital .....	9-pin 'D' (UDU9)

### Mechanical Connections

1/4" FaceSeal Male In/Out

### Wetted Surface

"VeriClean", Veriflo's High Purity type 316L Stainless Steel™

### Standards Compliance

CE

### Approximate Weight

1.75 lbs

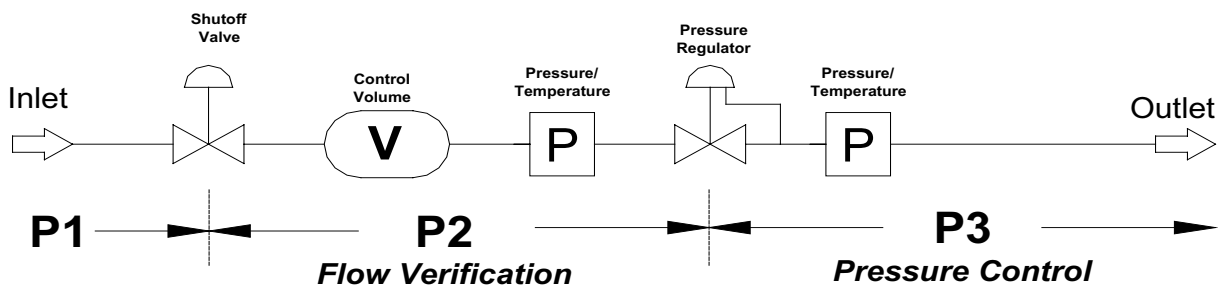
\*Extended flow available, contact factory.

## Construction

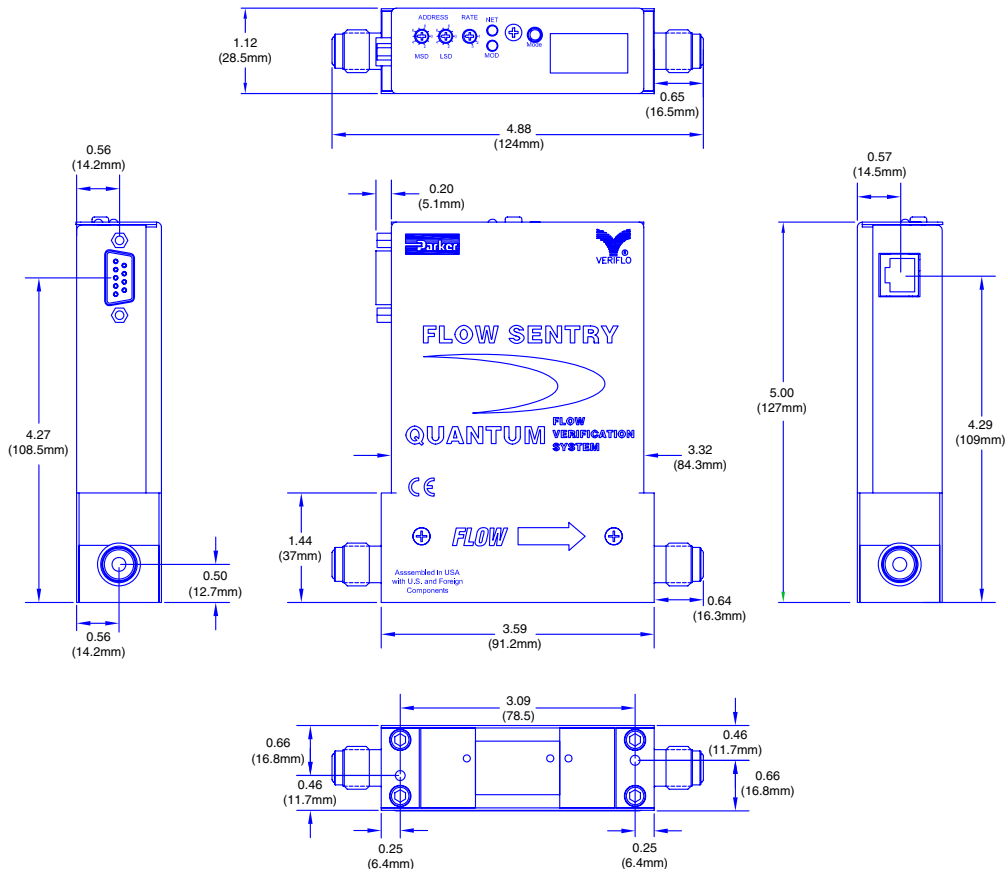
The **Flow Sentry** calculates the molar volume of a gas in an internal control volume. Because this volume remains unchanged after the factory calibration and the flow calculation uses the rate-of-decay method, there is no need to check this device against any other flow standard. The **Flow Sentry** is intended to provide pressure control and accurate flow verification to evaluate the flow accuracy of mass flow controllers in a semiconductor tool gas delivery system.

The **Flow Sentry** offers the benefits of flow verification and zero sensor drift.

The **Flow Sentry** is shown schematically below:

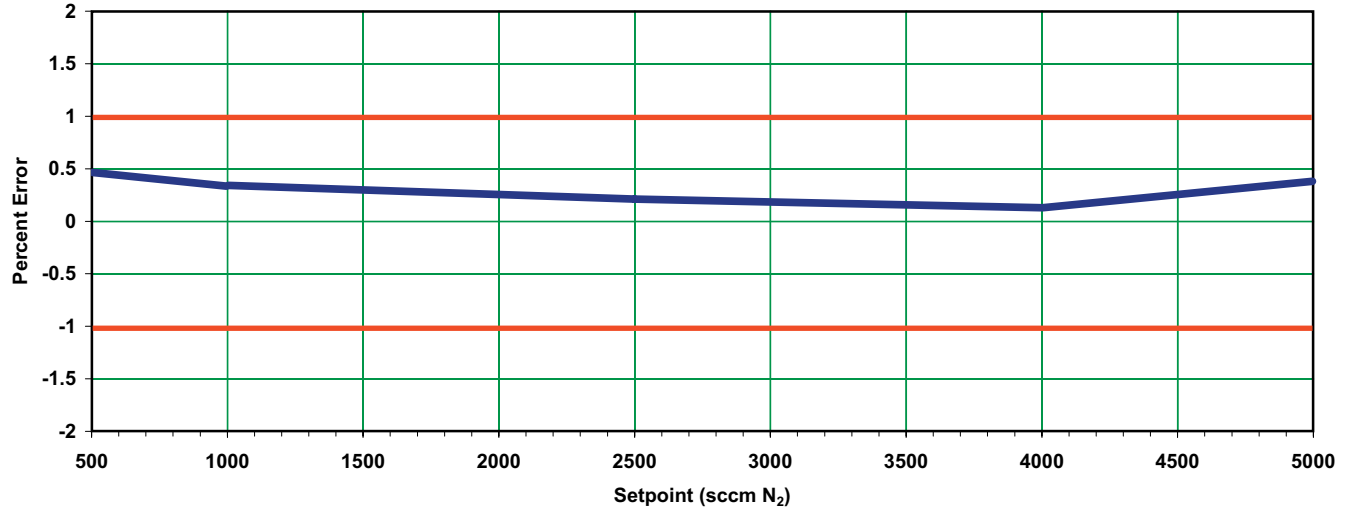


## Dimensional Data

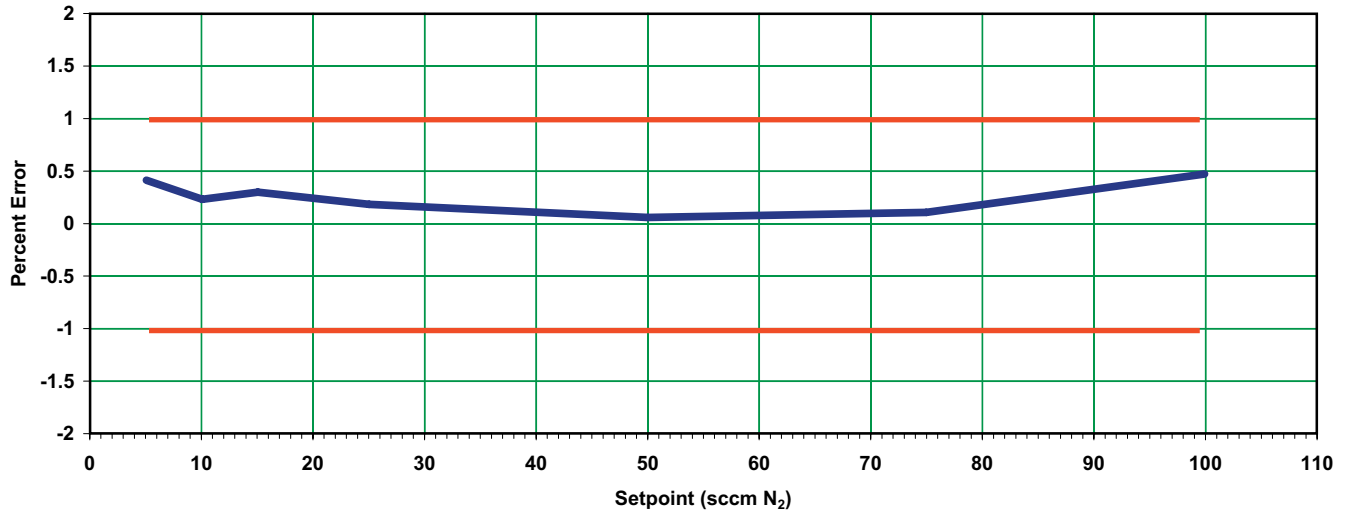


## Sample Data

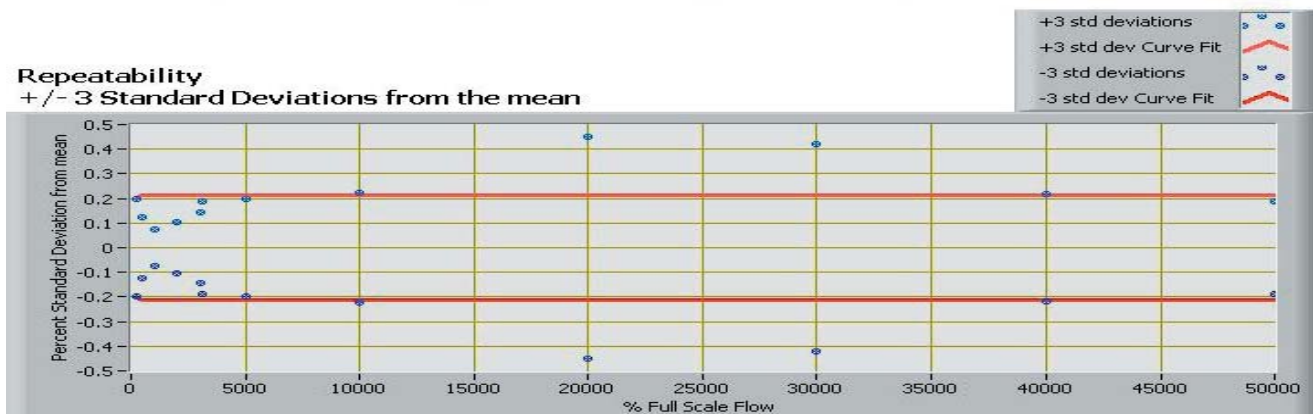
Flow Sentry  
Percent Error Relative To Flow  
5000 sccm



Flow Sentry  
Percent Error Relative To Flow  
100 sccm

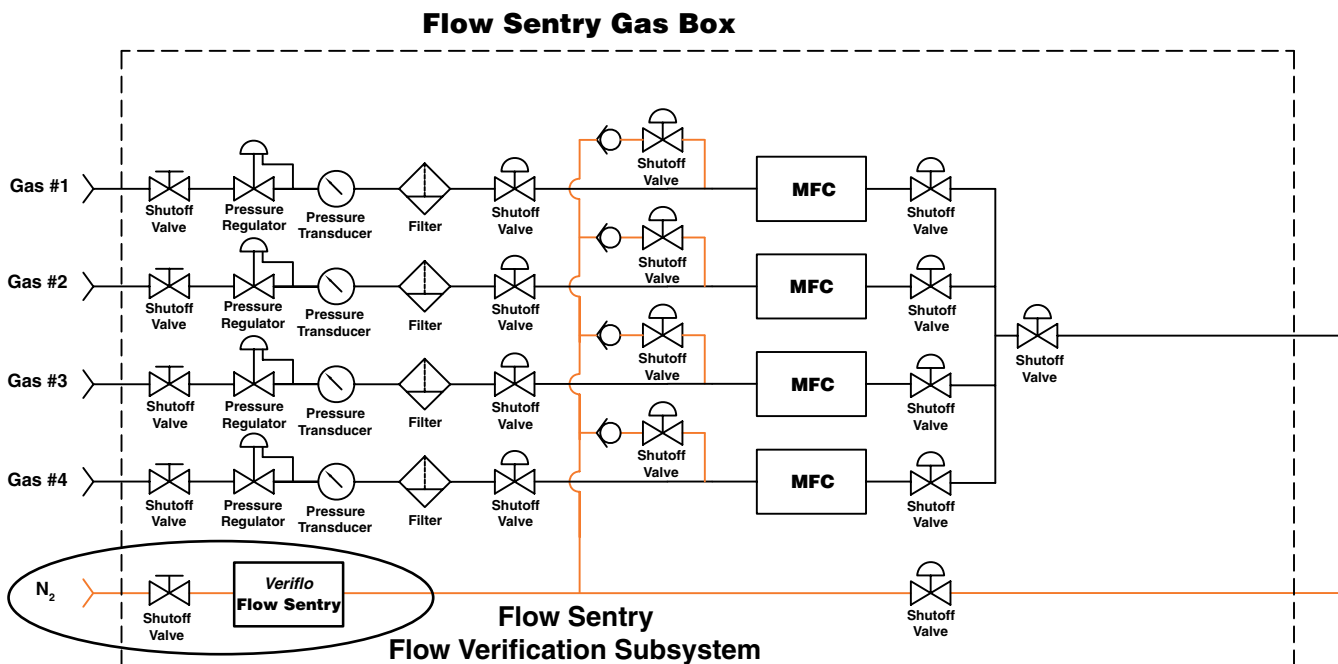
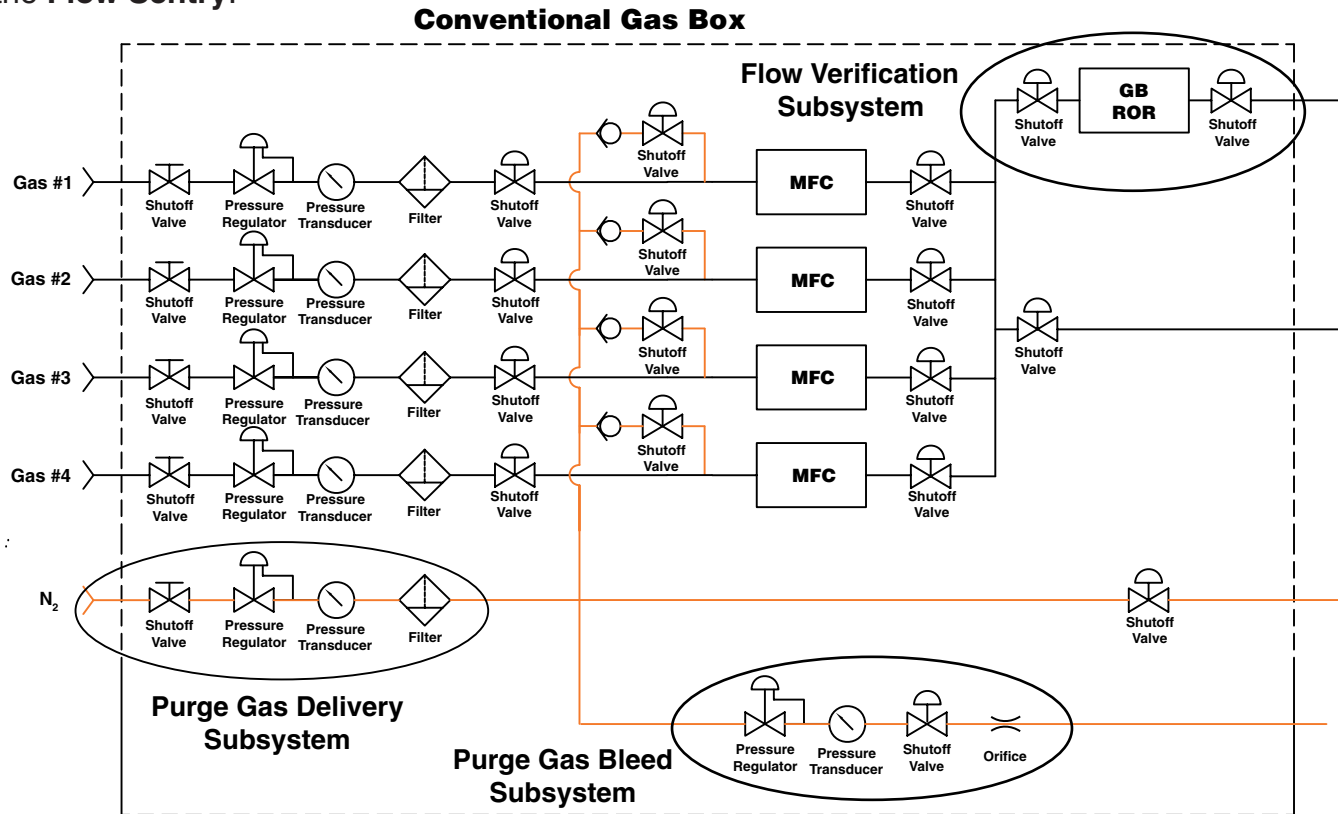


Repeatability  
+/- 3 Standard Deviations from the mean

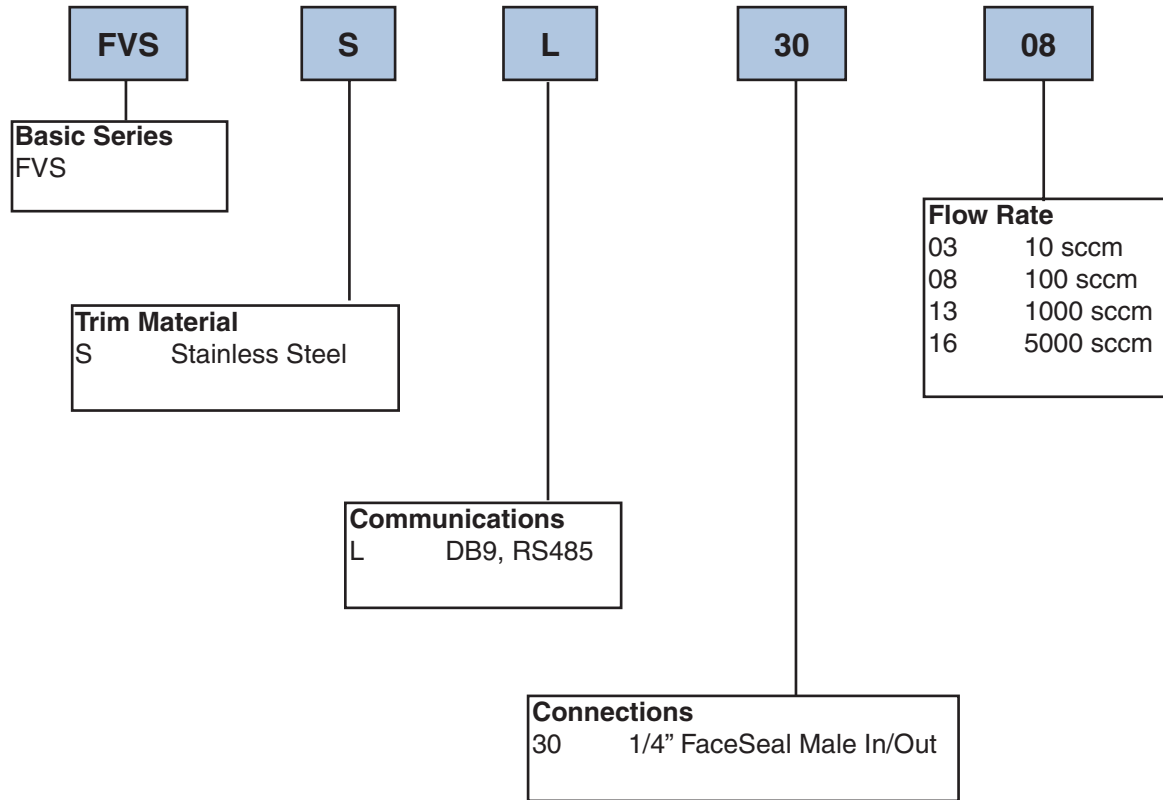


## Flow Sentry Value - Component Reduction

The **Flow Sentry** is designed to replace the purge gas delivery system as well as the Gas-Box-Rate-Of-Rise system (GBROR) used in current semiconductor gas boxes. Pressure regulation, pressure sensor, filtration, shutoff valves and Rate-Of-Decay flow verification are all included in the **Flow Sentry**.



## Ordering Information





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## **Parker Hannifin Corporation**

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