

# 2200 Series

## Mass Flow Instruments

### Precise & Affordable Mass Flow Control

The Porter 2200 Series Mass Flow Instruments bring a new dimension to affordable mass flow control. Series 2200 utilizes the same proven thermal sensor assembly, control circuitry and unique laminar flow elements found in the standard Porter mass flow products. Model 2201 includes the Porter EPC proportional control valve, the same valve assembly used by many analytical instrument manufacturers for accurate gas flow control. This results in mass flow instruments that are affordable without compromising precision, control integrity or reliability.



### Materials of Construction Specifications

<b>Body</b>	Aluminum
<b>Valve Base (Body)</b>	Aluminum
<b>Orifice</b>	Brass (Model 2201)
<b>Valve Components (Wetted)</b>	Stainless Steel (Model 2201)
<b>Elastomers (O-rings and Valve Seat)</b>	Buna N, EPDM, Neoprene or Viton®
<b>Process Connections</b>	Nickel-plated brass (inlet) and aluminum (outlet-integral to body)

Viton® is a registered trademark of DuPont Dow Elastomers L.L.C.

<b>Flow Capacity</b>	Maximum flows from 40 SCCM to 10 SLPM (based on nitrogen [N <sub>2</sub> ] @ 70°F & 5 PSIG)
<b>Response Time</b>	3 to 4 seconds
<b>Accuracy and Linearity</b>	±2% full scale
<b>Repeatability</b>	Within ±0.2% full scale at any constant temperature within operating temperature range
<b>Rangeability (Control Range)</b>	50:1 (2%-100% full scale)
<b>Ambient &amp; Operating Temperature Range</b>	-10°C to 70°C (+14°F to 158°F)
<b>Maximum Operating Pressure</b>	200 PSIG
<b>Temperature Coefficient</b>	±0.1%/°C
<b>Pressure Coefficient</b>	±0.1%/atmosphere typical using N <sub>2</sub>
<b>Setpoint Input/Flow Signal Output</b>	0-5 Vdc (2K ohm minimum load resistance for flow signal output)
<b>Power Supply Requirements (current consumption &lt;250 mAdc)</b>	+12 (±5%) or +15 (±10%) Vdc +24 Vdc (used for 4-20 mAdc PCB)
<b>Mounting Orientation</b>	Attitude insensitive
<b>Warm-up Time</b>	10 minutes
<b>External Electrical Connector</b>	Nine (9)-pin D-connector
<b>Inlet/Outlet Process Connections</b>	1/8" female NPT

### Contact Information:

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**Porter Instrument Division**  
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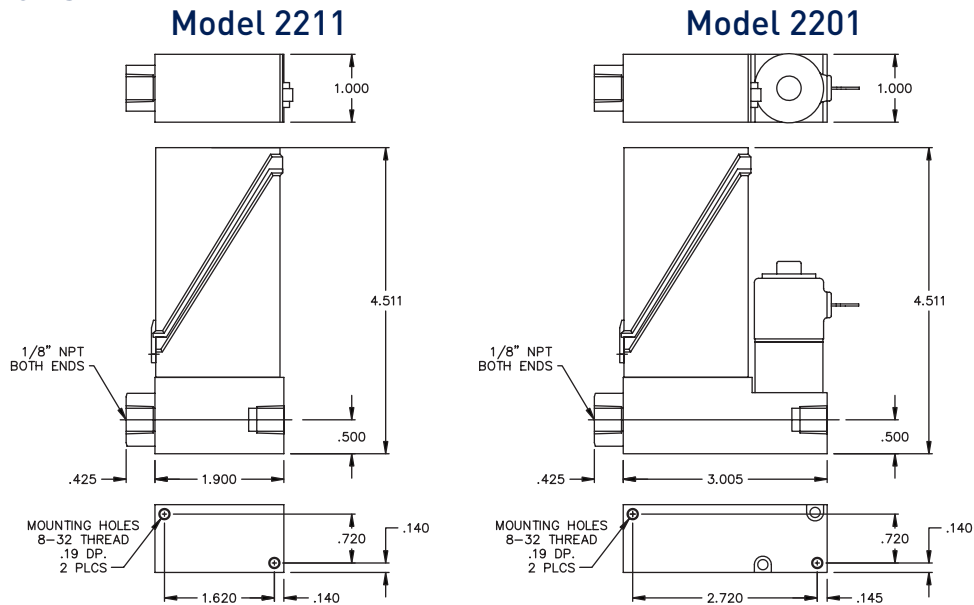
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# Dimensions



## Ordering Information

To order, please specify:

- Flow capacity
- Gas type
- Operating temperature
- Inlet (supply) pressure
- Outlet pressure
- Calibration standard (i.e. 0°C, 20°C, 21.1°C or 25°C)
- Elastomer material
- Additional accessories required (e.g., interface module, interconnecting cable assembly, etc.)

<b>2201</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>V</b>	<b>C</b>	<b>1</b>	<b>AA</b>
<b>Basic Model Number</b>	<b>Model Revision</b>	<b>Body Orifice* / Inlet Adapter Materials</b>		<b>Valve Flow Designator</b>	<b>Valve Flow Designator</b>	<b>Customer Application</b>	
2211 Mass Flowmeter 2201 Mass Flow Controller	A Factory Specified	A Aluminum/Brass/Brass (nickel-plated)		(Factory Specified, based on flow and pressures) Use X for model 2211	(Factory Specified, based on flow and pressures) Use X for model 2211	AA (Factory Specified)	
<b>Setpoint Signal* / Output Signal</b>		<b>Elastomer Material (O-Rings/Valve Seat*)</b>		<b>Inlet &amp; Outlet Process Connections</b>			
A 0-5 Vdc / 0-5 Vdc B 0-5 Vdc / 4-20 mAdc (sinking) (add \$50 for 4-20 mAdc output signal) H 4-20 mAdc / 4-20 mAdc (sourcing) (add \$50 for 4-20 mAdc output signal) J 4-20 mAdc / 4-20 mAdc (sinking) (add \$50 for 4-20 mAdc output signal)		B Buna N/Buna N E EPDM/EPDM N Neoprene/Neoprene V Viton®/Viton®		1 1/8" Female NPT 2 1/8" Compression Fitting 3 1/4" Compression Fitting			

\*Setpoint, valve orifice and seat applicable to Model 2201 only

**Example: 2201AAAVC1AA**  
This example part number describes a 2201 model mass flow controller, factory revision A, with 0-5 Vdc setpoint and output signals, Viton® elastomers and 1/8" female NPT inlet and outlet process connections.

### ⚠ WARNING – USER RESPONSIBILITY

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

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