

P2000i SERIES PORTER

DESIGN FEATURES

- Piezoelectric Control Valve
- Metal Seal Construction
- 1/8" VCR® or Swagelok® Connections
- Compact Size
- Fast Response
- 316L/316 SS Construction
- +/- 1% Full Scale Accuracy Including Linearity
- Patent Pending Design



The **PORTER P2000i Series** Liquid Mass Flow Controller is designed to address the need for fast, precise control of low liquid flow rates. The compact package size of the **P2000i Series** simplifies system integration. Clean room assembly and all metal seal construction ensure high purity and leak integrity. A unique thermal measurement system yields accurate measurement with less than a 5°C increase in fluid temperature. Exclusive control circuitry, combined with a piezo-electric-actuated control valve, provides fast, stable control at low flow rates. The **P2000i Series** also includes a Liquid Mass Flowmeter for applications where flow control is not a necessity.

Swagelok®, VCR® - Swagelok Co.

Liquid Mass Flow Controller

SPECIFICATIONS

Response Time: 2 seconds to within 2% of setpoint
Accuracy and Linearity: ± 1% full scale
Repeatability: ± 0.2% full scale at any constant temperature
Rangeability (Control Range): 50:1 (2%-100% full scale) (accuracy & control)
Maximum Allowable Operating Temperature: 40° C (104° F)
Maximum Allowable Operating Pressure: 125 psig
Temperature Coefficient: < 0.1% / °C
Setpoint Input/Flow Signal Output: 0-5 Vdc (2k ohm minimum load resistance for flow signal output)
Power Supply Requirements (Current Consumption < 200 mA dc):
 + 15 (± 10%) Vdc

Leak Integrity: 1 x 10⁻⁹ atm. cc/sec.He
Warm-up Time: 10 minutes
Process Connections: 1/8" Male VCR or 1/8" Swagelok
Materials of Construction – (wetted surfaces):
 Body – 316L stainless steel
 Sensor Assembly – 316L stainless steel
 Valve Components – 302 and 316L stainless steel
 O-rings – 316L stainless steel
Control Valve: Normally open piezoelectric-actuated
External Electrical Connector: Nine (9)-pin D-connector
Internal Volume: < 0.71 ml
Weight: Less than 1.5 lbs.

Flow Capacity: Following are the available flow ranges based on isopropyl alcohol (IPA). To determine the flow range for process fluids other than IPA, multiply the IPA flow range by the appropriate correction factor listed below.

IPA Flow Ranges (in ml/min):

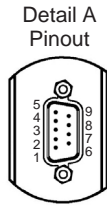
.003-0.14
 .008-0.40
 .020-1.00
 .070-3.50
 .150-7.50
 .220-11.0

Correction Factors for Process Fluids other than IPA:

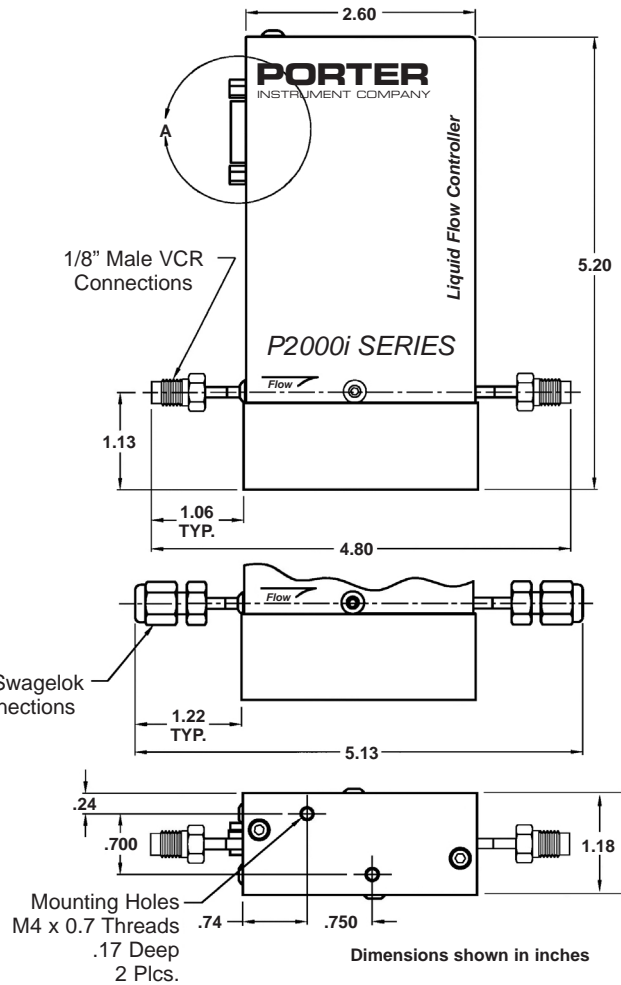
Liquid	Correction Factor
CupraSelect®	1.164
Hexane	1.492
Octane	1.532
OMCATS	1.927
TDEAT	1.258
TEOS	1.357
TMB	1.156
TMP	1.413
Water	0.492

Contact Porter Instrument to size fluids not listed or when operating parameters are questionable.

CupraSelect® - Schumacher



PIN NO.	FUNCTION
1	Reference Voltage
2	Flow Signal
3	Setpoint
4	Signal Common
5	Valve Voltage Monitor
6	No Connection
7	Power In
8	Power Common
9	Cable Shield



P2000i SERIES LIQUID MASS FLOW MODEL NUMBER CODE

FIELD

1 - 7	8	9	10	11	12
Basic Model Number	Model Revision	Input/Output Signal	Fitting Size & Type	Flow Designator - ml/min Isopropyl Alcohol	Assembly/Test Procedures
P2000iC (Flow Controller)	A. Production Release	A. 0-5 Vdc/0-5 Vdc	2. 1/8" Swagelok	A. 0.14	A. Factory Standard
P2000iM (Flowmeter)			3. 1/8" Male VCR	B. 0.40	
				C. 1.00	
				D. 3.50	
				E. 7.50	
				F. 11.0	
Example: Model P2000iCAA3EA consists of: P2000iC = Model P2000iC Flow Controller A = Current Production Release A = 0-5 Vdc Input and Output Signal 3 = 1/8" Male VCR Fittings E = 7.50 ml/min Isopropyl Alcohol Flow Designator A = Factory Standard Assembly and Test Procedures					

ORDERING INFORMATION

To Order, Please Specify:

1. Model Number
2. Fitting Type
3. Flow Capacity
4. Liquid Type – Include Density, Heat Capacity, Thermal Conductivity, Viscosity and Boiling Point
5. Operating Temperature
6. Upstream Pressure
7. Downstream Pressure (not required for flowmeters)
8. Additional Accessories Required