Hydraulik - Pneumatik

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Mass Flow Control D2000i Serie

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KATALOG

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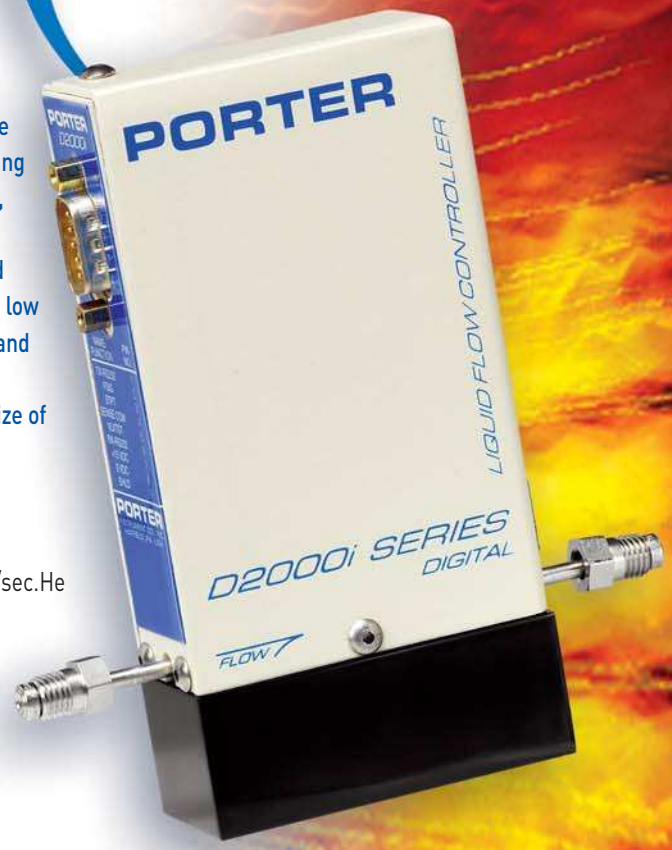
D2000i Series
Mass Flow Controller



Fast Response Liquid Flow Controller

- < 1 second Response Time
- ±1% of Reading Accuracy
- Piezoelectric Control Valve
- Metal Seal Construction
- Compact Size
- 1/8" Face Seal or Compression Fitting

The Porter D2000i Series Liquid Mass Flow Controller is designed to address the need for fast, precise control of liquid precursors in semiconductor manufacturing processes, as well as various applications in the biotechnology, pharmaceutical, chemical, petrochemical and surface treatment industries. Closed-loop digital control circuitry, combined with the integral proportional piezoelectric-actuated control valve, offer response times of less than one second and stable control at low flows. Clean room assembly and all metal seal construction ensure high purity and leak integrity. A unique laminar bypass and sensor assembly provide accurate measurement with only a 5°C rise in fluid temperature. The compact package size of the D2000i Series simplifies system integration. A D2000i Series Liquid Mass Flowmeter is available for applications requiring flow monitoring only.

Specifications

Response Time: <1 second to within 5% of rate (up to 6 stored valve jump voltages)

Accuracy and Linearity: ± 1% of reading

Repeatability: <±0.2% of rate at any constant temperature within operating temperature range

Rangeability (Control Range): 20:1 (5%-100% full scale) (accuracy & control)

Ambient and Operating Temperature Range: -10 to 40°C (+14 to 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 output signal)

Power Supply Requirements: (Current Consumption < 200 mAdc): +15 (±10%) Vdc

Leak Integrity: 1 x 10^{-9} atm. cc/sec.He

Warm-up Time: 20 minutes

Materials of Construction-(wetted surfaces):
Body – 316L stainless steel
Sensor Assembly – 316L stainless steel
Valve Components – 316L stainless steel
O-rings – 316L stainless steel

Control Valve: Normally open piezoelectric-actuated

External Electrical Connector: Nine (9)-pin D-connector

Process Connections: 1/8" male metal gasket face seal or 1/8" compression fitting

Internal Volume: < 1 ml

Mounting Orientation: Horizontal (±5°)

Weight: <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.

CupraSelect® – Schumacher

IPA Flow Ranges (in ml/min):
.007 - 0.14
.020 - 0.40
.050 - 1.00
.175 - 3.50
.375 - 7.50
.650 - 13.00

Correction Factors for Process Fluids other than IPA:	
Liquid	Correction Factor
CupraSelect	1.164
Hexane	1.492
Octane	1.532
OMCTS	1.927
TDEAT	1.258
TEOS	1.583
TMB	1.156
TMP	1.413
Water	0.492

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

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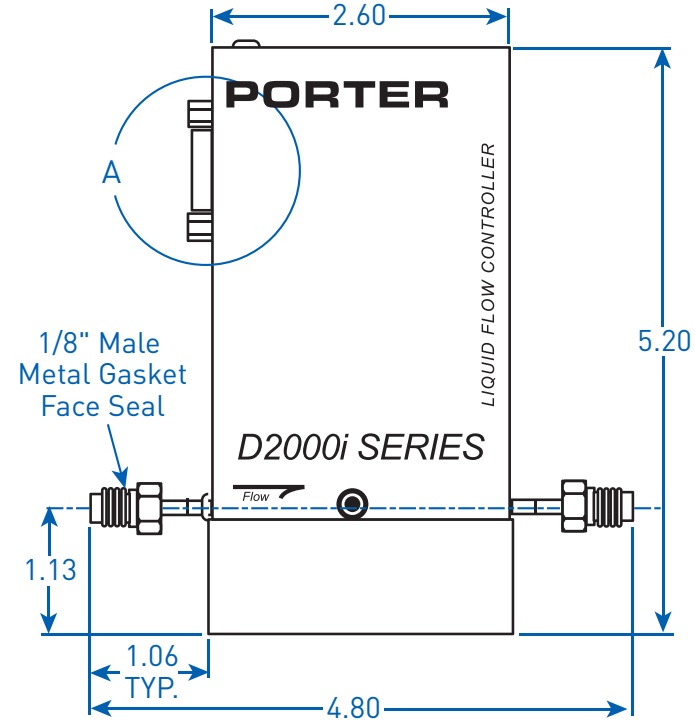
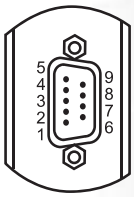
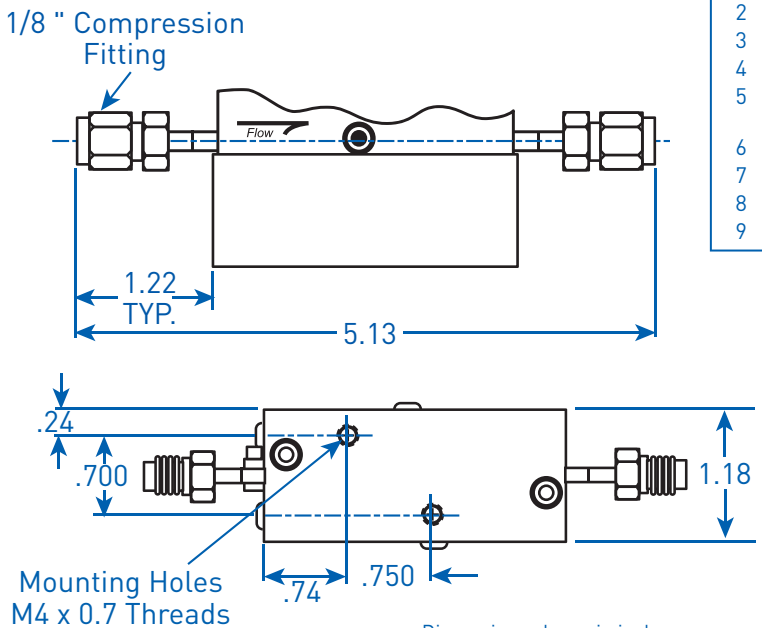
Mass Flow Controller



Detail A
Pinout



PIN NO.	FUNCTION
1	Transmit RS232
2	Flow Signal
3	Setpoint
4	Signal Common
5	Valve Voltage Monitor
6	Receive RS232
7	Power In
8	Power Common
9	Cable Shield



Dimensions shown in inches
Specifications subject to change

Ordering Information

Model Number and Description

Example: D 2 0 0 0 i C A A 3 E A

Basic Model
D2000iC (Flow Controller)
D2000iM (Flowmeter)

Model Revision
A - Production Release

Input/Output Signal
A - 0-5 Vdc/0-5 Vdc

Fitting Size & Type
2 – 1/8" Compression Fitting
3 – 1/8" Male Metal
Gasket Face Seal

Flow Designator-
ml/min Isopropyl Alcohol
A - 0.14
B - 0.40
C - 1.00
D - 3.50
E - 7.50
G - 13.0

Assembly/Test Procedures
A - Factory Standard

Example:
Model D 2 0 0 0 i C A A 3 E A

D2000iC = Model D2000i Flow Controller
A = Production Release
A = 0-5 Vdc/0-5 Vdc
3 = 1/8" Male Face Seal
E = 7.50 ml/min Isopropyl Alcohol Flow Designator
A = Factory Standard Assembly/Test Procedures

To order, specify:

- Model Number
- Fitting Type
- Flow Capacity
- Liquid Type - Include: Density, Heat Capacity, Thermal Conductivity, Viscosity, and Boiling Point
- Operating Temperature
- Upstream Pressure
- Downstream Pressure (not required for flowmeters)
- Additional Accessories Required

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