**FMA-A2000 Series**

- ±1% Accuracy
- Linear Analog Output
- Low Cost
- Thermal Technology
- For Flow Rates Up to 100 SLM
- Power Supply Included

The FMA-A2000 Series electronic mass flow meters/controllers provide high performance, versatility, and state-of-the-art design in one compact package. The FMA-A2000 uses capillary-type thermal technology to directly measure mass flow of gases. No temperature, pressure, or square root corrections are required. The FMA-A2300/2400 Series comes with an LCD display, and all models have linear 0 to 5 Vdc and 4 to 20 mA output.

The FMA-A2000 measures the mass flow rate of gases in 24 ranges from 0 to 100 SLM. For the complete listing, refer to the range table on page D-20. The FMA-A2000 Series is compatible with most non-corrosive gases. The user is advised to check the wetted materials against gas compatibility.

OMEGA’s mass flow controllers use an internal electromagnetic proportional valve to control the mass flow rate. A command signal can be supplied either by the internal setpoint pot or by a 0 to 5 Vdc external source.
SPECIFICATIONS

Accuracy: ±1% of full scale including linearity
Repeatability: ±0.15% full scale or better
Turndown Ratio: 100:1
Response Time: 5 seconds
Gas Ambient Temperature: 0 to 50°C (32 to 122°F)
Temperature Coefficient: 0.05% full scale per 1°C or better
Pressure Coefficient: 0.01% full scale per psi or better

Minimum Pressure Requirements:
- Meters: 1 inch of H2O
- Controllers Up to 1 SLM: 1 psi
- Controllers Greater than 20 SLM: 20 psi

Differential Pressure for Mass Flow Controllers:
- <5 LPM, 5 to 50 psi standard
- >5 LPM, 20 to 40 psi standard

Maximum Gas Pressure:
- Polyacetal: 250 psig
- 316 SS: 500 psig

Leak Integrity:
1 x 10^-6 cc/min of He or better

Wetted Parts:
- Standard: Polyacetal, FKM O-rings
- Optional: 316 SS, FKM O-rings

Connections:
1/4 FNPT standard; 1/4” compression fitting for all stainless steel models

Input/Output Connection:
9-pin sub-D connector

Control Signal:
0 to 5 Vdc

Control Valve:
Electromagnetic normally closed

Output Signal:
Linear 0 to 5 Vdc, 1000 Ω min load, 4 to 20 mA, 500 Ω loop resistance

Mounting Threads:
- 316 SS Body: 3/4” 6/32” thread
- Polyacetal: Self tap #4/6 screw

Input Power:
- Meters: 24 Vdc @ 150 mA
- 115 Vac, 220 Vac with AC adaptor
- Controller: 24 Vdc @ 300 mA
- 115 Vac, 220 Vac with AC adaptor

Dimensions: See drawing

Weight: 1.25 kg (2.75 lb) with power supply

To Order

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>FMA-A21(*)</td>
<td>Mass flow meter without display, ranges 0 to 10 SCCM to 0 to 100 SLM</td>
</tr>
<tr>
<td>FMA-A22(*)-SS-(**)</td>
<td>Mass flow controller without display, with control valve, ranges 0 to 10 SCCM to 0 to 50 SLM, 316 SS body</td>
</tr>
<tr>
<td>FMA-A23(*)</td>
<td>Mass flow meter with display, ranges 0 to 10 SCCM to 0 to 100 SLM</td>
</tr>
<tr>
<td>FMA-A24(*)-SS-(**)</td>
<td>Mass flow controller with display and control valve, ranges 0 to 10 SCCM to 0 to 50 SLM, 316 SS body</td>
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Compatible Meters; DPF50, DPF60, DPF300, DPF5500, DPF403. Visit us online for more details.

Accessories

<table>
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<th>Model No.</th>
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<tbody>
<tr>
<td>FMA-200PWA</td>
<td>Replacement socket plug-in power supply for 90 to 260 Vac</td>
</tr>
<tr>
<td>SSSLK-14-14</td>
<td>316 SS compression fitting 1/4 NPT for 1/4” OD tube</td>
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Comes complete with operator’s manual, 9-pin sub-D connector, power supply and NIST calibration (5 data points).

* Insert range code from table at top of page to complete model number.

For optional 316 stainless steel body, add suffix “-SS” to model number for additional cost (3% compression fittings standard). SS body standard on FMA-A22 and FMA-A24 controllers.

Note: All controller flow ranges specified are for nitrogen or air at 20 psig; when used for other gases, a correlation factor is needed to determine the flow rate.

** Specify gas, inlet/outlet pressure, temperature.

For 10-point NIST calibration certificate, add suffix “-NIST10” to model number for additional cost.

Ordering Examples: FMA-A2316, mass flow meter with display, calibrated for nitrogen at 20 psi inlet, room temperature for 0 to 45 SLM, ∆P: 5 to 20 psi.

FMA-A2102-SS, 316 stainless steel body mass flowmeter without display, 0 to 50 SCCM.