

GAS MASS FLOW METERS AND CONTROLLERS

For Clean Gases

With Optional Integral Display

TRODEKS®

FMA-A2000 Series



Standard

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



FMA-A2417 with display,
shown smaller than actual size.

The FMA-A2000 Series electronic mass flowmeters/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 x10⁻⁶ cc/min of He or better

Wetted Parts:

Standard: Polyacetal, FKM O-rings

Optional: 316 SS, FKM O-rings

Connections: ¼ FNPT standard;

¼" 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: ⅝" 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

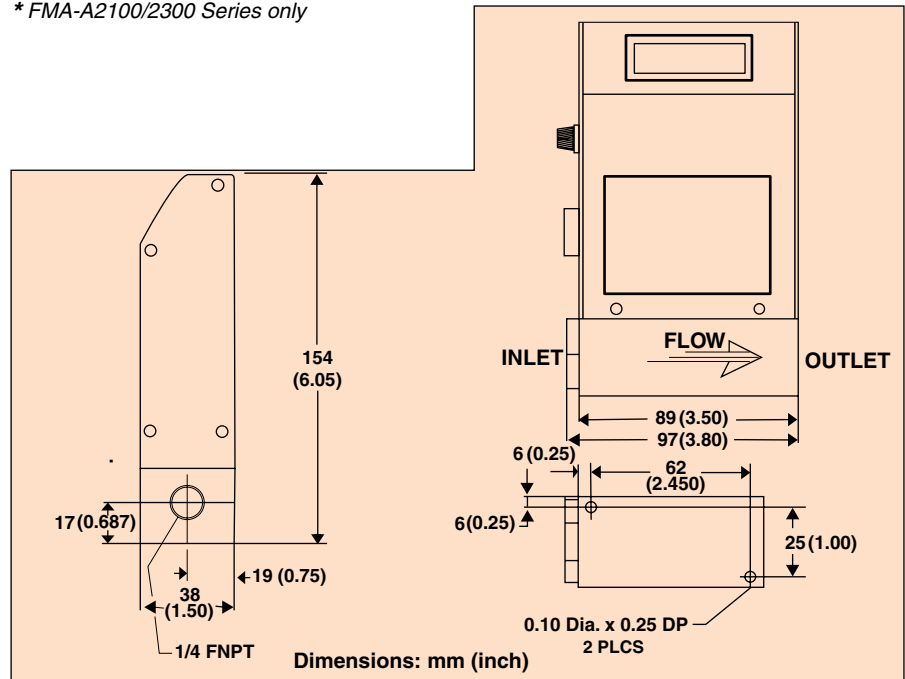
Weight: 1.25 kg (2.75 lb)

with power supply

Range Table

Code	SCCM	Code	SLM C	Code	SLM
00	0 to 10	06	0 to 1	14	0 to 35
01	0 to 20	07	0 to 2	15	0 to 40
02	0 to 50	08	0 to 5	16	0 to 45
03	0 to 100	09	0 to 10	17	0 to 50
04	0 to 200	10	0 to 15	18	0 to 55*
05	0 to 500	11	0 to 20	19	0 to 60*
—	—	12	0 to 25	20	0 to 65*
—	—	13	0 to 30	21	0 to 70*
—	—	—	—	22	0 to 75*
—	—	—	—	23	0 to 100*

* FMA-A2100/2300 Series only



To Order

Model No.	Description
FMA-A21(*)	Mass flowmeter without display, ranges 0 to 10 SCCM to 0 to 100 SLM
FMA-A22(*)-SS(**)	Mass flow controller without display, with control valve, ranges 0 to 10 SCCM to 0 to 50 SLM, 316 SS body
FMA-A23(*)	Mass flowmeter with display, ranges 0 to 10 SCCM to 0 to 100 SLM
FMA-A24(*)-SS(**)	Mass flow controller with display and control valve, ranges 0 to 10 SCCM to 0 to 50 SLM, 316 SS body

Compatible Meters; DPF50, DPF60, DPF300, DPF5500, DPF403. Visit us online for more details.

Accessories

Model No.	Description
FMA-200PWA	Replacement socket plug-in power supply for 90 to 260 Vac
SSLK-14-14	316 SS compression fitting 1/4 NPT for 1/2" OD tube

Comes complete with operator's manual, 9-pin sub-D connector, power supply and NIST calibration (no 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 (¼" 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 5-point NIST calibration certificate, add suffix "-NIST5" to model number, no additional charge. For 10-point NIST calibration certificate, add suffix "-NIST10" to model number for additional cost.

Ordering Examples: FMA-A2316, mass flowmeter with display, calibrated for nitrogen at 20 psig inlet, room temperature for 0 to 45 SLM. ΔP: 5 to 20 psi.

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



Tubing and fittings of various materials and styles are available. Visit us online for details.