

HIGH FLOW-RATE GAS MASS CONTROLLERS AND METERS *For Clean Gases*

FMA-700A/800A Series
Starts at

\$982



Optional†

- ✓ ±1% Accuracy (Up to 500 SLM), ±0.2% Repeatability
- ✓ Low Cost
- ✓ For Flow Rates Up to 1000 SLM
- ✓ Normally Closed Valve for Added Safety
- ✓ Fast Response
- ✓ Altitude Insensitive
- ✓ Removable Sensing Tube Assembly
- ✓ Oxygen Cleaned Standard

The OMEGA® FMA-700A and 800A Series mass flowmeters and controllers extend the range of mass flow measurement and control from 0 to 5 SCCM to 1000 SLM with 50:1 turndown capability. Like all mass flow sensors, these new units measure mass flow rate directly, without the need for temperature or pressure corrections.

The FMA-700A and 800A Series work on the heated bypass sensor tube principle shown in Figures 2 and 3 and described on pages D-6 and D-7 of the mass flow technical section. The units feature corrosion-resistant stainless steel and FKM construction and a 325 mesh (44 micron) inlet screen to prevent contamination of the sensor. The flow body and valve leak less than 10⁻⁹ atm-cc/sec of helium. In the event of a power failure, the valve is normally closed.

The FMA-78P2 and FMA-78P4 are 2- and 4-channel readout/power supply/setpoint control electronic boxes for use with FMA-700A and 800A Series mass flow sensors. The units feature 000.0 to 102.4% of full scale display, a ±15 Vdc power supply, setpoint potentiometers (for mass flow controllers), power cord, and an electrical connector for hookup of the electronics boxes' outputs.

† Refer to footnote on page D-34 for NIST calibration ordering information.



FMA-775A, \$2998.

FMA-760A, \$1406.

Mating D connector included with all models. All models shown smaller than actual size.

The FMA-78P Series rate indicators/electronics packages also have back-panel blend control switches that select independent/slave operations for each channel (channel 1 is the master), and the units include a 0 to 5 Vdc output for each channel for chart recording, data acquisition, or computer interfacing.

SPECIFICATIONS

Accuracy: ±1% full scale (up to 500 SLM), ±2% full scale for 750 to 1000 SLM

Repeatability: ±0.2% full scale

Turndown Ratio: 50:1

Response Time: 2.0 seconds

Analog Setpoint:

0 to 5 Vdc: Voltage output models

4 to 20 mA: Current output models

Linear Output:

Standard: 0 to 5 Vdc into 2000 Ω min.

Optional: 4 to 20 mA, into 200 to 750 Ω

Max Pressure:

FMA-760A to FMA-772A: 1000 psig

FMA-773A to 778A: 200 psig

FMA-800A: 1500 psig standard, 3000 psig optional

Pressure Coefficient: 0.1% typical

Differential Pressure:

FMA-800A Series: 0.5 psid

FMA-700A Series: No less than 20% of supply pressure, depending on parameters

Temperature Range:

(Gas and Ambient):

-10 to 70°C (14 to 158°F)

Temperature Coefficient:

0.05% full scale/°C

Wetted Parts: 316 SS body and sensing tube assembly, FKM elastomers, other materials available

POWER

Voltage Output Models: 12 Vdc (±5%) or 15 Vdc (±10%)

mA Output Models: 15 Vdc (±5%) or 24 Vdc (±15%)

Current Consumption:

FMA-800A: <45 mA DC

FMA-700A: <250 mA DC

Dimensions: mm (in); Weight: kg (lb)

Model No.	Height	Length	Width	Weight
FMA-760A	115 (4.5)	123 (4.8)	25 (1)	0.7 (1.5)
FMA-761A to 770A	115 (4.5)	128 (5.0)	25 (1)	0.7 (1.5)
FMA-771A & 772A	131 (5.1)	161 (6.4)	44 (1.8)	1.8 (4)
FMA-773A & 774A	134 (5.3)	184 (7.3)	48 (1.9)	2.4 (5.2)
FMA-775A to 778A	150 (5.9)	216 (8.5)	64 (2.5)	5 (11)
FMA-860A	115 (4.5)	102 (4.0)	25 (1)	0.5 (1)
FMA-861A to 870A	115 (4.5)	102 (4.0)	25 (1)	0.5 (1)
FMA-871A to 874A	131 (5.1)	116 (4.6)	44 (1.8)	0.9 (2)
FMA-875A & 876A	150 (5.9)	151 (5.9)	64 (2.5)	2.4 (5.3)
FMA-877A & 878A	150 (5.9)	185 (7.3)	64 (2.5)	3 (6.6)

RATE INDICATORS

Electronics For Completing The System



When a panel meter system is required, order your mass flow sensor with the following components:

Power Supply (FPW-15):
See Accessories table below

Display and Alarm (DPF64):
See page M-21

Totalization (DPF65 or DPF66):
See page M-21

FMA-78P4 readout/power supply electronics, \$1844, shown smaller than actual size. FMA-78C10, 3 m (10') interconnecting cable, sold separately, \$89.

Compatible Meters (Refer to Section M):
DPF50 (page M-9), DPF60 (page M-21), DPF300 (page M-29), iSeries (page M-35), DPF403 (page M-11).

SPECIFICATIONS (FMA-78P Series)

Power:

117 Vac \pm 10%, 50 to 60 Hz, 50 Watts

Dimensions:

215.9 W x 123.8 H x 247.7 mm D
(8½ x 4¾ x 9¾")

Display: 0 to 102.4%

Rate Indicators/Electronics Boxes

To Order (Specify Model Number)		
Model No.	Price	Description
FMA-78P2	\$1258	For up to 2 meters/controllers††
FMA-78P4	1844	For up to 4 meters/controllers††

†† Meters/controllers **must** have 0 to 5 Vdc outputs.

Accessories

Model No.	Price	Description
FMA-78C10	\$89	3 m (10') interconnect cable with connectors
FMA-78C25	130	8 m (25') interconnect cable with connectors
FMA-78C50	208	15 m (50') interconnect cable with connectors
FPW-15	75	15 Vdc power supply**

Note: All flow ranges are specified for nitrogen or air. When used for other gases, a correlation factor is used to determine flow rate.

Comes complete with operator's manual and mating connector.

** For use with FMA-700A/800A Series units only

Mass Flowmeters/Controllers

MOST POPULAR MODELS HIGHLIGHTED!

To Order (Specify Model Number)					
Model No. Controller (with valve)	Price	Model No. Meter	Price	Compression Fitting (in)	Range
FMA-760A-V-*	\$1406	FMA-860A-V	\$1052	1/8	0 to 5 SCCM
FMA-761A-V-*	1406	FMA-861A-V	982	1/4	0 to 10 SCCM
FMA-762A-V-*	1406	FMA-862A-V	982	1/4	0 to 20 SCCM
FMA-763A-V-*	1406	FMA-863A-V	982	1/4	0 to 50 SCCM
FMA-764A-V-*	1406	FMA-864A-V	982	1/4	0 to 100 SCCM
FMA-765A-V-*	1406	FMA-865A-V	982	1/4	0 to 200 SCCM
FMA-766A-V-*	1406	FMA-866A-V	982	1/4	0 to 500 SCCM
FMA-767A-V-*	1406	FMA-867A-V	982	1/4	0 to 1 SLM
FMA-768A-V-*	1406	FMA-868A-V	982	1/4	0 to 2 SLM
FMA-769A-V-*	1406	FMA-869A-V	982	1/4	0 to 5 SLM
FMA-770A-V-*	1406	FMA-870A-V	982	1/4	0 to 10 SLM
FMA-771A-V-*	1844	FMA-871A-V	1294	1/4	0 to 15 SLM
FMA-772A-V-*	1844	FMA-872A-V	1294	1/4	0 to 20 SLM
FMA-773A-V-*	2456	FMA-873A-V	1294	1/4	0 to 50 SLM
FMA-774A-V-*	2456	FMA-874A-V	1316	1/4	0 to 100 SLM
FMA-775A-V-*	2998	FMA-875A-V	2038	3/8	0 to 200 SLM
FMA-776A-V-*	3148	FMA-876A-V	2268	3/8	0 to 500 SLM
FMA-777A-V-*	3920	FMA-877A-V	3046	1/2	0 to 750 SLM
FMA-778A-V-*	4208	FMA-878A-V	3360	3/4	0 to 1000 SLM

(*) Replace asterisk in model number with gas name, inlet pressure, outlet pressure and gas temperature. Replace "-V" in model no. with "-I" for 4 to 20 mA output; no additional charge.

† For NIST calibration, add suffix "-NIST" to model number and \$75 to price. When gas calibration is for less than 59°F or more than 87°F, there is an additional \$125 calibration charge.

For calibrations with temperatures other than 20°C (70°F) add \$200 to the price.

Ordering Examples: FMA-871A-V, 150 psig, ambient temperature, \$1294.

FMA-766A-V(N2, 20/0 psi, 70°F), mass flow controller for nitrogen, 20 psi inlet pressure, 0 psi outlet, and 70°F temperature, range 0 to 500 SCCM, \$1406.

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