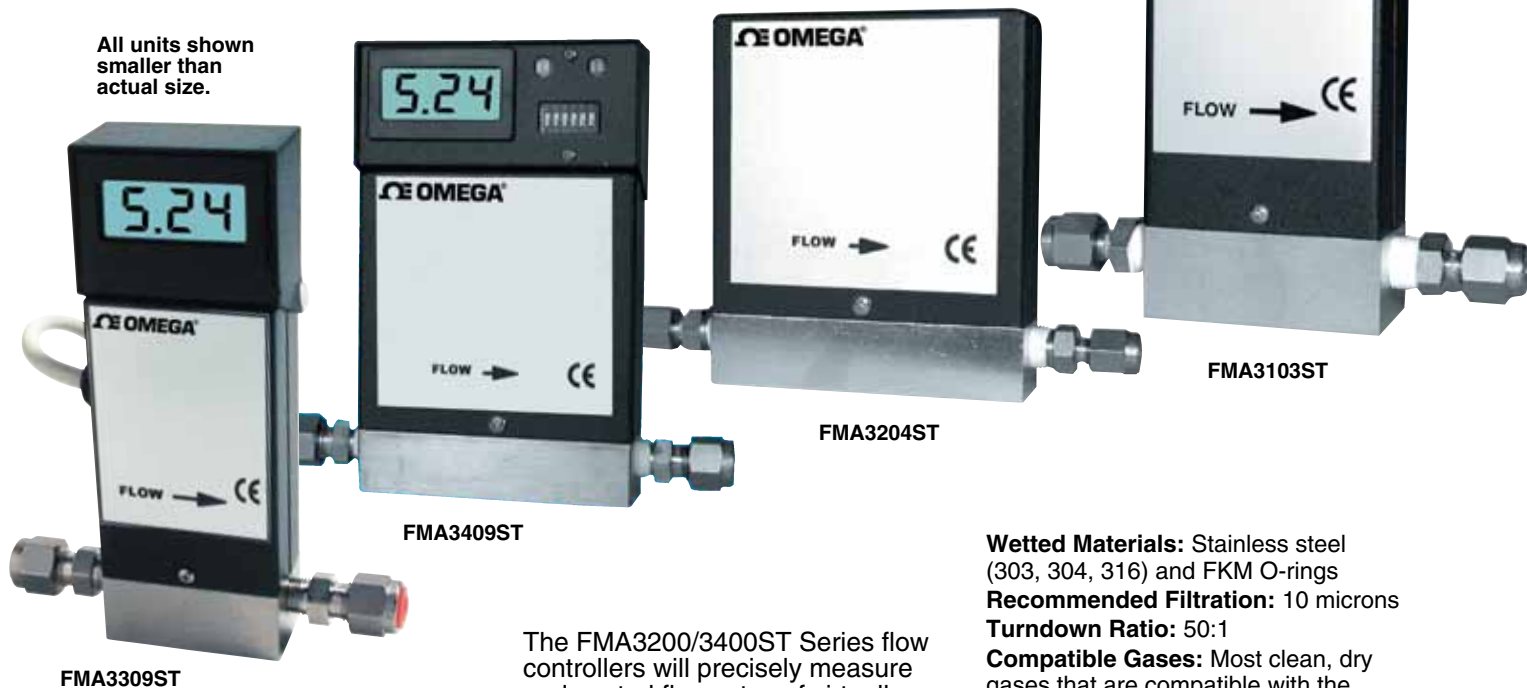


STAINLESS STEEL GAS MASS FLOWMETERS AND CONTROLLERS

For Clean Gases

All units shown smaller than actual size.



FMA3309ST

FMA3409ST

FMA3204ST

FMA3103ST

FMA3100ST Series



Optional

✓ **Stainless Steel Construction**

✓ **FMA3400ST Series can be Ordered to Work with Up to 3 Gases**

The FMA3100/3300ST Series will precisely measure flow rates of virtually any clean, dry gas as low as 0.4 to 20 SCCM or as high as 10 to 500 SLM, including hydrogen. Repeatable results are achieved by using a thermal mass flow sensor design. This proven design minimizes zero drift while maintaining fast response and linear outputs. Compression tube fittings provide fast gas connections and integrate well with existing tubing.

The FMA3200/3400ST Series flow controllers will precisely measure and control flow rates of virtually any clean, dry gas as low as 0.4 to 20 SCCM or as high as 0.2 to 10 SLM. The FMA3200/3400ST Series feature an integrated 3-digit display for flow-rate monitoring right on the unit. Electrical connections are made via the included 1 m (3') cable. Either a mating cable (FMA3000C) or power adaptor is required. See accessories below. The units are available with or without a display for a wide range of applications.

SPECIFICATIONS

Accuracy/Linearity: $\pm 1.5\%$ FS (10 to 100% of rated flow); $\pm 3\%$ FS (20 to 100% of rated flow) for second and third gas selection on FMA3400ST
Repeatability: $\pm 0.25\%$ FS

Power Requirements:

FMA3100ST: 12 to 15 Vdc @ 100 mA
FMA3300ST: 12 to 15 Vdc @ 150 mA
FMA3200ST: 12 to 15 Vdc @ 230 mA
FMA3400ST: 12 to 15 Vdc @ 250 mA

Pressure Rating: Overpressure limit is 10.2 bar (150 psig)

Operating Temperature: 0 to 55°C (32 to 131°F), non-condensing

Storage Temperature: 0 to 70°C (32 to 158°F)

Temperature Sensitivity: $\pm 0.15\%$ FS or less per °C

Wetted Materials: Stainless steel (303, 304, 316) and FKM O-rings
Recommended Filtration: 10 microns
Turndown Ratio: 50:1

Compatible Gases: Most clean, dry gases that are compatible with the wetted materials

Outputs: Analog voltage output 0 to 5 Vdc; voltage level is proportional to flow rate (zero Vdc at zero flow); load connected to output should not be less than 2500 Ω

Setpoint Input:

FMA3200ST: Analog voltage input, 0 to 5 Vdc; voltage level is proportional to flow rate (zero Vdc at zero flow); input load approx 2 M Ω

FMA3400ST: User-selectable internal or external

External: Analog voltage input, 0 to 5 Vdc; voltage level is proportional to flow rate (zero Vdc at zero flow); input load approx 2 M Ω

Internal: Front-panel adjustable with 2 trim pots, 1 coarse and 1 fine adjustment

Flow Connections:

Stainless steel fittings

Electrical Connections: Integrated, 1 m (3'), 6-conductor cable, terminated with 6-pin male mini DIN connector (PS/2 style)

Dimensions:

FMA3100ST: 47.4 L x 26.2 W x 90.2 mm H (1.87 x 1.03 x 3.55")

FMA3300ST: 47.4 L x 26.2 W x 127.0 mm H (1.87 x 1.03 x 5.0")

FMA3200ST: 80.5 L x 26.2 W x 96.5 mm H (3.17 x 1.03 x 3.80")

FMA3400ST: 80.5 L x 26.2 W x 133.6 mm H (3.17 x 1.03 x 5.26")



DPi8 1/8 DIN temperature, process, and strain meters and PID controller, shown smaller than actual size.

To Order

Stainless Steel Mass Flowmeters

Model No. (No Display)	Model No. (Display)	Maximum Flow 50:1 Turndown	Maximum Pressure Drop	Tube Fitting
FMA3101ST	FMA3301ST	20 SCCM	1" H ₂ O	1/8"
FMA3102ST	FMA3302ST	50 SCCM	1" H ₂ O	1/8"
FMA3103ST	FMA3303ST	100 SCCM	2" H ₂ O	1/8"
FMA3104ST	FMA3304ST	200 SCCM	2" H ₂ O	1/8"
FMA3105ST	FMA3305ST	500 SCCM	2" H ₂ O	1/8"
FMA3106ST	FMA3306ST	1 SLM	3" H ₂ O	1/8"
FMA3107ST	FMA3307ST	2 SLM	3" H ₂ O	1/4"
FMA3108ST	FMA3308ST	5 SLM	3" H ₂ O	1/4"
FMA3109ST	FMA3309ST	10 SLM	5" H ₂ O	3/8"
FMA3110ST	FMA3310ST	20 SLM	6" H ₂ O	3/8"
FMA3111ST	FMA3311ST	50 SLM	6" H ₂ O	1/2"
FMA3112ST	FMA3312ST	100 SLM	6" H ₂ O	1/2"

Stainless Steel Controllers

Model No. (No Display)	Model No. (Display)	Max Flow 50:1 Turndown	Desired Differential Pressure (psi)	Tube Fitting
FMA3202ST	FMA3402ST	50 SCCM	15 to 40	1/8"
FMA3203ST	FMA3403ST	100 SCCM	15 to 40	1/8"
FMA3204ST	FMA3404ST	200 SCCM	15 to 40	1/8"
FMA3205ST	FMA3405ST	500 SCCM	15 to 40	1/8"
FMA3206ST	FMA3406ST	1000 SCCM	15 to 40	1/8"
FMA3207ST	FMA3407ST	2 SLM	15 to 40	1/4"
FMA3208ST	FMA3408ST	5 SLM	15 to 45	1/4"
FMA3209ST	FMA3409ST	10 SLM	15 to 45	3/8"

Accessories

Flowmeters: FMA3100ST and FMA3300ST

Model No.	Model No.	Description
FMA3115PW (115 Vac)	FMA3230PW (230 Vac)	Power supply/output 0 to 5 Vdc

Controllers Only: FMA3200ST and FMA3400ST

FMA3215PW	FMA3223PW	Power supply/input/output cable (0 to 5 Vdc)
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Cable for All Units

FMA3000C*	—	1 m (3') cable with mating connector and stripped ends
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* For use with power supplies that have terminal connections.

For a NIST calibration certificate add suffix, "-NISTAIR" to model number, for additional cost.

All units are calibrated for air at 20/0 psig unless specified

All calibrations are done at ambient temperature only (20°C/70°F)

Flow ranges are based on dry air or nitrogen as standard.

Other gasses available (carbon dioxide, helium, argon, hydrogen, methane, oxygen) for ranges up to 10 SLM, and ranges 20 to 100 SLM, for additional cost.

To order FMA-3400ST Series up to 3 different gasses, additional cost per gas and specify FMA34**ST-1st Gas-2nd Gas-3rd Gas-in/out pressure

** Specify flow controller; **Example: FMA3408ST-N2-H2-O2, 20/0.**

Comes complete with operator's manual and 1 m (3') signal/power cable. Order power supply with mating connector separately.

Ordering Examples: FMA3409ST, 10 SLM mass flow controller with display, FMA3215PW, 115 Vac power supply.

FMA3103ST-N2-NIST, 100 SCCM mass flowmeter NIST calibrated for Nitrogen and FMA3215PW, 115 Vac power supply.