ECONOMICAL GAS MASS FLOWMETERS

For Clean Gases With Optional Integral Display

FMA1700/1800 Series

1 YEAR WARRANTY | NIST | CE | RoHS

Standard

FMA1828, shown smaller than actual size.

- **Reads Gas Mass Flow Without Temperature or Pressure Compensation**
- **Available in Economical Aluminum or Corrosion-Resistant 316SS**
- **Tiltable LCD Display for Easy Reading**
- **NIST Traceable Calibration**

The FMA1700/1800 Series eletronic gas mass flowmeters provide for monitoring the flow of a wide variety of gases from 10 SCCM up to 1000 SLM. Utilizing heat transfer through a heated tube to measure molecular gas flow rate, the FMA1700/1800 provides measurement of direct gas mass flow rate, without the need to compensate for variations in gas temperature or pressure (within stated limits). They are available in an economical aluminum/brass construction for typical gas flows and a 316 SS construction for applications requiring more corrosion resistance. The FMA1700 series without integral display is supplied with a field selectable analog 0 to 5 Vdc or 4 to 20 mA output for remote monitoring; the FMA1800 series has both an integral 3½ digit display and analog output. The display is tiltable over 90 degrees for viewing convenience. The display is calibrated standard to read out directly in SCCM or SLM for nitrogen (other gas calibrations available on special order).

Due to their low cost, digital display, analog output capability, and insensitivity to variations in gas temperature and pressure, the FMA1700/1800 Series are ideal substitutes for many rotameter applications. When used with the FMA178BP portable battery pack, the FMA1800 Series are ideal for in-the-field calibration of flowmeters or testing of air sampling equipment. The FMA178BP battery pack includes batteries, recharger, and carrying case with shoulder strap and belt loop. With the FMA178BP, the flowmeter can operate in excess of 40 hours; the batteries can be recharged at least 200 times.

The FMA1700/1800 Series require 12 Vdc power @ 200 mA maximum, which can be supplied by the FMA178PW plug-in socket power supply. The electronics are reverse polarity protected and has externally-accessible fusing. Model number FMA178C (supplied separately) provides a mating 9-pin "D" connector with 3 feet of ribbon cable for accessing the 0 to 5 Vdc output signal and power input connections (use FMA178C-MA for 4 to 20 mA output signal connection).

The LCD supplied with the FMA1800 Series is connected to the lower electronics via a modular plug. The LCD can be remotely located by purchasing an FMA18RC remote cable assembly-you must then build your own assembly for panel mounting the LCD.

SPECIFICATIONS

Accuracy: ±1.5% of full scale, including linearity over 15 to 25°C and 5 to 60 psia (0.35 to 4.2 kg/cm^2); ±3% of full scale, including linearity over 0 to 50°C and 1 to 500 psia (0.07 to 10 kg/cm^2)
Repeatability: ±0.5% of full scale and for units ≥100 scm from 0 to 20% of range
Temp Coefficient: 0.15% of full scale per °C or better
Pressure Coefficient: 0.01% of full scale per psi (0.07 bar)
Maximum Pressure Drop:

SLM	in. W.C.	SLM	in W.C.
10	1	80	168
20	14	100	227
30	34	200	112
50	90	500	140
60	129	1000	252

Response Time: 800 msec time constant; 2 seconds (typical) to within ±2% of set flow rate over 25 to 100% of full scale
Max Gas Pressure: 500 psig (35 kg/cm^2 gauge); 20 psig optimum
Gas and Ambient Temp: 0 to 50°C (0 to 122°F)
Leak Integrity: 1 x 10^{-7} std cc/sec of helium max. to outside environment
Materials in Fluid Contact:
Aluminum Models: Anodized aluminum, 316 SS, brass and FKM O-rings
Stainless Steel Models: 316 SS and FKM O-rings

Output Signal
Linear 0 to 5 Vdc: 1000 Ω min load;
4 to 20 mA: 50 to 250 Ω loop resis
Transducer Power: 12 Vdc @ 200 mA max.
Shipping Weight: 1.1 kg (2.5 lb)
Compliance: EN55011 class 1, class B; EN50082-1

Dimensions: cm (in)

Unit Max Flow Rate	Lay Length with Fittings	Maximum Height	Maximum Width	Connection-Compression Fitting
10 SCCM to 10 SLM	12.8 (5.02)	14.2 (5.60)	2.5 (1.00)	¼"
15 to 50 SLM	15.6 (6.15)	15.2 (5.98)	3.2 (1.25)	¼"
60 to 100 SLM	15.9 (6.27)	15.2 (5.98)	3.2 (1.25)	⅜"
200 SLM	22.4 (8.83)	16.8 (6.60)	4.4 (1.75)	⅜"
500 SLM	24.6 (9.67)	19.3 (7.60)	7.6 (3.00)	½"
1000 SLM	18.5 (7.30)	21.8 (8.60)	10.2 (4.00)	¾ FNPT

To Order *Visit omega.com/fma1700_1800 for Pricing and Details*

Model No. Aluminum/Brass Body with Display	Model No. Stainless Steel Body with Display	Model No. Aluminum/Brass Body without Display	Model No. Stainless Steel Body without Display	Range Code**	Maximum Flow Rate
FMA1802	**FMA1802ST**	**FMA1702**	**FMA1702ST**	02	10 sccm
FMA1804	**FMA1804ST**	**FMA1704**	**FMA1704ST**	04	20 sccm
FMA1806	**FMA1806ST**	**FMA1706**	**FMA1706ST**	06	50 sccm
FMA1808	**FMA1808ST**	**FMA1708**	**FMA1708ST**	08	100 sccm
FMA1810	**FMA1810ST**	**FMA1710**	**FMA1710ST**	10	200 sccm
FMA1812	**FMA1812ST**	**FMA1712**	**FMA1712ST**	12	500 sccm
FMA1814	**FMA1814ST**	**FMA1714**	**FMA1714ST**	14	1 SLM
FMA1816	**FMA1816ST**	**FMA1716**	**FMA1716ST**	16	2 SLM
FMA1818	**FMA1818ST**	**FMA1718**	**FMA1718ST**	18	5 SLM
FMA1820	**FMA1820ST**	**FMA1720**	**FMA1720ST**	20	10 SLM
FMA1823	**FMA1823ST**	**FMA1723**	**FMA1723ST**	23	15 SLM
FMA1824	**FMA1824ST**	**FMA1724**	**FMA1724ST**	24	20 SLM
FMA1826	**FMA1826ST**	**FMA1726**	**FMA1726ST**	26	30 SLM
FMA1827	**FMA1827ST**	**FMA1727**	**FMA1727ST**	27	40 SLM
FMA1828	**FMA1828ST**	**FMA1728**	**FMA1728ST**	28	50 SLM
FMA1840	**FMA1840ST**	**FMA1740**	**FMA1740ST**	40	60 SLM
FMA1841	**FMA1841ST**	**FMA1741**	**FMA1741ST**	41	80 SLM
FMA1842	**FMA1842ST**	**FMA1742**	**FMA1742ST**	42	100 SLM
FMA1843	**FMA1843ST**	**FMA1743**	**FMA1743ST**	43	200 SLM
FMA1844	**FMA1844ST**	**FMA1744**	**FMA1744ST**	44	500 SLM
FMA1845	**FMA1845ST**	**FMA1745**	**FMA1745ST**	45	1000 SLM*

***** *Comes with dual ¾ FNPT connections instead of compression fittings.*
****** *Insert range code, see table above.*
Flow ranges specified are for nitrogen or air at 20 psig. When used for other gases, a multiplication factor is used to determine the flow rate, and the digital display must be rescaled in the field. To request a custom calibration add the gas abbreviation and pressure as a suffix to the model number.

Accessories

Model No.	Description
FMA178PW	Socket plug-in power supply for 115 Vac (recommended)
FMA178C	Female 9-pin D-connector with 1 m (3') of ribbon cable, 0 to 5 Vdc output
FMA178C-MA	Female 9-pin D-connector with 1 m (3') of ribbon cable, 4 to 20 mA output
FMA178PW-220VAC	Socket plug-in power supply for 220 Vac, VDE plug type
FMA178BP	Portable battery pack, with recharger for 115 Vac
FMA178BP-220VAC	Portable battery pack, with recharger for 220 Vac
FMA18RC10	3 m (10') cable for remotely locating LCD of FMA1800
FMA18RC25	7.6 m (25') cable for remotely locating LCD of FMA1800

Comes complete with compression fittings, operator's manual, NIST certificate. Power supplies sold separately.
*For 24 Vdc powered units, add suffix **"-24VDC"** to model number, no additional price.*
*For oxygen cleaned units, add suffix **"-02CLEAN"** to model number for additional price.*

***Ordering Examples: FMA1712,** AL/BR body flowmeter without an integral display, calibrated for nitrogen at 20 psig, ambient temperature from 0 to 500 SCCM.*

***FMA1810,** AL/BR body with display and **FMA178PW,** power supply.*