ECONOMICAL GAS MASS FLOW METERS

For Clean Gases with Optional Integral Display

FMA1700A/1800A Series

1 YEAR WARRANTY | NIST | CE | RoHS

Standard

FMA1828A, shown smaller than actual size.

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

The FMA1700A/1800A Series eletronic gas mass flow meters 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 FMA1700A/1800A 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 FMA1700A 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 FMA1800A 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 FMA1700A/1800A Series are ideal substitutes for many variable area flow meter applications. When used with the FMA178BP portable battery pack, the FMA1800A Series are ideal for in-the-field calibration of flow meters 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 flow meter can operate in excess of 40 hours; the batteries can be recharged at least 200 times.

The FMA1700A/1800A Series require 12 to 26 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 FMA1800A 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: FMA1700A/1800A Series Max Flow 10, 50 and 100 L/min ±1.0% F.S.
FMA1700A/1800A Series Max Flow 200, 500 and 1000 L/min. ±1.5% F.S.
Repeatability: ±0.5% of full scale and for units ≥100 scm from 0 to 20% of range
Temperature 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
Maximum Gas Pressure: 500 psig (35 kg/cm^2 gage);1000 psig (70 kg/cm^2 gage) for ranges up to 100 SLM; 20 psig optimum
Gas and Ambient Temperature: 0 to 50°C (0 to 122°F)
Leak Integrity: 1 x 10^{-9} std cc/sec of helium maximum 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 minimum load

4 to 20 mA: 50 to 250 Ω loop resistance

Transducer Power: 12 Vdc @ 200 mA maximum

Shipping Weight: 1.1 kg (2.5 lb)

Compliance: EN55011 class 1, class B; EN50082-1

Dimensions: cm (inch)

Unit Maximum 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

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
FMA1802A	**FMA1802A-ST**	**FMA1702A**	**FMA1702A-ST**	02	10 sccm
FMA1804A	**FMA1804A-ST**	**FMA1704A**	**FMA1704A-ST**	04	20 sccm
FMA1806A	**FMA1806A-ST**	**FMA1706A**	**FMA1706A-ST**	06	50 sccm
FMA1808A	**FMA1808A-ST**	**FMA1708A**	**FMA1708A-ST**	08	100 sccm
FMA1810A	**FMA1810A-ST**	**FMA1710A**	**FMA1710A-ST**	10	200 sccm
FMA1812A	**FMA1812A-ST**	**FMA1712A**	**FMA1712A-ST**	12	500 sccm
FMA1814A	**FMA1814A-ST**	**FMA1714A**	**FMA1714A-ST**	14	1 SLM
FMA1816A	**FMA1816A-ST**	**FMA1716A**	**FMA1716A-ST**	16	2 SLM
FMA1818A	**FMA1818A-ST**	**FMA1718A**	**FMA1718A-ST**	18	5 SLM
FMA1820A	**FMA1820A-ST**	**FMA1720A**	**FMA1720A-ST**	20	10 SLM
FMA1823A	**FMA1823A-ST**	**FMA1723A**	**FMA1723A-ST**	23	15 SLM
FMA1824A	**FMA1824A-ST**	**FMA1724A**	**FMA1724A-ST**	24	20 SLM
FMA1826A	**FMA1826A-ST**	**FMA1726A**	**FMA1726A-ST**	26	30 SLM
FMA1827A	**FMA1827A-ST**	**FMA1727A**	**FMA1727A-ST**	27	40 SLM
FMA1828A	**FMA1828A-ST**	**FMA1728A**	**FMA1728A-ST**	28	50 SLM
FMA1840A	**FMA1840A-ST**	**FMA1740A**	**FMA1740A-ST**	40	60 SLM
FMA1841A	**FMA1841A-ST**	**FMA1741A**	**FMA1741A-ST**	41	80 SLM
FMA1842A	**FMA1842A-ST**	**FMA1742A**	**FMA1742A-ST**	42	100 SLM
FMA1843A	**FMA1843A-ST**	**FMA1743A**	**FMA1743A-ST**	43	200 SLM
FMA1844A	**FMA1844A-ST**	**FMA1744A**	**FMA1744A-ST**	44	500 SLM
FMA1845A	**FMA1845A-ST**	**FMA1745A**	**FMA1745A-ST**	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, and NIST certificate. Power supplies sold separately.
*For oxygen cleaned units, add suffix **"-02CLEAN"** to model number for additional cost.*

***Ordering Examples: FMA1712A,** AL/BR body flow meter without an integral display, calibrated for nitrogen at 20 psig, ambient temperature from 0 to 500 SCCM.*

***FMA1810A,** AL/BR body with display and **FMA178PW,** power supply.*