

LX-1200 LIQUID MASS FLOW CONTROLLER SERIES

Metal Seals

LS-1200 LIQUID MASS FLOW METER SERIES

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The LX-1200 Liquid Mass Flow Controller (LMFC) very accurately and reproducibly controls the flow of liquids from a source tank into a process chamber. The LS-1200 Liquid Mass Flow Meter (LMFM) is a precise instrument for measuring liquid flow.

The design of the LX-1200 prevents the most frequent problems associated with other liquid mass flow controllers and meters: instability and bubble-related malfunctions. The basic technology of the LX-1200/LS-1200 is similar to that of AERA's more traditional MFC's, but the flow path and some of the flow components have been modified to prevent bubbles from being generated or retained in the LMFC.

All flow components and the flow path are in a vertically oriented configuration. The liquid enters through the inlet fitting at the lowest point in the flow path, then through the LMFC in an upward direction, and finally exits through the outlet fitting at the highest point in the flow path. The use of a piezoelectric control valve with diaphragm-seating ensures that the liquid source will not be exposed to elevated temperatures as in the case of other types of control valves.

FEATURES

- High sensitivity, fast response small diameter sensor
- Leak integrity of 1×10^{-10} atm·cc/second of helium
- Piezoelectric/diaphragm seated control valve

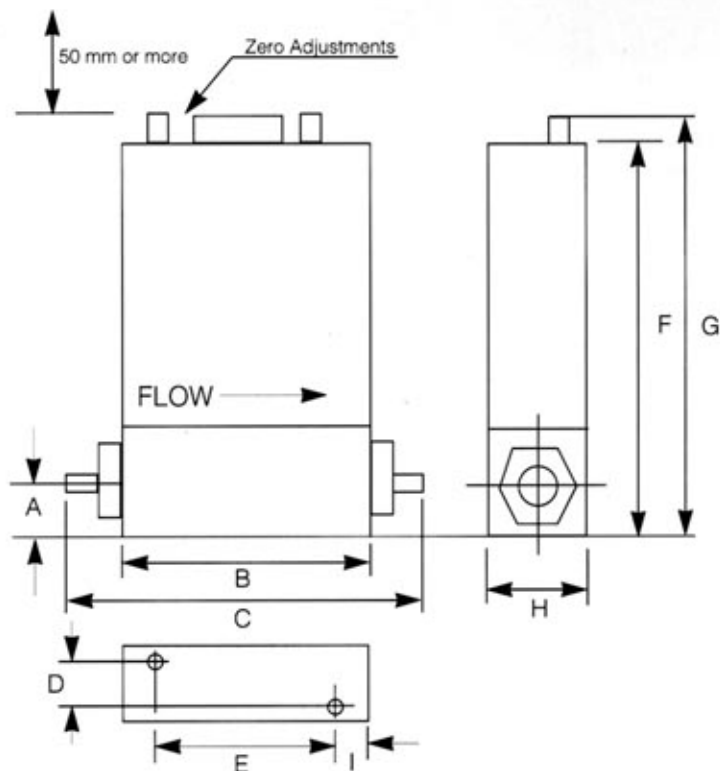
ADVANTAGES OVER COMPETITIVE MFC's:

- The fastest actual-flow settling time for an LMFC - less than 3 seconds between setpoints
- The best long-term zero drift stability - less than 0.5% of full-scale flow over a period of one year
- The highest reliability - less than 0.5% are returned within one year after shipment
- Highly resistant to effects from strong RF fields
- 3 year warranty



SPECIFICATIONS

MODEL	LX-1200	LX-1200C	LS-1200
INSTRUMENT TYPE	MFC	MFC	MFM
FULL-SCALE RANGE	0.1-10 grams/minute (ml/minute optional)		
CONTROL VALVE TYPE	N.O. piezoelectric	N.C. piezoelectric	-
SEALS	Metal		
RESPONSE TIME	Less than 3 seconds to within $\pm 2\%$ of setpoint		
ACCURACY	Within $\pm 2\%$ of full scale		
LINEARITY	Within $\pm 1\%$ of full scale		
REPEATABILITY	Within $\pm 0.5\%$ of full scale		
LEAK INTEGRITY	1×10^{-10} atm-cc/sec (He) max.		
CONTROL RANGE	5 - 100% of full scale		-
DIFFERENTIAL PRESSURE	10 - 28 psi		1.4psi
MAX. OPERATING PRESSURE	70 psi		-
PROOF PRESSURE	140 psi		-
TEMPERATURE RANGE	15 - 30°C (30 - 45°C optional)		
COMMAND SIGNAL	0 - 5 VDC		-
OUTPUT INDICATION	0 - 5 VDC		
INPUT POWER	+15VDC $\pm 2\%$ @ 35 mA min. -15VDC $\pm 2\%$ @ 50 mA min.		+15VDC/-15VDC $\pm 2\%$ min. @ 25 mA
POWER CONSUMPTION	1.3 watts max.		0.8 watts max.
MATERIALS	Stainless steel, type 316L		
STANDARD FITTINGS	1/8 inch VCR™		
ATTITUDE SENSITIVITY	Horizontal (within $\pm 5^\circ$)		
WEIGHT	2.6 lbs.		2.2 lbs.
B.P. OF SOURCE LIQUID	At least 69°C		
VISCOSITY OF SOURCE LIQUID	15 cp max. (1×10^{-3} grams/cm second)		



DIMENSIONS

	LX-1200	LX-1200C	LS-1200
A	13.0		
B	61.0		
C	106.0		
D	16.0		
E	30.0		
F	152.0		
H	44.7		
I	15.5		

All dimensions in mm

Electrical Connections for the LX-1200 and LX-1200C

Aera 20-pin D Connector

11	1	11. CONTROL 0-5VDC*	1. CASE GND
12	2	12. COMMON	2. COMMON
13	3	13. COMMON	3. OUT PUT 0-5VDC
14	4	14. VALVE OPEN/CLOSE	4. +15VDC
15	5	15.	5.
16	6	16. -15VDC	6.
17	7	17.	7.
18	8	18.	8.
9	9	19.	9.
20	10	20.	10.

Aera warrants all mass flow controllers and mass flow meters to be free from defects in materials and workmanship for a period of 3 years after the date of shipment, when the products are used in accordance with all specifications and are not subjected to physical damage or abuse. The warranty does not cover malfunctions caused by misuse of gases that are corrosive or reactive in the presence of air or moisture.



Mid-Atlantic Sales Office
Tel: (919) 845-0305 Fax: (919) 845-0308

Northeast Sales Office
Tel: (508) 922-7566 Fax: (508) 922-8397

Northwest Sales Office
Tel: (503) 644-4414 Fax: (503) 644-7599

Southwest Sales Office
Tel: (602) 706-4200 Fax: (602) 706-4300

Texas Sales Office
Tel: (512) 339-7100 Fax: (512) 339-8889

West Coast Sales Office
Tel: (408) 383-0100 Fax: (408) 383-0400