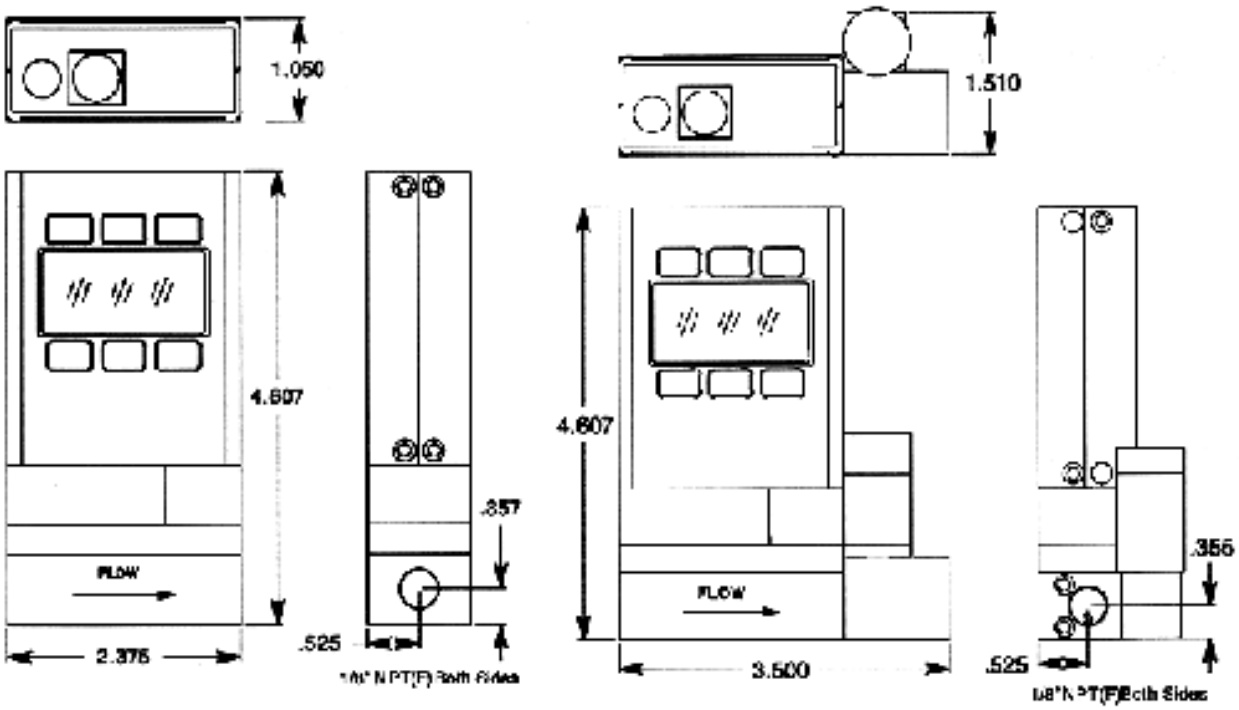
Liquid Flowmeters & Controllers

The **L and LC series liquid flowmeters and controllers** use two of the best-studied physical properties of liquids to measure flow: Pressure and Viscosity. Differential pressure measurement, across a laminar flow element, results in a flow meter that is inherently linear. The flow meter measures differential pressure within that laminar region to achieve a turndown of 50:1 typical.

The **L Series is a Volumetric Flowmeter**. The unique method of flow detection allows the unit to measure extremely low flow rates at an affordable price. These flowmeters are available in ranges of 500 micro-liters per minute full scale to 10 liters per minute full scale. Units are suitable for low viscosity, non-aggressive liquid.

The **LC Series Flow Controller** utilized a proportional valve coupled to a flowmeter body creating a unique in-situ closed-loop flow controller system. Measurements are taken within the laminar region of the flow meter and the integral PID controller positions the valve according to the flow set points. These robust, closed-loop devices accept a selectable analog or digital control set point from either external devices or direct entry on units with local display. The controllers can also accept an RS-232, 0-10Vdc or 4-20mA control input signal depending on what is preferred by the customer. Independent of the set point voltages, the controllers can be configured for single or dual output of the same or different voltages and/or different parameters such as temerature and flow. This is possible because of our laminar flowmeter design that incorporates solid-state Differential, Ablsolute Pressure, and Temperature sensors to determine flow in an inherently linear system. The result is a fast responding linear flow meter with multiple outputs. All these parameters are simultaneously visible with our dynamic display that includes a push button operator interface. Liquid controllers are available from 500 micro-liters per minutes full scale to 500 milliliters per minute full scale.

Specification	L Flow Meter	LC Controller	Units	Sample FS Ranges
				Flow meters only
Accuracy	±2%	±2%	Full Scale	0.5 CCM
Repeatability	±2%	±2%	Full Scale	1 CCM
Turndown Ratio	50:1	50:1		2 CCM
Response Time	20	100	Milliseconds	5 CCM
Full Scale Pressure Drop	0.8	varies with range	PSID	10 CCM
Temperature Range (Storage)	0 to +50	0 to +50	°C	20 CCM
Temperature Range (Operating)	+10 to +50	+10 to +50	°C	
				Flow meters & Controllers
Zero Shift	0.02% / ATM	0.02% / ATM	FS/°C	50 CCM
Span Shift	0.02% / ATM	0.02% / ATM	FS/°C	100 CCM
Excess Flow Rate	20X	20X	Full Scale	500 CCM
Common-Mode Pressure	100	100	PSIG	Flowmeters Only
Supply Voltage	7 - 30	12 - 25	Vdc	1 LPM
Supply Current (typical)	30VDC	250	mA	2 LPM
Voltage Output (standard)	0-5, 0-10, 4-20mA	RS-232		
Connections	1/8" - ¼"	1/8"	NPTF	5 LPM
Wetted Materials	303 Stainless Steel, Viton®, Silicone RTV, Polyethermide Valves Only: Anodized AL, 410 & 304 Stainless Steel, Nickel, Brass, Viton®, Delrin®, Loctite® Adhesives 326, 401, 609			10 LPM



Flow Range	Height	Length	Depth	Port Size
0-500 CCM	4.607"	2.375"	1.05"	1/8" NPT (F)
1 to 10 LPM	4.732"	2.625"	1.05"	1/4" NPT (F)

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