

L/LC Series

Digital Liquid Flow Measurement and Control



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Series Overview

Alicat Scientific L-Series digital liquid flow meters accurately and rapidly measure the volumetric flow rate and temperature of process liquids. Gauge pressure measurement is an available option. Alicat LC-Series liquid flow controllers provide precise control of volumetric flow via customized high-speed proportional control valves.

At the heart of Alicat's L/LC-Series liquid flow meters and controllers is a patented, internally compensated, laminar differential pressure measurement technology that yields linear results over a wide flow range. All liquid flow meters and controllers come with NIST-traceable calibration sheets.

With no internal moving parts or heating elements, the L/LC Series is electrically efficient and insensitive to bumps or changes in orientation. Alicat backs every liquid flow instrument with generous customer support, including free technical phone support, prompt recalibration service and a lifetime warranty.

Alicat L/LC-Series liquid flow meters and controllers feature bleed ports and large integrated displays with touchpads. LC-Series controller touchpads enable setpoint control access and PID valve tuning. The L/LC Series comes standard with both analog and RS-232 digital communications. Extensive product customizations are available, including Class 1, Div 2 ATEX/CSA ratings for use in hazardous environments and battery operation for meters (LB Series).

Applications

Alicat Scientific L/LC-Series digital liquid flow meters and controllers are used in a variety of industries, from process manufacturing and food analysis to analytical testing and metrology. Multi-variable measurement and a 50:1 turndown ratio allow a single L/LC-Series meter or controller to replace several application-specific devices. 2% accuracy, 2% full-scale repeatability and <100 ms control response times ensure that liquid flow processes operate as intended.

L-Series meters are available in full-scale flow rates from 0-0.5 ccm to 0-10 lpm. LC-Series controllers are available in full-scale flow rates from 0-0.5 ccm to 0-5 lpm.



Technical Data for Alicat **LC & LCR** Water Flow Controllers

0 – 5 ccm Full Scale through 0 – 5 lpm Full Scale



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Alicat LC and LCR-Series water flow controllers display both water flow and water temperature. An optional pressure sensor is also available.

Standard Specifications (Contact Alicat for available options.)

Performance	LC Controllers	LCR Controllers
Available Ranges	5 ccm to 500 ccm	1 lpm to 5 lpm
Accuracy at calibration conditions after tare	± 2% Full Scale	
Repeatability	± 2% Full Scale	
Zero Shift and Span Shift	0.02% Full Scale / °Celsius / Atm	
Operating Range / Turndown Ratio	2% to 100% Full Scale / 50:1 Turndown	
Maximum Flow Rate	102.4% FS Controllable	
Typical Response Time	100 ms (Adjustable)	
Warm-up Time	< 1 Second	

Operating Conditions	LC Controllers	LCR Controllers
Operating Temperature	+10 to +50 °Celsius	
Maximum Pressure	150 psig	
Mounting Attitude Sensitivity	None	Mount with valve cylinder vertical & upright
Valve Type	Normally Closed	
Ingress Protection	IP40	
Wetted Materials	LC, LCR: 430FR Stainless Steel, 302 & 303 Stainless Steel, 316L Stainless Steel, Viton®, FFKM. LCR Controllers Add 416 Stainless Steel, Delrin®. If your application demands a different material, please contact Alicat.	

Communication / Power	LC Controllers	LCR Controllers
Monochrome LCD or Color TFT Display with integrated touchpad	Simultaneously displays Flow and Temperature (optional Pressure sensor available)	
Digital Output Signal ¹ Options	RS-232 Serial / RS-485 Serial / PROFIBUS ³	
Analog Output Signal ² Options	0-5 Vdc / 1-5 Vdc / 0-10 Vdc / 4-20 mA	
Optional Secondary Analog Output Signal ²	0-5 Vdc / 1-5 Vdc / 0-10 Vdc / 4-20 mA	
Electrical Connection Options	8 Pin Mini-DIN / 9-pin D-sub (DB9) / 15-pin D-sub (DB15) / 6 pin locking	
Supply Voltage	12-30 Vdc (15-30 Vdc for 4-20 mA outputs)	24-30 Vdc
Supply Current	0.250 Amp	0.750 Amp
1. The Digital Output Signal communicates Flow and Temperature (optional Pressure sensor available) 2. The Analog Output Signal and Optional Secondary Analog Output Signal communicate your choice of Flow or Temperature 3. If selecting PROFIBUS , no analog signal is available. PROFIBUS units do not have the display. See PROFIBUS specifications for PROFIBUS supply voltages and currents. (www.alicat.com/profibus)		

Range Specific Specifications

Full Scale Flow	Pressure Drop ¹ at FS Flow (PSID)	Mechanical Dimensions	Process Connections ²
LC Controllers			
5 ccm to 50 ccm	5.0	4.6"H x 3.6"W x 1.1"D	1/8" NPT Female
100 ccm	5.0		
200 ccm to 500 ccm	7.5		
LCR Controllers			
1 lpm	4.0	5.7"H x 7.7"W x 2.3"D	1/4"NPT Female
2 lpm	4.0		
5 lpm	10.0		

1. Lower Pressure Drops Available, please contact Alicat.
2. Compatible with Beswick®, Swagelok® tube, Parker®, face seal, push connect and compression adapter fittings. VCR and SAE connections upon request.