

Technical Data for LC-Series and LCS-Series Flow Controllers

0.5 CCM full scale through 10 LPM full scale

Standard specifications. Consult Alicat for available options.



+1 (888) 290-6060
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SENSOR AND CONTROL PERFORMANCE ¹	
Volumetric Flow Accuracy at Calibration Conditions	±2.0% of full scale
Repeatability	±0.2% of full scale
Steady State Control Range ²	0.01–100% of full scale
Valve Function	Normally closed
Temperature Sensitivity	Volumetric flow zero shift: 0.02% of full scale per °C from tare temperature Volumetric flow span shift: 0.02% of full scale per °C from calibration temperature
Operating Temperature Range (ambient)	–10–60°C (medium must remain in liquid phase at all times)
Temperature Accuracy	±0.75°C
Pressure Sensor Full Scale Range	100 PSIG (additional sensor options available)
Pressure Accuracy	±0.5% of full scale
Totalizer Volume Uncertainty	±0.5% of reading (in addition to the stated flow uncertainties)
Sensor Response Time	<1 ms
Typical Indication Response Time ³	<10 ms, flow rate dependent
Typical Control Response Time	As fast as 30 ms (T63), flow rate dependent, user adjustable
Typical Warm-Up Time	<1 s

1 Specifications apply to water media only.

2 Achievable steady state control may be limited by user-configurable PID tuning and process conditions. Dynamic control performance is also limited by control response time, which may vary with the flow rate.

3 Indication response time includes a user adjustable averaging setting, 1–255 ms.

MECHANICAL	
Minimum Operating Pressure	Differential pressure must exceed model pressure drop, see Range-Specific Technical Data for details.
Maximum Operating Pressure	Damage possible above 200 PSIG common mode pressure. Damage possible above 75 PSI differential pressure.
Ingress Protection	IP40
Wetted Materials	LC: 316L, 303, and 430FR stainless steel; FKM elastomers (EPDM, FFKM optional) LCS: 316L, 303, and 430FR stainless steel; FFKM elastomers (EPDM optional) LCR: 316L, 303, 410, and 430FR stainless steel; FKM elastomers (EPDM, FFKM optional) LCRS: 316L, 303, 410, and 430FR stainless steel; FFKM elastomers (EPDM optional)

COMMUNICATIONS	
Analog I/O Options	4–20 mA, 0–5 Vdc, 1–5 Vdc, 0–10 Vdc
Digital I/O Options	RS-232 Serial and Modbus RTU (default) RS-485 Serial and Modbus RTU, Modbus TCP/IP, DeviceNet, EtherCAT, EtherNet/IP, Profibus
Electrical Connection Options	6-pin locking, 8-pin mini-DIN, 8 pin M12, DB-9, DB-15 (contact Alicat for custom pinouts)
Power Requirements ⁴	LC, LCS: 12–30 Vdc, 250 mA LCR, LCRS: 24 Vdc, 600mA Add 40 mA if equipped with 4–20 mA output
Digital Data Update Rate ⁴	40 Hz at 19200 baud
Analog Data Update Rate ⁴	1 kHz
Display Update Rate	10 Hz
Analog Signal Accuracy	±0.1% of full scale additional uncertainty

4 Consult the individual operating bulletins for specific industrial protocol power requirements and data transmission specifications.

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FEATURES	
Monochrome LCD or Color TFT Display with Integrated Touchpad	Simultaneously displays volumetric flow, temperature, setpoint, and pressure
Default Flow Measurement Media	Ultrapure water (UPW), highly purified water (HPW), high purity water, RO water, DI water
Alternative Flow Measurement Media	Wetted material compatible fluids with dynamic viscosities between approximately 0.1–3.0 cP, such as ethanol, methanol, and acetone (requires custom calibration)

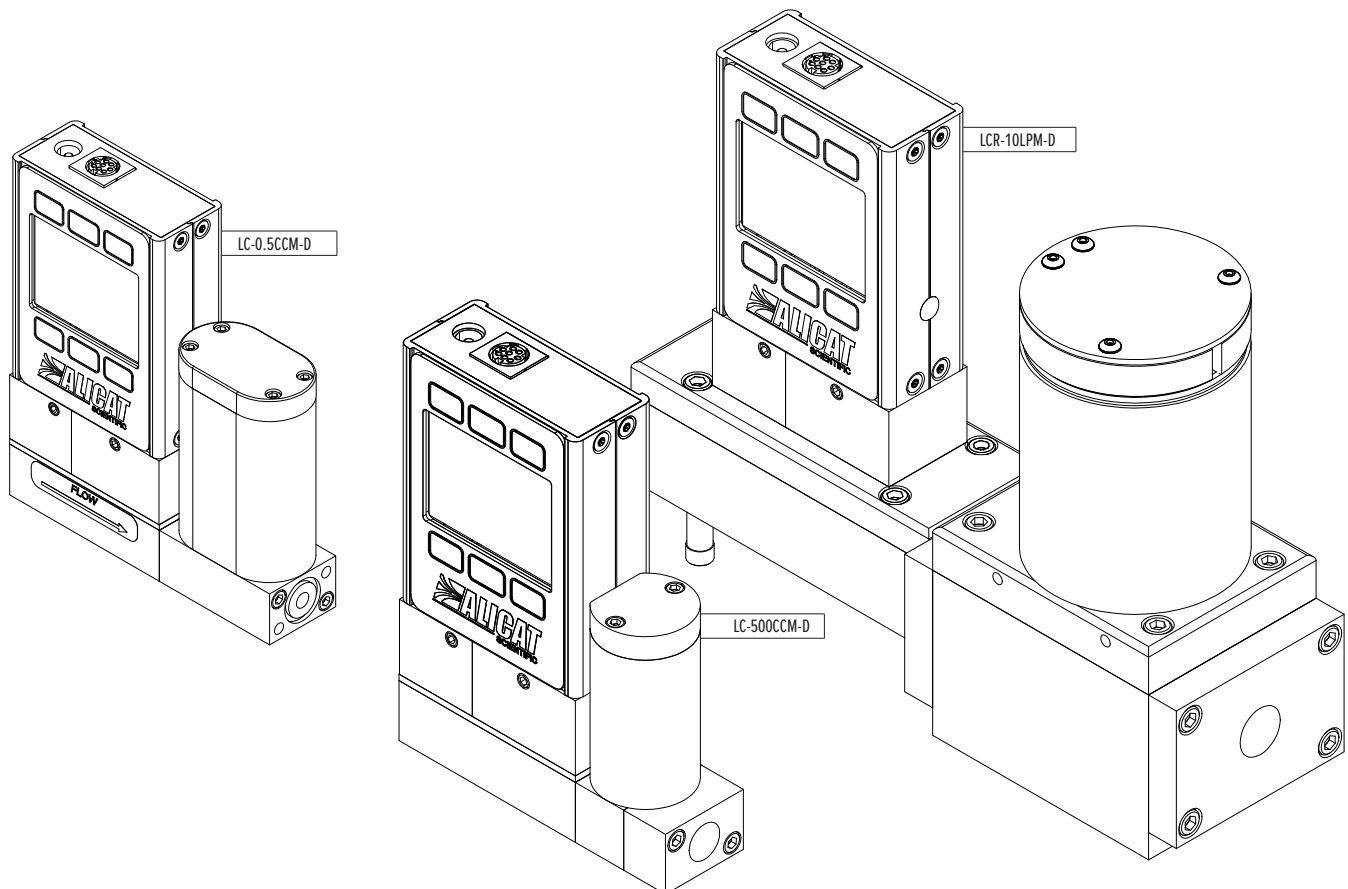
RANGE-SPECIFIC TECHNICAL DATA				
Full scale flow	Type	Pressure drop at full scale flow ⁵	Process connections ⁶	Mount tap size
0.5 CCM–1 CCM	LC, LCS	5.0 PSID	M5×0.8mm female (10-32 UNF compatible) ⁷	2× 8-32 UNC ↓ 0.175" [4.45 mm]
2 CCM	LC, LCS	2.5 PSID	1/8" NPT female	2× 8-32 UNC ↓ 0.250" [6.35 mm]
5–100 CCM	LC, LCS	5.0 PSID	1/8" NPT female	2× 8-32 UNC ↓ 0.250" [6.35 mm]
200–500 CCM	LC, LCS	7.5 PSID	1/8" NPT female	2× 8-32 UNC ↓ 0.250" [6.35 mm]
1–2 LPM	LCR, LCRS	4.0 PSID	1/4" NPT female	4× 8-32 UNC ↓ 0.328" [8.33 mm]
5 LPM	LCR, LCRS	10.0 PSID	1/4" NPT female	4× 8-32 UNC ↓ 0.328" [8.33 mm]
10 LPM	LCR, LCRS	25.0 PSID	1/4" NPT female	4× 8-32 UNC ↓ 0.328" [8.33 mm]

⁵ Default valve, H2O at 25°C, venting to atmosphere.

⁶ Consult Alicat for available process connection options, such as: Compression, face seal, push-to-connect, BSPP, SAE, or Swagelok® (including tube, VCO®, and VCR®).

⁷ Shipped with two 316L stainless steel M5 male O-ring face seal to 1/8" female NPT fittings.

Representative Examples



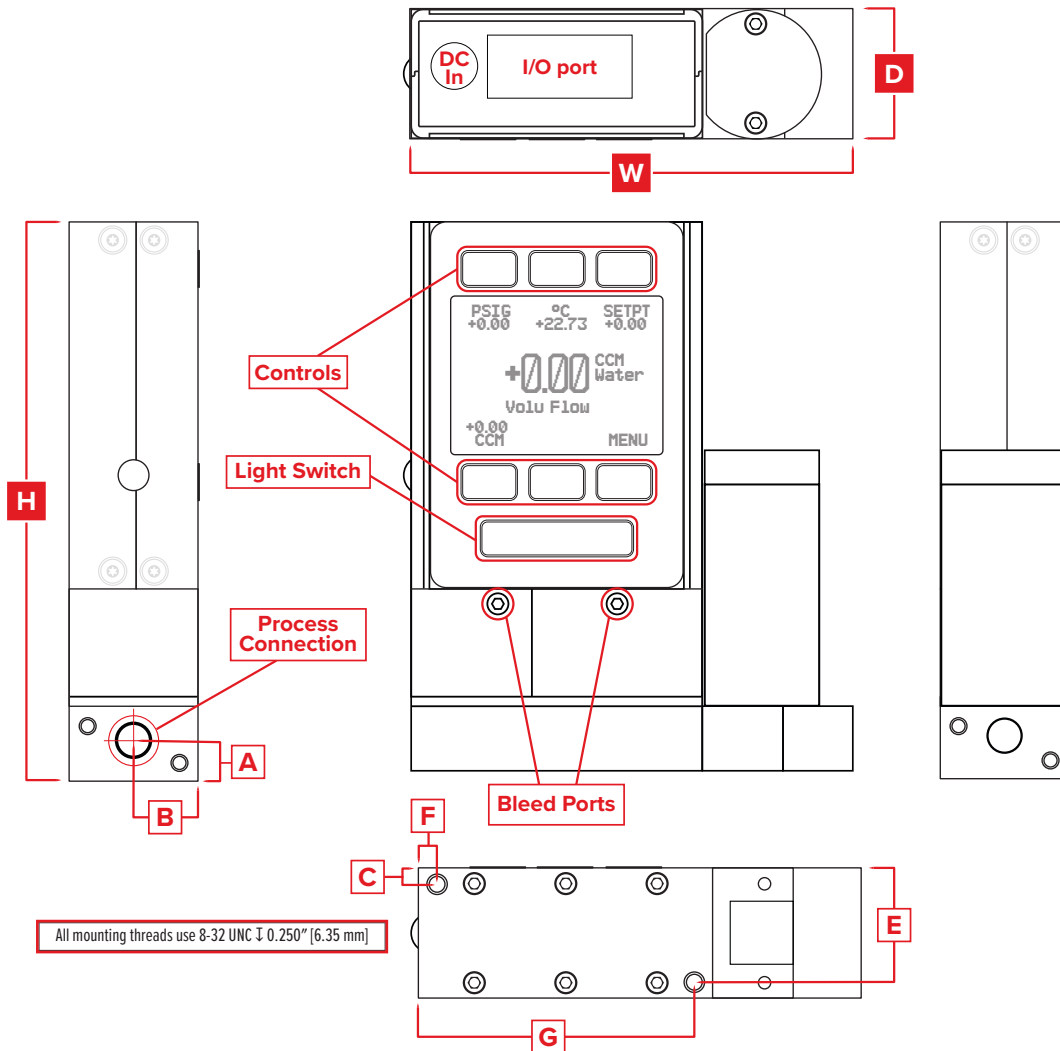
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DIMENSIONS											WEIGHT
Full scale flow	Type	Height	Width	Depth	A	B	C	E	F	G	
0.5–1 CCM	LC, LCS	4.488 in	3.338 in	1.050 in	0.336 in	0.525 in	0.125 in	0.925 in	1.113 in	3.188 in	≈ 1.1 lb
		114.00 mm	84.79 mm	26.67 mm	8.53 mm	13.34 mm	3.18 mm	23.50 mm	28.27 mm	80.98 mm	≈ 0.5 kg
2–500 CCM	LC, LCS	4.658 in	3.588 in	1.050 in	0.350 in	0.525 in	0.125 in	0.925 in	1.363 in	3.438 in	≈ 1.2 lb
		118.31 mm	91.14 mm	26.67 mm	8.89 mm	13.34 mm	3.18 mm	23.50 mm	34.62 mm	87.33 mm	≈ 0.5 kg
1–10 LPM	LCR, LCRS	5.878 in	7.650 in	2.250 in	1.120 in	1.125 in	0.375 in	1.875 in	0.575 in	3.075 in	≈ 9.0 lb
		149.30 mm	194.31 mm	57.15 mm	28.45 mm	28.58 mm	9.53 mm	47.63 mm	14.61 mm	78.11 mm	≈ 4.1 kg