Product Specifications

Apex Mass Flow Controllers
0.5 SCCM to 5SCCM Full Scale

SENSOR AND CONTROL PERFORMANCE	
Mass Flow Accuracy at Calibration Conditions[1]	±0.8% of reading and ±0.2% of full scale
High Accuracy Option[1]	±0.4% of reading and ±0.2% of full scale Available for ≥5 SCCM models
Repeatability (2σ)	±(0.2% of reading + 0.02% of full scale)
Steady State Control Range	0.01–100% of full scale
Typical Control Response Time	As fast as 100 ms, flow rate dependent, user adjustable
Valve Function	Normally closed
Temperature Sensitivity	Mass flow zero and span shift: 0.02% of full scale per °C from 25°C
Pressure Sensitivity	Mass flow zero and span shift: ±(0.08% of reading + 0.02% of full scale) per atm from calibration conditions
Operating Temperature Range	−10–60°C
Temperature Accuracy	±0.75°C
Operating Pressure Full Scale	160 PSIA
Pressure Accuracy above 1 atm	±0.5% of reading
Pressure Accuracy below 1 atm	±0.07 PSIA
Totalizer Volume Uncertainty	±0.5% of reading in additional uncertainty
Sensor Response Time	<1 ms
Typical Indication Response Time	<10 ms, flow rate dependent
Typical Warm-Up Time	<1 s

1 Stated accuracy is after tare under equilibrium conditions, includes repeatability and linearity.

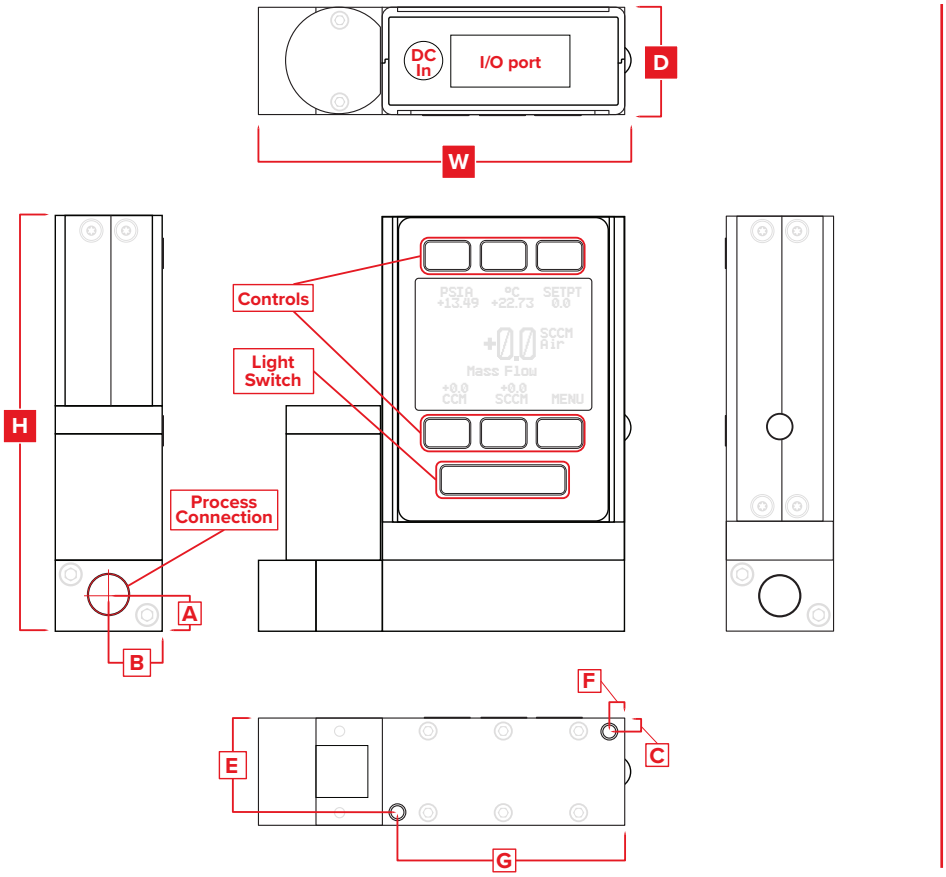
MECHANICAL	
Minimum Operating Pressure	11.5 PSIA common mode pressure (consult Alicat for lower operating pressures).
Maximum Operating Pressure	Damage possible above 175 PSIA common mode pressure. Damage possible above 75 PSI differential pressure.
Ingress Protection	IP40 (consult Alicat for weatherproofing options)
Humidity Range	0–95%, non-condensing
Wetted Materials	302, 303, 304, 316L, and 430FR stainless steel; FKM, alumina ceramic, brass, glass, gold, heat-cured epoxy, heat-cured silicone rubber, polyamide, silicon

COMMUNICATIONS	
Analog I/O Options	4–20 mA, 0–5 VDC, 1–5 VDC, 0–10 VDC
Digital I/O Options	RS-232 Serial by default RS-485 Serial, Modbus RTU (over RS-232 or RS-485), 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
Power Requirements[2]	12–24 VDC, 250 mA (290 mA if equipped with 4–20 mA output)
Digital Data Update Rate[2]	40 Hz at 19200 baud
Analog Data Update Rate[2]	1 kHz
Display Update Rate	10 Hz
Analog Signal Accuracy	±0.1% of full scale additional uncertainty

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

FEATURES	
STP Reference Conditions	25°C and 1 atm (default), user configurable
NTP Reference Conditions	0°C and 1 atm (default), user configurable
Monochrome LCD or Color TFT Display with Integrated Touchpad	Simultaneously displays mass flow, volumetric flow, temperature, setpoint, and pressure
Gas Select™	98 user-selectable gases stored internally. Each gas optimized to match NIST's REFPROP 10 gas property calculations across the operating temperature and pressure ranges for highest accuracy.
COMPOSER™	20 user-definable gas mixes. Each mix may have up to 5 gases with 0.01% composition precision.

RANGE-SPECIFIC TECHNICAL DATA			
Full scale flow	Pressure drop at full scale flow[3]	Process connections[4]	Mount tap size
0.5 SCCM	1.0 PSID	M5 female (10-32 compatible)[5]	2× 8-32 UNC 0.175 in [4.45 mm]
1 SCCM–5 SCCM	2.0 PSID	M5 female (10-32 compatible)[5]	2× 8-32 UNC 0.175 in [4.45 mm]



DIMENSIONS										WEIGHT
Full scale flow	Height	Width	Depth	A	B	C	E	F	G	
0.5–5 SCCM	3.897 in	3.338 in	1.050 in	0.336 in	0.525 in	0.125 in	0.925 in	0.150 in	2.225 in	≈ 1.1 lb
	98.98 mm	84.79 mm	26.67 mm	8.53 mm	13.34 mm	3.18 mm	23.50 mm	3.81 mm	56.52 mm	≈ 0.5 kg