

Technical Data for IS-Max ISMQ-Series Mass Flow Meters

10 sccm full scale through 5000 SLPM full scale

Standard specifications. Consult Alicat for available options.



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CERTIFICATIONS	MARKING	CERTIFICATE
ATEX	Ex II 1G Ex ia IIC T4 Ga T _{amb} -20°C to +70°C	DEKRA 22ATEX0075X
IECEX	Ex ia IIC T4 Ga T _{amb} -20°C to +70°C	IECEX DEK 22.0078X
North America	Class I, Div 1, Groups A-D T4, Ex ia Class I, Zone 0, AEx\Ex ia IIC T4 Ga T _{amb} -20°C to +70°C	DEKRA 23CAUS40-127215

SENSOR PERFORMANCE		
RANGE	10 sccm – 20 SLPM	50 – 5000 SLPM
Mass flow accuracy ¹	± 0.6% of reading or ± 0.1% of full scale, whichever is greater	± 2% of full scale
Flow repeatability (2σ)	± 0.1% of full scale	± 0.2% of full scale
Pressure accuracy	Above 1 atm: ± 0.5% of reading Below 1 atm: ± 0.07 PSIA	
Flow measurement range	0.1 – 100% (1,000:1 turndown ratio)	0.2 – 100% of full scale (500:1 turndown ratio)
Operating pressure	11.5 – 320 PSIA	
Temperature sensitivity	Mass flow zero shift: ± 0.01% of full scale per °C from tare pressure Mass flow span shift: ± 0.1% of reading per °C from 25°C	Mass flow zero shift and span shift: ± 0.01% of full scale per °C from 25°C
Pressure sensitivity	Mass flow zero shift: ± 0.01% of full scale per °C from tare temperature, per atm from tare pressure Mass flow span shift: ± 0.01% of reading per °C from 25°C, per atm from calibration conditions	Mass flow zero shift: ± 0.01% of full scale per atm from tare pressure Mass flow span shift: ± 0.1% of reading per atmosphere from calibration conditions
Temperature accuracy	± 0.75 °C	
Operating temperature range	-20 – 70 °C (ambient and gas)	
Totalizer volume uncertainty	± 0.1% 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 (for mass flow), under equilibrium conditions, includes repeatability and linearity.

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MECHANICAL	
Wetted materials ²	303 and 316L stainless steel, alumina ceramic, glass, gold, heat-cured epoxy, heat-cured silicone rubber, polyamide, silicon, FKM
Maximum pressure	Damage possible above 400 PSIA common mode pressure. Damage possible by rapid pressure change above 75 PSI differential pressure.
Relative humidity range	0 – 95%, non-condensing
Ingress protection	IP66 rating Dust-tight and protected against strong jets of water
Mounting orientation sensitivity	None
Mounting holes	4× 6-32 UNC threaded ± 0.276" [7.01 mm]

² Alternative elastomer materials available, consult Alicat.

POWER AND COMMUNICATIONS	
Digital output options	RS-232 or RS-485 (both options work with the Alicat ASCII command and control language AND the Modbus RTU industrial protocol)
Digital data update rate	40 Hz at 19200 baud
Analog output options	4 – 20 mA
Analog data update rate	1 kHz
Analog signal accuracy	± 0.1% of full scale additional uncertainty
Interactive display	Monochrome LCD with integrated touchpad and backlight; simultaneously displays mass flow, volumetric flow, temperature, gauge pressure, and absolute pressure
Display update rate	10 Hz
Electrical connection options	DB-15
Power requirements	See DOC-MANUAL-IS-SAFEINSTALLATION

FEATURES	
STP reference conditions	25 °C and 1 atm (default), user-configurable
NTP reference conditions	0 °C and 1 atm (default), user-configurable
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 resolution.
Multivariate process measurements	Volumetric flow, mass flow, absolute pressure, gauge pressure, barometric pressure, temperature, totalizer
Totalizer	Measure the total accumulated mass of a particular gas (or gas mixture) that has flowed in a process.

RANGE-SPECIFIC TECHNICAL DATA			
Full scale flow	Part numbers	Pressure drop at full scale when venting air to atmosphere	Recommended process connections ³
10 – 50 sccm	ISMQ-GA, ISMQ-IA, ISMQ-LA	1.0 PSID	M5 x 0.8mm female
100 sccm – 20 SLPM	ISMQ-NA, ISMQ-OA, ISMQ-QA, ISMQ-BB, ISMQ-EB, ISMQ-FB, ISMQ-GB, ISMQ-IB	1.0 PSID	1/8" NPT female
50 SLPM	ISMQ-LB	2.0 PSID	1/4" NPT female
100 SLPM	ISMQ-NB	2.5 PSID	1/4" NPT female
250 SLPM	ISMQ-PB	2.1 PSID	1/2" NPT female
500 SLPM	ISMQ-QB	4.0 PSID	3/4" NPT female
1000 SLPM	ISMQ-RB	6.0 PSID	3/4" NPT female
3000 SLPM ⁴	ISMQ-YB	7.1 PSID	1 1/4" NPT female
5000 SLPM ⁵	ISMQ-ZB	3.4 PSID	1 1/2" NPT female

³ Consult Alicat for available connection options, such as: compression, BSPP, SAE, or Swagelok®-compatible (VCO® and VCR®).

⁴ ISMQ-YB are not compliant with the Pressure Equipment Directive (PED) 2014/68/EU if used with PED Group 1 gases above 17.5 bar gauge.

⁵ ISMQ-ZB are not compliant with the Pressure Equipment Directive (PED) 2014/68/EU if used with PED Group 1 gases above 13.3 bar gauge.

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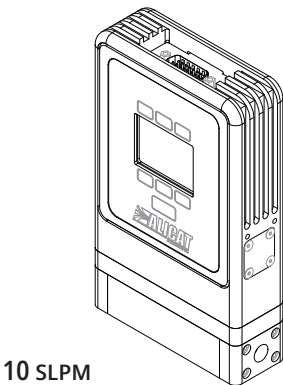
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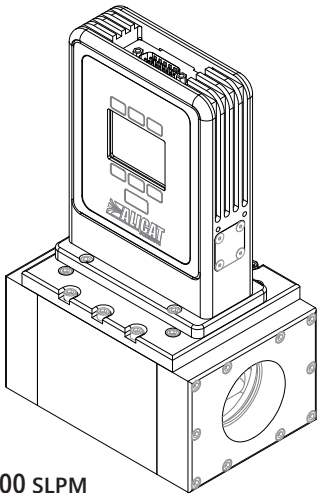


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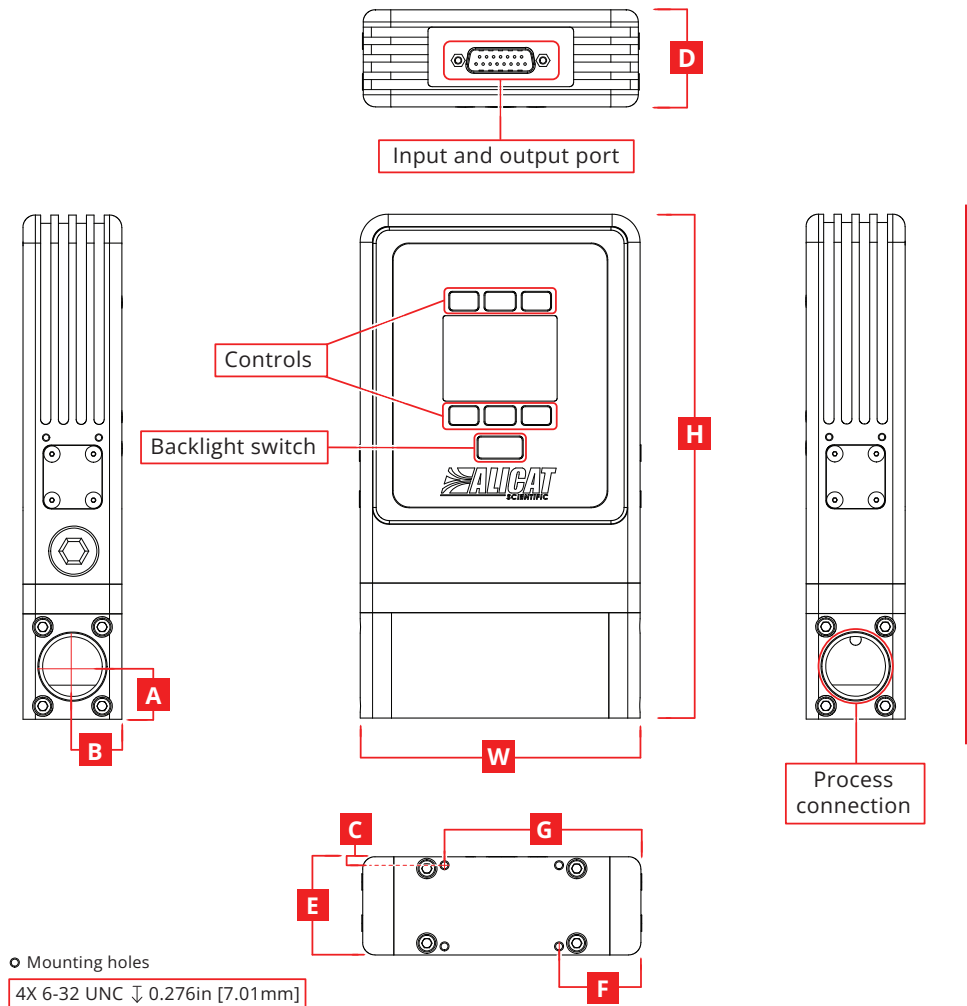
Representative Examples



10 SLPM



5000 SLPM



DIMENSIONS										WEIGHT
Full scale flow	Width	Depth	Height	A	B	C	E	F	G	
10 sccm – 20 SLPM	4.25"	1.50"	7.05"	0.50"	0.75"	0.13"	1.35"	1.25"	3.00"	≈ 5.0 lb
	108.0 mm	38.1 mm	179.1 mm	12.7 mm	19.1 mm	3.3 mm	34.2 mm	31.8 mm	76.2 mm	≈ 2.3 kg
50 – 1000 SLPM	4.25"	1.50"	7.65"	0.80"	0.75"	0.13"	1.35"	1.25"	3.00"	≈ 6.0 lb
	108.0 mm	38.1 mm	194.3 mm	20.3 mm	19.1 mm	3.3 mm	34.2 mm	31.8 mm	76.2 mm	≈ 2.7 kg
2000 – 3000 SLPM	5.20"	2.90"	8.21"	1.12"	1.45"	0.20"	2.70"	1.35"	3.85"	≈ 9.2 lb
	132.1 mm	73.7 mm	208.4 mm	28.4 mm	36.8 mm	5.1 mm	68.6 mm	34.3 mm	97.8 mm	≈ 4.2 kg
5000 SLPM	5.60"	3.84"	9.18"	1.45"	1.92"	0.30"	3.55"	1.55"	4.05"	≈ 16.2 lb
	142.2 mm	97.5 mm	233.0 mm	36.8 mm	48.8 mm	7.5 mm	90.0 mm	39.4 mm	102.9 mm	≈ 7.3 kg