

# Technical Data for IS-Max ISMW-Series Mass Flow Meters

0.5 sccm full scale through 1000 SLPM full scale

Standard specifications. Consult Alicat for available options.



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CERTIFICATIONS	MARKING	CERTIFICATE
ATEX	II 1G Ex ia IIC T4 Ga T <sub>amb</sub> -20 °C to +70 °C	DEKRA 22ATEX0075X
IECEX	Ex ia IIC T4 Ga T <sub>amb</sub> -20 °C to +70 °C	IECEX DEK 22.0078X

SENSOR PERFORMANCE <sup>1</sup>			
RANGE	0.5 – 5 sccm	10 SCCM – 30 SLPM	50 – 1000 SLPM
Mass flow accuracy <sup>2,3</sup>	Standard accuracy: ±0.8% of reading and ±0.2% of full scale High accuracy: ±0.4% of reading and ±0.2% of full scale	Standard accuracy: ±0.75% of reading or ±0.1% of full scale, whichever is greater High accuracy: ±0.6% of reading or ±0.1% of full scale, whichever is greater	Standard accuracy: ±0.8% of reading and ±0.2% of full scale High accuracy: ±0.4% of reading and ±0.2% of full scale
Flow repeatability (2σ)	±0.2% of reading and ±0.02% of full scale	±0.1% of reading and ±0.02% of full scale	±0.2% of reading and ±0.02% of full scale
Pressure accuracy <sup>2</sup>	Above 1 atm: ±0.5% of reading Below 1 atm: ±0.07 PSIA		
Flow measurement range	0.01 – 100% of full scale (10,000:1 turndown ratio)		
Operating pressure	60 PSIA		
Pressure sensitivity	Mass flow zero and span shift: ±0.08% of reading ±0.02% of full scale 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 atm from calibration conditions	Mass flow zero and span shift: ±0.08% of reading ±0.02% of full scale per atm calibration conditions
Temperature sensitivity	Mass flow zero shift: ±0.03% of full scale per °C from tare temperature Mass flow span shift: ±0.01% of reading per °C from 25°C	Mass flow zero and span shift: ±0.03% of full scale per °C from 25 °C	
Temperature accuracy	±0.75 °C		
Relative humidity accuracy <sup>4</sup>	±1.8% RH at +23 °C (0% RH to 90% RH)		
Relative humidity temperature sensitivity <sup>4</sup>	0.05% RH/°C (0 °C to +60 °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	127 ms, user adjustable		
Typical warm-up time	<1 s		

<sup>1</sup> Flow rate and pressure drop vary depending on process gas.

<sup>2</sup> Stated accuracy is after tare (for mass flow), under equilibrium conditions, includes repeatability and linearity.

<sup>3</sup> High accuracy mass flow readings only available on devices with a full scale range over 5 SCCM and under 500 SLPM.

<sup>4</sup> Relative humidity sensor is an optional feature.

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MECHANICAL	
Wetted materials	303 and 316L stainless steel; FKM, alumina ceramic, glass, gold, heat-cured epoxy, heat-cured silicone rubber, polyamide, silicon
Maximum pressure	Damage possible above 80 PSIA common mode pressure. Damage possible by rapid pressure change above 15 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 $\mp$ 0.276" [7.01 mm]

POWER AND COMMUNICATIONS	
Digital output options	RS-232 Serial and Modbus RTU, RS-485 Serial and Modbus RTU
Digital data update rate	40 Hz at 19200 baud
Analog output options	4 – 20 mA
Analog data update rate	1 kHz
Analog signal accuracy	$\pm$ 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 <b>Optional:</b> relative humidity
Totalizer	Measure the total accumulated mass of a particular gas (or gas mixture) that has flowed in a process.

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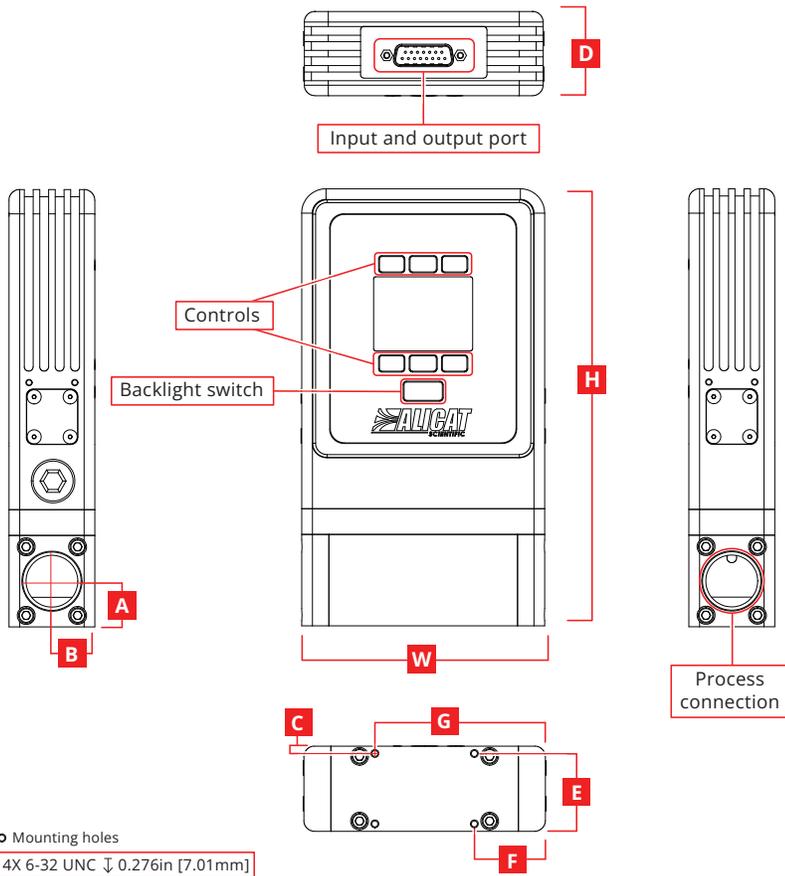


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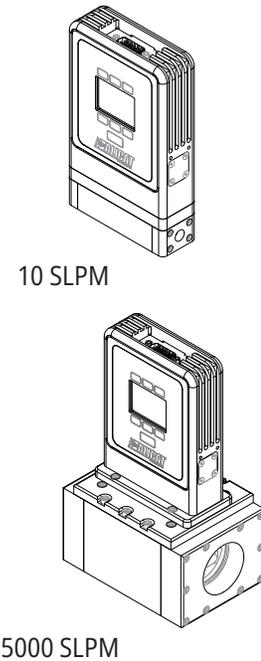
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RANGE-SPECIFIC TECHNICAL DATA		
Full scale flow	Pressure drop at full scale when venting air to atmosphere	Default process connections <sup>5</sup>
0.5 – 50 sccm	0.07 PSID	M5 x 0.8mm female
100 sccm – 5 SLPM	0.07 PSID	1/8" NPT female
10 SLPM	0.08 PSID	1/4" NPT female
20 SLPM	0.25 PSID	1/4" NPT female
40 SLPM	0.12 PSID	1/2" NPT female
50 SLPM	0.14 PSID	3/4" NPT female
100 SLPM	0.24 PSID	3/4" NPT female
250 SLPM	0.60 PSID	3/4" NPT female
500 SLPM	0.39 PSID	3/4" NPT female
1000 SLPM	0.24 PSID	2" NPT female

<sup>5</sup> Consult Alicat for available connection options, such as: compression, face seal, push-to-connect, BSPP, SAE, or Swagelok®-compatible (VCO® and VCR®).



## Representative Examples



Full scale flow	DIMENSIONS									WEIGHT
	Width	Depth	Height	A	B	C	E	F	G	
0.5 SCCM – 30 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
40 – 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

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