

Technical Data for **Whisper Series** Mass Flow Meters

0.5 sccm full scale through 5 sccm full scale

Standard specifications. Consult Alicat for available options.



+1 (888) 290-6060
alicat.com/mw

| SENSOR 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 |
| Bidirectional Option ¹ | ±0.2% of full scale in addition to base accuracy (above) |
| Repeatability (2σ) | ±(0.2% of reading + 0.02% of full scale) |
| Flow Measurement Range | 0.01–100% of full scale |
| Temperature Sensitivity | Mass flow zero shift and span shift: 0.03% of full scale per °C from 25°C |
| Pressure Sensitivity | Mass flow zero shift and span shift: ±(0.08% of reading + 0.02% of full scale) per atmosphere from calibration conditions |
| Operating Temperature Range | –10–60°C (expanded range available) |
| Temperature Accuracy | ±0.75°C |
| Operating Pressure Full Scale | 60 PSIA (additional options available) |
| Pressure Accuracy above 1 ATM | ±0.75% of reading |
| Pressure Accuracy below 1 ATM | ±0.1 PSIA |
| Totalizer Volume Uncertainty | ±0.5% of reading additional uncertainty |
| Sensor Response Time | <1 ms |
| Typical Indication Response Time ² | 127 ms (user adjustable) |
| Typical Warm-Up Time | <1 s |

1 Stated accuracy is after tare under equilibrium conditions.
Extreme gas behavior (especially near state boundaries) can introduce additional flow uncertainties.

2 Indication response time includes user-adjustable averaging up to 255 ms.

| MECHANICAL | |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Minimum Operating Pressure | 11.5 PSIA common mode pressure (lower operating pressures available) Differential pressure must exceed model pressure drop, see below for details |
| Maximum Operating Pressure | Damage possible above 80 PSIA common mode pressure Damage possible above 10 PSID differential pressure |
| Ingress Protection | IP40 (consult Alicat for weatherproofing options) |
| Humidity Range | 0–95%, non-condensing |
| Wetted Materials | 302 / 303 stainless steel, Viton®, glass-reinforced polyphenylene sulfide, alumina, glass, gold, silicon, heat-cured epoxy, heat-cured silicone rubber |

| 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 ³ | 9–24 VDC, 40 mA (12–24 VDC, 80 mA if equipped with 4–20 mA or 0–10 VDC output) |
| Digital Data Update Rate ³ | 40 Hz at 19200 baud |
| Analog Data Update Rate | 1 kHz |
| Display Update Rate | 10 Hz |
| Analog Signal Accuracy | ±0.1% of full scale additional uncertainty |

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

Technical Data for **Whisper Series** Mass Flow Meters

0.5 sccm full scale through 5 sccm full scale

Standard specifications. Consult Alicat for available options.



+1 (888) 290-6060
alicat.com/mw

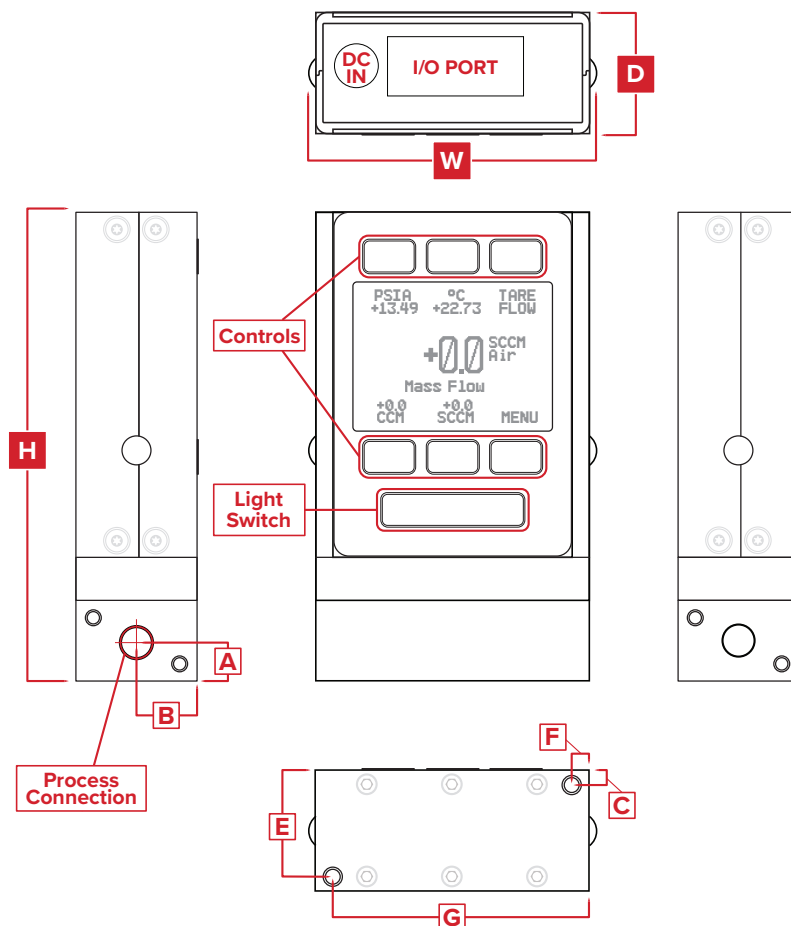
| FEATURES | |
|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| STP Reference Conditions | 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, 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% precision. |

| RANGE SPECIFIC SPECIFICATIONS | | | |
|-------------------------------|--------------------------------------------------------|--------------------------------------------------|--------------------------------|
| Full scale flow | Pressure drop at full scale flow venting to atmosphere | Process connections ⁴ | Mount tap size |
| 0.5–5 sccm | 0.07 PSID | M5 female thread (10-32 compatible) ⁵ | 2× 8-32 UNC 0.175 in [4.45 mm] |

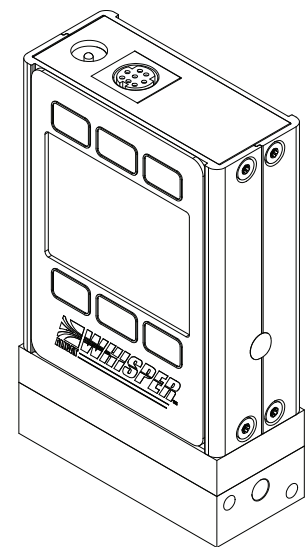
⁴ Consult Alicat for available process connection options, such as:

Compression, face seal, push-to-connect, BSPP, SAE, or Swagelok® (including tube, VCO, and VCR).

⁵ Shipped with Buna-N O-Ring face seal to 1/8" female NPT fittings.



Representative Example



5 sccm

| DIMENSIONS | | | | | | | | | | |
|-----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Full scale flow | Weight | Height | Width | Depth | A | B | C | E | F | G |
| 0.5–5 sccm | ≈ 0.8 lb | 3.897 in | 2.375 in | 1.050 in | 0.336 in | 0.525 in | 0.125 in | 0.925 in | 0.150 in | 2.225 in |
| | ≈ 0.4 kg | 98.98 mm | 60.33 mm | 26.67 mm | 8.53 mm | 13.34 mm | 3.18 mm | 23.50 mm | 3.81 mm | 56.52 mm |