

MW/MCW “Whisper” Series

Low Pressure Drop Mass Flow Measurement and Control



alicat.com/whisper

Series Overview

Alicat Scientific “Whisper”-Series digital mass flow meters and controllers accurately and rapidly measure or control the mass flow rate, volumetric flow rate and pressure of process gases with minimal effect on the process itself. The Whisper Series features extraordinarily low pressure drops, as low as 3.6 mbar (0.052 psi) at full scale, or 0.018 mbar when fully turned down (200:1 turndown). Low pressure drop means minimal system impact, resulting in faster mass flow measurement (<10 ms) and control (<100 ms).

At the heart of Alicat’s Whisper-Series mass flow meters and controllers is a patented, internally compensated, laminar differential pressure measurement technology that yields linear results over a very wide flow range. This produces volumetric and mass flow data that is fully compensated for changes in pressure and temperature and corrected for the user’s STP. All mass flow instruments come with NIST-traceable calibration sheets. Alicat backs every mass flow instrument with generous customer support, including free technical phone support, prompt recalibration service and a lifetime warranty.

Alicat Whisper-Series mass flow meters and controllers feature large integrated displays with touchpad-accessible gas selection, setpoint control and PID valve tuning. The Whisper Series comes standard with analog and RS-232 digital communications. Extensive customizations are available, including Class 1, Div 2 ATEX/CSA ratings for use in hazardous environments and battery operation for meters (MWB Series).

Applications

Alicat Scientific Whisper-Series digital mass flow meters and controllers are best used wherever minimal system pressure is available to be lost by mass flow instrumentation. Applications include atmospheric testing and environmental air sampling, where little inlet pressure is available. Whisper mass flow controllers make rapid leak testing a reality, even at low flow rates. Multiple gas calibrations and a low 200:1 turndown ratio allow a single Whisper-Series meter or controller to serve many applications.

The Whisper Series is available in full-scale mass flow rates from 0-0.5 sccm to 0-500 slpm.



Technical Data for Alicat **WHISPER** Mass Flow Controllers

0 – 0.5 sccm Full Scale through 0 – 500 slpm Full Scale



Tel: 888-290-6060

www.alicat.com/whisper

Standard Specifications (Contact Alicat for available options.)

Performance	Whisper MCW & MCRW Mass Flow Controller
Accuracy at calibration conditions after tare	± (0.8% of Reading + 0.2% of Full Scale)
High Accuracy at calibration conditions after tare	± (0.4% of Reading + 0.2% of Full Scale) High Accuracy option not available for units ranged under 5 sccm or over 500 slpm.
Repeatability	± 0.2% Full Scale
Zero Shift and Span Shift	0.02% Full Scale / °Celsius / Atm
Operating Range / Turndown Ratio	0.5% to 100% Full Scale / 200:1 Turndown
Maximum Controllable Flow Rate	102.4% Full Scale
Typical Response Time	100 ms (Adjustable)
Warm-up Time	< 1 Second

Operating Conditions	Whisper MCW & MCRW Mass Flow Controller
Mass Reference Conditions (STP)	25°C & 14.696 psia (standard — others available on request)
Operating Temperature	-10 to +50 °Celsius
Humidity Range (Non-Condensing)	0 to 100%
Maximum Pressure	50 psig Higher line pressures available, please contact Alicat.
Mounting Attitude Sensitivity	MCW: None MCRW: Mount with valve cylinder vertical & upright
Valve Type	Normally Closed
Ingress Protection	IP40
Wetted Materials	MCW: 303 & 302 Stainless Steel, Viton®, Silicone RTV (Rubber), Glass Reinforced Nylon, Aluminum, Brass, 430FR Stainless Steel, Silicon, Glass. MCRW: 303 & 302 Stainless Steel, Viton®, Silicone RTV (Rubber), Glass Reinforced Nylon, Aluminum, 416 Stainless Steel, Nickel, Silicon, Glass. If your application demands a different material, please contact Alicat.

Communications / Power	Whisper MCW & MCRW Mass Flow Controller
Monochrome LCD or Color TFT Display with integrated touchpad	Simultaneously displays Mass Flow, Volumetric Flow, Pressure and Temperature
Digital Output Signal ¹ Options	RS-232 Serial / RS-485 Serial / PROFIBUS ³
Analog Output Signal ² Options	0-5 Vdc / 1-5 Vdc / 0-10 Vdc / 4-20 mA
Optional Secondary Analog Output Signal ²	0-5 Vdc / 1-5 Vdc / 0-10 Vdc / 4-20 mA
Electrical Connection Options	8 Pin Mini-DIN / 9-pin D-sub (DB9) / 15-pin D-sub (DB15) / 6 pin locking
Supply Voltage	MCW: 12 to 30 Vdc (15-30 Vdc for 4-20 mA outputs) MCRW: 24 to 30 Vdc
Supply Current	MCW: 0.250 Amp MCRW: 0.750 Amp

1. The **Digital Output Signal** communicates Mass Flow, Volumetric Flow, Pressure and Temperature
 2. The **Analog Output Signal** and **Optional Secondary Analog Output Signal** communicate your choice of Mass Flow, Volumetric Flow, Pressure or Temperature
 3. If selecting **PROFIBUS**, no analog signal is available. PROFIBUS units do not have the display. See PROFIBUS specifications for PROFIBUS supply voltages and currents. (www.alicat.com/profibus)

Features	Whisper MCW & MCRW Mass Flow Controller
30 Gas Select™ 30 On-Board User Selectable Gas Calibrations	Programmed Gases: Acetylene, Air, Argon, Butane, Carbon Dioxide, Carbon Monoxide, Ethane, Ethylene (Ethene), Helium, Hydrogen, Iso-Butane, Krypton, Methane, Neon, Nitrogen, Nitrous Oxide, Oxygen, Propane, Sulfur Hexafluoride, Xenon, A-25, A-75, A1025, C-2, C-8, C-10, C-25, C-75, P-5, Star29 If your application calls for a gas not on this list, please let us know. We can also calibrate to a wide variety of complex gas mixtures involving up to eight gas constituents.

Range Specific Specifications

Full Scale Flow Mass Controller	Pressure Drop at FS Flow (psid) venting to atmosphere	Mechanical Dimensions	Process Connections ¹
MCW 0.5 sccm to 2 sccm	0.06	3.9"H x 3.4"W x 1.1"D	M-5 (10-32) Female Thread (Shipped with M-5 (10-32) Male Buna-N O-ring face seal to 1/8" Female NPT fittings.)
MCW 5 sccm to 10 sccm	0.08		
MCW 20 sccm	0.07		
MCW 50 sccm to 200 sccm	0.07	4.1"H x 3.6"W x 1.1"D	1/8" NPT Female
MCW 500 sccm	0.08		
MCW 1 slpm	0.10		
MCW 2 slpm	0.18	5.5"H x 7.7"W x 2.3"D	1/4" NPT Female
MCRW 5 slpm	0.10		
MCRW 10 slpm	0.12		
MCRW 20 slpm	0.26	5.5"H x 7.7"W x 2.3"D	1/2" NPT Female
MCRW 40 slpm	0.14		
MCRW 50 slpm	0.17		
MCRW 100 slpm	0.30	5.5"H x 7.3"W x 2.3"D	3/4" NPT Female
MCRW 250 slpm	0.69		
MCRW 500 slpm	0.69		

1. Compatible with Beswick®, Swagelok® tube, Parker®, face seal, push connect and compression adapter fittings. VCR and SAE connections upon request.