

Technical Data for Micro-Flow and Ultra-Low Flow MC Mass Flow Controllers

0 to 0.5SCCM Full Scale through 0 to 50SCCM Full Scale

The following specifications are for the standard configuration of the Alicat product. There are many low-cost customization options available.

Specification	Mass Controller	Description
Accuracy	± (0.8% of Reading + 0.2% of Full Scale)	At calibration conditions after tare
High Accuracy Option	± (0.4% of Reading + 0.2% of Full Scale)	At calibration conditions after tare
Repeatability	± 0.2%	Full Scale
Operating Range	1% to 100% Full Scale	Measure and Control
Typical Response Time	100	Milliseconds (Adjustable)
Standard Conditions (STP)	25°C & 14.696PSIA	Mass Reference Conditions
Operating Temperature	-10 to +50	°Celsius
Zero Shift	0.02%	Full Scale / °Celsius / Atm
Span Shift	0.02%	Full Scale / °Celsius / Atm
Humidity Range	0 to 100%	Non-Condensing
Controllable Flow Rate	102.4%	Full Scale
Maximum Pressure	145	PSIG
Input /Output Signal Digital	Mass Flow, Volumetric Flow, Pressure & Temperature	RS-232 Serial or RS-485 Serial or PROFIBUS or DeviceNet ²
Input / Output Signal Analog	Mass Flow	0-5Vdc
Optional Input / Output Signal Secondary Analog	Mass Flow, Volumetric Flow, Pressure or Temperature	0-5 Vdc or 0-10Vdc or 4-20mA
Electrical Connections	8 Pin Mini-DIN or DB-15	
Supply Voltage	12 to 30 Vdc (15-30Vdc for 4-20mA outputs)	
Supply Current	0.250Amp	
Mounting Attitude Sensitivity	None	
Warm-up Time	< 1	Second
Wetted Materials ²	303 & 302 Stainless Steel, Viton®, Silicone RTV (Rubber), Glass Reinforced Nylon, Aluminum, Brass, 430FR Stainless Steel, Silicon, Glass.	

1. If selecting PROFIBUS or DeviceNet no analog signal is available. PROFIBUS / DeviceNet units do not have the display. See PROFIBUS or DeviceNet specifications for PROFIBUS or DeviceNet supply voltages and currents.
2. If your application demands a different material, please contact Application Assistance for available options.

Mechanical Specifications

Full Scale Flow Mass Controller	Mechanical Dimensions	Process Connections ¹	Pressure Drop ² (PSID)
0.5SCCM to 50SCCM	3.9"H x 3.4"W x 1.1"D	M-5 (10-32) Female Thread*	1.0

Units ≤50SCCM F.S. are shipped with M-5 (10-32) Male Buna-N O-ring face seal to 1/8" Female NPT fittings. These adaptor fittings were selected for customer convenience in process connection. It should be noted that the 1/8" Female NPT introduces additional dead volume. To minimize dead volume, please see [Accessories](#) for the M-5 (10-32) Male to 1/8"OD compression fitting.

1. Compatible with Beswick®, Swagelok® tube, Parker®, face seal, push connect and compression adapter fittings.
2. Venting to atmosphere. Lower Pressure Drops Available, Please contact Application Assistance.

0.5SCCM to 50SCCM approximate shipping weight: 1.1 lb.

Technical Data for Low Flow MC Mass Flow Controllers

0 to 100SCCM Full Scale through 0 to 20SLPM Full Scale

The following specifications are for the standard configuration of the Alicat product. There are many low-cost customization options available.

Specification	Mass Controller	Description
Accuracy	± (0.8% of Reading + 0.2% of Full Scale)	At calibration conditions after tare
High Accuracy Option	± (0.4% of Reading + 0.2% of Full Scale)	At calibration conditions after tare
Repeatability	± 0.2%	Full Scale
Operating Range	1% to 100% Full Scale	Measure and Control
Typical Response Time	100	Milliseconds (Adjustable)
Standard Conditions (STP)	25°C & 14.696PSIA	Mass Reference Conditions
Operating Temperature	-10 to +50	°Celsius
Zero Shift	0.02%	Full Scale / °Celsius / Atm
Span Shift	0.02%	Full Scale / °Celsius / Atm
Humidity Range	0 to 100%	Non-Condensing
Controllable Flow Rate	102.4%	Full Scale
Maximum Pressure	145	PSIG
Input /Output Signal Digital	Mass Flow, Volumetric Flow, Pressure & Temperature	RS-232 Serial or RS-485 Serial or PROFIBUS or DeviceNet ²
Input / Output Signal Analog	Mass Flow	0-5Vdc
Optional Input / Output Signal Secondary Analog	Mass Flow, Volumetric Flow, Pressure or Temperature	0-5 Vdc or 0-10Vdc or 4-20mA
Electrical Connections	8 Pin Mini-DIN or DB-15	
Supply Voltage	12 to 30 Vdc (15-30Vdc for 4-20mA outputs)	
Supply Current	0.250Amp (at 12 Vdc, declining with increased supply voltage)	
Mounting Attitude Sensitivity	None	
Warm-up Time	< 1	Second
Wetted Materials ²	303 & 302 Stainless Steel, Viton®, Silicone RTV (Rubber), Glass Reinforced Nylon, Aluminum, Brass, 430FR Stainless Steel, Silicon, Glass.	
1. If selecting PROFIBUS or DeviceNet no analog signal is available. PROFIBUS / DeviceNet units do not have the display. See PROFIBUS or DeviceNet specifications for PROFIBUS or DeviceNet supply voltages and currents. 2. If your application demands a different material, please contact Application Assistance for available options.		

Mechanical Specifications

Full Scale Flow Mass Controller	Mechanical Dimensions	Process Connections ¹	Pressure Drop ² (PSID)
100SCCM to 500SCCM	4.1"H x 3.6"W x 1.1"D	1/8" NPT Female	1.0
1SLPM			1.5
2SLPM			3.0
5SLPM			2.0
10SLPM			5.5
20SLPM			20.0
1. Compatible with Beswick®, Swagelok® tube, Parker®, face seal, push connect and compression adapter fittings. 2. Lower Pressure Drops Available, Please contact Application Assistance.			

100SCCM to 20SLPM approximate weight: 1.2lb

Technical Data for MCP Moderate Flow Mass Flow Controllers

0 to 50SLPM Full Scale through 0 to 250SLPM Full Scale

NOTICE: The following specifications are applicable to Alicat MCP Series Mass Flow Controllers only.

Please note maximum pressure of 60 PSIG.

Specification	Mass Controller	Description
Accuracy	± (0.8% of Reading + 0.2% of Full Scale)	At calibration conditions after tare
High Accuracy Option	± (0.4% of Reading + 0.2% of Full Scale)	At calibration conditions after tare
Repeatability	± 0.2%	Full Scale
Operating Range	1% to 100% Full Scale	Measure and Control
Typical Response Time	100	Milliseconds (Adjustable)
Standard Conditions (STP)	25°C & 14.696PSIA	Mass Reference Conditions
Operating Temperature	-10 to +50	°Celsius
Zero Shift	0.02%	Full Scale / °Celsius / Atm
Span Shift	0.02%	Full Scale / °Celsius / Atm
Humidity Range	0 to 100%	Non-Condensing
Controllable Flow Rate	102.4%	Full Scale
Maximum Pressure	60	PSIG
Input /Output Signal Digital	Mass, Volumetric, Pressure & Temperature	RS-232 Serial
Input / Output Signal Analog	Mass Flow	0-5Vdc
Optional Input / Output Signal Secondary Analog	Mass, Volumetric, Pressure or Temperature	0-5 Vdc or 0-10Vdc or 4-20mA
Electrical Connections	8 Pin	Mini-DIN
Supply Voltage	12 to 30 Vdc	
Supply Current	0.250Amp	
Mounting Attitude Sensitivity	None	
Warm-up Time	< 1	Second
Wetted Materials ²	303 & 302 Stainless Steel, Viton®, Silicone RTV (Rubber), Glass Reinforced Nylon, Aluminum, Brass, 410 & 416 Stainless Steel.	
1. If your application demands a different material, please contact Application Assistance for available options.		

Mechanical Specifications

Full Scale Flow Mass Controller	Mechanical Dimensions	Process Connections ¹	Pressure Drop ² (PSID)
50SLPM	4.4"H x 5.4"W x 1.6"D	1/4" NPT Female	6.0
100SLPM			14.0
250SLPM	5.0"H x 6.0"W x 1.6"D	1/4" and 1/2" NPT Female	
1. Compatible with Beswick®, Swagelok® tube, Parker®, face seal, push connect and compression adapter fittings.			
2. Lower Pressure Drops Available, Please contact Application Assistance.			

Technical Data for Moderate Flow MC Mass Flow Controllers

0 to 50SLPM Full Scale through 0 to 100SLPM Full Scale

The following specifications are for the standard configuration of the Alicat product. There are many low-cost customization options available.

Specification	Mass Controller	Description
Accuracy	\pm (0.8% of Reading + 0.2% of Full Scale)	At calibration conditions after tare
High Accuracy Option	\pm (0.4% of Reading + 0.2% of Full Scale)	At calibration conditions after tare
Repeatability	\pm 0.2%	Full Scale
Operating Range	1% to 100% Full Scale	Measure and Control
Typical Response Time	100	Milliseconds (Adjustable)
Standard Conditions (STP)	25°C & 14.696PSIA	Mass Reference Conditions
Operating Temperature	-10 to +50	°Celsius
Zero Shift	0.02%	Full Scale / °Celsius / Atm
Span Shift	0.02%	Full Scale / °Celsius / Atm
Humidity Range	0 to 100%	Non-Condensing
Controllable Flow Rate	102.4%	Full Scale
Maximum Pressure	145	PSIG
Input /Output Signal Digital	Mass Flow, Volumetric Flow, Pressure & Temperature	RS-232 Serial or RS-485 Serial or PROFIBUS or DeviceNet ²
Input / Output Signal Analog	Mass Flow	0-5Vdc
Optional Input / Output Signal Secondary Analog	Mass Flow, Volumetric Flow, Pressure or Temperature	0-5 Vdc or 0-10Vdc or 4-20mA
Electrical Connections	8 Pin Mini-DIN or DB-15	
Supply Voltage	24 to 30 Vdc	
Supply Current	0.750Amp	
Mounting Attitude Sensitivity	Control response somewhat sensitive to inverted operation.	
Warm-up Time	< 1	Second
Wetted Materials ²	303 & 302 Stainless Steel, Viton®, Silicone RTV (Rubber), Glass Reinforced Nylon, Aluminum, 416 Stainless Steel, Nickel, Silicon, Glass.	
<p>1. If selecting PROFIBUS or DeviceNet no analog signal is available. PROFIBUS / DeviceNet units do not have the display. See PROFIBUS or DeviceNet specifications for PROFIBUS or DeviceNet supply voltages and currents.</p> <p>2. If your application demands a different material, please contact Application Assistance for available options.</p>		

Mechanical Specifications

Full Scale Flow Mass Controller	Mechanical Dimensions	Process Connections ¹	Pressure Drop ² (PSID)
50SLPM	4.7"H x 7.3"W x 2.3"D	1/4" NPT Female	9.0
100SLPM			11.7
<p>1. Compatible with Beswick®, Swagelok® tube, Parker®, face seal, push connect and compression adapter fittings.</p> <p>2. Lower Pressure Drops Available, Please contact Application Assistance.</p>			

50SLPM to 100SLPM approximate weight: 6.4 lb.

Technical Data for High Flow MCR Mass Flow Controllers

0 to 250SLPM Full Scale through 0 to 2000SLPM Full Scale

The following specifications are for the standard configuration of the Alicat product. There are many low-cost customization options available.

Specification	Mass Controller	Description
Accuracy	± (0.8% of Reading + 0.2% of Full Scale)	At calibration conditions after tare
High Accuracy Option ¹	± (0.4% of Reading + 0.2% of Full Scale)	At calibration conditions after tare
Repeatability	± 0.2%	Full Scale
Operating Range	1% to 100% Full Scale	Measure and Control
Typical Response Time	100	Milliseconds (Adjustable)
Standard Conditions (STP)	25°C & 14.696PSIA	Mass Reference Conditions
Operating Temperature	-10 to +50	°Celsius
Zero Shift	0.02%	Full Scale / °Celsius / Atm
Span Shift	0.02%	Full Scale / °Celsius / Atm
Humidity Range	0 to 100%	Non-Condensing
Controllable Flow Rate	102.4%	Full Scale
Maximum Pressure	145	PSIG
Input /Output Signal Digital	Mass Flow, Volumetric Flow, Pressure & Temperature	RS-232 Serial or RS-485 Serial or PROFIBUS or DeviceNet ²
Input / Output Signal Analog	Mass Flow	0-5Vdc
Optional Input / Output Signal Secondary Analog	Mass Flow, Volumetric Flow, Pressure or Temperature	0-5 Vdc or 0-10Vdc or 4-20mA
Electrical Connections	8 Pin Mini-DIN or DB-15	
Supply Voltage	24 to 30 Vdc	
Supply Current	0.750Amp	
Mounting Attitude Sensitivity	Control response somewhat sensitive to inverted operation.	
Warm-up Time	< 1	Second
Wetted Materials ³	303 & 302 Stainless Steel, Viton®, Silicone RTV (Rubber), Glass Reinforced Nylon, Aluminum, 416 Stainless Steel, Nickel, Silicon, Glass.	

1. High Accuracy option not available for units ranged over 500SLPM.
2. If selecting PROFIBUS or DeviceNet no analog signal is available. PROFIBUS / DeviceNet units do not have the display. See PROFIBUS or DeviceNet specifications for PROFIBUS or DeviceNet supply voltages and currents.
3. If your application demands a different material, please contact Application Assistance for available options.

Mechanical Specifications

Full Scale Flow Mass Controller	Mechanical Dimensions	Process Connections ¹	Pressure Drop ² (PSID)
250SLPM	5.5"H x 7.9"W x 2.3"D	1/2" NPT Female	4.6
500SLPM	5.5"H x 7.4"W x 2.3"D	3/4" NPT Female	6.5
1000SLPM			14.0
1500SLPM			17.0
2000SLPM	5.5"H x 8.1" W x 2.9" D		30.0

1. Compatible with Beswick®, Swagelok® tube, Parker®, face seal, push connect and compression adapter fittings.
2. Venting to atmosphere. Lower Pressure Drops Available, Please contact Application Assistance.

MCR-250SLPM to 1500SLPM approximate weight: 9.0 lb.
MCR-2000SLPM approximate weight: 12.0 lb.