

Precise Gas Flow Control within Gas Chromatography Systems

Higher peak resolution with Axetris Mass Flow Solutions

Gas Chromatography (GC) is one of the most important analytical techniques for analyzing compounds that can be transformed to a gaseous phase. A precise and stable gas flow control is essential at different locations within a GC system, in order to achieve high resolution peaks. Axetris offers a range of high-performance mass flow solutions to leading GC producers worldwide.

Precise gas flow control a must to achieve GC performance

A typical GC setup consists of a sampler, GC column, and a detector. Gas flow control within each of these elements brings with it specific challenges.

Sampling Systems

Examples: Head space, Purge-and-Trap (P/T) and Thermal desorption.

Requirements:

- Excellent **repeatability** for reliable results.
- High **turndown ratio** and **dynamic range** for sampling mode flexibility (e.g. during sampling and purging).

Carrier Gas Control

Examples: Typical GC carrier gases such as He, N₂ or H₂.

Requirements:

- Excellent **repeatability** ensures peak resolution.
- Quick **response time** for integration with pressure-based flow control systems.
- **Multigas capability** for flexibility in carrier gas selection.

Detector Gas Control

Examples: Flame Ionization (FID), Thermal Conductivity (TCD), Atomic Emission (AED, and Mass Spectrometers (MS).

Requirements:

- High **accuracy** for reliable measurement performance.
- Excellent **repeatability** to eliminate detector drift.

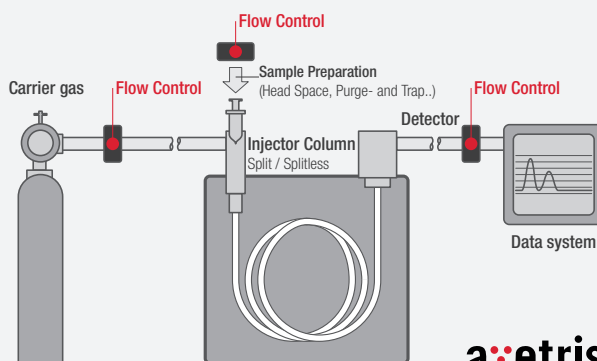


Precise gas flow control in a GC is a prerequisite for achieving high peak resolution and detection performance.



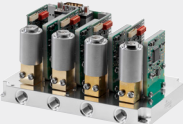
Axetris MFC Advantages:

- ✓ Extremely high repeatability of < 0.15% Of Reading (O.R.)
- ✓ Excellent turndown ratio > 1000:1 provides flexibility in flow range selection
- ✓ Quick response time of < 150 ms, e.g. for integration with pressure control systems

Flow Control in Gas Chromatography Systems



Axetris Mass Flow Meters and Controllers – A wide range of OEM options

	<p>OEM Mass Flow Meters</p> <ul style="list-style-type: none"> MFM 2020 MFM 2021 (PID Active) 	<p><i>For integrating into flow and pressure control systems</i></p>
	<p>OEM Mass Flow Controllers</p> <ul style="list-style-type: none"> MFC 2022 MFC 2222 MFC 2252 	<p><i>Integrated mass flow controller; available with a variety of interface options</i></p>
	<p>Gas Mixing and Blending Systems</p> <p>Custom-made to your specifications</p>	<p><i>Multi-channel gas flow control, e.g. for split flow control and manifolds for carrier gas or detector gases</i></p>

Performance benefits at a glance:

- ✓ Repeatability < 0.15% O.R.
- ✓ Turndown Ratio > 1000:1
- ✓ High Accuracy < 0.2% F.S. 0-10% F.S.
< 1% F.S. for 10-100% F.S.
- ✓ Multigas He, H₂, N₂, Air, Ar, CO₂, O₂, etc.
- ✓ Reaction Time < 4 ms (mass flow sensor)
< 150 ms (mass flow controller)
- ✓ Pressure Coefficient +/- 0.2% O.R.
- ✓ Long-Term Stability +/- 0.25% F.S. per/year

O.R.: Of Reading; F.S.: Full Scale

About Axetris Mass Flow Meters and Controllers

Axetris offers OEM mass flow meters (MFM) and controllers (MFC) which offer outstanding value to the customer. The proprietary, platinum-based MEMS chip technology guarantees excellent accuracy and repeatability in combination with high speed and an extended dynamic range.

The Axetris mass flow technology is used by many leading companies in the fields of gas chromatography, leak testing, thermal analytics, mass spectroscopy, thin film deposition, plasma engineering and more.



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