Bio-Series Gas Control for Upstream Processing

MASS FLOW CONTROL AND MONITORING FOR BIOREACTORS & FERMENTERS

Fewer controllers, better control:
fully configurable mass flow controllers and meters for bioprocessing

- Control via local display, analog, serial, or industrial communications
- Lock screen to protect process parameters
- Valve drive % for redundancy in preventative maintenance
- Change control & management processes for GMP environments
- USP Class VI certified elastomers & 316L stainless steel flow body; various materials options for sensor and valve per ASME BPE-2016
- Oxygen cleaning available
- ATEX Class 1 Div 2 available; IP66, IP67 & IS certifications coming soon
- Lifetime warranty on all devices

Bio-Series and MC-Series mass flow meters and controllers share hardware & software cores and are both fully configurable. Bio-Series devices come preconfigured for bioprocessing.

Standard range specifications

**Accuracy:** Greater of ±0.6% of reading or ±0.1% of full scale

**High accuracy:** Greater of ±0.5% of reading or ±0.1% of full scale

**2σ repeatability:** ± (0.1% of reading + 0.02% of full scale)

**Control range:** 0.01–100% of full scale, with control on PID loop or flow setpoint

**Warmup time:** < 1 second

**Response time:** 50 milliseconds

<table>
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<tr>
<th>Standard full flow ranges</th>
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<tbody>
<tr>
<td>0.5 SCCM</td>
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<tr>
<td>1 SCCM</td>
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<td>2 SCCM</td>
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<td>5 SCCM</td>
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<tr>
<td>10 SCCM</td>
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<td>20 SCCM</td>
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Minimal spares inventory for full system coverage:

Switch between air, $O_2$, $CO_2$ & $N_2$ without requiring recalibration and with repeatable control to 0.01% of full scale.

Alicat mass flow controllers can be tuned from 50–125% of body size and read to 28% above tuned range. Alicat controllers outperform competitor products in accuracy and repeatability at high turndown and in temperature and pressure insensitivity. *Data from published specs as of April 2021.*