

Process Gas: CO2 25.00 L/min

Flow, Pressure & Vapor Instrumentation



BROOKS[®]
INSTRUMENT

Beyond Measure

Gas Flow



GC Series Supercompact MFCs

Supercompact MEMS-based MFC delivers precision gas control with in-situ calibration capability for space-limited benchtop, laboratory, and cost-sensitive OEM platforms.



AMF Series Ultra-Compact MFCs

Next-generation, ultra-compact mass flow control for precision gas systems, offering low leak rate, wide turndown, advanced diagnostics, and intelligent predictive maintenance for maximum uptime and process reliability.



SLA5800 Series General Purpose MFCs

The trusted benchmark for industrial mass flow control, combining decades of proven reliability with exceptional accuracy, stability, and performance across the widest range of applications.



SLAMF Series IP66 MFCs

Delivers the precise accuracy and long-term stability of our proven SLA5800 but with a specially engineered IP66 hardened enclosure for the harshest environments.



Key Features

- 20 x 40 x 60 mm footprint is ideal for compact systems
- Excellent valve shut-off and leak-by, improves process integrity
- In-situ verification & recalibration via free BCAT software reduces downtime and minimizes spares inventory
- 100:1 turndown ratio enables wide control range with a single device, simplifying panel design and reducing cost
- 1 x 3 x 3 in. footprint designed for compact gas cabinets without sacrificing performance
- Fast response & control time, 1000:1 turndown ratio and superior long-term sensor stability reduces recalibrations and cost of ownership
- Advanced alarms & diagnostics provide real-time insight into device performance with easy in-situ commissioning, configuration and troubleshooting via embedded web-based interface
- Storage and pre-programming of up to six gas calibrations lets users easily switch gases and ranges in-situ on a single device
- Industry-leading long-term drift stability and best-in-class MTBF for maximum uptime
- Wide flow and pressure ranges support demanding applications
- Rugged IP66-rated hazardous-area rated enclosure for demanding and exposed outdoor settings
- Hazardous area approvals: ATEX, CE, IECEx, KOSHA, UL (listed) Class 1 Division 2 & Zone 2
- Use with SLA Series pressure controllers to eliminate droop, boost and hysteresis
- Biotech options packages offer features designed specifically to improve bioprocessing performance
- EtherNet/IP™ and PROFINET permit advanced alarms & diagnostics providing intelligent predictive maintenance and adaptability for maximum uptime & process reliability
- Easy configuration via embedded web-based interface

Performance

- Fluid Type — gas
- Flow Range — 210 – 5000 sccm
- Accuracy — 1.5% of SP ±0.5% of FS
- Max Pressure — 150 psig (10 bar)
- Temperature Range — 0–50°C (32–122°F)
- I/O — Analog & Modbus RTU (RS485)
- Fluid Type — gas
- Flow Range — 0.005 – 27 slpm
- Accuracy — ±0.6% of SP (20-100% FS)
- Max Pressure — 150 psig (10 bar)
- Temperature Range — 0–65°C (32-149°F)
- I/O — EtherNet/IP™
- Fluid Type — gas
- Flow Range — 3 sccm – 2500 lpm
- Accuracy — ±0.6% of SP (20-100% FS)
- Max Pressure —
 - Standard 1500 psi (100 bar)
 - Optional 4500 psi (310 bar)
- Temperature Range — -14-65°C (7-149°F)
- I/O — RS485, Analog, DeviceNet™ EtherCAT®, EtherNet/IP™, PROFINET, & Profibus®

Gas Flow



SLA Series Pressure Controllers

Eliminate droop, boost and hysteresis through closed loop control utilizing the core technology in our thermal MFCs.



GF40 Series MultiFlo™ MFCs

Multiple gases and flows in one device maximizes process flexibility and productivity while preserving accuracy.



GF100 Series Metal Sealed MFCs

Ultra-fast response time and high-purity all-metal seal flow path minimizes contamination, enhances yield.



GP200 Series Metal Sealed P-MFCs

Our most advanced MFC, GP200 is the first fully pressure insensitive P-MFC with a unique design approach enabling the ultimate precision process gas delivery over the widest range of operating conditions.



Key Features

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| <ul style="list-style-type: none"> • Use with SLA Series mass flow devices to maximize process consistency benefits • Wide pressure measurement and control range • Downstream or upstream control modes • Durable, robust metal top lid prevents damage during installation | <ul style="list-style-type: none"> • MultiFlo™ technology enables one MFC to support thousands of gas types and range combinations without removing it from the gas line or compromising on accuracy • Excellent process gas accuracy • Suitable for a full suite of gases • Ideal for OEM skids and lab-scale systems | <ul style="list-style-type: none"> • For processes sensitive to moisture or oxygen • Corrosion-resistant Hastelloy® sensor • MultiFlo™ programmable gas and range capabilities • Real-time flow error detection and pressure transient insensitive technology • Ideal when using a variety of gases and changing gas types or ranges frequently | <ul style="list-style-type: none"> • One true differential pressure sensor delivers superior flow measurement accuracy and repeatability reducing measurement uncertainty • Laminar flow element designed for low pressure drop making GP200 a universal P-MFC solution suitable for all pressures, all gases and all processes. • Embedded MultiFlo™ gas model enables on-the-fly gas & range reconfiguration for maximum process flexibility • Zero leak-by control valve delivers 100x improvement in valve shut-down (optional) |
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Performance

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| <ul style="list-style-type: none"> • Pressure Control Range — <ul style="list-style-type: none"> ◦ Standard: 20 to 1 up to 1500 psi (100 bar) ◦ Optional: Up to 4500 psi (310 bar) • Flow Range — 3 sccm – 50 lpm • Accuracies — <ul style="list-style-type: none"> ◦ ±0.25% of Transducer FS (FS >300 psia) ◦ ±0.12% of Transducer FS (FS <300 psia) • Max Pressure — 4500 psia (310 bar) • I/O — Analog, RS485, DeviceNet & Profibus | <ul style="list-style-type: none"> • Fluid Type — gas • Flow Range — 3 sccm – 50 slpm • Accuracy — ±1% of SP (35-100% FS) • Max Pressure — 150 psig (10 bar) • Temperature Range — 5–50°C (41-122°F) • I/O — Analog, RS485, DeviceNet, EtherCAT & Profibus | <ul style="list-style-type: none"> • Fluid Type — gas • Flow Range — 3 sccm – 300 slm • Accuracy — ±1% of SP • Max Pressure — Up to 500 psia (34.4 bar) • Temperature Range — 5–65°C (40 -149°F) • I/O — RS485, DeviceNet & EtherCAT | <ul style="list-style-type: none"> • Fluid Type — gas • Flow Range — 3 sccm – 50,000 sccm • Accuracy — ±1% of SP (5-100% FS) • Max Pressure – Up to 60 psia (4 bar) • Temperature Range – 10-60°C (50-140°F) • I/O — Analog, RS485, DeviceNet & EtherCAT |
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Liquid Flow & Vapor Delivery



Quantim® Coriolis MFCs

Most accurate measurement and control for very low flow rates of liquid or gas. Directly measures mass flow independent of fluid type and process variables.



BCU Series Clamp-on Ultrasonic Flow Meters

Non-invasive clamp-on flow measurement for single-use systems, enabling real-time monitoring without fluid contact, contamination risk, or pressure drop.



GF120xHT Series Metal Sealed High-Temperature MFCs

Ultra-high purity MFC designed to measure and control the mass flow rate of vapor from liquid or solid precursor applications up to 150°C.



0250 Series Power Supply, Readout & Set Point Controller

Compact, innovative, reliable microcomputer-based controller provides power for up to four Brooks Instrument thermal mass flow, Coriolis mass flow and/or pressure devices.



Key Features

- Multi-variable outputs of mass flow, volume flow, density and temperature
- High pressure capability for demanding research applications
- Optional hazardous area approvals for Zone 2 and Class 1 Division 2
- Optional IP66 ingress protection rating for outdoor or hose down washdown installation

- Clamp-on design eliminates risk of contamination
- No moving parts or consumables
- Compatible with most industry standard flexible tubing
- Native EtherNet/IP connectivity – no gateways or converters
- Advanced in-situ flow alarms, diagnostics and trending for predictive maintenance

- Flow module designed to withstand operating environments up to 150°C and with a low profile for integration ease.
- Electronics are remotely connected to the rest of the device in a lower temperature location (max 50°C).
- Calibrated at customer operating temperature and pressure for optimal performance

- Self-diagnostics on every power-up
- Batch control for single- or multi-channel recipes
- Blending supports master slave configuration and operation
- Gas factor scaling adapts to any non-calibrated fluid
- Valve Override Control — open, closed or normal
- Large, graphic eight-line backlit display
- Smart DDE Software simplifies data exchange with programs such as Excel, Test Point™ and LabVIEW™

Performance

- Fluid Type — gas or liquid
- Flow Range — 1–27,000+ g/hr
- Accuracy —
 - 0.2% of rate, liquid
 - 0.5% of rate, gas
- Max Pressure —
 - Standard 500 psi (34 bar)
 - Optional 1500 psi (103 bar)
- Temperature Range — 0–60°C (32–140°F)
- I/O — RS485, 0–20 mA, 4–20 mA, 0–5 Vdc, & 0–10 Vdc

- Fluid Type — liquid
- Flow Range — 1–80,000 ml/min
- Accuracy — ±1% of rate
- Temperature Range — 0–60°C (32–140°F)
- I/O — EtherNet/IP™

- Fluid Type — gas
- Flow Range — 50 sccm – 5 slm
- Accuracy — ±1% SP >35–100%, ±0.35% FS 2–35%
- Max Pressure — Up to 500 psia
- Temperature Range — 45–150°C (113–302°F)
- I/O — Analog, RS485, DeviceNet & EtherCAT

- Power Input — Voltage: 12–24 Vdc required, -15 Vdc permitted
 - Current: 400 mA max current draw per channel
 - Instrument power draw: 0.8 Watts
- Optional power module — 100–240 Vac, 47–63 Hz
- Power Output — +15V/2.0A, -15V/1.0A or 12–24 Vdc/2.0A
- I/O — 0(1)–5 Volts, 0(2)–10 Volts, & 0(4)–20 mA

Variable Area Flowmeters



**Sho-Rate™ Series
Glass Tube Flowmeters**

The industry standard glass tube VA flowmeter for decades. Multiple material options available for a wide variety of applications.



**GT1600 Series
Glass Tube Flowmeters**

Simple, rugged design for long-lasting performance with low and high-flow gas and liquid applications where viewing the process is important.



**MT3750 Series
Metal Tube Flowmeters**

Reliable, durable, low flow measurement for long-lasting performance in harsh environments.



**MT3809 Series
Metal Tube Flowmeters**

Widest temperature, pressure and flow ranges for measuring fluids in hazardous, remote areas.



Key Features

- Rugged, single piece frame construction
- Easy-change design allows quick interchangeability of tube assemblies
- Rotating lens provides 180° view with magnification ideal for panel mounting
- Optional needle valves and flow controllers mounted to inlet or outlet for precision flow control

- Configurable to retro-fit GT1000, GT1300 and Full-View Series
- Premium materials of construction ensure safety, indoor and outdoor durability
- Process connections can be rotated 360°, 180° viewing window, panel mount option
- Optional integral inlet or outlet valve saves space, time & cost, eliminating potential leak points

- Compact design
- Optional alarms, transmitters and limit switch controllers provide added levels of measurement and control
- 4–20 mA output

- Alarm functions meet SIL 2 requirements
- Multiple corrosion-resistant wetted materials and indicator housings available
- Optional local operator interface with LCD screen
- 4–20 mA output with HART
- Integrated FOUNDATION Fieldbus



Performance

- Fluid Types — clean liquids and gases
- Flow Range —
 - Air: Up to 15 scfm / 425 slpm
 - Water: Up to 5 gpm / 19 lpm
- Accuracy — ± 3 , ± 5 , $\pm 10\%$ FS
- Max Pressure — 200 psig (13.8 bar)
- Temperature Range — 1–121°C (33–250°F)

- Fluid Types — clean liquids and gases
- Flow Range —
 - Air: Up to 150 scfm/270 m3n/hr
 - Water: Up to 21 gpm/4,800 l/h
- Accuracy — ± 2 , ± 5 , $\pm 10\%$ FS
- Max Pressure — 500 psig (34.5 bar)
- Temperature Range — 1–121°C (33–250°F)

- Fluid Types — liquids, gases and steam
- Flow Range —
 - Air: Up to 110 scfh / 3.1 m3n/hr
 - Water: Up to 26 gpm / 100 l/h
- Accuracy — ± 3 , $\pm 5\%$ FS
- Max Pressure —
 - Standard 1500 psig (100 bar)
 - Optional 4000 psig (276 bar)
- Temperature Range — -50–204°C (-58–400°F)

- Fluid Types — liquids, gases and steam
- Flow Range —
 - Air: Up to 750 scfm / 1200 m3n/hr
 - Water: Up to 440 gpm / 100,000 l/h
- Accuracy — ± 1 , $\pm 2\%$, $\pm 3\%$, $\pm 5\%$ FS
- Max Pressure —
 - Standard 6000 psig (413.7 bar)
 - Optional 20,000 psig (1379 bar)
- Temperature Range — -198–420°C (-325–788°F)

Vacuum & Pressure Measurement



XacTorr® Series Capacitance Manometers

Stable, reliable digital capacitance manometers deliver accurate process vacuum measurement with enhanced stability, contamination resistance, and reduced thermal effects.



VersaTorr Series Vacuum Gauges

All-in-one ultra-wide range gas measurement solution for many vacuum applications.



SolidSense II® Pressure Transducers

Exceptional versatility and reliability combined with durable designs and materials to handle a wide range of industrial processes.



PG Mechanical Pressure Gauges

Reliable, efficient local pressure monitoring for high-purity applications.



Key Features

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| <ul style="list-style-type: none"> • Patented Mark IV sensor enhances stability and protects against process gas deposition • Dual-zone temperature control improves measurement stability and repeatability • Multi-decade digital calibration provides superior window of known accuracy • Intelli-Touch zero adjustment supports simple zeroing and helps prevent improper zeroing | <ul style="list-style-type: none"> • Ultra-wide measuring range of 9 decades • Heat-loss MEMS Pirani to measure most accurately in the low and medium vacuum ranges • Tri-Sensor Transducer model uses precision capacitance diaphragm gauge sensor to eliminate gas dependencies • Programmable settings and parameters | <ul style="list-style-type: none"> • 2-inch stainless steel solid-state switch and transmitter • Adjustable pressure switch set point to operate lights or relays • 316L steel withstands harsh environments • Welded in oxygen-free chambers to meet rigid cleanliness and safety guidelines of demanding high-purity applications | <ul style="list-style-type: none"> • 1.5-inch and 2-inch dial sizes with multi-scale dial faces to streamline inventory and reduce stocking complexity • Variety of pressure ranges, process connections and socket orientations • 316L stainless steel wetted materials; gauges welded in oxygen-free chambers to meet cleanliness and safety standards |
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Performance

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| <ul style="list-style-type: none"> • Pressure Range — 100 mTorr to 1000 Torr • Accuracy — ±0.15% to 0.25% of reading • Temperature Range — 15°C to 160°C • I/O — Analog & EtherCAT | <ul style="list-style-type: none"> • Pressure Range — 7.5×10^{-7} to 1000 Torr • Accuracy — ±5% to ±0.5% of reading • Temperature Range — Ambient to 50°C • Measurement Range — 9 Decades • I/O — Analog, RS232, & RS485 | <ul style="list-style-type: none"> • Pressure Range — Up to 4000 psi (276 bar) • Accuracy — 1% FS • Switches available with logic outputs: <ul style="list-style-type: none"> ◦ Off-on and Type 1 (0 to 9–30 Vdc) ◦ Type 2 (8 to 30 Vdc) ◦ Type 3 (0 to 5 Vdc) • Transmitters available with industry standard outputs — 4–20 mA; 0–5 Vdc; 1–5 Vdc | <ul style="list-style-type: none"> • Pressure Range — -15–4000 psi (276 bar) • Accuracy — <ul style="list-style-type: none"> ◦ PG15: 3/2/3% or Class B ◦ PG20: 2/1/2% or Class A • Output Type — Analog voltage or current • Certifications/Approvals — CE, FM and ATEX |
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Comparing Key Performance Criteria of Industrial Digital Protocols

	EtherNet/IP	EtherCAT	PROFINET	PROFIBUS	DeviceNet	Fieldbus FOUNDATION	HART	RS-485
NODES	Unlimited	65,535	Unlimited	127	64	240	15	16
BAUD RATES	10 100 1 MBPS, MBPS, GBPS	100 MBPS	100 1 MBPS, GBPS	1200-12 MBPS	125 250 500	31.25 K	1200	1200-115 K
MESSAGE SIZE	511 BYTES	1500 BYTES	1440 BYTES	244 BYTES	8 BYTES	240 BYTES	31 BYTES	24 BYTES
MAIN TOPOLOGY	RING MULTI DROP	RING	MULTI DROP STAR, TREE	MULTI DROP	MULTI DROP WITH BRANCHES	MULTI DROP WITH BRANCHES	STAR POINT-POINT	MULTI DROP DAISY CHAIN
MESSAGE TYPES	PRODUCER-CONSUMER NETWORK	P2P PASS THROUGH	PRODUCER-CONSUMER NETWORK	MASTER-SLAVE: POLL EXPLICIT	MASTER-SLAVE: POLL EXPLICIT, CYCLIC	PEER-PEER, CYCLIC	MASTER-SLAVE: EXPLICIT	MASTER-SLAVE: POLL EXPLICIT
CABLING	STANDARD ETHERNET RJ45	STANDARD ETHERNET RJ45	STANDARD ETHERNET RJ45	PRE-DEFINED CORDSETS	PRE-DEFINED CORDSETS	PRE-DEFINED CORDSETS	2 - WIRE (4 - 20 mA)	PROPRIETARY CABLES

KEY ADVANTAGES:



Exceptional performance, flexible topologies, full duplex, self-terminating, easy to deploy, uses standard, cost-effective Ethernet cabling, enables a wide variety of advanced alarms and diagnostics



Widely used and field proven industry standards communication protocols, well suited for medium and large automation projects, cost-effective versus point-to-point solutions



Widely accepted, ideal for set-up, diagnostics and troubleshooting, easy implementation over 4-20 mA signal lines, easy to use with HART hand held communicator, can be used effectively over long distances and in electrically noisy environments

RS485

Good for small automation projects or systems, supports typical topologies used in small systems, custom tools and software (DDE, DLL, 0260 Smart Interface), simplifies installation

* PROFINET does not support ring topologies

Service and Support



Global Service and Support

Brooks Instrument products are recognized as the most stable and reliable in the world. To keep your products operating at the highest level of accuracy and extend their life, your best choice is to trust Brooks Instrument Factory Certified Service repair and recalibration offerings.



Only Brooks Instrument Factory Certified Service ensures that your Brooks Instrument flow, pressure, vapor and vacuum products are serviced utilizing the same metrology standards, work instructions, equipment and custom software as our manufacturing processes — by expert technicians trained exclusively on servicing Brooks products.

Our global service center network offers fast turnaround on repair and recalibration requests.



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Beyond Measure