DS-TMF-GF40-MFC-eng
November, 2014

Data Sheet

GF40

Thermal Mass Flow

Model GF40

Elastomer Seal Digital Mass Flow Controllers and Meters

Overview

Brooks® GF40 (elastomer seal) thermal mass flow controller (MFC) and thermal mass flow meter (MFM) achieves unprecedented performance, reliability, and flexibility in many gas flow measurement and control applications.

At the heart of the GF40 is Brooks' patented 4th generation MultiFlo™ capable device. MultiFlo overcomes a long-standing limitation of many thermal MFCs – when changing gas types, a simple correction factor, such as the ratio of heat capacities between the calibration gas and new gas, cannot account for accuracy-robbing viscosity and density differences. The Brooks MultiFlo database is built on thousands of native gas runs to establish correction functions that account for both thermal and physical differences among gases making the GF40 Series among the most accurate and flexible MFCs/MFMs available today.

The Brooks GF40 Series is the perfect choice for customers who use thermal mass flow controllers or thermal mass flow meters on a variety of gases, who need to change gas type frequently, or who need to re-range while preserving gas measurement and control accuracy. Some examples:

- OEMs will reduce the number of gas and range-specific MFCs that they inventory
- Solar, biotech, CVD, plasma, glass, web coating, nanotechnology, vacuum processing and similar large users of mass flow meters and mass flow controllers will greatly reduce their gas- and range-specific spares inventory
- R&D, research, and laboratory users can quickly change experiment conditions and achieve much better actual process gas accuracy vs. traditional mass flow devices

MultiFlo programming is simple and fast – a new gas and range can be programmed under 60 seconds plus the device can be programmed without removing it from service or disconnecting the device from any process or tool control system.

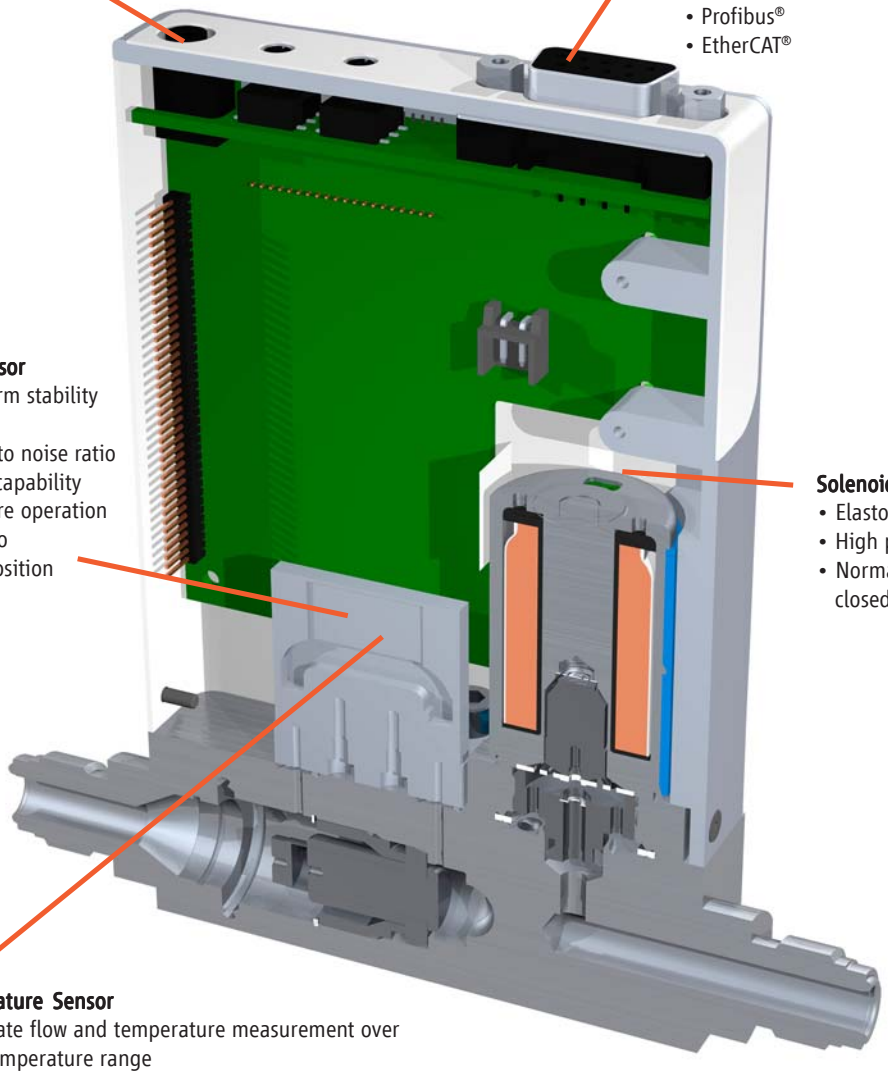
Product Description

The Brooks GF40 Series features a corrosion-resistant Hastelloy C-22 sensor for durable, long-term operation. Sub-1 second settling times and 1% of set point accuracy ensure that the GF40 will provide reliable flow measurement or flow control in demanding gas flow applications. The GF40 achieves excellent internal to external leak integrity for challenging process gases as found in CVD, solar, and other processes. With a wide range of connector types, seal and seat materials, and digital and analog I/O options available, the GF40 represents an extremely powerful, yet easy, upgrade for existing MFCs or MFMs.

Features and Benefits

Diagnostic / Service Port
- Easy diagnostics and troubleshooting
- Independent of tool communication

Analog and Digital Communication Options:
- RS485 Analog
- DeviceNet™
- Profibus®
- EtherCAT®



Third Generation Fast Response Sensor
- Excellent long-term stability (<±0.5% F.S/yr.)
- Improved signal to noise ratio
- High purge rate capability
- Lower temperature operation for gases prone to thermal decomposition

Solenoid Control Valve
- Elastomer or Metal Seals
- High purge rate capability
- Normally open or normally closed operation

Temperature Sensor
- Accurate flow and temperature measurement over full temperature range
- Real-time compensation for ambient temperature fluctuations enable precise gas chemistry control

Features	Benefits
Variety of Elastomer Seals	Cost performance flexibility for a wide range of applications.
MultiFlo Gas and Range Programmabilty with Advanced Diagnostics and User Accessible Service Port	Select new gas calibrations and full-scale ranges without the trouble and cost of removing the mass flow controller from the gas line. Convenient interface to diagnostics port for maximum uptime.
Corrosion Resistant Hastelloy Sensor	Provides unmatched long-term sensor stability ensuring maximum yield and throughput.

Product Description (Continued)

MultiFlo™ Gas and Range Configurability

A major advancement over traditional single point gas conversion factors, Brooks MultiFlo technology delivers up to a three-times improvement in process gas accuracy. This is achieved through advanced gas modeling plus extensive actual gas testing protocols that provide extremely accurate compensation. MultiFlo also allows the device to be quickly and easily configured for another gas and/or flow range without sacrificing accuracy or range-ability. Selecting a new gas automatically creates a new calibration curve, establishes optimized PID settings for dynamic control, compensates for gas density and viscosity effects, and ensures smooth, overshoot-free transitions between flow rates with excellent steady state stability.

Brooks MultiFlo technology offers unparalleled flexibility; a single device can be configured for thousands of different gas and flow range configurations.

Re-programming is simple and fast; a new gas and range can be programmed in under 60 seconds. Brooks provides an enormous gas database to ensure the maximal value of MultiFlo is realized:

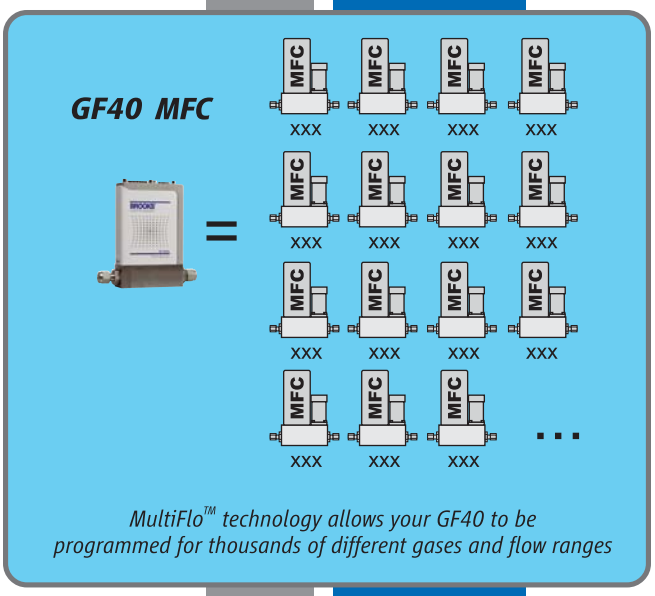
- Dramatically reduces inventory or spares expense
- The MFC full scale flow range can be scaled down typically by a factor of 3:1 with no impact on accuracy, turndown or leak-by specifications for tremendous process flexibility
- Native gas calibration is not required
- Maximum flexibility for research applications

MultiFlo™ Configurator Accessories

MultiFlo kits are available in the following configurations:

778Z010ZZZ	**Basic MultiFlo Configurator Kit**
A331710003	Cable Assembly 2.5mm
214F027AAA	USB-RS485 converter with DB-9 female
778Z012ZZZ	**GF0xx RS485 Analog/Profibus® MultiFlo Configurator Kit w/Power Supply 24 Vdc**
A331710003	Cable Assembly 2.5mm
214F027AAA	USB-RS485 converter with DB-9 female
641Z117AAA	Power Supply 24 Vdc with DB-15 female
778Z013ZZZ	**GF0xx EtherCAT® MultiFlo Configurator Kit w/Power Supply 24 Vdc**
A331710003	Cable Assembly 2.5mm
214F027AAA	USB-RS485 converter with DB-9 female
641Z117AAA	Power Supply 24 Vdc with DB-15 female
124Z170AAA	Cable, Power, EtherCAT to DB-15 male
778Z014ZZZ	**GF0xx DeviceNet™ MultiFlo Configurator Kit w/Power Supply 24 Vdc**
A331710003	Cable Assembly 2.5mm
214F027AAA	USB-RS485 converter with DB-9 female
641Z117AAA	Power Supply 24 Vdc with DB-15 female
124Z171AAA	Cable, Power, DeviceNet to DB-15 male

*MultiFlo configurator software is available on the Brooks Instrument website at: www.BrooksInstrument.com/MultiFlo



MultiFlo™ technology allows your GF40 to be programmed for thousands of different gases and flow ranges

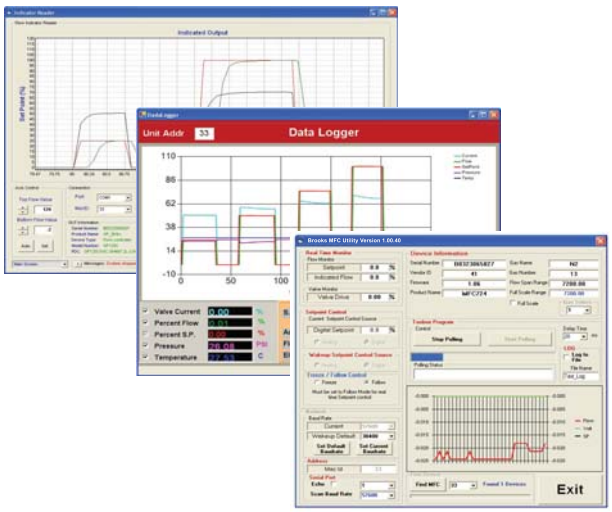
# of Platforms	GF40 Range	Competitor A 2 Models Range	Competitor B 4 Models Range
1	3 - 10	10	1 - 5
2	11 - 30	17.5	6 - 14
3	31 - 92	30	15 - 27
4	93 - 280	55	28 - 38
5	281 - 860	100	39 - 71
6	861 - 2,600	175	72 - 103
7	2,601 - 7,200	300	104 - 192
8	7,201 - 15,000	550	193 - 279
9	15,001 - 30,000	1,000	280 - 754
10	30,001 - 50,000	1,750	755 - 2,037
11		3,000	2,038 - 5,500
12		5,500	5,501 - 11,000
13		10,000	11,001 - 30,000
14		22,000	30,0001 - 50,000
15		30,000	
16		50,000	

The Brooks Advantage! Less platforms means more process flexibility and lower cost of spares.

Product Description (Continued)

Enhanced Diagnostics

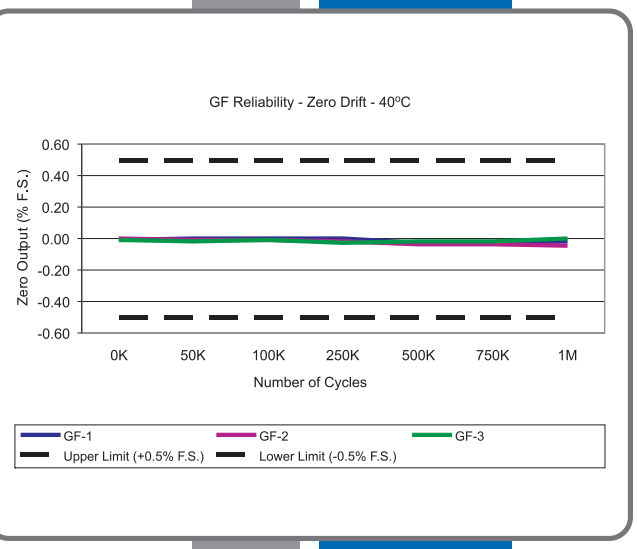
The mass flow controller remains one of the most complex and critical component in gas delivery systems; removing the mass flow controller to determine if it is faulty should be the last resort. In response to this fact, Brooks pioneered smarter mass flow controllers with embedded self test routines and introduced an independent diagnostic/service port to provide access to diagnostic data for troubleshooting without interrupting flow controller operation.



Advanced Thermal Flow Measurement Sensor

Brooks' proprietary sensor technology combines:

- Improved signal to noise performance for improved accuracy at low setpoints
- Improved reproducibility at elevated temperatures through new isothermal packaging, onboard conditioning electronics with ambient temperature sensing and compensation
- Improved long-term stability through an enhanced sensor manufacturing process
- Highly corrosion resistant Hastelloy C-22 sensor tube
- Optimized temperature profile for gases prone to thermal decomposition



Manifold/Gas Stick Solutions

Many users are looking to reduce the foot print of the gas delivery system by employing standard or customer downport configurations. Brooks will work with you on a proprietary stick, manifold or panel design using downport components as appropriate to satisfy the requirements of the application.

Product Applications

Solar Cells / CVD

Developed to meet the diverse process requirements for solar cells, fiber optics, and the glass and metal coatings markets, the GF40 mass flow controllers offer a single platform solution for diffusion furnace, thin film deposition, and other difficult applications.

With the GF40 offering a variety of elastomer seals this single platform can cover complex gas distribution systems. The MutliFlo feature can minimize costly inventory while providing industry leading actual gas accuracy.

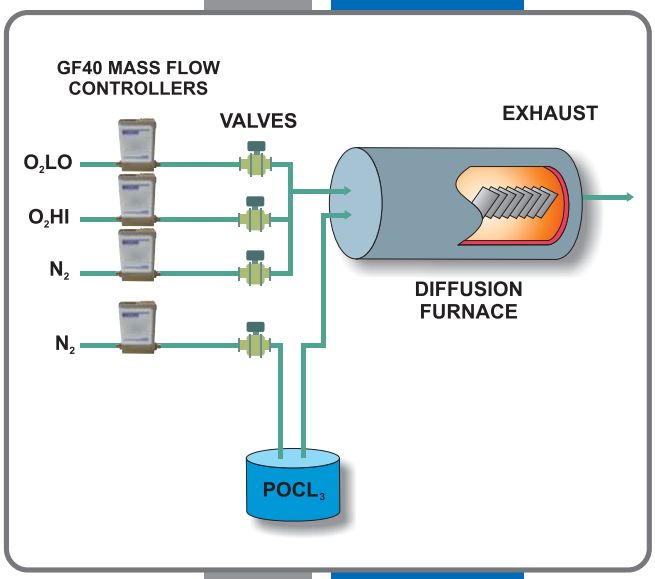
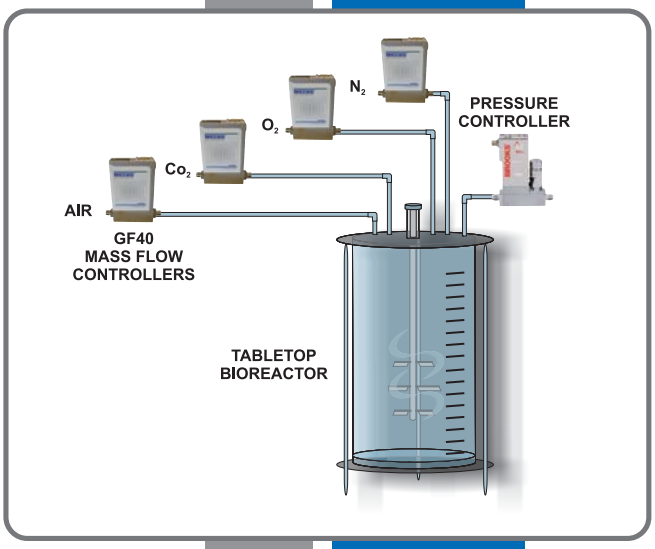


Table Top Bioreactors

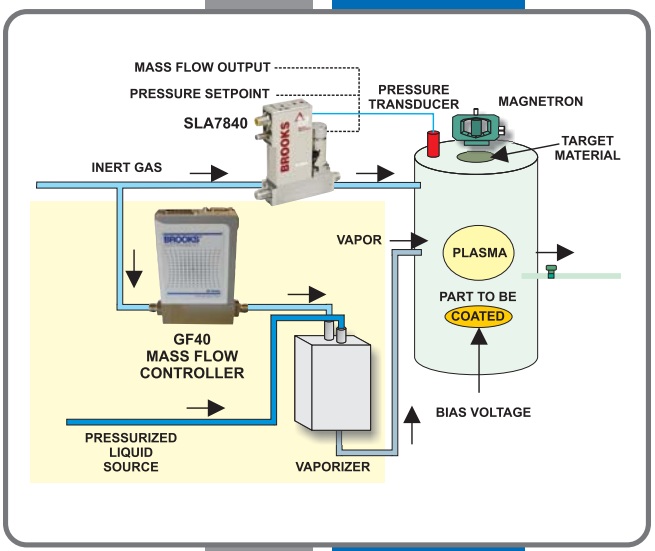
Brooks has earned the leading reputation in controlling gas flows for bioreactor applications. The GF40 mass flow controllers are perfect for controlling dissolved oxygen and pH. The MultiFlo capability can greatly simplify spares inventory and the ordering process. With multiple digital protocol communication options and other advanced features, the GF40 is an ideal device for the bioreactor process.



Vacuum Processes

Brooks offers many products that deliver exceptional performance for vacuum processes. The GF40 mass flow controllers are no exception. With elastomer and metal seal options, several digital communication protocols offerings, and the MultiFlo capability, the GF40 can serve a wide variety vacuum processes.

With Brooks' other products like the XacTorr® capacitance manometer and SLA Series pressure controllers, the GF40 makes Brooks a one-stop-shop for instrumentation in vacuum processes.



Product Specifications

Performance

	GF40
Full Scale Flow Range (N_2 Eq.)	3 sccm to 50 slm
Flow Accuracy	±1% S.P. 35-100%, ±0.35% F.S. 2-35%
Repeatability & Reproducibility	< ± 0.2% S.P.
Linearity	± 0.5% F.S. (included in accuracy)
Response Time (Settling Time)	Normally Closed Valve < 1 sec. (within 2% for steps 0-10 through 0-100%) Normally Open Valve < 3 sec (within 2% for steps 0-10 through 0-100%)
Control Range	2-100%
MultiFlo	optional
Number of Bins	10 bins
Valve Shut Down	< 1% of F.S.
Zero Stability	< ± 0.5% F.S. per year
Pressure Coefficient	0.03% per psi (0-50psi N_2)
Attitude Sensitivity	<0.25% span change @ 90° after rezeroing (N_2 @ 50 psi)
Auto Zero:	Optional: (When Auto Zero is enabled the device performs the zero function once every time the set point returns to zero. To accomplish, simply provide a zero set point.)
Auto shut-off:	The Auto Shut-off feature closes the GF0xx valve when the set point drops below 1.5% of full scale

Ratings

Operating Temperature Range	5-50°C (41-122°F)
Maximum Operating Pressure	150 psig (10 bar)
Design Proof Pressure	4000 psig (275 bar)
Differential Pressure Range	3-860 sccm = 7-45 psid, 861-7200 sccm = 15-45 psid, 7201-50000 sccm = 25-45 psid Typical pressure drop, high density gases like Argon gas applications require an additional 10 psid differential pressure
Leak Integrity (External)	$1x10^{-9}$ atm. cc/sec He

Mechanical

Valve Type	Normally Closed, Normally Open, No Valve (Meter)
Primary Wetted Materials	316 Stainless Steel, Hastelloy C-22, 17-7 PH, 430SS
External Seals	Viton, Buna, Kalrez, EPDM or Neoprene
Internal Seals/Valve Seat	Viton, Buna, Kalrez, EPDM or Neoprene
Surface Finish	32µ inch Ra

Compliance

Environmental Compliance:	CE: EN61326: 2006 (FCC Part 15 & Canada IC-subset of CE testing)
	Safety EN61010-1
	RoHS
	General, Leak-Test Traceability, Oxygen Cleaning, Calibration Traceability, Material Certification

Product Specifications (Continued)

Communication Protocol	RS485*	Profibus®	DeviceNet™	EtherCAT®
Electrical Connection	1 x 15-pin Male Sub-D, (A)	1 x 15-pin Male Sub-D/ 1 x 9-pin Female Sub-D	1 x M12 with threaded coupling nut (B)	5-pin M8 with threaded coupling nut/ 2 x RJ45
Analog I/O	0-5 V, 0-10 V, 0-20 mA, 4-20 mA	0-5 V, 0-20 mA, 4-20 mA	0-5 V (Output only)	0-5 V (Output only)
GF40 Power Max./Purge	From +12 Vdc to +24 Vdc: 7 Watt/8 Watt	From +13.5 Vdc to +27 Vdc: 7 Watt/8 Watt	From +11 Vdc to +25 Vdc: 7 Watt/8 Watt	From +13.5 Vdc to +27 Vdc: 7 Watt/8 Watt
Voltage Set Point Input Specification				
Nominal Range	0-5 Vdc or 0-10 Vdc	0-5 Vdc	N/A	N/A
Full Range	0-11 Vdc	0-5.5 Vdc	N/A	N/A
Absolute Max.	25 V (without damage)		N/A	N/A
Input Impedence	192 kOhms		N/A	N/A
Required Max. Sink Current	0.002 mA		N/A	N/A
Current Set Point				
Nominal Range	4-20 mA or 0-20 mA		N/A	N/A
Full Range	0-22 mA		N/A	N/A
Absolute Max.	25 mA (without damage)		N/A	N/A
Input Impedence	250 Ohms	125 Ohms	N/A	N/A
Flow Output (Voltage) Specifications				
Nominal Range	0-5 Vdc or 0-10 Vdc	0-5 Vdc		
Full Range	(-0.5)-11 Vdc	0-5.5 Vdc	(-0.5)-5.5 Vdc	
Min Load Resistance	1 kOhms	1 kOhms	0.5 kOhms	
Flow Output (Current) Specifications				
Nominal Range	0-20 mA or 4-20 mA		N/A	N/A
Full Range	0-22 mA (@ 0-20 mA); 3.8-22 mA (@ 4-20 mA)		N/A	N/A
Max. Load	400 Ohms (for supply voltage: 12-24 Vdc		N/A	N/A
Analog I/O Alarm Ouput**				
Type	Open Collector		N/A	N/A
Max. Closed (On) Current	25 mA		N/A	N/A
Max. Open (Off) Leakage	1µA		N/A	N/A
Max. Open (Off) Voltage	30 Vdc		N/A	N/A
Analog I/O Valve Override Signal Specifications***				
Floating/Unconnected	Instrument controls valve to command set point		N/A	N/A
VOR < 1.40 Vdc	Valve Closed		N/A	N/A
1.70 Vdc < VOR < 2.90 Vdc	Valve Normal		N/A	N/A
VOR > 3.20 Vdc	Valve Open		N/A	N/A
Input Impedence	800 kOhms		N/A	N/A
Absolute Max. Input	(-25 Vdc) < VOR < 25 Vdc (without damage)		N/A	N/A

*There are three (3) RS485 Protocols:
S-Protocol is a RS485 communication based on HART® command set.
L-Protocol is a RS485 communication compatible with legacy Unit® and Celerity® devices.
A-Protocol is a RS485 communication compatible with Aera® mass flow devices.

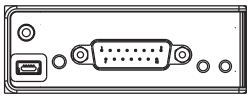
**The Alarm Output is an open collector or "contact type" that is CLOSED (on) whenever an alarm is active. The Alarm Output may be set to indicate any one of various alarm conditions.

*** The Valve Override Signal (VOR) is implemented as an analog input which measures the voltage at the input and controls the valve based upon the measured reading as shown in this section.

Electrical Interface Options

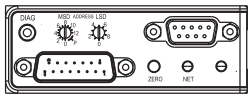
Base I/O Options

Analog / RS485
(S, L, and A Protocols)



Pin No.:	Signals:
1	SETPOINT COMMON
2	FLOW OUTPUT (0-5V, 0-10V)
3	ALARM OUT
4	FLOW OUTPUT (0-20mA, 4-20mA)
5	POWER SUPPLY (+12V to +24Vdc)
6	NC
7	SETPOINT INPUT (0-20mA, 4-20mA)
8	SETPOINT INPUT (0-5V, 0-10V)
9	POWER COMMON
10	FLOW OUT COMMON
11	NC
12	VALVE OVERRIDE INPUT
13	RESERVED
14	RS485B
15	RS485A

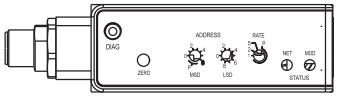
Profibus



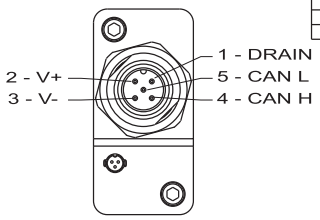
Pin No.:	Signals:
1	SETPOINT COMMON
2	FLOW OUTPUT (0-5V)
3	ALARM OUT
4	FLOW OUTPUT (0-20mA, 4-20mA)
5	POWER SUPPLY (13.5-27V)
6	NC
7	SETPOINT INPUT (0-20mA, 4-20mA)
8	SETPOINT INPUT (0-5V)
9	POWER COMMON
10	FLOW OUT COMMON
11	NC
12	VALVE OVERRIDE INPUT
13	RESERVED
14	NC
15	NC

Pin No.:	Signals:
1	NC
2	NC
3	RXD/TXD - B - red wire
4	NC
5	Ground
6	+5Vdc
7	NC
8	RXD/TXD - A - green wire
9	NC

DeviceNet

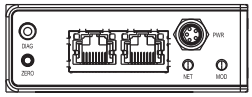


Pin No.:	Signals:
1	DRAIN
2	V+ (11-25 Vdc)
3	V-
4	CAN-H
5	CAN-L

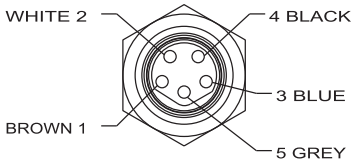


Pin No.:	Signals:
1	FLOW OUT (0-5V)
2	AGND
3	RESERVED
4	EARTH GND

EtherCAT



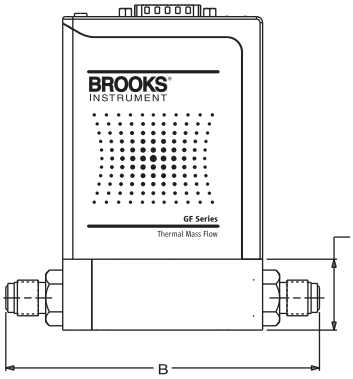
Pin No.:	Signals:
1	POWER SUPPLY (13,5-27V)
2	FLOW OUT COMMON
3	POWER COMMON
4	FLOW OUTPUT (0-5V)
5	RESERVED



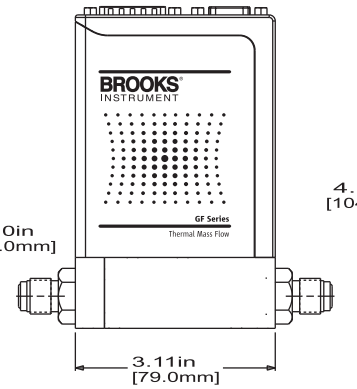
Product Dimensions

GF40 Configurations

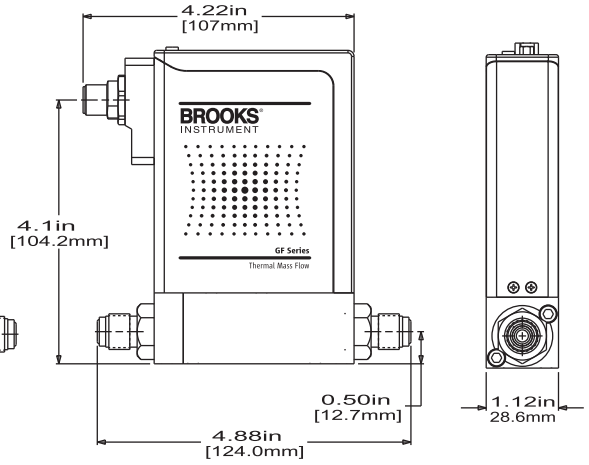
Analog / RS485



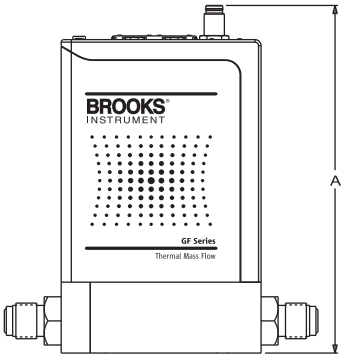
Profibus

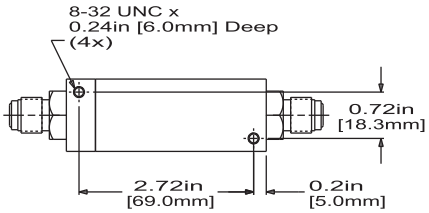


DeviceNet



EtherCat





	Dim "A" in[mm]
Analog/RS485	5.06 [128.5]
Profibus	5.00 [127]
DeviceNet	4.92 [125.1]
EtherCat	5.41 [137.4]

Conn. Type	Dim "B" in[mm]
9/16-18 UNF	3.00 [76.2]
1/4 in TC	4.94 [125.5]
1/8 in TC	4.84 [123]
1/4 in VCR	4.88 [124]
1/4 in VCO	4.61 [117]
1/4 in NPT	4.58 [116.4]
1/4 in RC	4.58 [116.4]
6mm TC	5.02 [127.6]
10mm TC	5.16 [131]

Model Code

Code	Description	Code Option	Option Description
I.	Base Model Code	**GF040**	Elastomer / Range Flow (0-50 slpm)
II.	Configurability	**C**	MultiFlo Capable. Standard Bins or specific gas range may be selected
		X	Not MultiFlo Capable. Specific gas/range required
III.	Special Application	**XX**	Standard
IV.	Valve Configuration	**C**	Normally Closed Valve
		O	Normally Open Valve
		M	Meter (No Valve)
V.	MultiFlo Bin & Range or Gas & Range (Standard)	XXXX XXXX	Specific Gas Code & Range, example: "0004" = Argon and "010L" = 10 slpm
		SA40 010C	Standard Configuration #40, 3-10 sccm N2 Eq. @ 0 deg C Ref Temp.
		SA41 030C	Standard Configuration #41, 11-30 sccm N2 Eq. @ 0 deg C Ref Temp.
		SA42 092C	Standard Configuration #42, 31-92 sccm N2 Eq. @ 0 deg C Ref Temp.
		SA43 280C	Standard Configuration #43,93-280 sccm N2 Eq. @ 0 deg C Ref Temp.
		SA44 860C	Standard Configuration #44, 281-860 sccm N2 Eq. @ 0 deg C Ref Temp.
		SA45 2-6L	Standard Configuration #45, 861-2600 sccm N2 Eq. @ 0 deg C Ref Temp.
		SA46 7-2L	Standard Configuration #46, 2601-7200 sccm N2 Eq. @ 0 deg C Ref Temp.
		SA47 015L	Standard Configuration #47, 7201-15000 sccm N2 Eq. @ 0 deg C Ref Temp.
		SA48 030L	Standard Configuration #48, 15001-30000 sccm N2 Eq. @ 0 deg C Ref Temp.
		SA50 050L	Standard Configuration #50, 30001-50000 sccm N2 Eq. @ 0 deg C Ref Temp.
VI.	Fitting	**XX**	9/16" - 18 UNF
		T1	1/8" tube compression
		T2	1/4" tube compression
		T3	3/8" tube compression
		T4	1/2" tube compression
		T6	6 mm tube compression
		T0	10 mm tube compression
		R2	1/4" RC (BSP)
		VX	1/4" VCR
		O2	1/4" VCO
		N2	1/4" NPT
VII.	Downstream Condition	**A**	Atmosphere
		V	Vacuum
		P	Positive Pressure
VIII.	External Seals, Valve Seat	**B**	Seal Buna / Seat Buna
		E	Seal EPDM / Seat EPDM
		K	Seal Kalrez / Seat Kalrez
		N	Seal Neoprene / Seat Neoprene
		V	Seal Viton / Seat Viton

Model Code (Continued)

Code	Description	Code Option	Option Description
IX.	Communications / Connector	**P5**	Profibus / Analog (Input 0-5 V; Output 0-5 V); 9-Pin Female D conn. / 15-Pin Male D conn.
		P0	Profibus / Analog (Input 0-20 mA; Output 0-20 mA); 9-Pin Female D conn. / 15-Pin Male D conn.
		P4	Profibus / Analog (Input 4-20 mA; Output 4-20 mA); 9-Pin Female D conn. / 15-Pin Male D conn.
		E5	EtherCAT™ / (Output 0-5 V); 2xRJ45 signal 2-Pin power
		D5	DeviceNet / Analog (Output 0-5 V); 5-Pin mico signal and power / 3-Pin analog signal
		S5	RS485: (S-Protocol)/Analog (Input 0-5 V; Output 0-5 V)15-Pin Male D (Brooks Protocol)
		S1	RS485: (S-Protocol)/Analog (Input 0-10 V; Output 0-10 V); 15-Pin Male D (Brooks Protocol)
		S0	RS485 (S-Protocol)/Analog (Input 0-20 mA ; Output 0-20 mA); 15-Pin Male D (Brooks Protocol)
		S4	RS485 (S-Protocol)/Analog (Input 4-20 mA; Output 4-20 mA); 15-Pin Male D (Brooks Protocol)
		L5	RS485 (L-Protocol)/Analog (Input 0-5 V; Output 0-5 V); 15-Pin Male D (Celerity/Legacy Protocol)
		L1	RS485 (L-Protocol)/Analog (Input 0-10 V; Output 0-10 V); 15-Pin Male D (Celerity/Legacy Protocol)
		L0	RS485 (L-Protocol)/Analog (Input 0-20 mA; Output 0-20 mA); 15-Pin Male D (Celerity/Legacy Protocol)
		L4	RS485 (L-Protocol)/Analog (Input 4-20 mA; Output 4-20 mA); 15-Pin Male D (Celerity/Legacy Protocol)
		A5	RS485 (A-Protocol)/Analog (Input 0-5 V; Output 0-5 V); 15-Pin Male D (Aera Protocol)
		A1	RS485 (A-Protocol)/Analog (Input 0-10 V; Output 0-10 V); 15-Pin Male D (Aera Protocol)
		A0	RS485 (A-Protocol)/Analog (Input 0-20 mA; Output 0-20 mA); 15-Pin Male D (Aera Protocol)
		A4	RS485 (A-Protocol)/Analog (Input 4-20 mA; Output 4-20 mA); 15-Pin Male D (Aera Protocol)
X.	Customer Special Request	**XXXX**	Customer Special Request Number
XI.	Auto Shut-Off	**A**	Auto Shut-Off (Included)
		X	Auto Shut-Off (Not Included)
XII.	Auto Zero	**A**	Auto Zero (Included)
		X	Auto Zero (Not Included)
XIII.	Reference Temperature	**00C**	0°C Reference
		15C	15°C Reference
		20C	20°C Reference
		70F	21.1°C Reference / 70°F Reference

Example Model Code

I	II	III	IV		V		VI	VII	VIII	IX		X	XI	XII		XIII
GF040	C	XX	C	-	0013300C	-	T2	A	V	P5	-	XXXX	X	A	-	20C

Brooks Service and Support

Brooks is committed to assuring all of our customers receive the ideal flow solution for their application, along with outstanding service and support to back it up. We operate first class repair facilities located around the world to provide rapid response and support. Each location utilizes primary standard calibration equipment to ensure accuracy and reliability for repairs and recalibration and is certified by our local Weights and Measures Authorities and traceable to the relevant International Standards.

Visit www.BrooksInstrument.com to locate the service location nearest to you.

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Brooks Instrument can provide start-up service prior to operation when required. For some process applications, where ISO-9001 Quality Certification is important, it is mandatory to verify and/or (re)calibrate the products periodically. In many cases this service can be provided under in-situ conditions, and the results will be traceable to the relevant international quality standards.

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Brooks Instrument can provide customer seminars and dedicated training to engineers, end users, and maintenance persons.

Please contact your nearest sales representative for more details.

HELP DESK

In case you need technical assistance:

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Due to Brooks Instrument's commitment to continuous improvement of our products, all specifications are subject to change without notice.

ISO 9001 QUALITY SYSTEM

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