Mass Flow Controllers & Meters

GF100 Series with Analog & DeviceNet Communication

Metal Sealed, High Purity/Ultra-High Purity Thermal Mass Flow Controllers & Meters for Gases

GF101 Series

GF100 Series

Designed for semiconductor, MOCVD, and other gas flow control applications that require a high purity all-metal flow path, the Brooks® GF100 Series mass flow controllers and meters deliver outstanding performance, reliability, and flexibility. The GF100 Series has been marathon tested to over three times the semiconductor industry standard for reliability, ensuring repeatable low-drift performance over time. An independent diagnostic/service port permits users to troubleshoot or change flow conditions without removing the mass flow controller from service.

The GF100 Series feature set was designed to enable drop-in replacement and upgrade of most brands of metal-seal mass flow controllers, including the former Celerity, UNIT, Tylan, and Mykrolis brands. With the wide range of options and features available, the GF100 Series provides users with a path to simplification and standardization, greatly reducing spares inventory and support costs.

Features & Benefits

- All-metal seal flow path: option for 5μ or 10μ inch Ra surface finish
- Corrosion Resistant Hastelloy T-Rise Sensor
- Pressure transient insensitivity reduces crosstalk sensitivity for consistent mass flow delivery
- Ultra-fast settling times: as low as 300 ms
- Valve shutdown up to (≤ 0.005% of bin range) with ZLV
- 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
- GF120 Safe Delivery System (SDS®) low pressure drop MFC for the delivery of sub atmospheric safe delivery system(SDS) gases used in Implant and Etch processes

BROOKS®
INSTRUMENT

Beyond Measure

Performance[1]	GF100	GF120	GF125	GF120XSL	GF120XSD
Full Scale Flow Range	3 sccm to 55 slm			4 sccm to 25 sccm	>25 sccm to 1 slm
Flow Accuracy	±1% S.P. > 35-100%, ±0.35% F.S. 2-35%				
Repeatability & Reproducibility	5-100% = ± 0.15% of S.P. 2-5% = ± 0.015% of F.S.				
Linearity	± 0.5% F.S. (included in accuracy)			--------------	
Response Time (Setting Time) Normally Closed Valve	< 1 sec	700ms	300ms (3-860 sccm) 400ms (861-7200 sccm) 500ms (7201-30000 sccm) <700ms (30001-55000 sccm)	< 3 sec	
Normally Open Valve	<1.5 sec			--------------	
Pressure Insensitivity	Not Applicable		< 5% S.P. up to 5 psi/sec upstream press. spike	Not Applicable	
Control Range	2-100% (Normally Closed Valve) 3-100% (Normally Open Valve)			2-100% (Normally Closed Valve)	
Multi Flo	Standard			--------------	
# of Bins	11 bins			--------------	
Valve Shut Down (N.C. Valve) [2,3]	Standard Hastelloy Valve: <1% of F.S Zero Leak By Valve: SH40 -SH41 < 0.02% F.S. SH42-SH50 <0.005% F.S.			Standard Hastelloy Valve: <1% of F.S	
Valve Shut Down (N.O. Valve)	2% of F.S.			--------------	
Zero Stability	< ± 0.5% F.S. per year			< ± 0.6% F.S. per year	
Temperature Coefficient	Zero: 0.005% F.S. per °C; Span: 0.05% F.S. per °C				

Ratings

Operating Temperature Range	10-50°C				
Differential Pressure Range [4]	3-860 sccm = 7-45 psid 861- 7200 sccm = 10-45 psid 7201-55000 sccm = 15-45 psid			10 Torr - 30 psid typical For more details consult factory	
Maximum Operating Pressure	500 psia max		100 psia max	500 psia max	
Proof Pressure	700 psia max		140 psia max	700 psia max	
Design Pressure	800 psia max		170 psia max	800 psia max	
Burst Pressure	3000 psia max		500 psia max	3000 psia max	
Leak Integrity (external)	1x10^-10 atm. cc/sec He				

Mechanical

Valve Type	Normally Closed (Standard or Zero Leak-by) Normally Open Meter (no valve)			Normally Closed	
Wetted Materials	SEMI F20 HP Compliant, 316L VIM/VAR, Hastelloy C-22, 316L Stainless Steel, 304 Stainless Steel, KM-45, PCTFE (on optional Zero leak Valve)				
Surface Finish	10µ inch Ra	5µ inch Ra			

NOTE: Consult applications for accuracy and response for analog communications NOTE: See the following Safe Delivery System (SDS) section for optional detailed specifications

[1] Based on factory N_2 calibration

[2] The Zero Leak Valve can be ordered via Brooks CSR process

[3] Valve shut down full scale is defined as the MultiFlo full scale bin range or the full scale range of the factory configured gas & range devices.

[4] Argon gas applications require an additional 10 psid differential pressure. Devices greater than 30L require a 45psia minimum inlet pressure. Low vapor pressure gases require an inlet pressure of > 100 Torr, with vacuum on outlet (example $SiCl_4$). Contact Brooks Technical Support for more information.

	GF100	GF120	GF125	GF120XSL	GF120XSD
Display & Diagnostics					
Status Lights	MFC Health, Network Status				
Alarms	Control Valve Output, Network Interruption				
Display Type	Top Mount Integrated LCD				
Viewing Angle / Viewing Distance	Fixed / 10 feet				
Units Displayed / Resolution	Flow (%), Temp. (°C), Pressure (psia, kPa) / 0.1 (unit)				
Electrical					
Electrical Connection	RS485/Analog via 9-Pin "D" connector, DeviceNet™ via 5-Pin "M12" connector				
Digital Communication	RS485+ (model specific), DeviceNet (model specific), RS485 Diagnostic Port (all models)				
Diagnostics/Service Port	RS485 via 2.5mm jack				
Power Supply/ Consumption	DeviceNet: 545mA max. @ +11-25 Vdc., 250mA max. @ 24Vdc RS485/Analog: 6 Watts max @ ±15Vdc. (±10%) or +24 Vdc (±10%)				
Compliance					
EMC	EC Directive 2004/108/EC CE: EN61326: 2006 (FCC Part 15 & Canada IC-subset of CE testing)				
Environmental Compliance	RoHS Directive (2011/65/EU) REACH Directive EC 1907/2006				

Performance[1]	GF101	GF121	GF126
Full Scale Flow Range	55 slm to 300 slm		
Flow Accuracy	$\pm$1% S.P. > 35-100%; $\pm$0.35% F.S. 2-35%		
Repeatability & Reproducibility	< $\pm$ 0.15% S.P		
Response Time/Settling Time (N.C. Valve)	< 1 sec		
Pressure Insensitivity	Not Applicable		Ability to measure inlet pressure
Control Range	5-100% (Normally Closed Valve)		
MultiFlo	Standard		
#of Bins	4 bins		
Valve Shut Down (N.C. Valve)[2]	<2% of F.S. @30 N_2 psig/atm out		
Zero Stability	< $\pm$ 0.5% F.S. per year		
Temperature Coefficient	Zero: 0.005% F.S. per °C; Span: 0.05% F.S. per °C		

Ratings			
Operating Temperature Range	10-50°C		
Differential Pressure Range	30-90 psid		
Maximum Operating Pressure	Controller: 75 psig / Meter: 150 psig		
Proof Pressure	700 psia	700 psia	140 psia
Design Pressure	800 psia	700 psia	170 psia
Burst Pressure	3000 psia	3000 psia	500 psia
Leak Integrity (external)	1×10^{-10} atm. cc/sec He		

Mechanical			
Valve Type	Normally Closed / Meter (no valve)		
Wetted Materials	SEMI F20 HP Compliant, 316L VIM/VAR, Hastelloy C-22, 316L Stainless Steel, 304 Stainless Steel, KM-45		
Surface Finish	10μ inch Ra	5μ inch Ra	

Diagnostics & Display			
Status Lights	MFC Health, Network Status		
Alarms	Control Valve Output, Network Interruption		
Display Type	Top Mount Integrated LCD		
Viewing Angle / Viewing Distance	Fixed / 10 feet		
Units Displayed / Resolution	Flow (%), Temp. (°C), Pressure (psia, kPa) / 0.1 (unit)		

Electrical			
Electrical Connection	RS485/Analog via 9-Pin "D" connector, DeviceNet™ via 5-Pin "M12" connector		
Digital Communication	RS485+ (model specific), DeviceNet (model specific), RS485 Diagnostic Port (all models)		
Diagnostic /Service Port	RS485 via 2.5mm jack		
Power Supply/Consumption	DeviceNet: 545 mA max. @ +11-25 Vdc., 250mA max. @ 24 Vdc (Under typical operating conditions) / RS485/Analog: 6 Watts max @ +15 Vdc. (+10%) (Under typical operating conditions)		

| Compliance			
EMC	Environmental Compliance		
Environmental Compliance	RoHS Directive (2011/65/EU) / REACH Directive EC (1907/2006)		

[1] Based on factory N_2 calibration
[2] Valve shut down full scale is defined as the MultiFlo full scale bin range or the full scale range of the factory configured gas & range devices
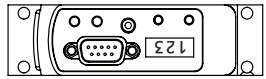
Base I/O Options

PDC Ordering Code G1
Description: Industry standard Analog / RS485 interface
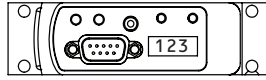
Pin No.	Signals	
1	Valve Control	
2	Output (0-5 Vdc)	
3	+15 Vdc	+24 Vdc
4	Pwr Com	NC
5	-15 Vdc	Pwr Com
6	Setpoint (0-5 Vdc)	
7	Signal Common	
8	RS-485 (DX+)	
9	RS-485 (DX-)	

PDC Ordering Code GX
Description: OEM specific Analog / RS485 interface. Display and top plate re-oriented 180°

Pin No.	Signals	
1	Valve Control	
2	Output (0-5 Vdc)	
3	+15 Vdc	+24 Vdc
4	Pwr Com	NC
5	-15 Vdc	Pwr Com
6	Setpoint (0-5 Vdc)	
7	Signal Common	
8	RS-485 (DX+)	
9	RS-485 (DX-)	

PDC Ordering Code DX
Description: Industry standard ODVA compliant DeviceNet interface
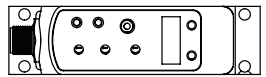
M12 Pin No.	Signals
1	Drain
2	V+ (11-25 Vdc)
3	V-
4	CAN-H
5	CAN-L

PDC Ordering Code TX
Description: Industry standard Analog only interface
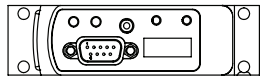
Pin No.	Signals	
1	Valve Control	
2	Output (0-5 Vdc)	
3	+15 Vdc	+24 Vdc
4	Pwr Com	NC
5	-15 Vdc	Pwr Com
6	Setpoint (0-5 Vdc)	
7	Signal Common	
8	No Connection	
9	No Connection	

PDC Ordering Code SX
Description: Industry standard Analog 9-Pin Sub D connector and dual RJ11 RS485 ports
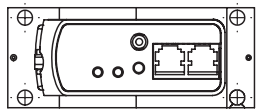
D-Sub Pin No.	Signals	
1	Valve Control	
2	Output (0-5 Vdc)	
3	+15 Vdc	+24 Vdc
4	Pwr Com	NC
5	-15 Vdc	Pwr Com
6	Setpoint (0-5 Vdc)	
7	Signal Common	
8	Signal Common	
9	Valve Test Point	
RJ11 J2 Pin No.	Signals	
3	RS-485 (DX-)	
4	RS-485 (DX+)	

PDC Ordering Code BB
Description: Industry standard ODVA compliant DeviceNet interface, Plus a separate Analog 0-5 Vdc Connector
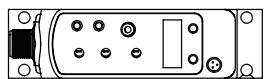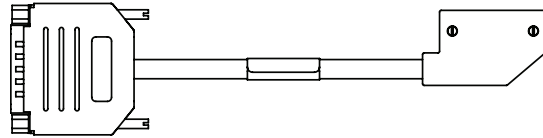
M12 Pin No.	Signals
1	Drain
2	V+ (11-25 Vdc)
3	V-
4	CAN-H
5	CAN-L
HIROSE Pin No.	Signals
1	Flow Out
2	AGND
3	GPIO_CAP0
4	GHD_Earth

All Base I/O options include:
Diagnostic port communication RS485 via 2.5mm jack

I/O Options Using Base Model and Adapter Cable

A range of low profile adapter cables have been developed to support replacing older generation MFC's with different pinout configurations. The base MFC will be either a G1, TX or SX configuration, depending on the product being replaced.

PDC Ordering Code UX
Description: SX base I/O with 7003550 adapter for compatibility with Unit UDU15

Pin No	Signals	
9	VALVE OFF	
6	OUTPUT (0-5 VDC)	
4	+15 VDC	+24 VDC
7	PWR COM	NC
11	-15 VDC	PWR COM
15	SETPOINT (0-5 VDC)	
1,13,14	SIGNAL COMMON	
2	ZERO ALARM	
12	VALVE TEST POINT	
8	CASE GROUND	
3,5,10	NO CONNECTION	

PDC Ordering Code: FX / JX
Description: SX base I/O with 7003069 (FX)/7001814 (JX) adapter for compatibility with Unit UDF9/UDJ9

Pin No	Signals	
1	VALVE CONTROL*	
2	OUTPUT (0-5 VDC)	
3	+15 VDC	+24 VDC
4	PWR COM	NC
5	-15 VDC	PWR COM
6	SETPOINT (0-5 VDC)	
7	SIGNAL COMMON	
8	SIGNAL COMMON	
9	VALVE TEST POINT	

PDC Ordering Code: KX
Description: G1 base I/O with 7003298 adapter for compatibility with Unit UDK15

Pin No	Signals	
3	VALVE CONTROL	
2	OUTPUT (0-5 VDC)	
7	+15 VDC	+24 VDC
5	PWR COM	NC
6	-15 VDC	PWR COM
8	SETPOINT (0-5 VDC)	
11,12	SIGNAL COMMON	
15	CASE GROUND	
1, 4, 9, 10, 13, 14	NO CONNECTION	

PDC Ordering Code: EX
Description: GX base I/O with 7003083 adapter for compatibility with Unit "E", IN "L", "R"

Pin No	Signals	
J	VALVE OFF	
3	OUTPUT (0-5 VDC)	
4	+15 VDC	+24 VDC
2	PWR COM	NC
F	-15 VDC	PWR COM
A	SETPOINT (0-5 VDC)	
B,C,10	SIGNAL COMMON	
1	CASE GROUND	
5, 6, 8, 9	NOT CONNECTED	
I, D, E, H	NOT CONNECTED	
7,G	KEY WAY	
RJ11 J2 Pin No	RJ11 J3 Pin No	
3	3	RS-485 (DX-)
4	4	RS-485 (DX+)

PDC Ordering Code: BX
Description: G1 base I/O with 7003590 adapter for compatibility with Brooks 15-Pin D

Pin No	Signals	
12	VALVE OVERRIDE	
2	OUTPUT (0-5 VDC)	
5	+15 VDC	+24 VDC
9	PWR COM	NC
6	-15 VDC	PWR COM
8	SETPOINT (0-5 VDC)	
1,10	SIGNAL COMMON	
3,4,7,11	NO CONNECTION	
13,14,15	NO CONNECTION	

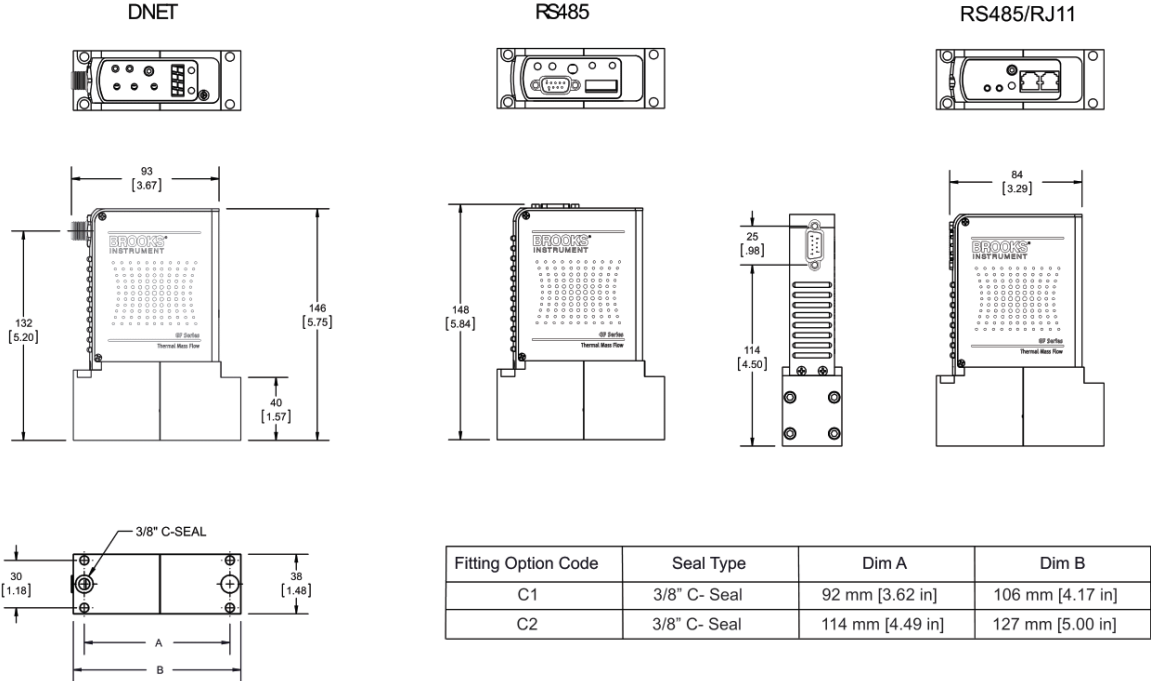*Other adapter options are available for the GF Series. Please contact Brooks Customer Service for more information.*

GF100/GF120/GF125 Downport Configurations

Electrical Connector
G1/GX/TX Specific Dimensions

Electrical Connector
DX/BB Specific Dimensions

Electrical Connector
SX Specific Dimensions

Fitting Option Code	Seal Type	Dim A	Dim B	Dim C	Dim D	Dim E	Dim F	Dim G
CX	C-SEAL	92mm [3.62in]	105mm [4.13in]	22mm [0.86in]	28mm [1.12in]	83mm [3.28in]	25mm [1.00in]	127mm [5.00in]
EX	W-SEAL	79.8mm[3.14in]	93mm [3.66in]	30mm [1.18in]	39mm [1.53in]	72mm [2.82in]	25mm [1.00in]	127mm [5.00in]
WX	W-SEAL	92mm [3.62in]	105mm [4.13in]	22mm [0.86in]	28mm [1.12in]	83mm [3.28in]	25mm [1.00in]	127mm [5.00in]
DX	C-SEAL	79.8mm[3.14in]	93mm [3.66in]	22mm [0.86in]	28mm [1.12in]	72mm [2.82in]	25mm [1.00in]	127mm [5.00in]
YX	W-SEAL	79.8mm[3.14in]	93mm [3.66in]	22mm [0.86in]	28mm [1.12in]	72mm [2.82in]	25mm [1.00in]	127mm [5.00in]
AX	C-SEAL	92mm [3.62in]	105mm [4.13in]	30mm [1.18in]	39mm [1.53in]	83mm [3.28in]	25mm [1.00in]	127mm [5.00in]
BX	W-SEAL	92mm [3.62in]	105mm [4.13in]	30mm [1.18in]	39mm [1.53in]	83mm [3.28in]	25mm [1.00in]	127mm [5.00in]
LX	C-SEAL	92mm [3.62in]	105mm [4.13in]	22mm [0.86in]	28mm [1.12in]	83mm [3.28in]	25mm [1.00in]	127mm [5.00in]

GF100/GF120/GF125 Face Seal Configurations

Electrical Connector
G1/GX/TX Specific Dimensions

Electrical Connector
DX/BB Specific Dimensions

Electrical Connector
SX Specific Dimensions

Fitting Option Code	VCR	Dim A	Dim B	Dim C	Dim D	Dim E	Dim F	Dim G	Dim H	Dim J
VX	1/4"	69mm [2.72in]	82mm [3.24in]	18mm [0.72in]	38mm [1.48in]	83mm [3.28in]	31mm [1.21in]	127mm [5.0in]	13mm [0.50in]	124mm [4.88in]
VS	1/4"	69mm [2.72in]	82mm [3.24in]	18mm [0.72in]	28.4mm [1.12in]	83mm [3.28in]	31mm [1.21in]	127mm [5.0in]	13mm [0.50in]	124mm [4.88in]

GF101/GF121/GF126 Down Port Configurations

DNET · RS485 · RS485/RJ11

Fitting Option Code	Seal Type	Dim A	Dim B
C1	3/8" C- Seal	92 mm [3.62 in]	106 mm [4.17 in]
C2	3/8" C- Seal	114 mm [4.49 in]	127 mm [5.00 in]

GF101/GF121/GF126 Face Seal Configurations

DNET · RS485 · RS485/RJ11

V1 · V2 · V3 · V4

Fitting Option Code	Seal Type	Dim A	Dim B	Dim C	Dim D
V1	1/2" VCR	134.2 mm [5.28 in]	87 mm [3.43 in]	12.7 mm [0.50 in]	M4 X 0.7 X 5.8 [0.23] DEEP
V2	1/2" VCR	150.4 mm [5.92 in]	87 mm [3.43 in]	15.5 mm [0.61 in]	M4 X 0.7 X 5.8 [0.23] DEEP
V3	1/2" VCR	166 mm [6.54 in]	87 mm [3.43 in]	12.4 mm [0.49 in]	M4 X 0.7 X 5.8 [0.23] DEEP
V4	1/2" VCR	168.6 mm [6.64 in]	87 mm [3.43 in]	16.0 mm [0.63 in]	M4 X 0.7 X 5.8 [0.23] DEEP
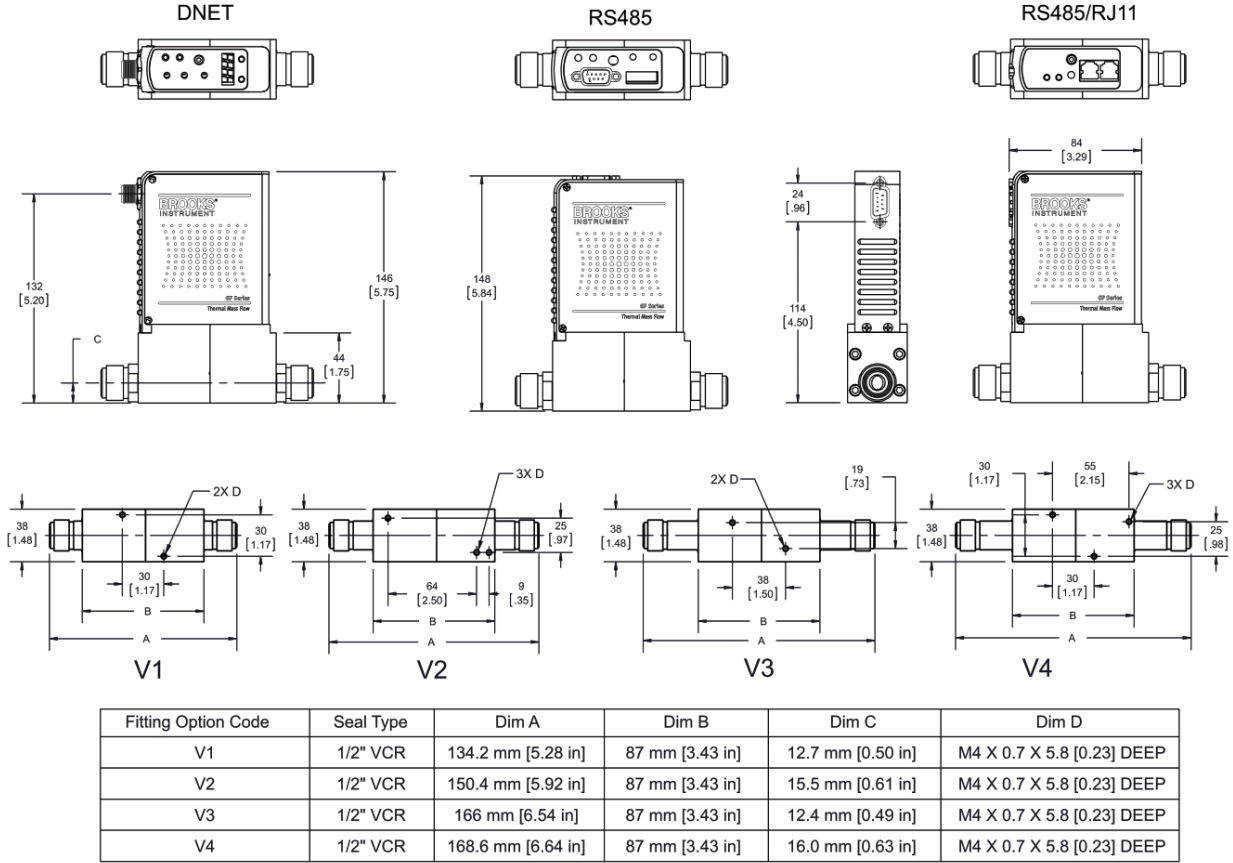
Dimensional drawings for additional configurations are available in the corresponding Dimensional Drawing Quick Reference Guide or the Installation & Operation Manual

Access our library of CAD Drawings

Code Description	Code Option	Option Description
I. Base Model Code	GF	High Purity/Ultra High Purity Digital Mass Flow Controllers
II. Package / Finish Specifications	100	Flow range 3 sccm - 55 slpm N_2 Eq.; 1 sec Response; 10 Ra
	120	Flow range 3 sccm - 55 slpm N_2 Eq.; 700 msec Response; 5 Ra
	125	Pressure Transient Insensitive (PTI) Flow range 3 sccm - 55 slpm N_2 Eq.; + 1.0% S.P. Accuracy; 300-700 msec Response; 5 Ra
III. Configurability	C	MultiFlo capable. Standard bins or specific gas/range may be selected.
	X	Not MultiFlo capable. Specific gas/range required (must select w/ SD, SL or HA special application).
IV. Special Application	XX	Standard
	SL	Safe Delivery System (GF120 Only) Full scale flow range; 4 to 25 sccm, Nitrogen Equivalent
	SD	Safe Delivery System (GF120 Only) Full scale flow range; >25 sccm to 1 slpm, Nitrogen Equivalent
V. Valve Configuration	O	Normally Open valve (not available with SD, SL or HA options)
	C	Normally Closed valve (must select with SD, SL or HA special application)
	M	Meter (No Valve)
VI. Gas or SH MultiFlo Bin	XXXX XXXX	Specific Gas Code & Range, i.e. "0004" = Argon and "100L" = 100 slpm (must select with SD, SL or HA special application)
	SH40 010C	Standard Configuration #40, 3-10 sccm Nitrogen Equivalent (0° C Reference)
	SH41 030C	Standard Configuration #41, 11-30 sccm Nitrogen Equivalent (0° C Reference)
	SH42 092C	Standard Configuration #42, 31-92 sccm Nitrogen Equivalent (0° C Reference)
	SH43 280C	Standard Configuration #43, 93-280 sccm Nitrogen Equivalent (0° C Reference)
	SH44 860C	Standard Configuration #44, 281-860 sccm Nitrogen Equivalent (0° C Reference)
	SH45 2.6L	Standard Configuration #45, 861-2600 sccm Nitrogen Equivalent (0° C Reference)
	SH46 7.2L	Standard Configuration #46, 2601-7200 sccm Nitrogen Equivalent (0° C Reference)
	SH47 015L	Standard Configuration #47, 7201-15000 sccm Nitrogen Equivalent (0° C Reference)
	SH48 030L	Standard Configuration #48, 15001-30000 sccm Nitrogen Equivalent (0° C Reference)
	SH49 040L	Standard Configuration #49, 30001-40000 sccm Nitrogen Equivalent (0° C Reference)
	SH50 055L	Standard Configuration #50, 40001-55000 sccm Nitrogen Equivalent (0° C Reference)
VII. Fitting	VX	1-1/2" body width, 124mm 1/4" VCR male
	VS	1-1/8" body width, 124mm 1/4" VCR male
	CX	1-1/8" body width, 92mm C Seal
	DX	1-1/8" body width, 79.8mm C Seal
	EX	1-1/2" body width, 79.8mm W Seal
	WX	1-1/8" body width, 92mm W Seal
	YX	1-1/8" body width, 79.8mm W Seal
	AX	1-1/2" body width, 92mm C Seal
	BX	1-1/2" body width, 92mm W Seal
	LX	1-1/8" body width, 92mm C Seal w/Poke Yoke
	AS	1-1/2" body width, 92mm 0.440" large bore C Seal (only for bins SH45-SH50)
VIII. Downstream	A	Atmosphere
	V	Vacuum; Default for SD, SL and HA special application
IX. Sensor	O	Default Sensor Orientation

Code Description	Code Option	Option Description
X. Connector	BX	Cable adapter to 15 pin D Brooks (Unit "B","N"); adapts G1 base
	EX	Cable adapter to card edge (w/out VTP), RS485 through RJ11 jacks (Unit "E"; IN "L", "R"); adapts GX base (Not Available on 79.8mm fitting DX, YX, EX)
	FX	Cable adapter with 9 pin STEC pin-out & jack screws (w/VTP) (Unit "F","O"); adapts SX base
	GX	9-Pin D with RS485 (Unit"G") (Not Available on 79.8mm fitting DX, YX, EX)
	G1	9-Pin D with RS485 (Unit"G")
	JX	Cable adapter with 9 pin STEC pin-out & jack screws (w/VTP) (Unit "J","W"); adapts SX base
	KX	Cable adapter to MKS 15-Pin D (Unit "K"); adapts G1 base
	SX	9 pin D with STEC pin-out (w/VTP) (Unit "S","Q")
	TX	9 pin D with UDT9 pin-out (UDT9) (Not Available on 79.8mm fitting DX, YX, EX)
	UX	Cable adapter to 15 pin D (w/VTP) (Unit & TN "U"); adapts SX base
	BB	DeviceNet™ Analog (Not Available on 79.8mm fitting DX, YX, EX)

DeviceNet Standard Configuration Parameters

Code Option	I/O	Connector	Power On State	Full Scale Setting	Full Scale Setting	Full Scale Setting	Poll I/O Instance Producer	Poll I/O Instance Consumer	Poll I/O State Transition	External Baud Rate
D0	DeviceNet	5 Pin Micro	Idle	Count	6000h	Integer	2	7	Executing	500KB
D1	DeviceNet	5 Pin Micro	Idle	Count	6000h	Integer	21	7	Executing	500KB
D2	DeviceNet	5 Pin Micro	Idle	SCCM	7FFFh	Float	13	19	Executing	500KB
D3	DeviceNet	5 Pin Micro	Idle	Count	6000h	Integer	22	7	Executing	500KB
D4	DeviceNet	5 Pin Micro	Executing	Count	6000h	Integer	22	8	Executing	500KB
D5	DeviceNet	5 Pin Micro	Idle	Count	6000h	Integer	6	8	Executing	500KB
D6	DeviceNet	5 Pin Micro	Idle	Count	7FFFh	Integer	3	7	Executing	500KB
D7	DeviceNet	5 Pin Micro	Idle	Count	7FFFh	Integer	6	8	Executing	500KB
D8	DeviceNet	5 Pin Micro	Idle	Count	6000h	Integer	3	7	Executing	500KB
D9	DeviceNet	5 Pin Micro	Executing	Count	6000h	Integer	2	7	Executing	500KB
DA	DeviceNet	5 Pin Micro	Idle	Count	7FFFh	Integer	22	7	Executing	500KB
DB	DeviceNet	5 Pin Micro	Idle	Count	6000h	Integer	22	8	Executing	500KB
DC	DeviceNet	5 Pin Micro	Idle	Count	7FFFh	Integer	3	7	Idle	500KB
DD	DeviceNet	5 Pin Micro	Executing	Count	7FFFh	Integer	22	8	Executing	500KB
DE	DeviceNet	5 Pin Micro	Executing	SCCM	6000h	Float	15	19	Executing	500KB
DX	DeviceNet	5 Pin Micro	(To be defined by CSR)							

Code Description	Code Option	Option Description
XI. Customer Special Request	XXXX	Customer Special Request Number; required with "DX, BB" Conn. Option to define DNet settings
XII. Auto Shut-Off	A	Auto Shut-Off (Included) Default for SD and SL special application
	X	Auto Shut-Off (Not Included) (Must be selected for meter)
XIII. Auto Zero	X	Auto Zero (Not Included)
XIV. Reference Temperature	000	0°C Reference Calibration (Standard) - Default Setting

Sample Standard Model Code

I	II	III	IV	V		VI		VII	VIII	IX	X		XI	XII	XIII		XIV
GF	100	C	XX	M	-	SH40010C	-	VX	A	O	GX	-	XXXX	A	X	-	000

Sample Safe Delivery System (SDS) Model Code

I	II	III	IV	V		VI		VII	VIII	IX	X		XI	XII	XIII		XIV
GF	120	X	SD	C	-	XXXXXXXX	-	EX	V	O	SX	-	XXXX	A	X	-	000

Code Description	Code Option	Option Description
I. Base Model Code	GF	High Purity/Ultra High Purity Digital Mass Flow Controllers
II. Package / Finish Specifications	101	Flow range 55 - 300 slm N2 Eq.; 10 Ra HP wetted flow path
	121	Flow range 55 - 300 slm N2 Eq.; 5 Ra UHP wetted flow path
	126	Flow range 55 - 300 slm N2 Eq.; 5 Ra UHP wetted flow path & integrated pressure measurement
III. Configurability	C	MultiFlo capable
	X	Not configurable
IV. Special Application	XX	Standard
V. Valve Configuration	C	Normally Closed valve
	M	Meter (No Valve)
VI. Gas or SH MultiFlo Bin	XXXX XXXX	Specific Gas Code & Range, i.e. "0004" = Argon and "100L" = 100 slpm
	SH51 055L	Standard Configuration #51, 55,001 sccm N2 Equivalent (0°C Reference) Special Bin for low density gases, e.g. 73,002-120,000 He, 100,002-170,000 H2
	SH52 100L	Standard Configuration #52, 55,002-100,000 sccm N2 Equivalent (0°C Reference)
	SH53 200L	Standard Configuration #53, 100,001-200,000 sccm N2 Equivalent (0°C Reference)
	SH54 300L	Standard Configuration #54, 200,001-300,000 N2 Equivalent (0°C Reference)
VII. Fitting	V1	1-1/2" body width, 134mm 1/2" VCR male
	V2	1-1/2" body width, 150.4mm 1/2" VCR male
	V3	1-1/2" body width, 166mm 1/2" VCR male
	V4	1-1/2" body width, 168.6mm 1/2" VCR male
	Order V1 + 318Z138BNA	1-1/2" body width, 192.4mm 1/2" VCR male
	C1	1-1/2" body width, 92mm 3/8" C Seal
	C2	1-1/2" body width, 114mm 3/8" C Seal
VIII. Downstream	A	Atmosphere
	V	Vacuum
IX. Sensor	O	Default Sensor Orientation

Code Description	Code Option	Option Description
X. Connector	BX	Cable adapter to 15 pin D Brooks (Unit "B","N"); adapts G1 base
	EX	Cable adapter to card edge (w/out VTP), RS485 through RJ11 jacks (Unit"E"; IN "L", "R"); adapts G1 base
	FX	Cable adapter with 9 pin STEC pin-out & jack screws (w/VTP) (Unit"F","O"); adapts SX base
	G1	9-Pin D with RS485 (Unit"G")
	GX	9-Pin D with RS485 (Unit"G") (Not Available on 79.8mm fitting DX, YX, EX)
	JX	Cable adapter with 9 pin STEC pin-out & jack screws (w/VTP) (Unit"J","W"); adapts SX base
	KX	Cable adapter to MKS 15-Pin D (Unit "K"); adapts G1 base
	SX	9 pin D with STEC pin-out (w/VTP) (Unit "S","Q")
	UX	Cable adapter to 15 pin D (w/VTP) (Unit & TN "U"); adapts SX base

DeviceNet Standard Configuration Parameters										
Code Option	I/O	Connector	Power On State	Full Scale Setting	Full Scale Setting	Full Scale Setting	Poll I/O Instance Producer	Poll I/O Instance Consumer	Poll I/O State Transition	External Baud Rate
D0	DeviceNet	5 Pin Micro	Idle	Count	6000h	Integer	2	7	Executing	500KB
D1	DeviceNet	5 Pin Micro	Idle	Count	6000h	Integer	21	7	Executing	500KB
D2	DeviceNet	5 Pin Micro	Idle	SCCM	7FFFh	Float	13	19	Executing	500KB
D3	DeviceNet	5 Pin Micro	Idle	Count	6000h	Integer	22	7	Executing	500KB
D4	DeviceNet	5 Pin Micro	Executing	Count	6000h	Integer	22	8	Executing	500KB
D5	DeviceNet	5 Pin Micro	Idle	Count	6000h	Integer	6	8	Executing	500KB
D6	DeviceNet	5 Pin Micro	Idle	Count	7FFFh	Integer	3	7	Executing	500KB
D7	DeviceNet	5 Pin Micro	Idle	Count	7FFFh	Integer	6	8	Executing	500KB
D8	DeviceNet	5 Pin Micro	Idle	Count	6000h	Integer	3	7	Executing	500KB
D9	DeviceNet	5 Pin Micro	Executing	Count	6000h	Integer	2	7	Executing	500KB
DA	DeviceNet	5 Pin Micro	Idle	Count	7FFFh	Integer	22	7	Executing	500KB
DB	DeviceNet	5 Pin Micro	Idle	Count	6000h	Integer	22	8	Executing	500KB
DC	DeviceNet	5 Pin Micro	Idle	Count	7FFFh	Integer	3	7	Idle	500KB
DD	DeviceNet	5 Pin Micro	Executing	Count	7FFFh	Integer	22	8	Executing	500KB
DE	DeviceNet	5 Pin Micro	Executing	SCCM	6000h	Float	15	19	Executing	500KB
DX	DeviceNet	5 Pin Micro	(To be defined by CSR)							

Code Description	Code Option	Option Description
XI. Customer Special Request	XXXX	Customer Special Request Number
XII. Auto Shut-Off	A	Auto Shut-Off (Included)
	X	Auto Shut-Off (Not Included) (Must be selected for meter)
XIII. Auto Zero	A	Auto Zero (Included)
	X	Auto Zero (Not Included)
XIV. Reference Temperature	000	0°C Reference Calibration (Standard) - Default Setting

Sample Standard Model Code

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
GF	101	C	XX	C	- SH52 100L	-	V1	A	O	G1	- XXXX	A	X	- 000

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.

START-UP SERVICE AND IN-SITU CALIBRATION

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.

SEMINARS AND TRAINING

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

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DS-TMF-GF100-Series-MFC-eng/2023-03

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