GFC mass flow controllers

Thermal mass flow controllers with built-in valve and display, from 10 smL/min to 1000 sL/min N_2 full scale

The GFC measures gas mass flow with a heated capillary sensor tube and holds it at the set point with a built-in electromagnetic valve, which closes when the power fails. The display on top tilts through 90° and unplugs for remote reading. Aluminium bodies are for non-corrosive gases, 316 stainless steel bodies for corrosive ones.



1000 sL/min	±1 % FS	±0.5 % FS	40:1	70 bar g
Largest full scale in N_2; smallest 10 smL/min	Accuracy of GFC 17, 37 and 47	Repeatability	Turndown ratio	Maximum pressure, GFC 17 to 47 (1000 psig)

Performance

Accuracy [1]	GFC 17, 37, 47: ±1.0 % FS GFC 57, 67, 77: ±1.5 % FS from 20 to 100 % FS, ±3 % FS below 20 % FS
Enhanced accuracy option	GFC 57, 67, 77: ±1 % FS from 20 to 100 % FS Below 20 % FS: reference data with ±1 %
Repeatability	±0.5 % FS
Response time [2]	GFC 17: time constant 300 ms, about 1 s GFC 37, 47: time constant 600 ms, about 2 s GFC 57, 67, 77: time constant 1800 ms, about 5 s
Turndown ratio	40:1
Temperature coefficient	0.15 % FS/°C
Pressure coefficient	0.01 % FS per psi (0.07 bar)
Calibration conditions	21.1 °C (70 °F) and 101.4 kPa (14.7 psia), unless ordered otherwise
Mounting position	Calibrated horizontal; keep within 15° of horizontal

Operating conditions

Maximum gas pressure	GFC 17, 37, 47: 70 bar g (1000 psig) GFC 57, 67, 77: 34.5 bar g (500 psig)
Optimum inlet pressure	1.4 bar g (20 psig)
Maximum pressure difference	GFC 47: 2.7 bar (40 psid) Other models: 3.4 bar (50 psid)
Pressure drop	By model and range, see page 3
Temperature and humidity	Gas: 0–50 °C (32–122 °F) Ambient: −10 to 50 °C (14–122 °F) Gas relative humidity: up to 70 %
Gas media	Non-corrosive gases (aluminium models); corrosive gases (stainless steel, suffix S)
Valve internal leak	0.5 % FS maximum
Leak integrity	1 × 10⁻⁹ smL/s helium maximum, to the outside

Mechanical

Wetted materials[3]	Aluminium models: anodised aluminium, brass, 416 and 316 stainless steel, FKM O-rings Stainless (suffix S): 416 and 316 stainless steel, FKM O-rings Optional O-rings: NBR, EPR or FFKM
Process connections	GFC 17, 37: 1/4" compression; options 6 mm or 3/8" compression, 1/4" face seal; GFC 17 also 1/8" GFC 47, 57: 3/8" compression GFC 67: 1/2" compression GFC 77: 3/4" NPT female; option 3/4" compression
Installation	On the bench, or screwed down through the base

Electrical and communication

Flow output	0–5 V DC, linear, load 1000 Ω minimum 4–20 mA, loop resistance 0–500 Ω Noise: 20 mV peak-to-peak maximum (GFC 17, 37, 47); 100 mV (GFC 57, 67, 77)
Set point	Local, or remote 0–5 V DC or 4–20 mA
Purge and valve off	NPN-compatible input
Valve	Electromagnetic proportional valve, normally closed
Supply	GFC 17, 37, 47: 12–26 V DC, 650 mA maximum GFC 57, 67, 77: 12 V DC or 24 V DC, 800 mA maximum
Circuit protection	Reverse-polarity protection; resettable fuses on the power input
Connector	15-pin D-sub

Compliance

EMC compliance	Emission EN 55011, group 1, class B; immunity EN 55082-1

Display

Readout	3½-digit LCD, 0.5" digits; engineering units (standard) or 0–100 %
Mounting	Tilts through 90°; plugs into the controller and can be mounted remotely
Without display	Version for OEM installations

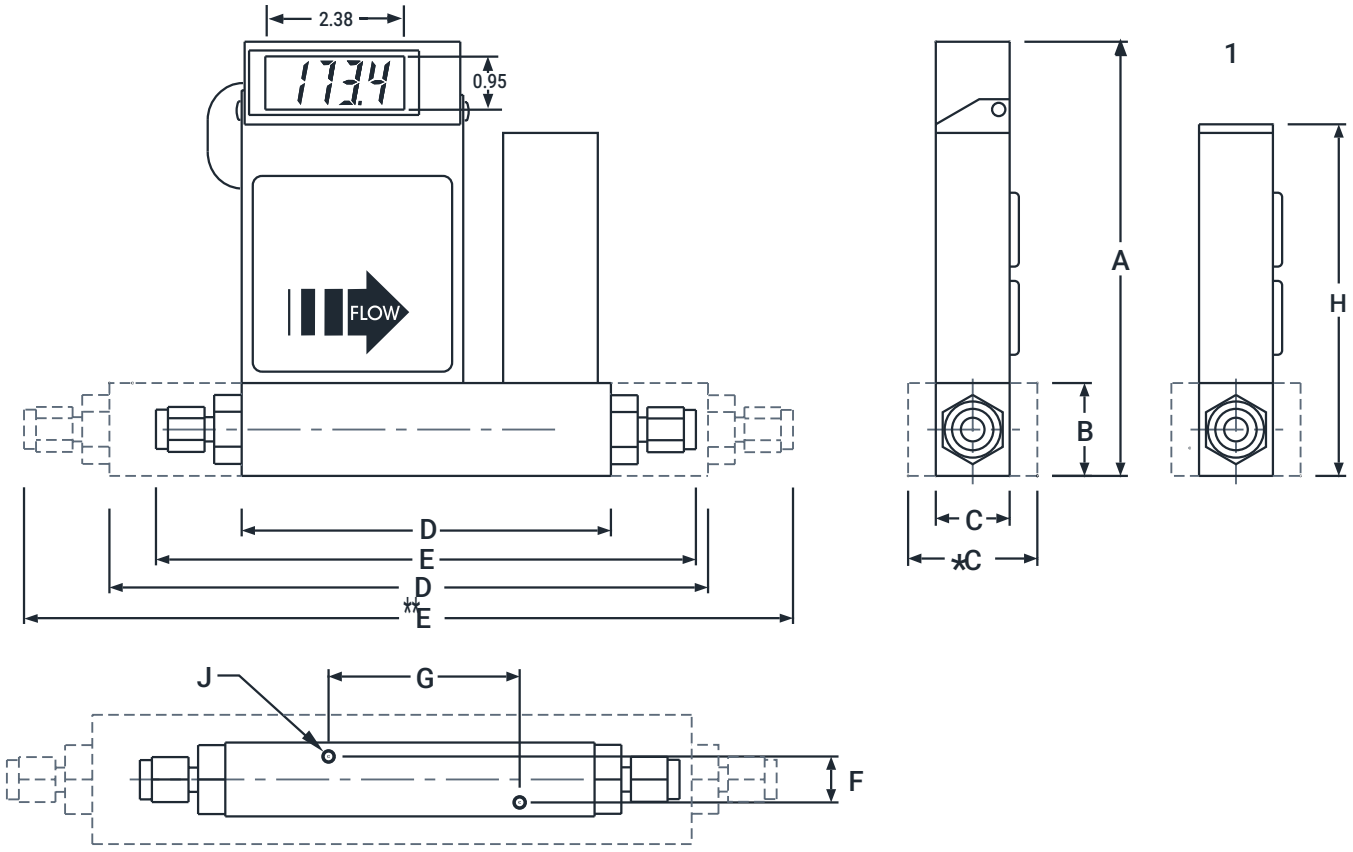
Range codes, N_2 (21.11 °C, 1013.25 mbar)

Code	GFC 17 (smL/min)	Code	GFC 17 (sL/min)	Code	GFC 37 (sL/min)	Code	GFC 47 to 77 (sL/min)
01	10 smL/min	07	1 sL/min	11	15 sL/min	40	60 sL/min (GFC 47)
02	20 smL/min	08	2 sL/min	30	20 sL/min	41	80 sL/min (GFC 47)
03	50 smL/min	09	5 sL/min	31	30 sL/min	42	100 sL/min (GFC 47)
04	100 smL/min	10	10 sL/min	32	40 sL/min	50	200 sL/min (GFC 57)
05	200 smL/min			33	50 sL/min	60	500 sL/min (GFC 67)
06	500 smL/min					70	1000 sL/min (GFC 77)

Maximum pressure drop (21.11 °C, 1013.25 mbar)

Model	Full scale (N_2)	mm H_2O	psid	mbar
GFC 17	up to 10 sL/min	720	1.06	75
GFC 37	15 sL/min	2630	3.87	266
GFC 37	20 sL/min	1360	2.00	138
GFC 37	30 sL/min	2380	3.50	241
GFC 37	40 sL/min	3740	5.50	379
GFC 37	50 sL/min	5440	8.00	551

Model	Full scale (N_2)	mm H_2O	psid	mbar
GFC 47	60 sL/min	7480	11.00	758
GFC 47	100 sL/min	12850	18.89	1302
GFC 57	200 sL/min	7031	10.00	690
GFC 67	500 sL/min	8437	12.00	827
GFC 77	1000 sL/min	10547	15.00	1034



1 Version without display

Front view, side views and bottom view. Solid outline: GFC 17; dashed outline and starred letters: GFC 37 to 77. J: mounting holes in the base. Display window in inches.

Dimensions in inches

Model	Connection	A	B	C/*C	D/*D	E/*E	F	G	H	J, thread × depth
GFC 17	1/4" tube OD	5.72	1.00	1.00	4.27	6.29	0.69	2.69	4.61	6-32 × 0.13
GFC 37	1/4" tube OD	6.10	1.37	1.25	5.19	7.21	0.69	2.69	4.99	6-32 × 0.10
GFC 47	3/8" tube OD	6.10	1.37	1.25	5.19	7.33	0.69	2.69	4.99	6-32 × 0.10
GFC 57	3/8" tube OD	6.73	2.00	1.75	10.2	12.3	1.39	4.69	5.62	10-24 × 0.25
GFC 67	1/2" tube OD	7.55	3.00	3.00	10.24	12.4	2.5	6.80	6.53	1/4-20 × 0.35
GFC 77	3/4" NPT female	8.66	4.00	4.00	10.5	–	3.0	6.80	7.55	1/4-20 × 0.35

A to G with display; H without display. Compression fittings on every model except the GFC 77.

Model code: model, body and seals

Position	Code	Meaning
Model	17	Maximum flow 10 sL/min (N_2, 21.11 °C, 1013.25 mbar)
Model	37	Maximum flow 50 sL/min
Model	47	Maximum flow 100 sL/min
Model	57	Maximum flow 200 sL/min
Model	67	Maximum flow 500 sL/min
Model	77	Maximum flow 1000 sL/min

Position	Code	Meaning
Material	A	Aluminium
Material	S	Stainless steel
Seals	V	FKM
Seals	B	NBR
Seals	E	EPR
Seals	T	FFKM

Order from Analyt-MTC with the order codes. The model code reads GFC, model, material, seals, fitting, display, power, signal and digital interface. For any other version, contact Analyt-MTC.

Model code: fittings

Code	Fitting	Models
A	1/4" compression	GFC 17, 37
B	1/8" compression	GFC 17
C	1/4" face seal	GFC 17, 37
D	3/8" compression	GFC 17, 37, 47, 57

Code	Fitting	Models
E	1/2" compression	GFC 67
F	3/4" NPT female	GFC 77
G	3/4" compression	GFC 77
H	6 mm compression	GFC 17, 37

Model code: display, power and signals

Position	Code	Meaning	Models
Display	N	No display	All
Display	L	LCD readout	All
Power	6	Universal 12–26 V DC	GFC 17, 37, 47
Power	2	12 V DC	GFC 57, 67, 77
Power	4	24 V DC	GFC 57, 67, 77
Digital interface	0	None	All

Position	Code	Meaning	Models
Input and output	A	Local set point; 0–5 V DC	All
Input and output	B	Local set point; 4–20 mA	All
Input and output	C	0–5 V DC in; 0–5 V DC out	All
Input and output	D	0–5 V DC in; 4–20 mA out	All
Input and output	E	4–20 mA in; 4–20 mA out	All
Input and output	F	4–20 mA in; 0–5 V DC out	All

Options and accessories

Enhanced accuracy, GFC 57, 67, 77	
Other fittings; NBR, EPR or FFKM O-rings	
Totaliser and I/O module (TIO): digital interface, programmable set point	
Remote LCD readout with 3 ft cable	17/R
Remote cable, 3 ft	
Shielded cable for the 15-pin D-sub, stripped ends	CBL-DGS
Power supply 230 V AC/12 V DC, EU, no analogue interface	PSGFC-12V
Power supply 230 V AC/24 V DC, EU, no analogue interface	PSGFC-24V
Power supplies for North America, the UK and Australia	
Universal baseplate, a bench-top stand	35780
Rugged transport case	1200-000-110E

Notes

1. FS = full scale. Full-scale flows are given for nitrogen.
2. Response time is the time to settle within ±2 % of the set point, for set points from 25 to 100 % FS.
3. You are responsible for choosing wetted materials that suit your gas. If in doubt, ask Analyt-MTC before you order.
4. Dimensions may change without notice; ask Analyt-MTC for a certified drawing.
5. Accessories listed without an order code: ask Analyt-MTC.
6. Power supplies (12 V DC / 24 V DC) for North America (110 V AC), the United Kingdom (240 V AC) and Australia (240 V AC): ask Analyt-MTC.

ANALYT-MTC Messtechnik GmbH
Sales, service and calibration

www.analyt-mtc.com

German Headquarters
Klosterrunsstraße 18, 79379 Müllheim
+49 7631 5545
info@analyt-mtc.de

French Subsidiary
175 Avenue d'Alsace, 68000 Colmar
+33 3 89 41 47 78
info@analyt-mtc.fr

© 2026 ANALYT-MTC Messtechnik GmbH. All rights reserved. Subject to technical changes without notice.