Aalborg DPM mass flow meters

Multi-parameter, multi-gas digital mass flow meters from 0.5 smL/min to 1000 sL/min air full scale

The DPM measures mass and volumetric flow of gases and reports pressure and temperature, using a laminar flow element and a differential pressure sensor. The gas is selected on the optional OLED display and joystick, or over the serial interface. Low pressure drop models lose 0.3 psid or less at full scale.



1000 sL/min	±0.5 % rd	200:1	10 ms	8.3 bar g
Largest full scale in air; smallest 0.5 smL/min	Accuracy, plus 0.2 % of full scale	Turndown ratio (0.5 to 100 % full scale)	Default flow response time (adjustable)	Maximum pressure, standard models

Performance

Accuracy [1]	±(0.5 % rd + 0.2 % FS) at calibration conditions
Repeatability	±0.15 % FS
Operating range	0.5–100 % FS; reads up to 133 % FS
Turndown ratio	200:1
Response time	10 ms by default, adjustable by the user
Warm-up time	< 5 s
Temperature coefficient	0.05 % FS/°C or better
Pressure coefficient	0.01 % FS/psi (6.895 kPa) or better
Calibration and reference	Calibrated at 101.4 kPa and 21.1 °C (14.7 psia, 70 °F) Reference (STP): 21.11 °C, 1013.25 mbar; for others, ask Analyt-MTC

Operating conditions

Max. static pressure	Standard models: 8.3 bar g (120 psig) Low pressure drop models: 3.4 bar g (50 psig) Corrosion-resistant models: 150 psig
Max. differential pressure	Standard models: 0.83 bar (12 psid) Low pressure drop models: 0.67 bar (9.75 psid) Corrosion-resistant models: 10 psid
Proof pressure	Standard models: 10.0 bar g (145 psig) Low pressure drop models: 3.4 bar g (50 psig) Corrosion-resistant models: 175 psia
Pressure drop	By model, see the pressure drop table
Operating temperature	−10 to +60 °C (14 to 140 °F)
Humidity	0–100 % relative, non-condensing
Gas medium	Standard and low pressure drop models: clean, non-corrosive gases only Corrosion-resistant models: also the corrosive gases listed in the operating manual Never liquids

Mechanical

Wetted materials	316 and 416 stainless steel, high-temperature polyamide, alumina ceramic, epoxy, silicone, glass, gold; FKM O-rings Corrosion-resistant models: 316 stainless steel; FKM or FFKM O-rings You choose the materials that suit your gas; if in doubt, ask Analyt-MTC before you order
Process connections	10-32 female thread, or 1/8", 1/4", 1/2" or 3/4" NPT female, by model
Mounting position	No sensitivity
Ingress protection	IP40

Electrical and communication

Supply voltage, consumption, protection [2]	9–26 V DC, 150 mV peak-to-peak noise maximum 100 mA maximum Reverse-polarity protection; 300 mA resettable fuse
Analogue output, user selectable	0–5 V DC, linear, load 5 kΩ minimum 0–10 V DC, linear, load 5000 Ω minimum 4–20 mA, loop resistance 500 Ω maximum 0–10 V DC and 4–20 mA need a supply of 12 V DC or more
Output noise	10 mV peak-to-peak maximum, voltage outputs
Digital interface [3]	RS-232 or RS-485, user selectable Option: Modbus RTU over isolated RS-485
Supplied cable [4]	RS-232: 1.5 ft, 3.5 mm stereo plug to 9-pin female D-sub; order code CBL-A232 RS-485: 3 ft, 3.5 mm stereo plug to stripped ends

Compliance

Installation category	Installation level II, pollution degree II (IEC 664)

Display and functions

Measured values	Mass flow, volumetric flow, pressure and temperature
Display	Optional OLED graphic display with joystick; status LED
Gas selection	Up to 30 gases; on the display or over the serial interface
User mixtures	20 stored mixtures of up to 5 gases each
Totalisers	Two programmable mass flow totalisers
Alarms	Low, high or in-range, on flow, temperature and pressure
Relay and pulse output	Programmable solid-state relay; mass flow pulse output
Zero and diagnostics	Automatic zero adjustment; extensive self-diagnostics
Configuration software	Free Aalborg configuration and calibration software, over RS-232 or RS-485

Compression fittings (accessory)

10-32 port	1/8" tube, 316 stainless steel (F1C5): DPM04, DPM07, DPM08 1/8" tube, nickel-plated brass (F2C5): DPM04, DPM07
1/8" NPT port	1/8" or 1/4" tube, 316 stainless steel (F2C2, F2C4): DPM14, DPM17, DPM18
1/4" NPT port	1/4" tube, 316 stainless steel (F4C4): DPM34, DPM37, DPM38 3/8" tube, 316 stainless steel (F4C6): DPM24, DPM34, DPM47, DPM48
1/2" NPT port	3/8" tube, 316 stainless steel (F8C6): DPM44, DPM57, DPM58
3/4" NPT port	3/4" tube, 300 series stainless steel (1210-1-12-316): DPM54, DPM67, DPM68, DPM77, DPM78 Not included with the meter; order codes in brackets

Models and full-scale ranges (21.11 °C, 1013.25 mbar)

Model	Full scale (air)	Version
DPM07	0.5–50 smL/min	Standard
DPM17	51 smL/min–20 sL/min	Standard
DPM37	21–50 sL/min	Standard
DPM47	51–100 sL/min	Standard
DPM57	101–250 sL/min	Standard
DPM67	251–500 sL/min	Standard
DPM77	501–1000 sL/min	Standard
DPM08	0.5–50 smL/min	Corrosion-resistant
DPM18	51 smL/min–20 sL/min	Corrosion-resistant
DPM38	21–50 sL/min	Corrosion-resistant

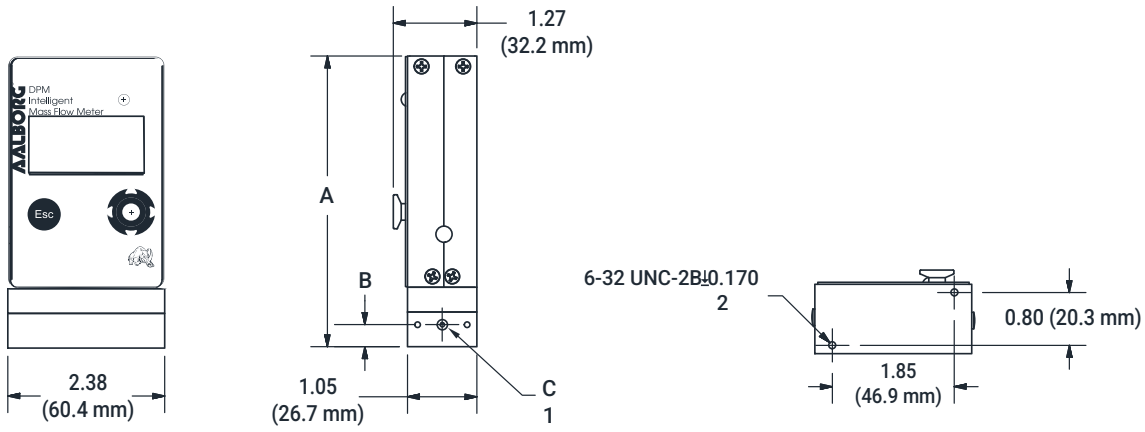
Model	Full scale (air)	Version
DPM48	51–100 sL/min	Corrosion-resistant
DPM58	101–250 sL/min	Corrosion-resistant
DPM68	251–500 sL/min	Corrosion-resistant
DPM78	501–1000 sL/min	Corrosion-resistant
DPM04	0.5–20 smL/min	Low pressure drop
DPM14	21 smL/min–2 sL/min	Low pressure drop
DPM24	2.1–10 sL/min	Low pressure drop
DPM34	10.1–20 sL/min	Low pressure drop
DPM44	20.1–40 sL/min	Low pressure drop
DPM54	40.1–100 sL/min	Low pressure drop

Full scale for air.

Pressure drop at full-scale air flow, connection

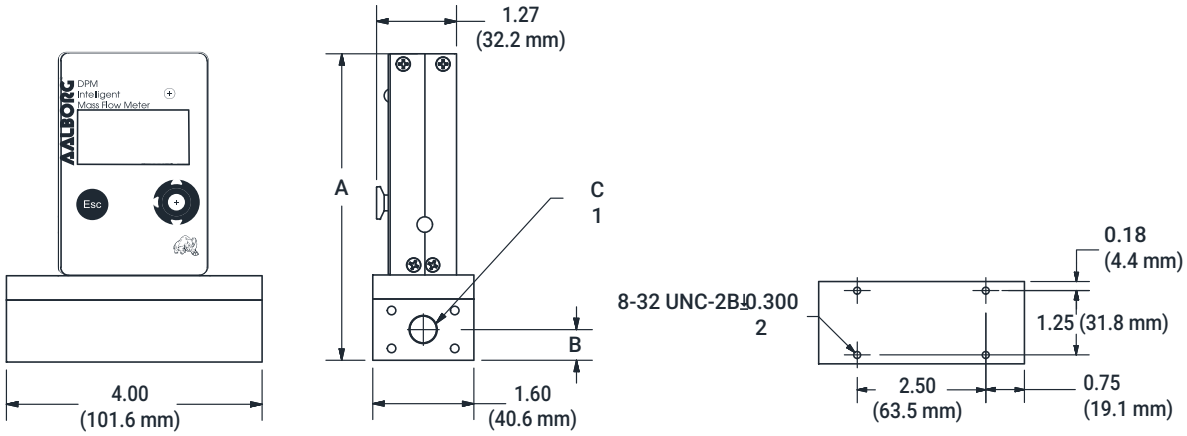
Model	Δp, mbar	Δp, psid	Connection (female)
DPM07	68.9	1.0	10-32
DPM17	68.9	1.0	1/8" NPT
DPM37	137.9	2.0	1/4" NPT
DPM47	172.4	2.5	1/4" NPT
DPM57	379.2	5.5	1/2" NPT
DPM67	379.2	5.5	3/4" NPT
DPM77	482.6	7.0	3/4" NPT
DPM08	68.9	1.0	10-32
DPM18	68.9	1.0	1/8" NPT
DPM38	137.9	2.0	1/4" NPT

Model	Δp, mbar	Δp, psid	Connection (female)
DPM48	172.4	2.5	1/4" NPT
DPM58	379.2	5.5	1/2" NPT
DPM68	379.2	5.5	3/4" NPT
DPM78	482.6	7.0	3/4" NPT
DPM04	4.1	0.06	10-32
DPM14	4.8	0.07	1/8" NPT
DPM24	5.9	0.085	1/4" NPT
DPM34	20.7	0.3	1/4" NPT
DPM44	10.3	0.15	1/2" NPT
DPM54	17.2	0.25	3/4" NPT



1 Process ports C (2) 2 Mounting holes (2), thread and depth

DPM04, DPM07, DPM08, DPM14, DPM17, DPM18 and DPM24: front, side and base views. Dimensions in inches, mm in brackets.



1 Process ports C (2) 2 Mounting holes (4), thread and depth

DPM34 to DPM78: front, side and base views. Dimensions in inches, mm in brackets.

Dimensions in mm

Models	A, non-corrosive	A, corrosion-resistant	B	C
DPM04, DPM07, DPM08	111.8	126.5	8.5	10-32 UNF-2B
DPM14, DPM17, DPM18	116.2	130.4	8.9	1/8-27 NPT
DPM24	127.0	–	8.9	1/4-18 NPT
DPM34, DPM37, DPM38	123.2	143.5	12.3	1/4"-18 NPT
DPM44, DPM47, DPM48	4.85 in	143.5	12.3	1/4"-18 NPT
DPM57, DPM58	139.1	159.5	20.3	1/2"-14 NPT
DPM54, DPM67, DPM68	139.1	159.5	20.3	3/4"-14 NPT
DPM77, DPM78	139.1	159.5	20.3	3/4"-14 NPT

Nominal dimensions; for certified drawings, ask Analyt-MTC. C as the manufacturer prints it; for DPM44 the range data give a 1/2" NPT female connection.

Ordering code, for example DPM17S-V0L6-A3

Position	Code	Meaning
Model, standard	07, 17, 37, 47, 57, 67, 77	Full scale as in the range table
Model, corrosion-resistant	08, 18, 38, 48, 58, 68, 78	Full scale as in the range table
Model, low pressure drop	04, 14, 24, 34, 44, 54	Full scale as in the range table
Material	S	316 stainless steel
Seals	V or T	V FKM; T FFKM
Connections	0	Not included (accessory)
Readout	N or L	N no display; L OLED readout
Power	6	Universal, 9–26 V DC
Output signal	A, B, M	A 0–5, M 0–10 V DC; B 4–20 mA
Digital interface	2, 5, 3, 4	2 RS-232; 5 RS-485; with Modbus 3 RS-232, 4 RS-485

Example DPM17S-V0L6-A3: DPM17, 316 stainless steel, FKM seals, OLED, 9–26 V DC, 0–5 V DC output, RS-232 with Modbus. Specify range, gas and pressure.

Standard versions, order codes

Model	No display	No display, Modbus	OLED display	OLED display, Modbus
DPM04	DPM04-N0	DPM04-NM	DPM04-L0	DPM04-LM
DPM07	DPM07-N0	DPM07-NM	DPM07-L0	DPM07-LM
DPM14	DPM14-N0	DPM14-NM	DPM14-L0	DPM14-LM
DPM17	DPM17-N0	DPM17-NM	DPM17-L0	DPM17-LM
DPM24	DPM24-N0	DPM24-NM	DPM24-L0	DPM24-LM
DPM34	DPM34-N0	DPM34-NM	DPM34-L0	DPM34-LM
DPM37	DPM37-N0	DPM37-NM	DPM37-L0	DPM37-LM
DPM44	DPM44-N0	DPM44-NM	DPM44-L0	DPM44-LM
DPM47	DPM47-N0	DPM47-NM	DPM47-L0	DPM47-LM
DPM54	DPM54-N0	DPM54-NM	DPM54-L0	DPM54-LM
DPM57	DPM57-N0	DPM57-NM	DPM57-L0	DPM57-LM
DPM67	DPM67-N0	DPM67-NM	DPM67-L0	DPM67-LM
DPM77	DPM77-N0	DPM77-NM	DPM77-L0	DPM77-LM

Order from Analyt-MTC with the order codes. For corrosion-resistant models and any other version, contact Analyt-MTC.

Accessories

Universal benchtop baseplate	35780
Rugged transport case	1200-000-110E
Inline filter, 1/8" NPT, 20 µm; element ILFE20	ILF-1/8-20
Inline filter, 1/4" NPT, 40 µm; element ILFE40	ILF-1/4-40
Inline filter, 1/2" NPT, 40 µm; element ILFE40L	ILF-1/2-40
Inline filter, 3/4" NPT, 40 µm; element ILFE40L	ILF-3/4-40
USB to RS-232 adapter	35782
RS-485 cable, 3.5 mm plug to stripped ends, 3 ft	CBL-A485
Shielded 8-pin Mini-DIN cable, stripped ends, 12 ft	CBL-8MMINIDIN-12
USB to RS-232 converter	USB-RS232
USB to RS-485 converter	USB-RS485
Power supply 240 V / 12 V DC, UK plug	PS-GFM-240UK-2

Notes

1. rd = of reading, FS = of full scale. Accuracy includes linearity. sL/min and smL/min at 21.11 °C, 1013.25 mbar.
2. Power supplies, 12 or 24 V DC: PS-USA, PS-GFM-110NA-4 (110 V AC, North America); PS-GFM-230EU-2, -4 (220 V AC, Europe).
3. Modbus RJ45 parts: Y adapter ECS803-1, coupler TDG1026-8C, terminator MOD27T, splitter JMOD4S-1; patch cables TRD815BL-2, -10, -25 (2, 10, 25 ft).
4. Mini-DIN cable, 3 ft: CBL-8MINIDIN-3.

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