P270 Series

Acrylic Tube Variable Area Flow Meter

The P270 Series flow meters with molded construction are ideal for low flow rates of water, air and nitrogen in OEM applications.

The P270 flow meter is highly optimized for the flow measurement of water, air and nitrogen by offering an accuracy of ±5% F.S.

Optional contact alarm feature provides signal feedback to users when flow rates move outside the preset limits.

Contact Information:

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Product Features:

- An excellent solution for measurement of flow rate for water, air and nitrogen
- Available in standard flow rate ranges for easy selection
- Acrylic molded construction provides economical choice
- Easy to-read scales
- Optional alarm output

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Specifications

Performance

Flow Rate Scale Ranges	
Water[1]	
Minimum	Small flow rate type 0.16 - 16 Gal/h (10 - 100 ml/min) Large flow rate type 4.8 - 48 Gal/h (0.3 - 3 L/min)
Maximum	Small flow rate type 4.8 - 48 Gal/h (0.3 - 3 L/min) Large flow rate type 16 - 160 Gal/h (1 - 10 L/min)
Air[2] **or N_2**	
Minimum	Small flow rate type 0.4 - 4.2 ft^3/h (nor) (0.2 - 20 L/min) (nor) Large flow rate type 11 - 106 ft^3/h (nor) (5 - 50 L/min) (nor)
Maximum	Small flow rate type 11 - 106 ft^3/h (nor) (5 - 50 L/min) (nor) Large flow rate type 64 - 636 ft^3/h (nor) (30 - 300 L/min) (nor)
Turndown	10:1
Accuracy	±5% F.S.
Approx. Weight	Small flow rate type: 0.2 lbs. (95 g) Large flow rate type: 0.27 lbs. (120 g)
Flow Direction	Bottom rear to top rear
Alarm Type	Reed Switch alarm

Operating Conditions	
Max. Operating Pressure	72.5 psig (5 barg)
Max. Operating Temperature	122°F (50°C)

[1] Liquid equivalent to water density 1.0g/cm^3, viscosity 1.0cp
[2] Gases equivalent to Air @ 0°C 1 atm

Materials of Construction

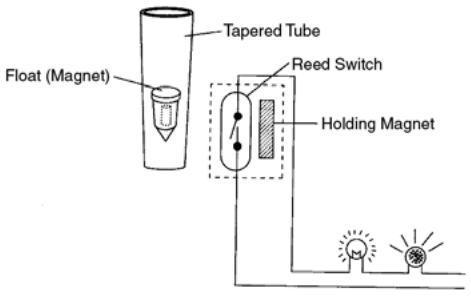
Wetted	
Body	Polymethyl Methacrylate (PMMA)
Float	304 Stainless Steel, Glass, PTFE or Ruby
Packing	NBR (Nitrile Rubber)
Fitting	304 Stainless Steel
Valve	304 Stainless Steel

Non-wetted	
Cover	Polyoxymethylene Plastic (POM)
Connection Size and Type	Standard: Small flow rate NPT or RC 1/4" Large flow rate NPT or RC 3/8" with locknuts for front panel mounting

Proper material to be selected according to the specification.

Reed Switch Specification

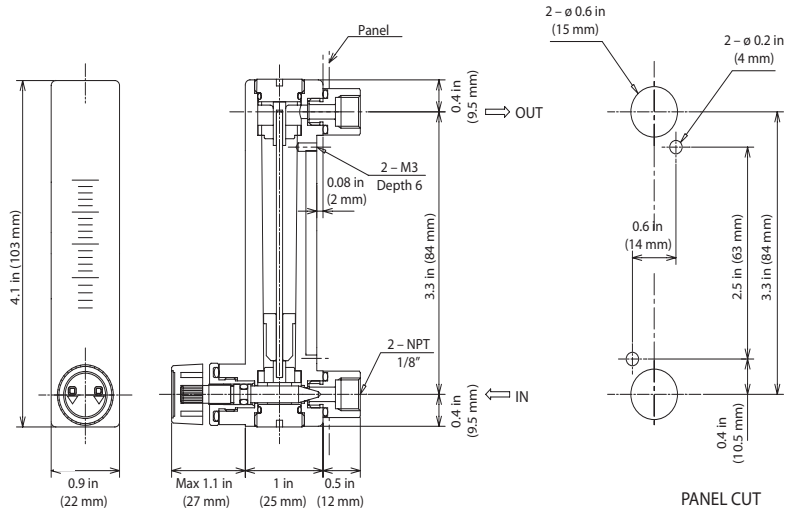
Number of Point	1 point (high or low) 2 point alarm also available as an option Consult factory for details
Alarm Setting Range	Standard 20% to 80% of full scale (H: 50% to 80%, L: 20% to 50%)
Contact	Reed switch (self-holding type) Max. contact capacity: AC10VA, DC10W Max. voltage: AC125V, DC100V Max. current: 0.5A
Connection	Lead wire connection of 50cm (2m is also available)
Reset-Span	25% Full Scale
Ambient Temperature	-10°C to 60°C



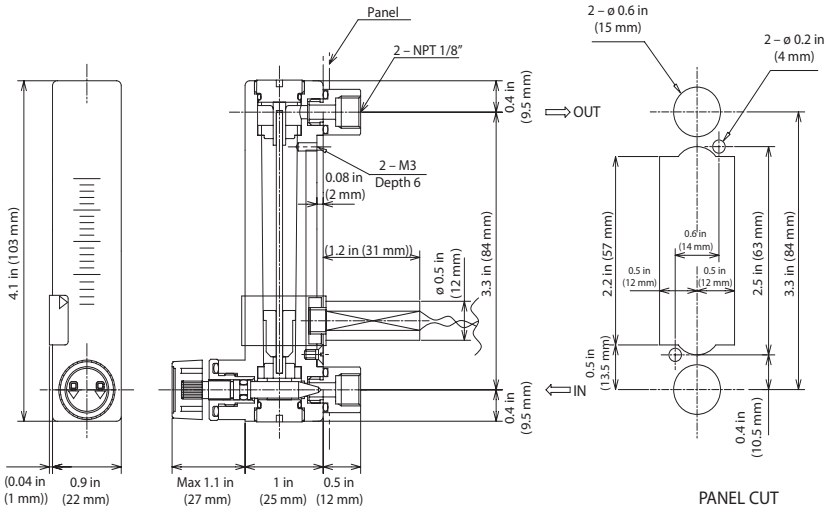
Caution must be taken when mounting multiple alarmed meters. Close proximity may cause interference with alarm signal.

Dimensional Drawings

Standard Connection Size NPT 1/8" Small Flow Rate



Alarm Outlet Connection Size NPT 1/8" Small Flow Rate



Flow Range Alarm Settings

Small Air[1] Flow Rate Table

Flow Range Code	If No Alarm Output		If LO, LC, HO, or HC Alarm Output			
	Air or N_2		Air or N_2		Alarm Setting Range	
	ft^3/h	L/min (nor)	ft^3/h	L/min (nor)	ft^3/h	L/min (nor)
A	0.4 - 4.2	0.2 - 2	N/A	N/A	N/A	N/A
B	1.1 - 11	0.5 - 5	N/A	N/A	N/A	N/A
C	2.1 - 21	1 - 10	N/A	N/A	N/A	N/A
D	4.2 - 42	2 - 20	N/A	N/A	N/A	N/A
E	6.4 - 64	3 - 30	N/A	N/A	N/A	N/A
F	11 - 106	5 - 50	11 - 106	5 - 50	21 - 85	10 - 40

[1] Air measured at 0°C 1 atm

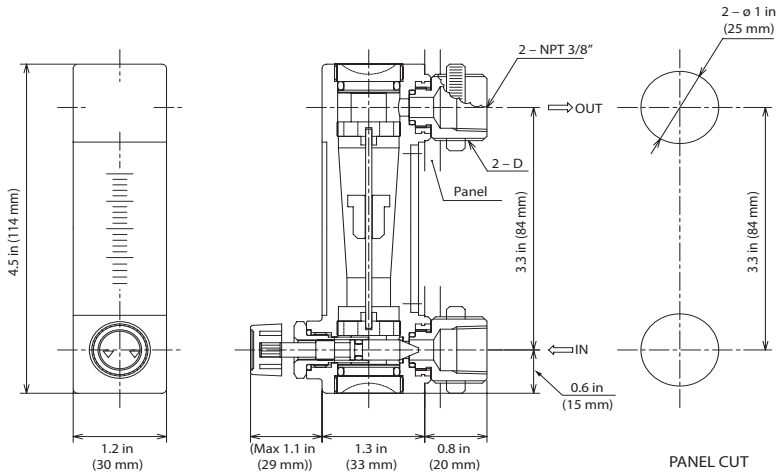
Small Water[2] Flow Rate Table

Flow Range Code	If No Alarm Output		If LO, LC, HO, or HC Alarm Output			
	Water		Water		Alarm Setting Range	
	Gal/h	L/min	Gal/h	L/min	Gal/h	L/min
1	0.2 - 2	10 - 100 ml/min	N/A	N/A	N/A	N/A
2	0.6 - 6	40 - 400 ml/min	N/A	N/A	N/A	N/A
3	1.6 - 16	0.1 - 1	1.6 - 16	0.1 - 1	3.2 - 13	0.2 - 0.8
4	3.2 - 32	0.2 - 2	3.2 - 32	0.2 - 2	6.3 - 25	0.4 - 1.6
5	7.9 - 40	0.5 - 2.5	7.9 - 40	0.5 - 2.5	16 - 32	1 - 2
6	4.8 - 48	0.3 - 3	4.8 - 48	0.3 - 3	10 - 38	0.6 - 2.4

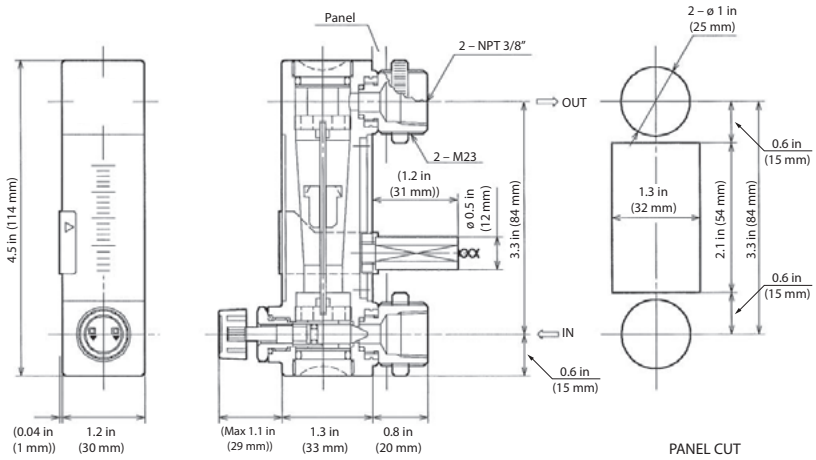
[2] Liquid equivalent to water density 1.0g/cm^3, viscosity 1.0cp

Dimensional Drawings

Standard Connection Size NPT 3/8" Large Flow Rate



Alarm Outlet Connection Size NPT 3/8" Large Flow Rate



Flow Range Alarm Settings

Large Air[1] Flow Rate Table

Flow Range Code	If No Alarm Output		If LO, LC, HO, or HC Alarm Output			
	Air or N_2		Air or N_2		Alarm Setting Range	
	ft^3/h	L/min (nor)	ft^3/h	L/min (nor)	ft^3/h	L/min (nor)
G	11 - 106	5 - 50	N/A	N/A	N/A	N/A
H	21 - 212	10 - 100	21 - 212	10 - 100	42 - 170	20 - 80
I	42 - 424	20 - 200	42 - 424	20 - 200	85 - 339	40 - 160
J	64 - 636	30 - 300	64 - 636	30 - 300	127 - 509	60 - 240

[1] Air measured at 0°C 1 atm

Large Water[2] Flow Rate Table

Flow Range Code	If No Alarm Output		If LO, LC, HO, or HC Alarm Output			
	Water		Water		Alarm Setting Range	
	Gal/h	L/min	Gal/h	L/min	Gal/h	L/min
7	4.8–48	0.3–3	N/A	N/A	N/A	N/A
8	7.9–79	0.5–5	7.9–79	0.5–5	16–63	1–4
9	16–159	1–10	16–159	1–10	32–127	2–8

[2] Liquid equivalent to water density 1.0g/cm^3, viscosity 1.0cp

Ordering Information

Use the following guide to determine the specific product number you require.

The following example describes a P270 Series bottom rear to top rear flow meter with no valve or alarms, for water at flow rate of 10-100 ml/min[2]; 1/8" RC thread connection.

Example: P271A1A1B1

Model Number, Example and Options								Description
P27	**1**	**A**	**1**	**A**	**1**	**B**	**1**	
Flow / Direction	1							Bottom rear to top rear (standard) – See below for flow ranges
	Z							Special
Valve		B						Bottom
		Z						Special
Alarm Output			1					None
			2					Reed Switch - Contact closes (becomes ON) when value is more than set point
			3					Reed Switch - Contact opens (becomes OFF) when value is more than set point
			4					Reed Switch - Contact closes (becomes ON) when value is less than set point
			5					Reed Switch - Contact opens (becomes OFF) when value is less than set point
			Z					Special
Fluid				A				Water
				B				Air
				C				Nitrogen
				Z				Special
Scale Range					1			Water: 10 -100 ml/min[2] (Small flow rate type) - Reed Switch is not available
					2			Water: 40 - 400 ml/min[2] (Small flow rate type) - Reed Switch is not available
					3			Water: 0.1 - 1 L/min[2] (Small flow rate type)
					4			Water: 0.2 - 2.0 L/min[2] (Small flow rate type)
					5			Water: 0.25 - 2.5 L/min[2] (Small flow rate type)
					6			Water: 0.3 - 3 L/min[2] (Small flow rate type)
					7			Water: 0.3 - 3.0 L/min[2] (Large flow rate type)
					8			Water: 0.5 - 5.0 L/min[2] (Large flow rate type)
					9			Water: 1 - 10 L/min[2] (Large flow rate type)
					A			Air / N2: 0.2 - 2 L/min[1] (Small flow rate type) - Reed Switch is not available
					B			Air / N2: 0.5 - 5 L/min[1] (Small flow rate type) - Reed Switch is not available
					C			Air / N2: 1.0 - 10 L/min[1] (Small flow rate type) - Reed Switch is not available
					D			Air / N2: 2.0 - 20 L/min[1] (Small flow rate type) - Reed Switch is not available
					E			Air / N2: 3.0 - 30 L/min[1] (Small flow rate type) - Reed Switch is not available
					F			Air / N2: 5.0 - 50 L/min[1] (Small flow rate type)
					G			Air / N2: 5.0 - 50 L/min[1] (Large flow rate type) - Reed Switch is not available
					H			Air / N2: 10 - 100 L/min[1] (Large flow rate type)
					J			Air / N2: 20 - 200 L/min[1] (Large flow rate type)
					K			Air / N2: 30 - 300 L/min[1] (Large flow rate type)
					Z			Special
Connection Type						A		NPT thread (Standard with locknuts for front panel mounting for large flow rate type)
						B		RC thread (Typical for non-USA market)
						Z		Special
Connection Size							1	1/8" (Standard for small flowrate type)
							2	1/4" (Available for small flowrate type and large flowrate type)
							3	3/8" (Standard for large flowrate type)
							Z	Special

[1]Air / N2 @ 0°C 1 atmos (normal)

[2]Water density 1.0 g/cm[3], viscosity 1.0cp

Application Information

Fluid Name:
Operating Density or Specific Gravity:
Viscosity:
Flow Rate
Maximum:
Operating or Normal:
Scale Range:
Pressure
Maximum:
Operating or Normal:
Temperature
Maximum:
Operating or Normal:
Alarm Settings
Alarm 1:
Alarm 2:
Other Options

Use this Application Information form in conjunction with the Ordering Information.

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