

P-820

● Old model P-800-2

GENERAL

Widely accepted for semi-conductor production process as well as P-810 model. Alarm contact by reed switch is additionally available.

MAJOR APPLICATIONS

Gas flow measurement in semi-conductor production equipments

STANDARD SPECIFICATION

Measuring object		Liquids and gases	
Measuring range	Air	※1 Min. 4~20 NmL/min. Max. 12~60 NL/min.	· Air at 0°C, 1atm · When selecting flow range, refer to standard flow rate table. · In case Op. Press at gas body is not 1atm, refer to page 1.
	Water	Min. 5~50 mL/min. Max. 0.2~2 L/min. ※2	
Range ability		10:1	10:2 occasionally
Accuracy		P-823: ±3%F.S. P-821: ±5%F.S.	
Max. Op. Press.		8kgf/cm ² G(0.8MPa)	
Max. Op. Temp.		120°C	
Material		Std.	Option (Specify by model code)
Body	Body	SCS14	SUS316 (SUS316L is also available. Consult factory)
	Tapered tube	Pyrex glass	
	Packing	Viton(max.120°C)	CR(max.80°C)
	Support	SPCC	
	Cover	Acryl	
Connection	Std.	Rc1/4	Refer to Basic model code for details.
	Opt.	Rc1/8, NPT1/8, 1/4, 3/8SW, 1/4, 3/8VCR etc.	
Mounting	Std.	Lock-nut mount onto panel front	Refer to ordering information for details.
	Opt.	Bezel installation,	
Weight (std. type)		0.6kg(P-821)	

※1 1~5NmL/min is available. Consult factory for details.
※2 0.5~5L/min is available. Consult factory for details.

ALARM AND ANALOG OUTPUT

Type	Availability		Reference pages
	P-821	P-823	
Reed switch type alarm unit	General	○	49,50 page
	CE, UL Version	○	49,50 page
PAU Optical alarm unit	○	○	51 page
Optical alarm unit	×	×	
Analog output unit	○	×	53~56 page

P-821 / STANDARD FLOW RATE TABLE

(In case Op. Press at gas is not 1atm, refer to page 1.)

In case alarm analog output code is O and E		In case alarm analog output code is A to D			
AIR(1atm,0°C)	Water	AIR(1atm,0°C)	Alarm setting range	Water	Alarm setting range
4~20 NmL/min					
6~30 NmL/min					
10~50 NmL/min					
10~100 NmL/min					
20~200 NmL/min					
30~300 NmL/min					
50~500 NmL/min					
0.1~1 NL/min	5~50 mL/min	50~500 NmL/min	100~400 NmL/min	5~50 mL/min	10~40 mL/min
0.2~2 NL/min	10~100 mL/min	0.1~1 NL/min	0.2~0.8 NL/min	10~100 mL/min	20~80 mL/min
0.3~3 NL/min	20~200 mL/min	0.2~2 NL/min	0.4~1.6 NL/min	20~200 mL/min	40~160 mL/min
0.5~5 NL/min	30~300 mL/min	0.3~3 NL/min	0.6~2.4 NL/min	30~300 mL/min	60~240 mL/min
1~10 NL/min	50~500 mL/min	0.5~5 NL/min	0.1~4 NL/min	50~500 mL/min	100~400 mL/min
2~20 NL/min		1~10 NL/min	2~8 NL/min		
3~30 NL/min	0.1~1 L/min	3~15 NL/min	4~16 NL/min	0.1~1 L/min	0.2~0.8 L/min
10~50 NL/min	0.3~1.5 L/min	4~20 NL/min	6~24 NL/min		
12~60 NL/min	0.4~2 L/min	10~50 NL/min	10~40 NL/min	0.3~1.5L/min	0.3~1.2 L/min

※1 1~5NmL/min is available. Consult factory for details.
※2 0.5~5L/min is available. Consult factory for details.

May be different depending on the scale length.
In case alarm output code is G, flow range is different. Consult for details.

OTHER AVAILABLE OPTIONS

You can specify the following options:

Two point alarm, reed switch lead wire length, double graduations, special graduations, built-in rubber joint type, built-in joint type, etc. (For details, refer to ⑥ Other Option on page 60).

ORDERING INFORMATION

Basic model code	Designation items for detailed specifications					
P-82 □-□□-□□-□□	①	②	③	④	⑤	⑥
(Use model code table for selection)	Fluid name	Measuring range	Press.	Temp.	Mounting Option	Other Option
	(For specification procedure, refer to page 57)					



P-823 / STANDARD FLOW RATE TABLE

(In case Op. Press at gas is not 1atm, refer to page 1.)

In case alarm analog output code is O and E		In case alarm analog output code is A to D			
AIR(1atm,0°C)	Water	AIR(1atm,0°C)	Alarm setting range	Water	Alarm setting range
5~50 NmL/min					
10~100 NmL/min					
20~200 NmL/min					
30~300 NmL/min					
50~500 NmL/min					
0.1~1 NL/min	5~50 mL/min	50~500 NmL/min	100~400 NmL/min	5~50 mL/min	10~40 mL/min
0.2~2 NL/min	10~100 mL/min	0.1~1 NL/min	0.2~0.8 NL/min	10~100 mL/min	20~80 mL/min
0.3~3 NL/min	20~200 mL/min	0.2~2 NL/min	0.4~1.6 NL/min	20~200 mL/min	40~160 mL/min
0.5~5 NL/min	30~300 mL/min	0.3~3 NL/min	0.6~2.4 NL/min	30~300 mL/min	60~240 mL/min
1~10 NL/min	50~500 mL/min	0.5~5 NL/min	0.1~4 NL/min	50~500 mL/min	100~400 mL/min
2~20 NL/min		1~10 NL/min	2~8 NL/min		
3~30 NL/min	0.1~1 L/min	2~20 NL/min	4~16 NL/min	0.1~1 L/min	0.2~0.8 L/min
		3~30 NL/min	6~24 NL/min		
5~50 NL/min	0.15~1.5 L/min	5~50 NL/min	10~40 NL/min	0.15~1.5 L/min	0.3~1.2L/min
6~60 NL/min	0.2~2 L/min				

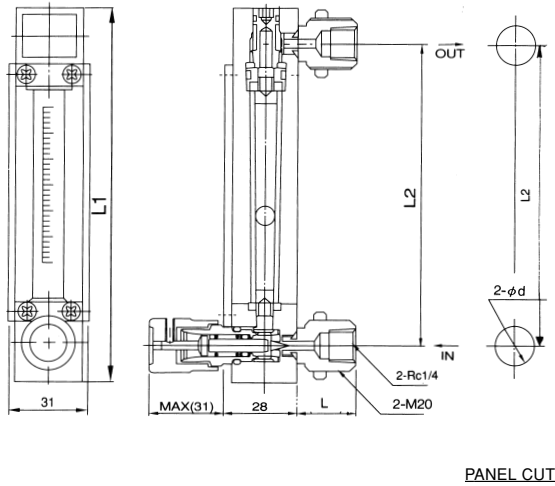
May be different depending on the scale length.
In case alarm output code is G, flow range is different. Consult for details.

BASIC MODEL CODE

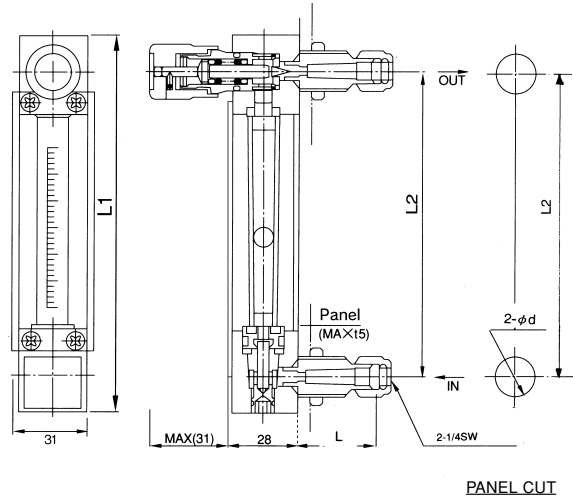
SERIES NAME	L DIMENSION	VALVE	ALARM ANALOG OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
P-82	1	3	0	6	7	8	2		
		VALVE	ALARM ANALOG OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE		
							1	1/8	Only connection type code R and N can be selected.
							2	1/4 (Standard)	
							3	3/8	Only connection type code S and V can be selected.
							Z	Special	
						R	Rc thread (Standard)		Bezel installation is also possible. Refer to Mounting Option on page 59 for details.
						N	NPT thread		
						S	SW		
						V	VCR		
						Z	Special		
						F	Viton(Standard)		
						C	CR	Select it for ammonia gas.	
						Z	Special		
						6	SCS14 (Standard)		
						E	SUS316/EP polished	High quality type	
						Z	Special		
						0	Not provided		
						A	Reed switch alarm (LO)	Refer to page 49,50.	
						B	Reed switch alarm (LC)		
						C	Reed switch alarm (HO)		
						D	Reed switch alarm (HC)		
						E	PAU ALARM UNIT provided		
						G	PAS/IAU ANALOG OUTPUT UNIT	Refer to page 53.	
						Z	Special		
						0	Not provided		
						1	Bellows valve provided at outlet (High grade valve)	Refer to valve position selection guide (Page 61).	
						2	Bellows valve provided at inlet (High grade valve)		
						3	Needle valve provided at outlet		
						4	Needle valve provided at inlet		
						Z	Special		
	1	115mm						Beware, as standard flow rate is different depending on this code.	
	3	224mm							
	9	Special							

DIMENSIONS

● **STANDARD TYPE** (Rc 1/4 conn. Needle valve provided)
(P-82□-40-6F-R2, Valve provided at Inlet, Panel front lock-nut fixing)

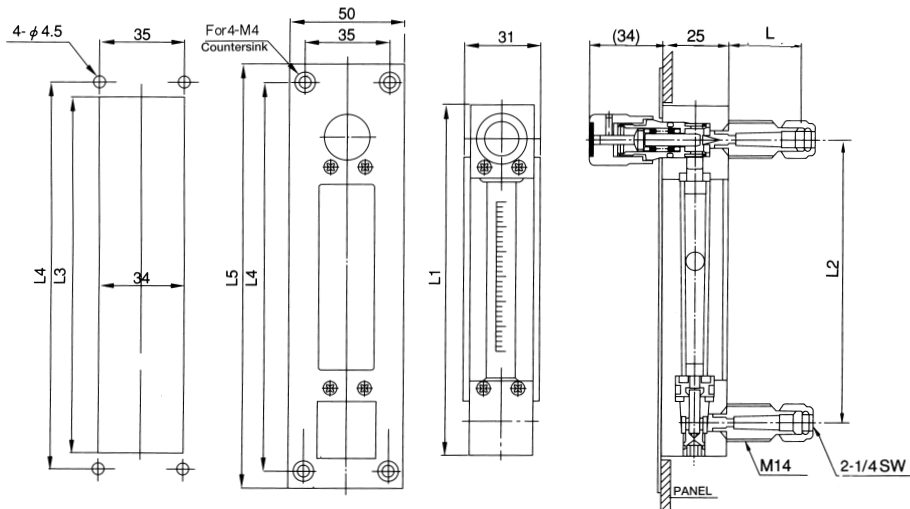


● **STANDARD TYPE** (SW 1/4 conn. Needle valve provided)
(P-82□-30-6F-S2, Valve provided at Outlet, Panel front lock-nut fixing)



Caution) Use non-magnetize material for panel when ALARM ANALOG OUTPUT code is A-D.

● **BEZEL INSTALLATION TYPE**
(P82□-30-□□-□□, Valve provided at Outlet, Bezel fixing.)
(Mounting Option code **[D]**)



DIMENSION TABLE

Model	Dimension(mm)				
	L1	L2	L3	L4	L5
P-821	143	115	145	160	175
P-823	252	224	254	265	280

● Standard Material

Parts name	Standard material	Available material
Body	SCS14	
Tapered tube	Pyrex glass	
Float	SUS316/Glass	
Packing	Viton	CR
Spindle	SUS316	
Fitting	SUS316	
Valve	SUS316	
Mounting board	SPCC	
Cover	Acryl	

Parts whose names are described in **bold letters** are in contact with fluids to be measured.

PANEL CUT SIZE

Connection size	Hole dia(d)(mm)	Rear dia L(mm)
Rc 1/8, NPT1/8	φ 16	(22)
Rc 1/4, NPT1/4	φ 22	(22)
1/4 SW	φ 16	(29.5)
3/8 SW	φ 22	(30)
1/4 VCR	φ 22	(30)
3/8 VCR	φ 32	(34.5)

● In case alarm output code is A to D

A	Reed switch alarm (LO)	Refer to page 49, 50.
B	Reed switch alarm (LC)	
C	Reed switch alarm (HO)	
D	Reed switch alarm (HC)	

● In case alarm output code is E to G

E	PAU ALARM UNIT provided	Refer to page 51.
G	PAS/IAU ANALOG OUTPUT UNIT provided	Refer to page 53.