

# P-810

● Old model P-800-1

## ■ GENERAL

Provide optimum measurement of flow rate of various gases in semi-conductor production process. High reliability is ensured circumferential seals. Rich experiences in operation and use in various devices. Also available are the products with low-leakage and high-quality structure provided with electrolytic polishing.

## ■ MAJOR APPLICATIONS

Gas flow measurement in semi-conductor production equipments process

## ■ STANDARD SPECIFICATION

Measuring object		Liquids and gases	
Measuring range	Air	Min. 5~50 NmL/min. Max. 6~60 NL/min.	· Air at 0°C, 1atm · When selecting flow range, refer to standard flow rate table. · In case Op. Press at gas is not 1atm, refer to page 1.
	Water	Min. 5~50 mL/min. Max. 0.2~2 L/min.	
Range ability	10:1		
Accuracy	P-813: ±3%F.S. P-812: ±5%F.S.		
Max. Op. Press.	8kgf/cm <sup>2</sup> G(0.78MPaG)		
Max. Op. Temp.	120°C		
Material	Std.	Option (Specify by model code)	
	Body	SCS14	SUS316 (SUS316L is also available. Consult factory)
	Tapered tube	Pyrex glass	
	Packing	Viton(max.120°C)	CR(max.80°C)
	Support	SUS304	
Connection	Std.	Rc1/4	Refer to Basic model code for details.
	Opt.	Rc1/8, NPT1/4, 1/4, 3/8SW, 1/4, 3/8VCR etc.	
Mounting	Std.	Lock-nut mount onto panel	
	Opt.	front Bezel installation,	
Weight (std. type)	0.6kg(P-813)		

## ■ ALARM AND ANALOG OUTPUT

Type	Availability		Reference pages
	P-812	P-813	
Reed switch type alarm unit	General	×	47 page
	CE, UL Version	×	
PAU Optical alarm unit	○	○	47 page
Optical alarm unit	×	×	49~52 page
Analog output unit	○	×	

## ■ P-812model / 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					
AIR(1atm, 0°C)		Water			
10~50	NmL/min	/	/		
20~100	NmL/min				
40~200	NmL/min				
60~300	NmL/min				
50~500	NmL/min				
0.1~1	NL/min			5~50	mL/min
0.2~2	NL/min			10~100	mL/min
0.3~3	NL/min			20~200	mL/min
0.5~5	NL/min			30~300	mL/min
1~10	NL/min			50~500	mL/min
2~20	NL/min	0.1~1	L/min		
3~30	NL/min				
10~50	NL/min				
12~60	NL/min	0.3~1.5	L/min		
		0.4~2	L/min		

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 56).

## ■ ORDERING INFORMATION

Basic model code	Designation items for detailed specifications					
P-81□-□□-□□-□□	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 53)					



## ■ P-813 model / 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					
AIR(1atm, 0°C)		Water			
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
0.2~2	NL/min			10~100	mL/min
0.3~3	NL/min			20~200	mL/min
0.5~5	NL/min			30~300	mL/min
1~10	NL/min			50~500	mL/min
2~20	NL/min	0.1~1	L/min		
3~30	NL/min				
5~50	NL/min				
6~60	NL/min	0.15~1.5	L/min		
		0.2~2	L/min		

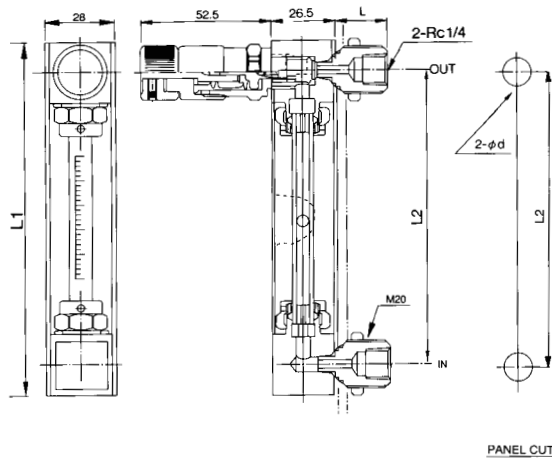
In case alarm output code is G, flow range is different. Consult for details.

## ■ BASIC MODEL CODE

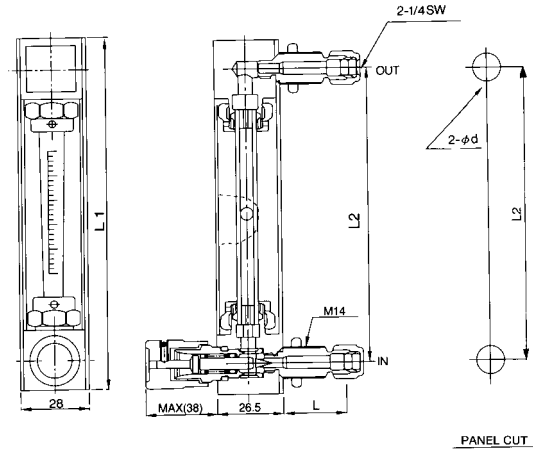
SERIES NAME	L DIMENSION	VALVE	ALARM ANALOG OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
P-81	2	3	0	4	4	R	2		
		VALVE	ALARM ANALOG OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE		
						R	1	1/8	Only connection type code R and N can be selected.
						N	2	1/4 (Standard)	
						S	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 in page 53 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	
						E		PAU ALARM UNIT provided	Refer to page 47.
						G		PAS/IAU ANALOG OUTPUT UNIT	Refer to page 49.
						Z		Special	
						0		Not provided	
						1		Bellocs valve provided at outlet (High grade valve)	Refer to valve position selection guide (Page 57).
						2		Bellocs valve provided at inlet (High grade valve)	
						3		Needle valve provided at outlet	
						4		Needle valve provided at inlet	
						Z		Special	
						2		145mm	Beware, as standard flow rate is different depending on this code.
						3		224mm	
						9		Special	

## DIMENSIONS

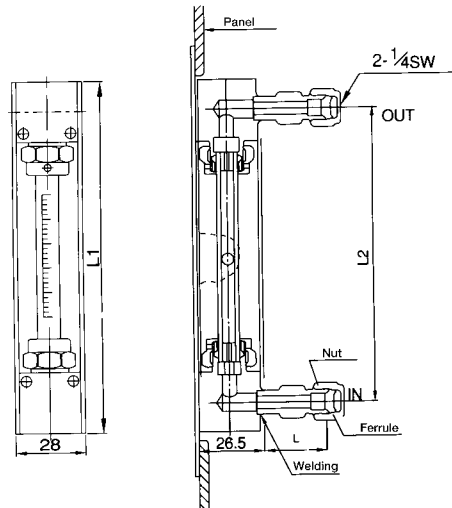
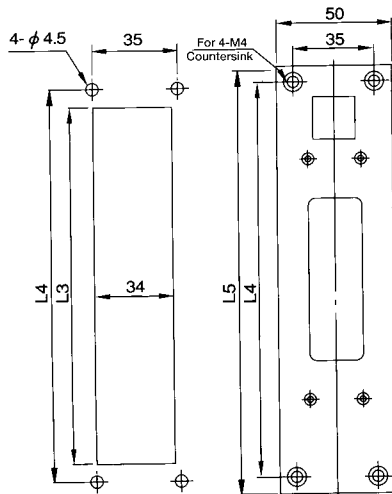
● STANDARD TYPE (Rc 1/4 conn. Bellows valve provided)  
(P-81□-10-6F-R2 Valve provided at Outlet, Panel front lock-nut fixing)



● STANDARD TYPE (SW 1/4 conn. Needle valve provided)  
(P-81□-40-6F-S2 Valve provided at Inlet, Panel front lock-nut fixing)



● BEZEL INSTALLATION TYPE  
(P81□-00-6F-S2, Valve not provided, Bezel fixing.)  
(Mounting Option code **D**)



## DIMENSION TABLE

Model	Dimension (mm)				
	L1	L2	L3	L4	L5
P-812	170	145	175	190	205
P-813	249	224	254	265	280

## PANEL CUT SIZE

Connection size	Hole dia(d)(mm)	Rear dia L(mm)
Rc 1/8, NPT1/8	φ16	(20.5)
Rc 1/4, NPT1/4	φ22	(20.5)
1/4 SW	φ16	(28)
3/8 SW	φ22	(30)
1/4 VCR	φ22	(30)
3/8 VCR	φ32	(34.5)

## STANDARD MATERIAL

Parts name	Standard material	Available material
<b>Body</b>	SCS14	SUS316, SUS316L
<b>Tapered tube</b>	Pyrex glass	
<b>Float</b>	SUS316/Glass	Ruby
<b>Packing</b>	Viton	CR
<b>Sealing press</b>	SUS316	
<b>Fitting</b>	SUS316	
<b>Valve</b>	SUS316	
Mounting board	SUS304	
Cover	Transparent PVC	

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

● In case alarm output code is E to G

E	PAU ALARM UNIT provided	Refer to page 47.
G	PAS/IAU ANALOG OUTPUT UNIT provided	Refer to page 49.