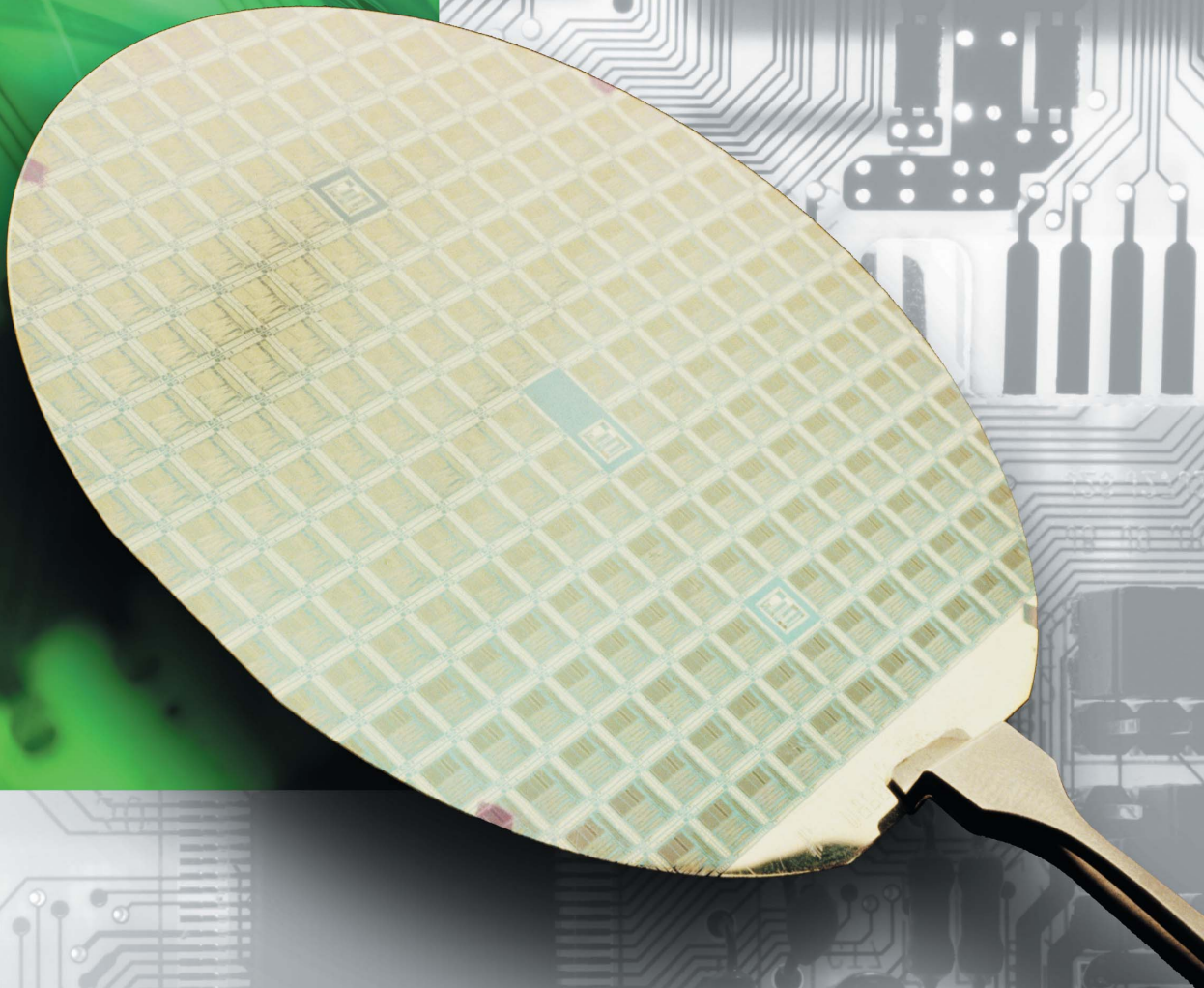


P SERIES PURGEMETERS

Full Coverage For Semi-Conductor Processes
for Built-IN Use for Equipment
for General Industrial Processes



ISO 9001 Certified

JQA-2172







TOKYO KEISO CO., LTD.






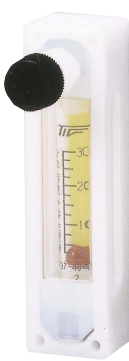
P SERIES PURGEMETERS

PRODUCTS

INFORMATION

			
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P-510 Page P.11	P-520 Page P.13	P-530 Page P.15	P-540 Page P.17

			
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P-810 Page P.35	P-820 Page P.37	P-830 Page P.39	P-900/NP Page P.41,48

P-010 Page P.42	P-050 Page P.44	P-060 Page P.46	YP Page P.49

XP Page P.51	Reed switch type alarm unit Page P.52	PAU Page P.54 Optical alarm unit	Separate type optical alarm unit Page P.55

FLOW RATE INDICATION

In this catalogue, possible measuring range for each model is shown in the following conditions:

For liquid measurement, Water (density 1.0 g/cm³, viscosity 1.0 mPa·s)
For gas measurement, Air at 0°C, 0 MPa (1atm)

If actual operating condition differs from above, a compensation calculation mentioned below is required for selection.

Moreover, when the specification is modified after delivering the products, refer to the compensation calculations in <12> on page 61.

For gas measurement applications

Compensation is required by density, pressure and temperature of measuring gas.

Compensation is required as follows;

1) In case the indication unit is Normal

$$Q_{AIR} = Q_0 \times \sqrt{\frac{\gamma_0}{1.293}} \times \sqrt{\frac{273+T_0}{273}} \times \sqrt{\frac{0.1013}{0.1013+P_0}}$$

Q_{AIR} :Converted flow rate for air

Q_0 :Flow rate of actual gas on actual condition
(Flow rate at normal: 0°C, 0MPa)

γ_0 :Density of actual gas {kg/m³(nor)}

T_0 :Operating temperature (°C)

P_0 :Operating pressure (MPa)

2) In case the indication unit is Operating condition

$$Q_{AIR} = Q_0 \times \sqrt{\frac{\gamma_0}{1.293}} \times \sqrt{\frac{273}{273+T_0}} \times \sqrt{\frac{0.1013+P_0}{0.1013}}$$

Q_{AIR} :Converted flow rate for air

Q_0 :Flow rate of actual gas on actual condition
Flow rate at operating condition: T_0 °C, P_0 MPa

γ_0 :Density of actual gas {kg/m³(nor)}

T_0 :Operating temperature (°C)

P_0 :Operating pressure (MPa)

For liquid measurement

In case the density of the liquid to be measured is not 1.0 g/cm³.

$$Q = Q_0 \times \sqrt{\frac{\gamma_0(\gamma_1-1)}{(\gamma_1-\gamma_0)}}$$

Q :Water converted flow rate

Q_0 :Flow rate of actual liquid

γ_0 :Density of actual liquid (g/cm³)

γ_1 :Density of float (g/cm³)

Table for float density

Float material	Fluorocarbon resin	Stainless steel
Density (g/cm ³)	2.2	7.9

Note:

1) Additional weight is integrated for special versions including reed switch alarm version to increase float density.

2) Reed switch alarm contact has a built-in magnet, and density is different from that of the above Table.

Normally, liquid having a viscosity of 2mPa·s can be measured by the P-series purgemeters.

To measure the high viscosity fluid (oil, etc.), compensation calculation is available by computer. Consult factory for details.

● Physical characteristic of gases

	G A S	FORMULA	Density kg/m ³ (nor) at 0°C,0MPa	Viscosity mPa·s			G A S	FORMULA	Density kg/m ³ (nor) at 0°C,0MPa	Viscosity mPa·s	
				at 0°C	at 20°C					at 0°C	at 20°C
Inorganic compounds	Ammonia	NH ₃	0.7713	0.0093	0.0100	Organic compounds	Acetylene	C ₂ H ₂	1.171	0.0096	0.0102
	Argon	Ar	1.783	0.0212	0.0222		Acetone	C ₃ H ₆ O	2.593	0.0066	–
	Nitrous oxide	N ₂ O	1.988	0.0137	0.0146		Isobutane	C ₄ H ₁₀	2.595	0.0069	0.0074
	Nitrogen oxide	NO	1.340	0.0179	0.0188		Isopropyl alcohol	C ₃ H ₈ O	2.683	0.0070	–
	Carbon monoxide	CO	1.250	0.0166	0.0177		Ethanol	C ₂ H ₆ O	2.057	0.0075	–
	Carbon dioxide	CO ₂	1.977	0.0138	0.0147		Ethane	C ₂ H ₆	1.356	0.0086	0.0092
	Sulfurous acid gas	SO ₂	2.927	0.0116	0.0126		Ethyl ether	C ₄ H ₁₀ O	3.309	0.0068	–
	Hydrogen chloride	HCl	1.639	0.0131	0.0143		Ethylene	C ₂ H ₄	1.260	0.0094	0.0101
	Chloride	Cl ₂	3.214	0.0123	0.0132		Ethyl chloride	C ₂ H ₅ Cl	2.880	0.0094	–
	AIR	(AIR)	1.293	0.0171	0.0181		Methyl chloride	CH ₃ Cl	2.308	0.0098	0.0106
	Oxygen	O ₂	1.429	0.0192	0.0203		Methylene chloride	CH ₂ Cl ₂	3.792	0.0091	0.0099
	Cyanogen	C ₂ N ₂	2.335	0.0093	–		Chloroform	CHCl ₃	5.329	0.0093	0.0100
	Hydrogen Bromide	HBr	3.645	0.0170	–		Butane	C ₄ H ₁₀	2.703	0.0069	0.0074
	Bromine	Br ₂	7.139	0.0146	0.0153		Propane	C ₃ H ₈	2.020	0.0075	0.0080
	Hydrogen	H ₂	0.08994	0.0084	0.0088		Propyl alcohol	C ₃ H ₈ O	2.683	0.0068	–
	Nitrogen	N ₂	1.251	0.0166	0.0175		Propylene	C ₃ H ₆	1.879	0.0078	0.0084
	Fluorine	F ₂	1.696	–	–		Hexane	C ₆ H ₁₄	3.847	0.0059	–
Hydrogen sulfide	H ₂ S	1.539	0.0117	0.0124	Benzene	C ₆ H ₆	3.488	0.0068	0.0074		
Helium	He	0.1785	0.0186	0.0196	Pentane	C ₅ H ₁₂	3.221	0.0062	–		
					Methanol	CH ₃ O	1.430	0.0087	–		
					Methane	CH ₄	0.7168	0.0102	0.0108		
					Methyl ether	C ₂ H ₆ O	2.057	0.0085	0.0091		
					City gas	13A	0.8405	–	0.0130		

P SERIES PURGEMETERS

INDEX & QUICK REFERENCE

INDEX & QUICK REFERENCE

○ Best △ Available

Classification by Application Reference pages Model	To measure liquids	To measure gases	To measure chemical and pure water	To measure small flow	To measure large flow	Fluorocarbon resin body	General-purpose resin body	Short length 150mm or less	Internal surface electro-polished	For hot pure water	Quick delivery, from stock	Alarm contact required	SW, VCR connection required	Complying with CE and UL standards	Availability for unit production
	P-100	3	○	○	△	○			○		△	△	△		△
P-200	5	○	○	△	○					△	△	△		△	△
P-300	7	○	○	△	○					△	△				△
P-400	9	○	○	△	○		△			△	△				△
P-510	11	○	○	△		○	△		△	△	△	○	○	△	△
P-520	13	○	△	○		○	○			△	△	○			△
P-530	15	○	○	△		○				△	△	○	△	△	△
P-540	17	○	○	△		○			△	△	△	○	○		△
P-550	19	○	○	△		○				△	△	○	△	○	△
P-610	21		○		○		○	○			△				△
P-620	23	○		△		○	○	○			△	○	△	○	△
P-710	25	○	○	○	○		△	○			△	○		△	△
P-771	27	○		○	○	○		○			△	○		△	△
P-772	29	○		○		○	○			△	△	○			△
P-773	31	○		○		○	○	○		△	△	○			△
P-774	33	○		○		○	○	○			△	○			△
P-810	35	△	○	△	○				○	△	△	△	○	○	△
P-820	37	△	○	△	○			△	○	△	△	○	○	○	△
P-830	39	○		△		○		○		○	△	○	△	○	△
P-900	41	○	○	△	○			△		△	△				△
P-010	42	○	○	△	○			○		△					△
P-050	44	○	○	△		○				△					△
P-060	46	○	○	△	○		○	○			○	○		○	△
NP	48	○	○	△	○			△			○				△
YP	49	○	○	△	○			○			△				△
XP	51	○	○	△	○		○	○			○	△			△
Reed Switch Type Alarm unit	52											○			
PAU Optical alarm unit	54											○			
Separate Type Optical alarm unit	55											○			
Advice for your product selection	56	ADVICE FOR YOUR PRODUCT SELECTION													
	58	Mounting option													
	59	Other option													
	60	Valve position selection, Float reading position etc.													
	61	Calculate compensation													

P-100

GENERAL

Standard type purgometer. Widely accepted in the market. Suitable for both liquids and gases.
Applicable from built-in use for equipment up to purging monitoring of industrial processes. Available for PTFE sealing.

MAJOR APPLICATIONS

General purpose, built-in use for equipment (Small flow rate)

STANDARD SPECIFICATION

Measuring object		Liquids and gases	
Measuring range	Air	Min. 4~20 mL/min(nor). Max. 5~50 L/min(nor).	· Air at 0°C, 0MPa (1atm) · When selecting flow range, refer to standard flow rate table. · In case Op. Press. of gas is not 0MPa, refer to page 1.
	Water	Min. 5~50 mL/min. Max. 0.4~2 L/min.	
Range ability	10:1		10:2 for some ranges
Accuracy	±5%F.S.		
Max. Op. Press.	0.8MPa		When packing PTFE is used, Max. Op. Press. is 0.5MPa
Max. Op. Temp.	120°C		Standard products have the packing materials made of NBR, so Max. Temp. is 80°C
Material	Std.		Option(Specify by model code)
	Body	SUS304	SUS316
	Tapered tube	Heat-resistant glass	
	Packing	NBR(max.80°C)	
	Support Cover	Aluminium Poly-carbonate	
Connection	Std.	Rc1/4	Refer to Basic model code for details.
	Opt.	Rc1/8, NPT1/4, NPT1/8	
Mounting	Std.	Lock-nut mount onto panel front	
	Opt.	Bezel installation, Panel-rear installation, Stand provided etc.	
MASS(std. type)	0.5 kg		

ALARM OUTPUT

Type	Availability	Reference pages	
Reed switch type alarm unit	General	○	52, 53 page
	CE, UL Version	○	52, 53 page
PAU Optical alarm unit	○	54 page	
Optical alarm unit	○	55 page	

STANDARD FLOW RATE TABLE

(In case Op. Press. of gas is not 0MPa, refer to page 1.)

In case alarm output code is O or E		In case alarm output code is A to D ^{†4}			
AIR(0MPa,0°C)	Water	AIR(0MPa,0°C)	Alarm setting range	Water	Alarm setting range
4-20 mL/min(nor)					
6-30 mL/min(nor)					
10-50 mL/min(nor)					
10-100 mL/min(nor) ^{†1}					
20-200 mL/min(nor)					
30-300 mL/min(nor)					
50-500 mL/min(nor)	5-50 mL/min	50-500 mL/min(nor)	100-400 mL/min(nor)	5-50 mL/min	10-40 mL/min
0.1-1 L/min(nor)	10-100 mL/min	0.1-1 L/min(nor)	0.2-0.8 L/min(nor)	10-100 mL/min	20-80 mL/min
0.2-2 L/min(nor)	20-200 mL/min	0.2-2 L/min(nor)	0.4-1.6 L/min(nor)	50-200 mL/min	80-160 mL/min
0.3-3 L/min(nor)	30-300 mL/min	0.3-3 L/min(nor)	0.6-2.4 L/min(nor)	30-300 mL/min	60-240 mL/min
0.5-5 L/min(nor)	50-500 mL/min	0.6-6 L/min(nor)	1-5 L/min(nor)	50-500 mL/min	100-400 mL/min
1-10 L/min(nor)		1-10 L/min(nor) ^{†3}	2-8 L/min(nor)		
2-20 L/min(nor)	0.1-1 L/min ^{†2}	3-15 L/min(nor)	3-12 L/min(nor)	0.1-1 L/min	0.2-0.8 L/min
3-30 L/min(nor)					
5-50 L/min(nor)	0.3-1.5 L/min	6-30 L/min(nor)	6-24 L/min(nor)		
	0.4-2 L/min	8-40 L/min(nor)	8-32 L/min(nor)		

* May be different depending on the scale length.

^{†1} In case packing material is PTFE, purge meter with valve can not be made for flow rate less than max 1L/min (nor).

^{†2} In case of the specification other than the standard flow table, there may be the change in the flow range for certain reasons of production.

^{†3} 10:2 if range is less than 100 mL/min (nor).

^{†4} 10:2 if range is more than 1 L/min (nor).

^{†5} 10:2 if range is more than 10 L/min (nor).

^{†6} The viscosity of a liquid is 1.0 mPa·s.

ORDERING INFORMATION

Basic model code	Designation items for detailed specifications
P-10 □-□□-□□-□□	① Fluid name — ② Measuring range — ③ Press. — ④ Temp. — ⑤ Mounting option — ⑥ Other option
(Use Model Code Table for selection)	(For specification procedure, refer to page 56)



BASIC MODEL CODE

SERIES NAME	VALVE	ALARM OUTPUT	PACKING MATERIAL	WETTED PARTS MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
P-10	0	-	0	-	R	2		
	0	VALVE	ALARM OUTPUT	WETTED PARTS MATERIAL	R	1/8		
					Z	1/4(Standard)		
					Z	Special		
					R	Rc thread(Standard)	Lock-nut mounting onto panel front.	If you want to use any other mounting, select from [Mounting opt].
					N	NPT thread		
					Z	Special		
					N	NBR(Standard)		
					C	CR	Select it for ammonia gas.	
					F	FPM		
					E	EPDM		
					T	PTFE	Construction (gas) part material is only available for SUS316	
					Z	Special		
					4	SUS304(Standard)		
					6	SUS316		
					Z	Special		
					0	Not provided		
					A	Reed switch alarm (LO)	Refer to page 52, 53	
					B	Reed switch alarm (LC)		
					C	Reed switch alarm (HO)		
					D	Reed switch alarm (HC)		
					E	PAU ALARM UNIT provided	Refer to page 54.	
					F	Separate Type Optical alarm unit provided	Refer to page 55.	
					Z	Special		
					0	Not provided		
					L	Bottom (gas for atmospheric pressure scale)	Refer to valve location selection guide (Page 60).	
					U	Top (gas for pressure scale or for negative pressure on the secondary side)		
					Z	Special		
					0	Bottom rear → Top rear (Standard)	Select this code normally.	
					1	Select this code normally.	Valve should be installed externally.	
					9	Special		

OTHER AVAILABLE OPTIONS

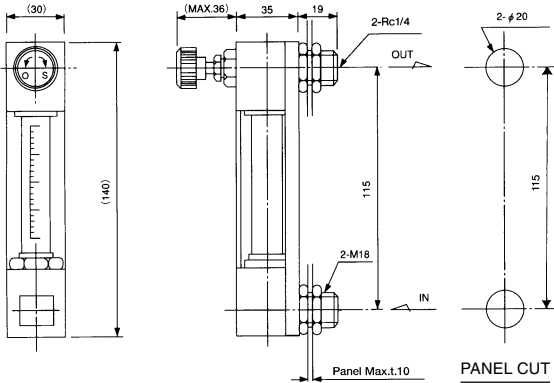
You can specify the following options:

Reed switch lead wire length, double graduations, (Depending on technical specifications, it may be unable to manufacture. Contact for details.) special graduations, built-in check valve type, built-in valve lock mechanism type, built-in rubber joint type, built-in joint type, etc.

(For details, refer to ⑥ Other Option and One-Point Advice on page 59)

DIMENSIONS

- STANDARD TYPE
P-100-U0-4N-R2
- Panel front lock-nut fixing
- Valve provided at Outlet

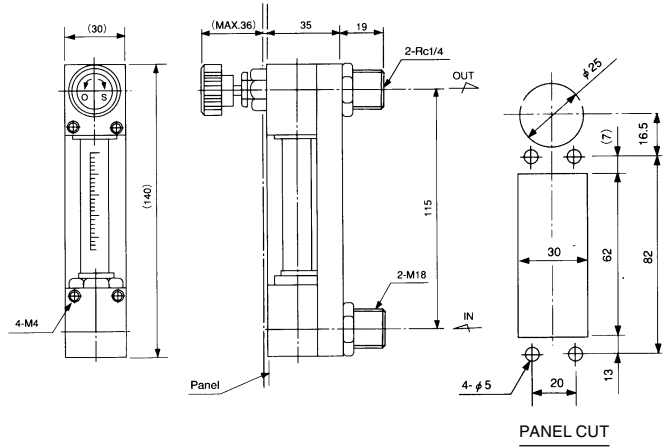


PANEL-REAR INSTALLATION TYPE

P-100-U0-4N-R2 — N2 — 10L/min(nor) — 0.1MPa — C

Dimensions for P-100-U0-4N-R2.

- Panel-rear installation (Mounting Option code C)
- Valve provided at Outlet
- The others are standard type



Panel cut dimension

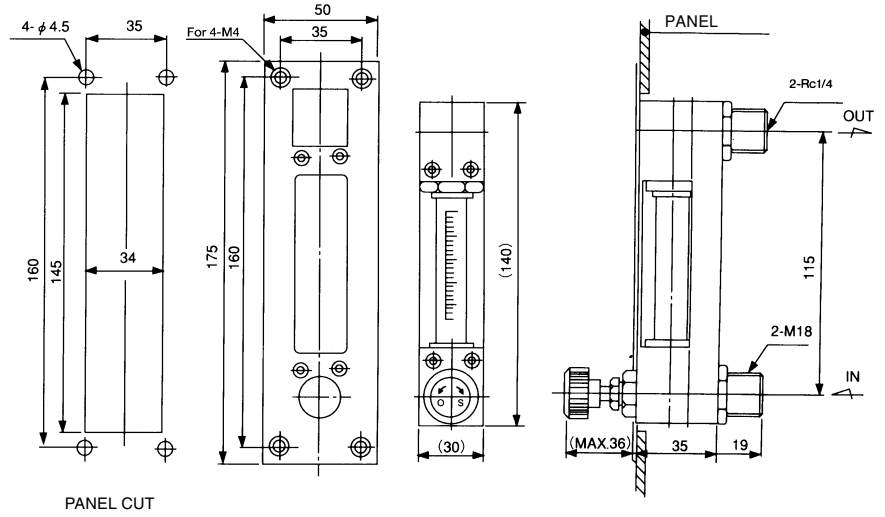
Connection Size	Hole diameter(mm)
Rc1/4, 1/4NPT	φ 20
Rc1/8, 1/8NPT	φ 16

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

BEZEL INSTALLATION TYPE

P-100-L0-4N-R2 — N2 — 10L/min(nor) — D

- Bezel fixing (Installation option code D)
- Valve provided at Inlet
- The others are standard type



Standard Material

Parts name	Standard material	Available material
Support	Aluminium	—
Body	SUS304	SUS316
Tapered tube	Heat-resistant glass	—
Float *1	SUS316, Glass, PTFE, Ruby	—
Packing	NBR	FPM, CR, EPDM, PTFE
Fitting	SUS304	SUS316
Valve	SUS304	SUS316
Cover	Poly-carbonate	—

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

*1 Proper material to be selected according to the specifications.

In case alarm output code is A to D

A	Reed switch alarm (LO)	Refer to page 52, 53
B	Reed switch alarm (LC)	
C	Reed switch alarm (HO)	
D	Reed switch alarm (HC)	

In case alarm output code is E to F

E	PAU ALARM UNIT provided	Refer to page 54.
F	E3C Separate Type Optical alarm unit provided	Refer to page 55.

P-200

GENERAL

Standard type purgemeter. 200mm installation dimension characterized by an easy-to-see scale and high-precision measurement. It is used over an extensive field including test equipment. The installation dimension is the same as that of the large flow rate model P-510.

MAJOR APPLICATIONS

General purpose, built-in use for equipment (Small flow rate)

STANDARD SPECIFICATION

Measuring object	Liquids and gases	
Measuring range	Air	Min. 5~50 mL/min(nor). Max. 6~60 L/min(nor).
	Water	Min. 5~50 mL/min. Max. 0.2~2 L/min.
Range ability	10:1	10:2 for some ranges
Accuracy	±3%F.S.	
Max. Op. Press.	0.8MPa	
Max. Op. Temp.	120°C	Standard products have the packing materials made of NBR, so Max. Temp.is 80°C.
Material	Std.	Option (Specify by model code)
	Body	SUS304
	Tapered tube	Heat-resistant glass
	Packing	NBR(max.80°C)
	Support	Aluminium
Cover	Poly-carbonate	FPM (max.120°C), CR(max.80°C), EPDM(max.80°C)
Connection	Std.	Rc1/4
	Opt.	Rc1/8,NPT 1/4,NPT 1/8
Mounting	Std.	Lock-nut mount onto panel front
	Opt.	Bezel installation, Panel-rear installation,Stand provided etc.
MASS (std. type)	0.6 kg	

ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	○ 52, 53 page
	CE, UL Version	○ 52, 53 page
PAU Optical alarm unit	○	54 page
Optical alarm unit	○	55 page

STANDARD FLOW RATE TABLE (In case Op. Press of gas is not OMPa, refer to page 1.)

In case alarm output code is O,E and F		In case alarm output code is A to D			
AIR(OMPa,0°C)	Water	AIR(OMPa,0°C)	Alarm setting range	Water	Alarm setting range
5-50 mL/min(nor)	/	/	/	/	/
10-100 mL/min(nor)	/	/	/	/	/
20-200 mL/min(nor)	/	/	/	/	/
30-300 mL/min(nor)	/	/	/	/	/
50-500 mL/min(nor)	5-50 mL/min	50-500 mL/min(nor)	100-400 mL/min(nor)	5-50 mL/min	10-40 mL/min
0.1-1 L/min(nor)	10-100 mL/min	0.1-1 L/min(nor)	0.2-0.8 L/min(nor)	10-100 mL/min	20-80 mL/min
0.2-2 L/min(nor)	20-200 mL/min	0.2-2 L/min(nor)	0.4-1.6 L/min(nor)	20-200 mL/min	40-160 mL/min
0.3-3 L/min(nor)	30-300 mL/min	0.3-3 L/min(nor)	0.6-2.4 L/min(nor)	30-300 mL/min	60-240 mL/min
0.5-5 L/min(nor)	50-500 mL/min	0.5-5 L/min(nor)	1-4 L/min(nor)	50-500 mL/min	100-400 mL/min
1-10 L/min(nor)	/	1-10 L/min(nor)	2-8 L/min(nor)	/	/
2-20 L/min(nor)	0.1-1 L/min	2-20 L/min(nor)	4-16 L/min(nor)	0.1-1 L/min	0.2-0.8 L/min
3-30 L/min(nor)	/	3-30 L/min(nor)	6-24 L/min(nor)	/	/
5-50 L/min(nor)	0.15-1.5 L/min	4-40 L/min(nor) ^{†1}	8-32 L/min(nor)	/	/
6-60 L/min(nor)	0.2-2 L/min	10-50 L/min(nor)	10-40 L/min(nor)	/	/

May be different depending on the scale length.
^{†1} 10:2 if range is more than 40 L/min (nor).

OTHER AVAILABLE OPTIONS

You can specify the following options:
 Two point alarm, reed switch lead wire length, double graduations, special graduations, built-in check valve type, built-in valve lock mechanism type, built-in rubber joint type, built-in joint type, etc. (For details, refer to ⑥ Other Option on page 59).

ORDERING INFORMATION

Basic model code	Designation items for detailed specifications					
P-20□-□□-□□-□□	① Fluid name	② Measuring range	③ Press.	④ Temp.	⑤ Mounting Option	⑥ Other Option
(Use model code table for selection)	(For specification procedure, refer to page 60)					



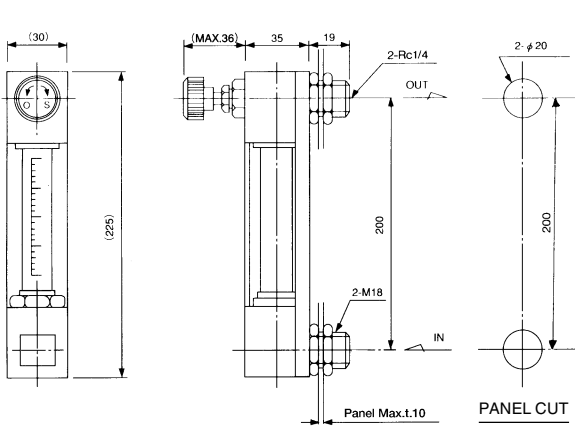
BASIC MODEL CODE

SERIES NAME	VALVE	ALARM OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
P-20	0	1	4	Z	R	2		
	VALVE	ALARM OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE		
						1	1/8	
						2	1/4(Standard)	
						Z	Special	
				R	Rc thread(Standard)			Lock-nut mounting onto panel front.
				N	NPT thread			If you want to use any other mounting, select from [Mounting Option].
				Z	Special			
				N	NBR(Standard)			
				C	CR			Select it for ammonia gas.
				F	FPM			
				E	EPDM			
				Z	Special			
				4	SUS304(Standard)			
				6	SUS316			
				Z	Special			
				0	Not provided			
				A	Reed switch alarm(LO)			Refer to page 52, 53
				B	Reed switch alarm(LC)			
				C	Reed switch alarm(HO)			
				D	Reed switch alarm(HC)			
				E	PAU ALARM UNIT provided			Refer to page 54.
				F	Separate Type Optical alarm unit provided			Refer to page 55.
				Z	Special			
				0	Not provided			
				L	Bottom(gas for atmospheric pressure scale)			Refer to valve location selection guide(Page 60).
				U	Top(body for pressure scale or for negative pressure on the secondary side)			
				Z	Special			
				0	Bottom rear → Top rear(Standard)			Select this code normally.
				1	Bottom → Top			Valve should be installed externally.
				9	Special			

DIMENSIONS

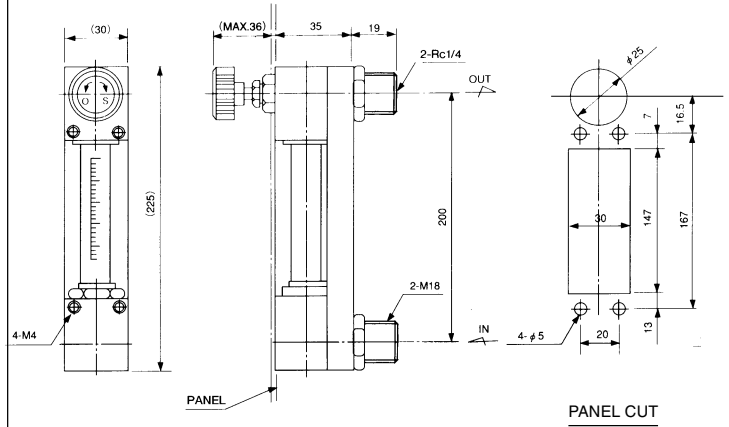
STANDARD TYPE

(P-200-U0-4N-R2 Valve provided at Outlet, Panel front lock-nut fixing)



PANEL-REAR INSTALLATION TYPE

P-200-U0-4N-R2, Valve provided at Outlet, Panel-rear installation (Mounting Option code **C**)



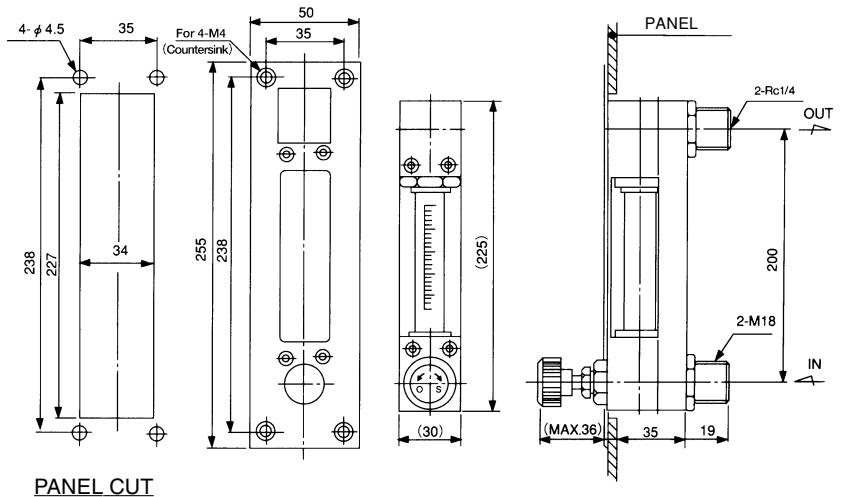
Panel cut dimension

Connection Size	Hole diameter(mm)
Rc1/4, 1/4NPT	φ20
Rc1/8, 1/8NPT	φ16

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

BEZEL INSTALLATION TYPE

P-200-L0-4N-R2, Valve provided at Inlet, Bezel installation. (Mounting Option code **D**)



Standard Material

Parts name	Standard material	Available material
Support	Aluminium	
Body	SUS304	SUS316
Tapered tube	Heat-resistant glass	—
Float *1	SUS316,Glass,PTFE,Ruby	—
Packing	NBR	FPM,CR,EPDM
Joint	SUS304	SUS316
Valve	SUS304	SUS316
Cover	Poly-carbonate	

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

*1 Proper material to be selected according to the specifications.

In case alarm output code is A to D

A	Reed switch alarm(LO)	Refer to page 52, 53
B	Reed switch alarm(LC)	
C	Reed switch alarm(HO)	
D	Reed switch alarm(HC)	

In case alarm output code is E, F

E	PAU ALARM UNIT provided	Refer to page 54.
F	E3C Separate Type Optical alarm unit provided	Refer to page 55.

P-300

GENERAL

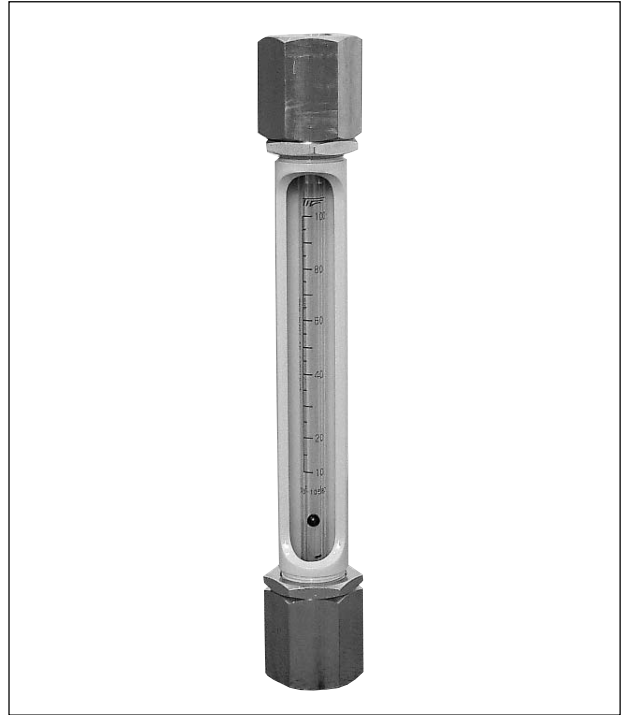
Compact, straight-through type. Simple structure and easy monitoring.

MAJOR APPLICATIONS

General purpose, direct mounting onto process piping

STANDARD SPECIFICATION

Measuring object		Liquids and gases	
Measuring range	Air	Min. 80~800 mL/min(nor). Max. 6 ~ 60 L/min(nor).	<ul style="list-style-type: none"> Air at 0°C, 0MPa (1atm) When selecting flow range, refer to standard flow rate table. In case Op. Press. of gas is not 0MPa, refer to page 1.
	Water	Min. 5~50 mL/min. Max. 0.2~2 L/min.	
Range ability		10:1	
Accuracy		±3%F.S.	
Max. Op. Press.		0.8MPa	
Max. Op. Temp.		120°C	
Material		Std.	Option(Specify by model code)
Body		SUS304	SUS316
Tapered tube		Heat-resistant glass	
Packing		NBR(max.80°C)	FPM(max.120°C), CR(max.80°C),EPDM(max.80°C)
Support		C2700T	
Connection	Std.	Rc1/4	Refer to Basic model code for details.
	Opt.	Rc1/8,3/8, 1/2,NPT1/8,1/4,3/8, 1/2,JIS10KFF etc.	
Mounting	Std.	Piping mounting	Refer to ordering information for details.
	Opt.	Panel mounting by attached metal fitting Flange mounting etc.	
MASS(std. type)		0.4 kg	



ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	×
	CE, UL Version	×
PAU Optical alarm unit	×	
Optical alarm unit	×	

STANDARD FLOW RATE TABLE

(In case Op. Press of gas is not 0MPa, refer to page 1.)

AIR(0MPa,0°C)		WATER	
80 ~ 800 mL/min(nor)		5 ~ 50 mL/min	
0.1 ~ 1 L/min(nor)			
0.2 ~ 2 L/min(nor)		10 ~ 100 mL/min	
0.3 ~ 3 L/min(nor)		20 ~ 200 mL/min	
0.5 ~ 5 L/min(nor)		30 ~ 300 mL/min	
1 ~ 10 L/min(nor)		50 ~ 500 mL/min	
2 ~ 20 L/min(nor)		0.1 ~ 1 L/min	
3 ~ 30 L/min(nor)		0.15 ~ 1.5 L/min	
5 ~ 50 L/min(nor)			
6 ~ 60 L/min(nor)		0.2 ~ 2 L/min	

OTHER AVAILABLE OPTIONS

You can specify the following options:
Double graduations, special graduations, built-in rubber joint type, built-in joint type, etc.

(For details, refer to ⑥ Other Option on page 59).

ORDERING INFORMATION

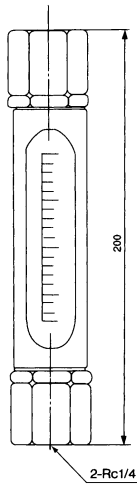
Basic model code	Designation items for detailed specifications					
P-300-□□-□□	①	②	③	④	⑤	⑥
(Use model code table for selection)	Fluid name	Measuring range	Press.	Temp.	Mounting Option	Other Option
	(For specification procedure, refer to page 56)					

BASIC MODEL CODE

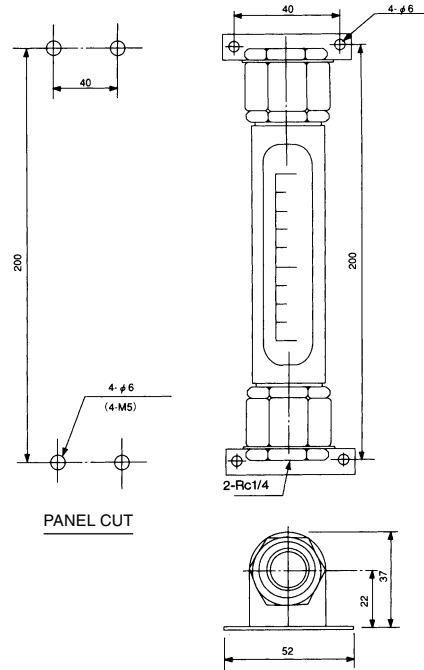
SERIES NAME	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
P-300	4	N	R	2		
	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	1	1/8	
				2	1/4(Standard)	
				3	3/8	
				4	1/2	In the case of flange connection, connection size is 3/8 and 1/2 or more.
				Z	Special	
				R	Rc thread(Standard)	
				N	NPT thread	
				Z	Special	Select Z for flange
				N	NBR(Standard)	
				C	CR	Select it for ammonia gas.
	F	FPM				
	E	EPDM				
	Z	Special				
	4	SUS304(Standard)				
	6	SUS316				
	Z	Special				

DIMENSIONS

● STANDARD TYPE P-300-4N-R2



● PANEL INSTALLATION TYPE (WITH PANEL FITTING ATTACHMENT) P-300-4N-R2 (Mounting Option code F)



● Standard Material

Parts name	Standard material	Available material
Body	SUS304	SUS316
Tapered tube	Heat-resistant glass	—
Float *1	SUS316, Glass, PTFE, Ruby	—
Packing	NBR	FPM, CR, EPDM
Protection tube	C2700T	SUS304
Lock-nut	C3604	SUS304

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

*1 Proper material to be selected according to the specifications.

Caution) Adapter shall be attached for Rc3/8. (R1/4 x Rc3/8)

P-400

GENERAL

Corrosion resistant with all stainless steel construction.
Panel installation with flange or screw connections.

MAJOR APPLICATIONS

Corrosive services

STANDARD SPECIFICATION

Measuring object		Liquids and gases	
Measuring range	Air	Min. 80~800 mL/min(nor). Max. 6~60 L/min(nor).	· Air at 0°C, 0MPa (1atm) · When selecting flow range, refer to standard flow rate table. · In case Op. Press. of gas is not 0MPa, refer to page 1.
	Water	Min. 5~50 mL/min. Max. 0.2~2 L/min.	
Range ability		10:1	
Accuracy		±3%F.S.	
Max. Op. Press.		1.0MPa	
Max. Op. Temp.		120°C (PVC)~60°C	
Material		Std. Option(Specify by model code)	
Body		SUS304	SUS316, PVC
Tapered tube		Heat-resistant glass	
Packing		NBR(max80°C)	FPM(max.120°C), CR(max.80°C), PTFE(max.120°C PVC body is not applicable)
Support		SCS14	
Cover		Acryl	
Connection	Std.	Rc1/4	
	Opt.	1/4NPT, JIS10KFF etc.	
Mounting	Std.	Lock-nut mount onto panel front	
	Opt.	Flange pipe mount, Stand provided etc.	
MASS(std. type)		0.9 kg	

ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	X
	CE, UL Version	
PAU Optical alarm unit	X	X
Optical alarm unit	X	

STANDARD FLOW RATE TABLE

(In case Op. Press of gas is not 0MPa, refer to page 1.)

AIR(0MPa, 0°C)	Water
80 ~ 800 mL/min(nor)	5 ~ 50 mL/min
0.1 ~ 1 L/min(nor)	
0.2 ~ 2 L/min(nor)	10 ~ 100 mL/min
0.3 ~ 3 L/min(nor)	20 ~ 200 mL/min
0.5 ~ 5 L/min(nor)	30 ~ 300 mL/min
1 ~ 10 L/min(nor)	50 ~ 500 mL/min
2 ~ 20 L/min(nor)	0.1 ~ 1 L/min
3 ~ 30 L/min(nor)	0.15 ~ 1.5 L/min
5 ~ 50 L/min(nor)	0.2 ~ 2 L/min
6 ~ 60 L/min(nor)	

Meter range with PVC wet part construction is 0.15 ~ 1.5L/min (water).

OTHER AVAILABLE OPTIONS

You can specify the following options:
Double graduations, special graduations, built-in rubber joint type, built-in joint type, etc.
(For details, refer to ⑥ [Other Option] on page 59).



BASIC MODEL CODE

SERIES NAME	FLOW DIRECTION	VALVE	ALARM OUTPUT	WETTED PARTS MATERIALS	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
P-40	0	-	0	-	N	R	2		
		VALVE	ALARM OUTPUT	WETTED PARTS MATERIALS	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE		
							1	1/8	
							2	1/4(Standard)	
							3	3/8	In the case of flange connection, connection size is 3/8 and 1/2 or more. Rc1/8, 3/8, 1/2 are provided with male/female sockets.
							4	1/2	
							Z	Special	
						R	Rc thread(Standard)		Lock-nut mounting onto panel front.
						N	NPT thread		If you want to use any other mounting, select from [Mounting Option].
						Z	Special		Specify Z for flange
					N	NBR(Standard)			
					C	CR			Select it for ammonia gas.
					F	FPM			
					T	PTFE			
					Z	Special			
				4	SUS304(Standard)				
				6	SUS316				
				P	PVC				
				Z	Special				
				0	Not provided				
				L	Bottom(gas for atmospheric pressure scale)				Refer to valve location selection guide (Page 60).
				U	Top(gas for pressure scale or for negative pressure on the secondary side)				
				Z	Special				
				0	Bottom rear→Top rear(Standard)				Select this code normally.
				1	Bottom→Top				Specify only this code for PVC material. Valve is installed externally except PVC.
				9	Special				

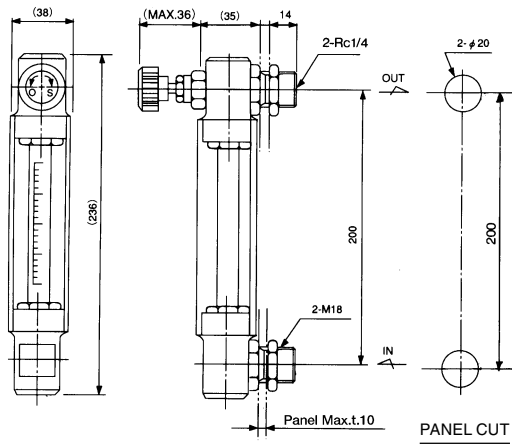
ORDERING INFORMATION

Basic model code	Designation items for detailed specifications
P-40 □-□□-□□-□□	① Fluid name — ② Measuring range — ③ Press. — ④ Temp. — ⑤ Mounting Option — ⑥ Other Option
(Use model code table for selection)	(For specification procedure, refer to page 56)

DIMENSIONS

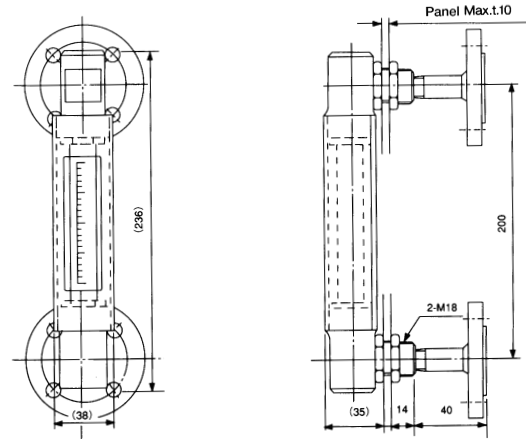
● STANDARD TYPE

(P-400-U0-4N-R2, Valve provided at outlet, Panel front lock-nut fixing)



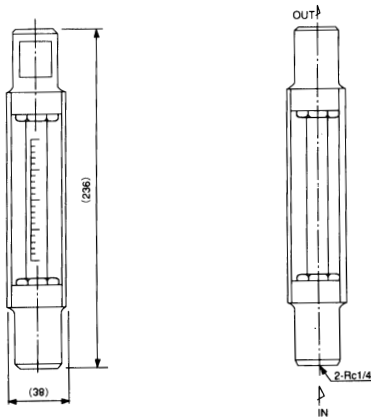
● FLANGE ENDED TYPE

(P-400-00-4N-Z4, Valve not provided, flange connection)
(Mounting Option code E)



● FLOW DIRECTION STRAIGHT-THROUGH TYPE

P-401-00-4N-R2, Thread connection of bottom to top direction.



Caution) Adapter shall be attached for Rc1/2 or more.

● Standard Material

Parts name	Standard material	Available material
Body	SCS14	PVC
Tapered tube	Heat-resistant glass	—
Float *1	SUS316,Glass,PTFE,Ruby	—
Packing	NBR	FPM,CR,PTFE
Joint	SUS304	SUS316
Valve	SUS304	SUS316
Cover	Acryl	SPCC,SUS304
Mounting board	SPCC	SUS304

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

*1 Proper material to be selected according to the specifications.

P-510

■ GENERAL

Purgemeter for medium and large flow rate. Aluminum body available in addition to standard Stainless-steel body. It is the same size as P-200 model of small flow rate type.

■ MAJOR APPLICATIONS

General purpose(Large flow rate)

■ STANDARD SPECIFICATION

Measuring object		Liquids and gases	
Measuring range	Air	Min. 2.5-25 L/min(nor). Max. 60-600 L/min(nor).	· Air at 0°C, 0MPa (1atm) · When selecting flow range, refer to standard flow rate table. · In case Op. Press. of gas is not 0MPa, refer to page 1.
	Water	Min. 0.1-1 L/min. Max. 3-30 L/min.	
Range ability	10:1		
Accuracy	±5%F.S.		
Max. Op. Press.	0.8MPa		
Max. Op. Temp.	120°C		Standard products have the packing materials made of NBR, so Max. Temp.is 80°C.
Material	Std.	Option(Specify by model code)	
	Body	SUS304	SUS316, Aluminum
	Tapered tube	Heat-resistant glass	
	Packing	NBR(max.80°C)	FPM(max.120°C), CR(max.80°C), EPDM(max.80°C)
	Support	SPCC or BS	
Cover	Acryl		
Connection	Std.	Rc3/8	Refer to Basic model code for details.
	Opt.	Rc1/2,NPT3/8,NPT1/2,3/8SW, 3/8VCR,JIS10KFF etc.	
Mounting	Std.	Thread(M3)mount onto panel front Lock-nut mount onto panel front	Refer to ordering information for details.
	Opt.	Bezel installation,Panel-rear installation, Stand provided Flange pipe tube installation	
MASS(std. type)		2.0 kg	

■ ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	○ 52, 53 page
	CE, UL Version	○ 52, 53 page
PAU Optical alarm unit	○	54 page
Optical alarm unit	×	

■ STANDARD FLOW RATE TABLE

(In case Op. Press of gas is not 0MPa, refer to page 1.)

In case alarm output code is O,E		In case alarm output code is A to D			
AIR(0MPa,0°C)	Water	AIR(0MPa,0°C)	Alarm setting range	Water	Alarm setting range
2.5-25 L/min(nor) 3-30 L/min(nor)	0.1-1 L/min				
5-50 L/min(nor)	0.2-2 L/min	5-50 L/min(nor) ^{*1}	10-40 L/min(nor)	0.2-2 L/min ^{*1}	0.4-1.6 L/min
10-100 L/min(nor)	0.3-3 L/min	10-100 L/min(nor)	20-80 L/min(nor)	0.3-3 L/min	0.6-2.4 L/min
20-200 L/min(nor)	0.5-5 L/min	20-200 L/min(nor)	40-160 L/min(nor)	0.5-5 L/min	1-4 L/min
30-300 L/min(nor)	1-10 L/min	30-300 L/min(nor)	60-240 L/min(nor)	1-10 L/min	2-8 L/min
40-400 L/min(nor)	1.5-15 L/min	40-400 L/min(nor)	80-320 L/min(nor)	1.5-15 L/min	3-12 L/min
50-500 L/min(nor)	2-20 L/min	50-500 L/min(nor)	100-400 L/min(nor)	2-20 L/min	4-16 L/min
60-600 L/min(nor)	3-30 L/min ^{*2}	60-600 L/min(nor)	120-480 L/min(nor)	3-30 L/min ^{*2}	6-24 L/min

^{*1} Float material should be PVC

^{*2} Available for Viscosity 1.0cP only.

^{*}In case of the specification other than the standard flow table, there may be the change in the flow range for certain reasons of production.

■ OTHER AVAILABLE OPTIONS

You can specify the following options:

Two point alarm, Alarm setting on the front face, reed switch lead wire length, double graduations, special graduations, built-in check valve type, built-in rubber joint type, built-in joint type, etc.

(For details, refer to ⑥ Other Option on page 59).

■ ORDERING INFORMATION

Basic model code	Designation items for detailed specifications					
P-51□-□□-□□-□□	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 56)					



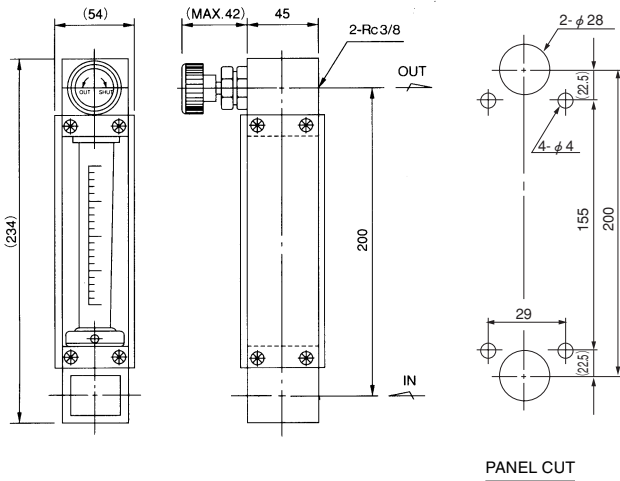
■ BASIC MODEL CODE

SERIES NAME	VALVE	ALARM OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION	
P-51	0	+	0	+	N	R			
	FLOW DIRECTION	VALVE	ALARM OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE		
							3	3/8(Standard)	
							4	1/2	Connection type code R,N,S can not be selected.
							5	3/4	Connection type code L only can be selected.
							6	1	Flow direction code 1 (bottom top) only can be selected
							Z	Special	Select 3,4,5,6,Z for flange
							R	Rc thread	Front thread(M3)of panel, mounting or pipe mounting
							N	NPT thread	Same as above
							L	Rc thread	Lock-nut mounting onto panel front. Bezel installation can be selected. Refer to Mounting Option in page 58 for details.
							M	NPT thread	Same as above
							S	SW	Same as above
							V	VCR	Same as above
							Z	Special	Select Z for flange
							N	NBR(Standard)	
							C	CR	Select it for ammonia gas.
							F	FPM	
							E	EPDM	
							Z	Special	
							4	SUS304(Standard)	Select P-520 model for PVC and PTFE. Select P-7□□ series for fluorine resin made tapered tube.
							6	SUS316	
							A	Aluminium(For Gas)	
							Z	Special	
							0	Not provided	
							A	Reed switch alarm (LO)	Refer to page 52, 53
							B	Reed switch alarm (LC)	
							C	Reed switch alarm (HO)	
							D	Reed switch alarm (HC)	
							E	PAU ALARM UNIT provided	Refer to page 54.
							Z	Special	
							0	Not provided	
							L	Bottom(gas for atmospheric pressure scale)	Refer to valve location selection guide (Page 60).
							U	Top(gas for pressure scale or for negative pressure on the secondary side)	
							Z	Special	
							0	Bottom rear → Top rear(Standard)	Select this code normally.
							1	Bottom → Top	Valve should be installed externally.
							9	Special	

DIMENSIONS

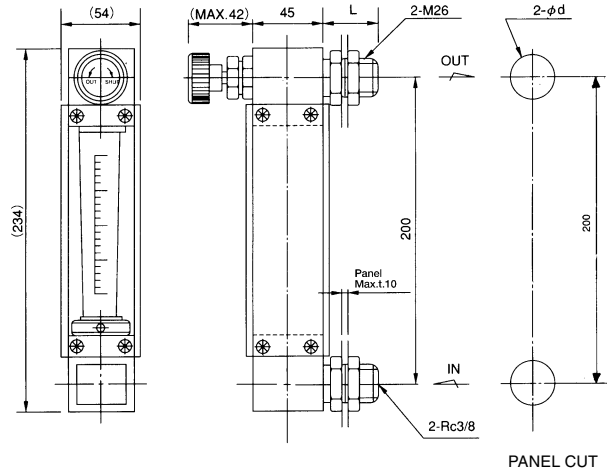
● STANDARD TYPE

(P-510-U0-4N-R3 Valve provided at Outlet, panel front thread (M3) mounting type)



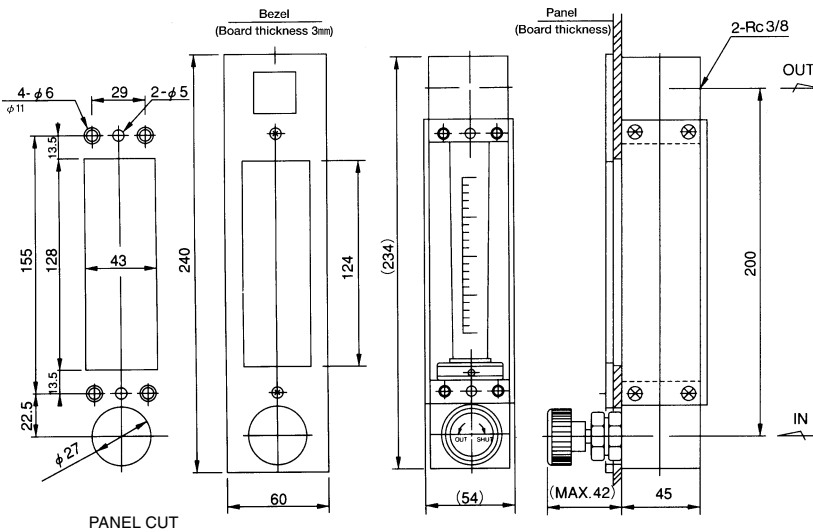
● PANEL-FRONT INSTALLATION TYPE

(P-510-U0-4N-L3, Valve provided at Outlet, panel front lock-nut fixing)



● BEZEL INSTALLATION TYPE

(P-510-L0-4N-R3, Valve provided at Outlet, Bezel installation.)
(Mounting Option code **D**)



● PANEL CUT SIZE

For PANEL-FRONT INSTALLATION TYPE, Panel cut dimension may differ depending on connection size and rating. Refer to following table.

Connection size	Hole dia ϕ d	Rear length L
Rc 3/8	ϕ 28	26
NPT 3/8	ϕ 28	26
Rc 1/2	ϕ 32	26
NPT 1/2	ϕ 32	26
Rc 3/4	ϕ 38	28
3/8 SW	ϕ 22	(38)
3/8 VCR	ϕ 32	(37.5)
1/2 VCR	ϕ 32	(37.5)

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

● Standard Material

Parts name	Standard material	Available material
Body	SUS304	Aluminium, SUS316
Tapered tube	Heat-resistant glass	—
Float *1	SUS304, PTFE	SUS316
Packing	NBR	FPM, CR, EPDM
Spindle	SUS304	SUS316
Valve	SUS304	SUS316
Mounting board	SPCC	SUS304
Cover	Acryl	—

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

*1 Proper material to be selected according to the specifications.

● In case alarm output code is A to D

A	Reed switch alarm(LO)	Refer to page 52, 53
B	Reed switch alarm(LC)	
C	Reed switch alarm(HO)	
D	Reed switch alarm(HC)	

● In case alarm output code is E

E	PAU ALARM UNIT provided	Refer to page 54.
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P-520

GENERAL

Resin construction eliminates the possibility of introduction of metallic ions into process liquids. Suitable for Pure and Ultra pure water lines in Semi-conductor production facilities. Alarm contacts can be added.

MAJOR APPLICATIONS

Pure water lines

STANDARD SPECIFICATION

Measuring objec		Liquids	
Measuring range	Water	Min. 1~10* L/min	When selecting flow range, refer to standard flow rate table.
		Max. 12~60 L/min	
Range ability		10:1	10:2 for some ranges
Accuracy		±5%F.S.	
Max. Op. Press.		0.5MPa	
Max. Op. Temp.		60°C	Body material Heat-proof PVC - max 80°C (PTFE - max 80°C).
Material		Std. Option (Specify by model code)	
Body		PVC(max60°C)	Heat-proof PVC(max.80°C), PTFE(max.80°C)
Tapered tube		Heat-resistant glass	
Packing		FPM	EPDM
Support		SUS304	
Cover		Transparent PVC	
Connection	Std.	Rc1/2	Refer to Basic model code for details.
	Opt.	Rc3/4,NPT1/2,NPT3/4 etc.	
Mounting	Std.	Thread (M3) mount onto panel front	Refer to ordering information for details.
	Opt.	Panel-rear installation,	
MASS (std. type)		1.2 kg	

*Consult in case 1~10 L/min or less

ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	○ 52, 53 page
	CE, UL Version	○ 52, 53 page
PAU Optical alarm unit	○	54 page
Optical alarm unit	×	

STANDARD FLOW RATE TABLE

(Consult in case 1~10 L/min or less.)

AIR(OMPa,0°C)	In case alarm output code is O,E		In case alarm output code is A to D	
	Water	Water	Water	Alarm setting range
	1~10 L/min	1.2~12 L/min	2.4~10 L/min	
	1.5~15 L/min	1.5~15 L/min	3~12 L/min	
	2~20 L/min	2~20 L/min	4~16 L/min	
	3~30 L/min	3~30 L/min	6~24 L/min	
	4~40 L/min	4~40 L/min	8~32 L/min	
	4.5~45 L/min	4.5~45 L/min	9~36 L/min	
	5~50 L/min	5~50 L/min	10~40 L/min	
	12~60 L/min	12~60 L/min	18~48 L/min	

May be different depending on the scale length.

OTHER AVAILABLE OPTIONS

You can specify the following options:
Two point alarm, reed switch lead wire length, double graduations, special graduations, built-in joint type, etc.
(For details, refer to ⑥ Other Option on page 59).

ORDERING INFORMATION

Basic model code	Designation items for detailed specifications					
P-52 □-□□-□□-□□	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 56)					

Note: Depending upon the required specifications, Model P-520-L with valve falls under goods "Valves or components thereof" listed in (ii)-7 of row 3 of Appended Table 1 of Export Trade Control Order. Contact us for details.



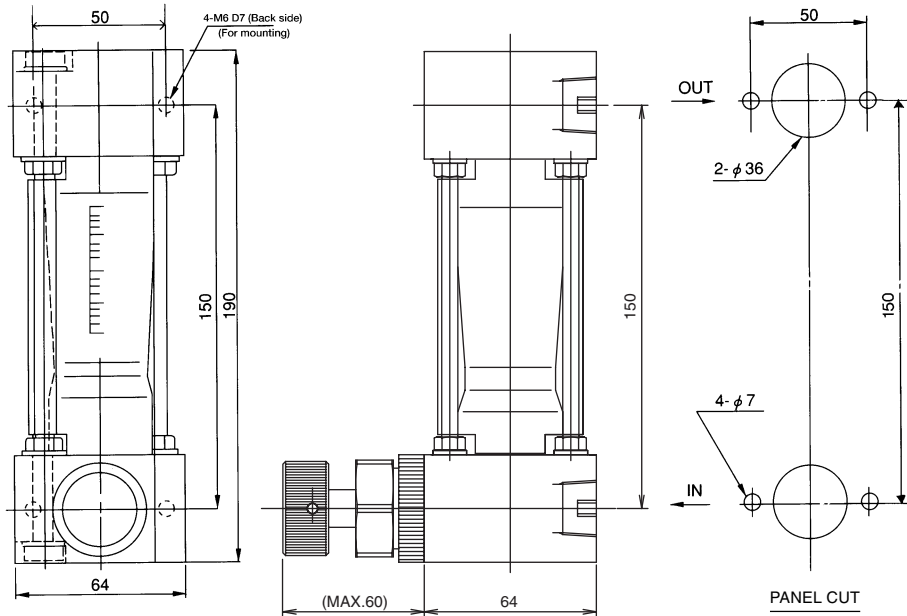
BASIC MODEL CODE

SERIES NAME	VALVE	ALARM OUTPUT	WETTED PARTS MATERIALS	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
P-52	0	+	0	F	R	4		
						4	1/2(Standard)	
						5	3/4	
						6	1	Connection length for flow direction "Bottom rear" to "Top rear" (without valve) is 160mm.
						Z	Special	
						R	Rc thread(Standard)	Thread mounting onto panel front. If you want to use any other mounting, select from [Mounting Option].
						N	NPT thread	
						Z	Special	
						F	FPM(Standard)	
						E	EPDM	
						Z	Special	
						P	PVC(Standard)	
						T	PTFE	
						4	SUS304	
						Z	Special	
						0	Not provided	
						A	Reed switch alarm (LO)	Refer to page 52, 53
						B	Reed switch alarm (LC)	
						C	Reed switch alarm (HO)	
						D	Reed switch alarm (HC)	
						E	PAU ALARM UNIT provided	Refer to page 54.
						Z	Special	
						0	Not provided	
						L	Bottom	
						Z	Special	
						0	Bottom rear → Top rear (Standard)	Select this code normally.
						1	Bottom → Top	Valve is not provided.
						9	Special	

DIMENSIONS

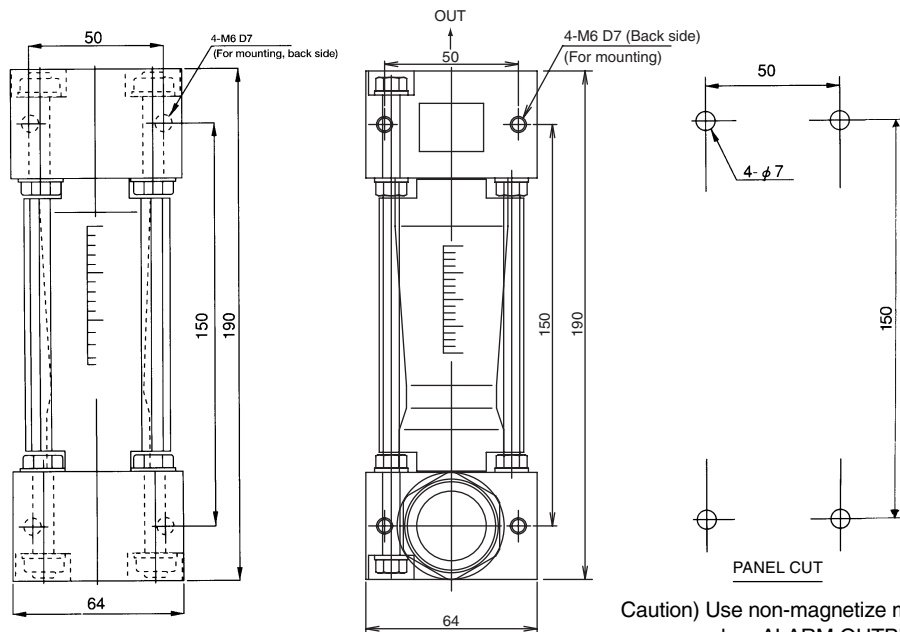
STANDARD TYPE

(P-520-L0-4N-PF-R4 Valve provided at Inlet, Panel front screw fixing)



FLOW DIRECTION STRAIGHT-THROUGH TYPE

(P-521-00-PF-R5, Valve not provided, Bottom to top direction, Panel front screw fixing)



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

Standard Material

Parts name	Standard material	Available material
Body	PVC	PTFE,SUS304
Tapered tube	Heat-resistant glass	
Float *1	PVC, SUS304, PTFE	
Packing	FPM	EPDM
Float rod	FEP covering SUS316	
Float stopper	PVC	PTFE
Valve	PVC	PTFE
Column	SUS304	
Cover	Transparent PVC	

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

*1 Proper material to be selected according to the specifications.

In case alarm output code is A to D

A	Reed switch alarm (LO)	Refer to page 52, 53
B	Reed switch alarm (LC)	
C	Reed switch alarm (HO)	
D	Reed switch alarm (HC)	

In case alarm output code is E

E	PAU ALARM UNIT provided	Refer to page 54.
---	-------------------------	-------------------

P-530

GENERAL

Compacter than P-510 series. Purgemeter for large flow rate. Swagelok and VCR connection are also available.

MAJOR APPLICATIONS

General purpose (Large flow rate)

STANDARD SPECIFICATION

Measuring object	Liquids and gases	
Measuring range	Air	Min. 10~50 L/min(nor). Max. 50~250 L/min(nor). · Air at 0°C, 0MPa (1atm) · When selecting flow range, refer to standard flow rate table.
	Water	Min. 0.2~2 L/min. Max. 1~10 L/min. · In case Op. Press. of gas is not 0MPa, refer to page 1.
Range ability	10:1 (10:2)	10:2 for gas measuring
Accuracy	±5%F.S.	
Max. Op. Press.	0.8MPa	Select P-510 if diff. pressure is less than or equal to 0.05MPa.
Max. Op. Temp.	120°C	Standard products have the packing materials made of NBR, so Max. Temp. is 80°C.
Material	Std.	Option (Specify by model code)
	Body	SUS304 SUS316
	Tapered tube	Heat-resistant glass
	Packing	NBR(max.80°C) FPM (max.120°C), CR(max.80°C), EPDM(max.80°C)
Support	Aluminum	
Cover	Acryl	
Connection	Std.	Rc3/8
	Opt.	Rc1/2,NPT3/8,NPT1/2, 3/8SW,3/8VCR etc.
Mounting	Std.	Thread (M3) mount onto panel front
	Opt.	Bezel installation, Panel-rear installation,
MASS (std. type)	1.5 kg	



BASIC MODEL CODE

SERIES NAME	FLOW DIRECTION	VALVE	ALARM OUTPUT	WETTED PARTS MATERIALS	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE		DESCRIPTION
P-53	0	+	0	N	R	R	3	3/8 (Standard)		
								4	1/2	
								Z	Special	
						R		Rc thread		Front thread mount onto panel, Bezel installation can be selected. Refer to Mounting Option in page 58 for details.
						N		NPT thread		
						S		SW		
						V		VCR		
						Z		Special		
						N		NBR (Standard)		
						C		CR	Select it for ammonia gas.	
						F		FPM		
						E		EPDM		
						Z		Special		
						4		SUS304 (Standard)	Select P-520 model for PVC, PTFE.	
						6		SUS316	Select P-7□□ series for fluorine resin made tapered tube.	
						Z		Special		
						0		Not provided		
						A		Reed switch alarm (LO)	Refer to page 52, 53	
						B		Reed switch alarm (LC)		
						C		Reed switch alarm (HO)		
						D		Reed switch alarm (HC)		
						Z		Special		
						0		Not provided		
						L		Bottom (gas for atmospheric pressure scale)	Refer to valve position selection guide (Page 60).	
						U		Top (gas for pressure scale or for negative pressure on the secondary side)		
						Z		Special		
						0		Bottom rear → Top rear (Standard)	Select this code normally.	
						9		Special		

ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	×
	CE, UL Version	○
PAU Optical alarm unit	×	
Optical alarm unit	×	

STANDARD FLOW RATE TABLE

See page 1 for the gas service of 0MPa pressure.

In case alarm output code is O		In case alarm output code is A to D			
AIR(0MPa,0°C)	Water	AIR(0MPa,0°C)	Alarm setting range	Water	Alarm setting range
10-50 L/min(nor)	0.2-2 L/min			0.3-3 L/min	0.6-2.4 L/min
20-100 L/min(nor)	0.3-3 L/min	20-100 L/min(nor)	20-80 L/min(nor)		
40-200 L/min(nor)	0.5-5 L/min	40-200 L/min(nor)	40-160 L/min(nor)	0.5-5 L/min	1-4 L/min
50-250 L/min(nor)	1-10 L/min	50-250 L/min(nor)	50-200 L/min(nor)	1-10 L/min	2-8 L/min

OTHER AVAILABLE OPTIONS

You can specify the following options:

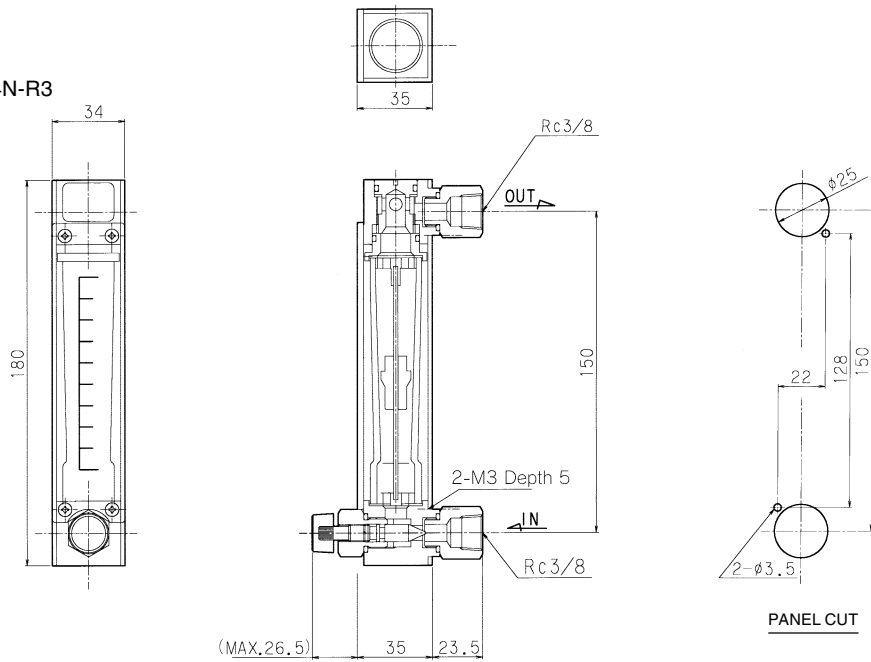
Two point alarm, reed switch lead wire length, double graduations, special graduations, etc. (For details, refer to ⑥ [Other Option] on page 59).

ORDERING INFORMATION

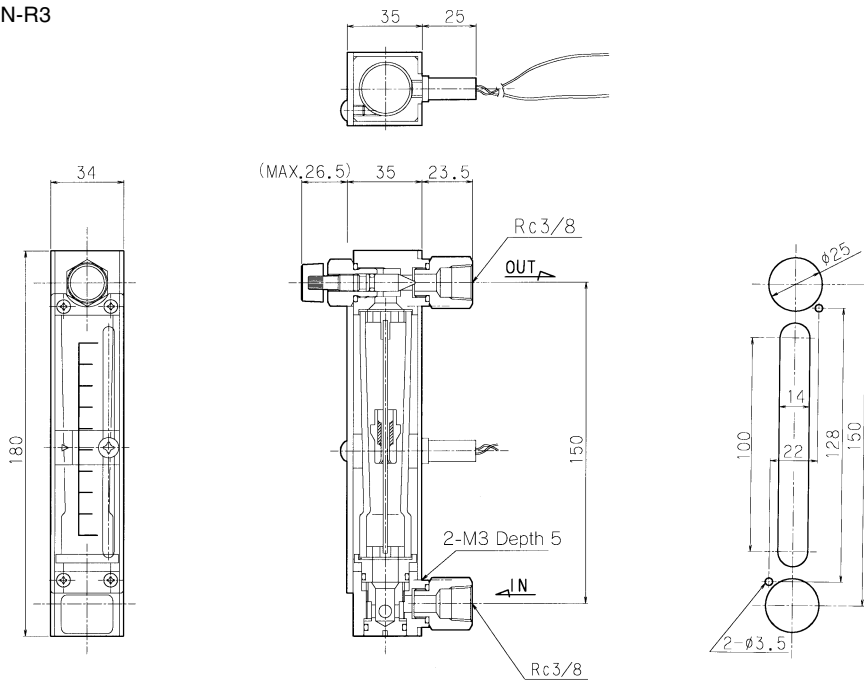
Basic model code	Designation items for detailed specifications					
P-53□-□□-□□-□□	①	②	③	④	⑤	⑥
(Use model code table for selection)	Fluid name	Measuring range	Press.	Temp.	Mounting Option	Other Option
	(For specification procedure, refer to page 56)					

DIMENSIONS

● P-530-L0-4N-R3



● P-530-UA-4N-R3



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

● Standard Material

Parts name	Standard material	Available material
Body	SUS304	SUS316
Tapered tube	Heat-resistant glass	—
Float	SUS304	SUS316
Packing	NBR	FPM, EPDM
Float rod	SUS316	—
Float stopper	POM	—
Valve	SUS304	SUS316
Fitting	SUS304	SUS316
Mounting board	Aluminum	—
Cover	Transparent Acryl	—

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

● In case alarm output code is A to D

A	Reed switch alarm (LO)	Refer to page 52, 53
B	Reed switch alarm (LC)	
C	Reed switch alarm (HO)	
D	Reed switch alarm (HC)	

P-540

GENERAL

Compact design covers a variety of flow range. Light weight and smartness available for wide range usage.

MAJOR APPLICATIONS

General purpose (Large flow rate)

STANDARD SPECIFICATION

Measuring object		Liquids and gases	
Measuring range	Air	Min. 2.5~25 L/min(nor). Max. 60~600 L/min(nor).	· Air at 0°C, 0MPa (1atm) · When selecting flow range, refer to standard flow rate table. · In case Op. Press. of gas is not 0MPa, refer to page 1.
	Water	Min. 0.1~1 L/min. Max. 3~30 L/min.	
Range ability		10:1	
Accuracy		±5%F.S.	
Max. Op. Press.		0.8MPa	
Max. Op. Temp.		120°C	Standard products have the packing materials made of NBR, so Max. Temp. is 80°C.
Material		Std.	Option (Specify by model code)
Body		SUS304 (Body SCS14)	SUS316
Tapered tube		Heat-resistant glass	
Packing		NBR(max80°C)	FPM (max.120°C), CR(max.80°C), EPDM(max.80°C)
Support		Aluminum	
Cover		Poly-carbonate	
Connection	Std.	Rc3/8	Refer to Basic model code for details.
	Opt.	Rc1/2,NPT3/8,NPT1/2,3/8SW 3/8VCR	
Mounting	Std.	Thread (M5) mount onto panel front	
	Opt.	Panel-rear installation	
MASS (std. type)		1.8 kg	



ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	×
	CE, UL Version	○
PAU Optical alarm unit		×
Optical alarm unit		×

STANDARD FLOW RATE TABLE

(In case Op.Press of gas is not 0MPa, refer to Page 1.)

In case alarm output code is 0,E		In case alarm output code is A to D			
AIR(0MPa,0°C)	Water	AIR(0MPa,0°C)	Water	Water	Alarm setting range
2.5-25 L/min(nor)	0.1-1 L/min				
3-30 L/min(nor)	0.2-2 L/min	5-50 L/min(nor)	10-40 L/min(nor)	0.2-2 L/min	0.4-1.6 L/min
5-50 L/min(nor)	0.3-3 L/min	10-100 L/min(nor)	20-80 L/min(nor)	0.3-3 L/min	0.6-2.4 L/min
10-100 L/min(nor)	0.5-5 L/min	20-200 L/min(nor)	40-160 L/min(nor)	0.5-5 L/min	1-4 L/min
20-200 L/min(nor)	1-10 L/min	30-300 L/min(nor)	60-240 L/min(nor)	1-10 L/min	2-8 L/min
30-300 L/min(nor)	1.5-15 L/min	40-400 L/min(nor)	80-320 L/min(nor)	1.5-15 L/min	3-12 L/min
40-400 L/min(nor)	2-20 L/min	50-500 L/min(nor)	100-400 L/min(nor)	2-20 L/min	4-16 L/min
50-500 L/min(nor)	3-30 L/min ²⁾	60-600 L/min(nor)	120-480 L/min(nor)	3-30 L/min ²⁾	6-24 L/min

* Float material should be PVC.

*2 Available for viscosity 1.0cP only.

* In case of the specification other than the standard one, there may be the change in the flow range for certain reasons of production.

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 59).

BASIC MODEL CODE

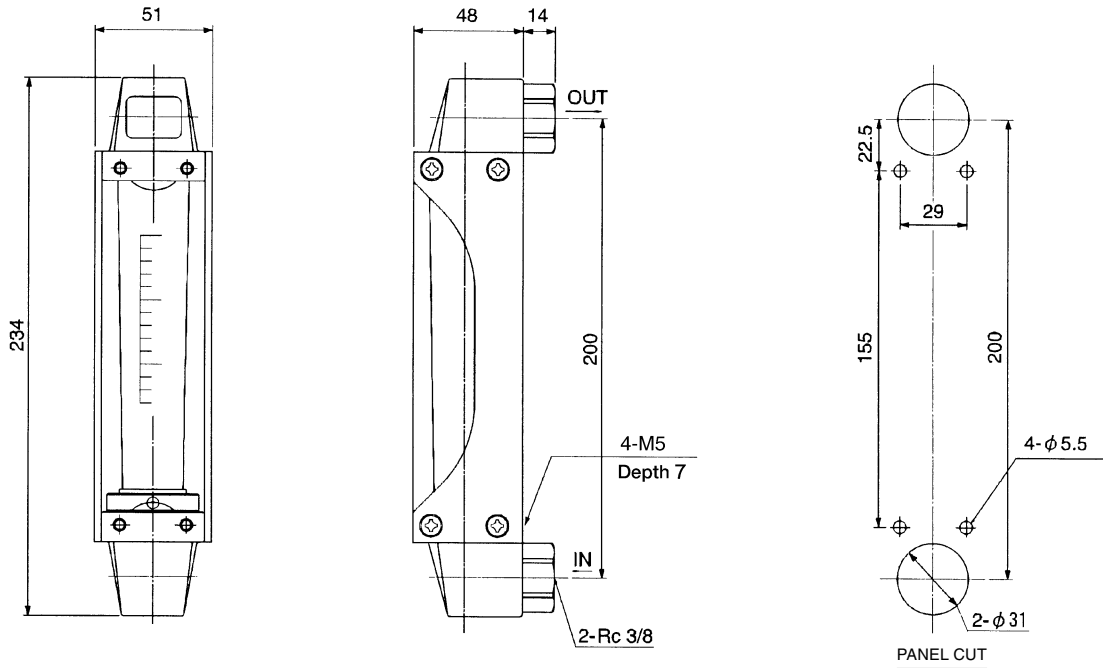
SERIES NAME	VALVE	ALARM OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
P-54	0	-	0	-	N	3		
						3	3/8 (Standard)	
						4	1/2	
					R		Rc thread	Front thread mount onto panel
					N		NPT thread	Same as above
					S		SW	Same as above
					V		VCR	Same as above
					N		NBR (Standard)	Bezel installation can be selected.
					C		CR	Select it for ammonia gas.
					F		FPM	
					E		EPDM	
					Z		Special	
					4		SUS304 (Standard)	Select P-520 model for PVC, PTFE.
					6		SUS316	Select P-7□ series for fluorine resin made tapered tube.
					Z		Special	
					0		Not provided	
					A		Reed switch alarm (LO)	
					B		Reed switch alarm (LC)	
					C		Reed switch alarm (HO)	Refer to page 52, 53
					D		Reed switch alarm (HC)	
					Z		Special	
					0		Not provided	
					L		Bottom (gas for atmospheric pressure scale)	
					U		Top (gas for pressure scale or for negative pressure on the secondary side)	Refer to valve location selection guide (Page 60).
					Z		Special	
					0		Bottom rear → Top rear (Standard)	

ORDERING INFORMATION

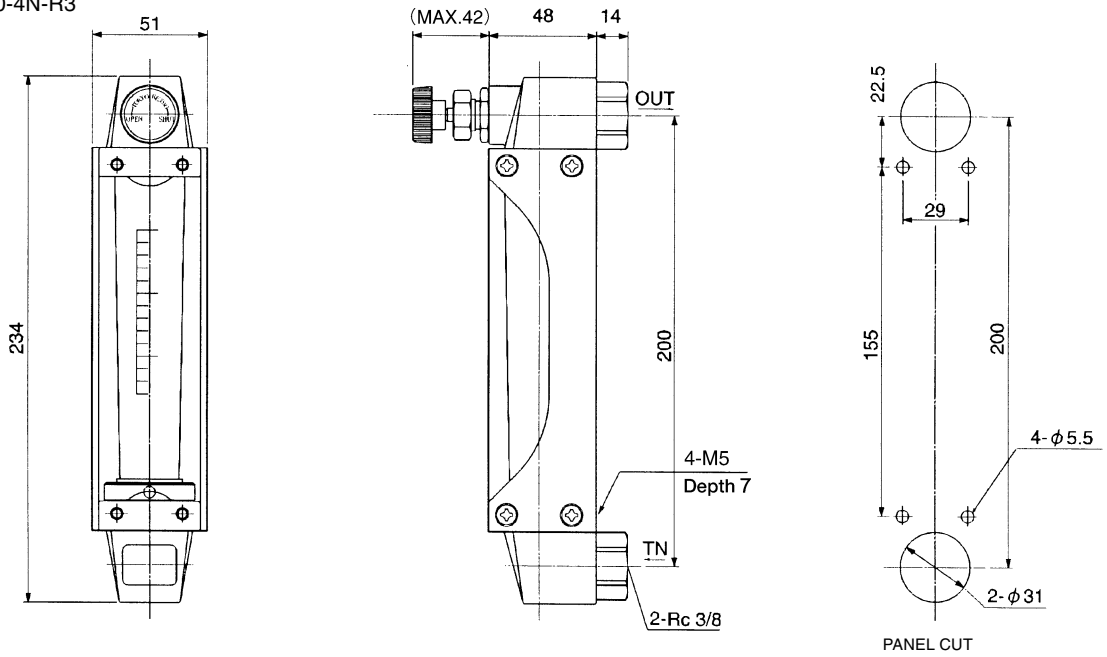
Basic model code	Designation items for detailed specifications					
P-54 □-□□-□□-□□	①	②	③	④	⑤	⑥
(Use model code table for selection)	Fluid name	Measuring range	Press.	Temp.	Mounting Option	Other Option
	(For specification procedure, refer to page 56)					

DIMENSIONS

● P-540-00-4N-R3



● P-540-U0-4N-R3



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

● Standard Material

Parts name	Standard material	Available material
Body	SCS14	
Tapered tube	Heat-resistant glass	
Float	SUS304	SUS316
Float rod	SUS316	
Packing	NBR	FPM, CR, EPDM
Float stopper	PTFE	
Valve	SUS304	SUS316
Joint	SCS304	SUS316
Mounting board	Aluminum	
Cover	Poly-carbonate	

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

● In case alarm output code is A to D

A	Reed switch alarm (LO)	Refer to page 52, 53
B	Reed switch alarm (LC)	
C	Reed switch alarm (HO)	
D	Reed switch alarm (HC)	

P-550

GENERAL

P-550 purgemeters cover max. 30 L/min of water or 550 L/min (nor) of air with 150 mm center to center connection length and 43 mm width. The meter with FPM gasket has the rating of Max. temperature of 130°C and pressure of 1 MPa suitable for wider applications.

MAJOR APPLICATIONS

All applications (Medium~Large sizes)

STANDARD SPECIFICATION

Measuring object		Liquids and Gases	
Measuring range	Air	Min. range: 70~350L/min(nor) Max. range: 110~550L/min(nor)	Air, 0°C, 0MPa (1atm) Below table is indicated by flow rate of Air of 0°C, 0MPa. Flow rate conversion is necessary when fluid specification is different. Consult factory for details.
	Water	Min. range: 2.4~12 L/min Max. range: 6~30 L/min	
Range ability		10 : 2	
Indication accuracy		±5%F.S.	
Max. Op. Press.		1.0MPa	
Max. Op. Temp.		130°C	Standard products have the packing materials made of NBR, so Max. Temp. is 80°C.
Material		Standard	Option
Body		SUS316	
Tapered tube		Heat-resistant glass	
Packing		NBR(Max.80°C)	FPM (Max.130°C),
Support		Aluminium	
Protection Cover		Acryl	
Process connection	Std.	Rc1/2	Refer to Model Code for details.
	Option	Rc3/8,3/4,3/8,1/2SW NPT3/8,1/2,3/4	
Installation	Std.	Panel front screw (M3) mount, Panel front rock nut mount	Refer to Model Code for details.
	Option	Bezel mount, Panel rear screw mount	
MASS (std.type)		1.3 kg	

ALARM CONTACT OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General type	×
	CE,UL Version	○
PAU Optical alarm unit	×	52, 53 page
Optical alarm unit	×	

STANDARD FLOW RATE TABLE

Refer to page 1 for the gas service other than 0MPa in pressure.

In case that the Alarm Output Code is A to D			
AIR(0MPa,0°C)	Alarm setting range	Water	Alarm setting range
70~350 L/min(nor)	70~280 L/min(nor)	2.4~12 L/min	2.4~10 L/min
80~400 L/min(nor)	80~320 L/min(nor)	3~15 L/min	3~12 L/min
100~500 L/min(nor)	100~400 L/min(nor)	4~20 L/min	4~16 L/min
110~550 L/min(nor)	110~440 L/min(nor)	6~30 L/min	6~24 L/min

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 59).

ORDERING INFORMATION

Basic model code	Designation items for detailed specifications					
P-55□-□□-□□-□□	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 56)					

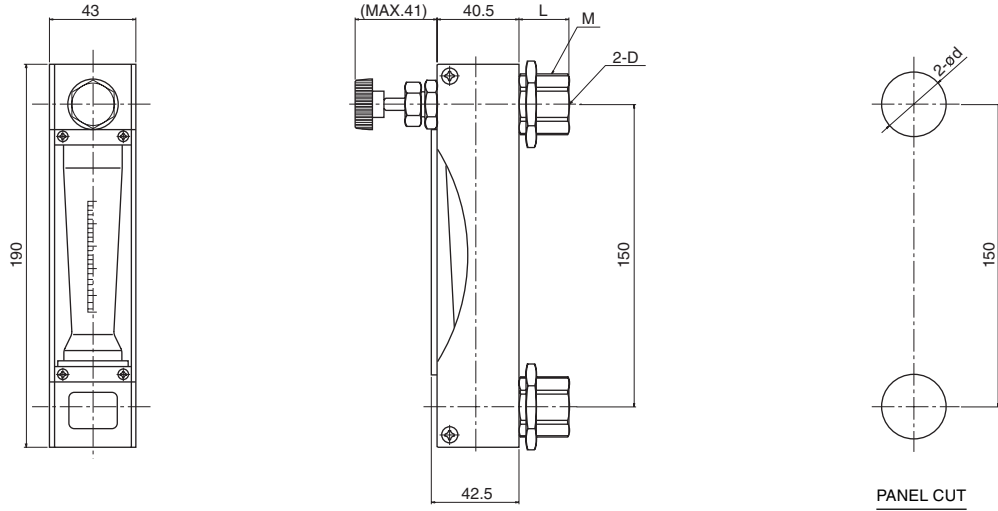


BASIC MODEL CODE

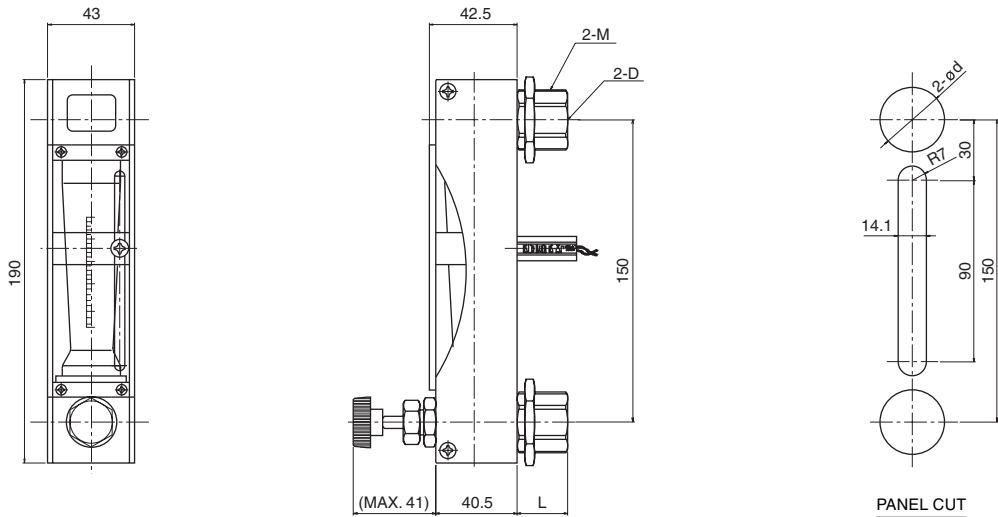
SERIES NAME	FLOW DIRECTION	VALVE	ALARM OUTPUT	WETTED PARTS MATERIALS	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE		DESCRIPTION
								CONNECTION TYPE	CONNECTION SIZE	
P-55	0	0	0	9	Z	F	4			
		1	0	9	Z	F	4			
		1	0	9	Z	F	3	3/8		
		1	0	9	Z	F	4	1/2 (Std.)		
		1	0	9	Z	F	5	3/4		Available only for Alarm/Output code M and R.
		1	0	9	R	Rc Thread				Panel front lock nut mount only
		1	0	9	M	NPT Thread				Ditto
		1	0	9	S	SW				Ditto
		1	0	9	N	NBR (Std.)				
		1	0	9	F	FPM				
		1	0	9	Z	Special				
		1	0	9	6	SUS316 (Std.)				Select P-520 model for PVC and PTFE. Select
		1	0	9	Z	Special				P-7□□ series for fluorocarbon resin tube.
		1	0	9	0	Not provided				
		1	0	9	A	Reed switch alarm (LO)				
		1	0	9	B	Reed switch alarm (LC)				Refer to page 52, 53
		1	0	9	C	Reed switch alarm (HO)				
		1	0	9	D	Reed switch alarm (HC)				
		1	0	9	Z	Special				
		1	0	9	0	Not provided				
		1	0	9	L	Bottom (gas for atmospheric pressure scale)				Refer to valve location selection guide (Page 60).
		1	0	9	U	Top (gas for pressure scale or for negative pressure on the secondary side)				
		1	0	9	Z	Special				
		1	0	9	0	Bottom rear → Top rear (Std.)				Select this code normally
		1	0	9	9	Special				

DIMENSIONS

● P-550-U0-6N-□□



● P-550-LA-6N-□□



Caution) Use non-magnetize material for mounting panel.

● PANEL CUT

Connection	D	φd	L	M
Rc3/8	32	22.5	M30	
Rc1/2	34	22.5	M32	
Rc3/4	42	23.5	M40	
SW3/8	32	25	M30	
SW1/2	32	21.3	M30	

● Standard Material

Parts name	Standard material	Available material
Body	SUS316	
Tapered tube	Heat-resistant glass	
Float	SUS316	
Float rod	SUS316	
Float stopper	PTFE	
Packing	NBR	FPM
Tapered tube holder	SUS316	
Valve	SUS316	
Cover	Aluminum	
Front Cover	Transparent Acryl	

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

● In case alarm output code is A to D

A	Reed switch alarm (LO)	Refer to page 52, 53
B	Reed switch alarm (LC)	
C	Reed switch alarm (HO)	
D	Reed switch alarm (HC)	

P-610

GENERAL

Acryl moulded compact version for gas measurement. Suitable for built-in use for equipment.

MAJOR APPLICATIONS

General gas process

STANDARD SPECIFICATION

Measuring object		Gases	
Measuring range	Air	Min. 0.2~2 L/min(nor). Max. 4~40 L/min(nor).	· Air at 0°C, 0MPa (1atm) · When selecting flow range, refer to standard flow rate table. · In case Op. Press. of gas is not 0MPa, refer to page 1.
Range ability	10:1		
Accuracy	±10%F.S.		
Max. Op. Press.	0.5MPa		
Max. Op. Temp.	60°C		
Material		Std.	Option
	Body	Acryl	
	Tapered tube	Acryl	
	Packing	NBR	FPM, CR
	Fitting	C3604	SUS304,SUS316
Connection	Std.	Rc1/8	Refer to Basic model code for details.
	Opt.	NPT etc.	
Mounting	Std.	Thread mount onto panel front	
MASS (std. type)	0.2 kg		



ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	×
	CE, UL Version	×
PAU Optical alarm unit	×	
Optical alarm unit	×	

STANDARD FLOW RATE TABLE

In case alarm output code is 0		Air
AIR (0MPa, 0°C)		
0.2~2	L/min(nor)	/
0.3~3	L/min(nor)	
0.5~5	L/min(nor)	
1~10	L/min(nor)	
2~20	L/min(nor)	
3~30	L/min(nor)	
4~40	L/min(nor)	

OTHER AVAILABLE OPTIONS

You can specify the following options:
Double graduations, special graduations, built-in rubber joint type, built-in joint type, etc.

(For details, refer to ⑥ Other Option on page 59).

BASIC MODEL CODE

SERIES NAME	VALVE	ALARM OUTPUT	WETTED PARTS MATERIALS	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	
							DESCRIPTION	
P-610	L	o	B	Z	F	1		
	L	o	B	Z	F	1	1/8	
					Z		Special	
					F		Rc thread (Standard)	
					N		NPT thread	
					Z		Special	
					N		NBR(Standard)	
					C		CR	
					F		FPM	
					Z		Special	
					B		C3604(Standard)	
					4		SUS304	
					6		SUS316	
					Z		Special	
		o					Not provided	
		Z					Special	
		o					Not provided	
		L					Bottom	
		U					Top	
		Z					Special	

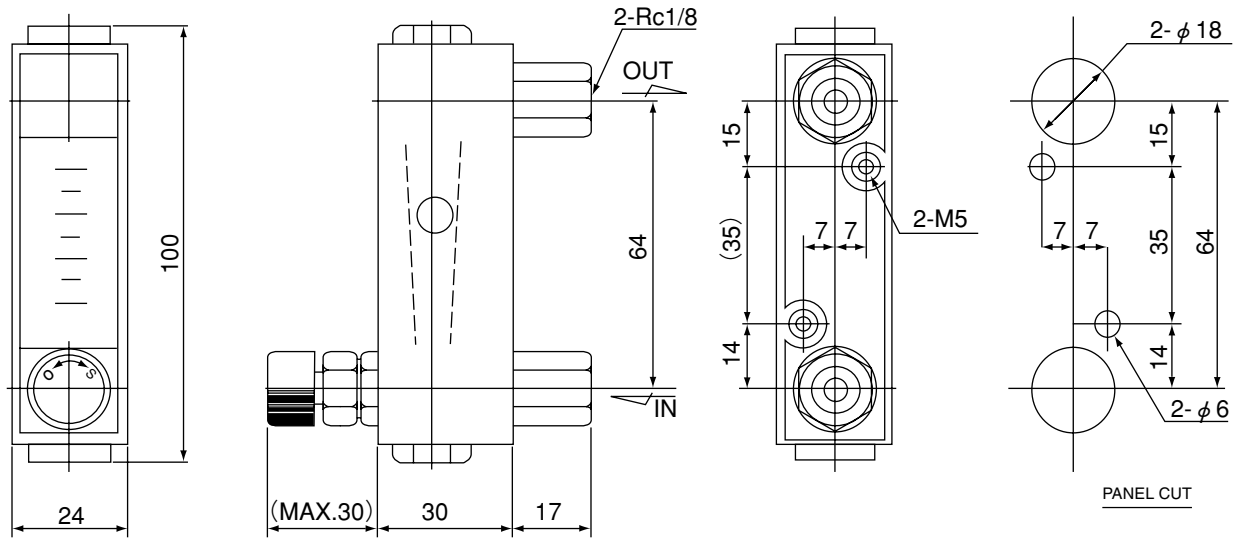
ORDERING INFORMATION

Basic model code	Designation items for detailed specifications					
P-610-□□-□□-□□	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 56)					

DIMENSIONS

● STANDARD TYPE

(P-610-L0-BN-PF-R1 Valve provided at Inlet, Panel front screw fixing)



● Standard Material

Parts name	Standard material	Available material
Body, Tapered tube	Transparent Acryl integral mold	
Packing	NBR	FPM, CR
Float *1	SUS304, Glass SUS316, Ruby	—
Valve body	C3604	SUS304, SUS316
Valve needle	SUS304	SUS316
Fitting	C3604	SUS304, SUS316
Cap	C3604	SUS304, SUS316
Graduation board	Transparent PVC	—

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

*1 Proper material to be selected according to the specifications.

P-620

GENERAL

Acryl moulded compact version for liquids measurement. Max. 10L/min range even for compact body. Widely used as flow switch. Easy In-line maintenance without removing from instrument panel.

MAJOR APPLICATIONS

Cooling water lines at semiconductor production equipment

STANDARD SPECIFICATION

Measuring object		Liquids	
Measuring range	Water	Min. 0.1~1 L/min. Max. 1~10 L/min.	
	Range ability	10:1	
Accuracy		±10%F.S.	
Max. Op. Press.		1.0MPa	
Max. Op. Temp.		60°C	
Material		Std.	Option
		Body	Acryl
		Tapered tube	Acryl
		Packing	NBR
		Fittng	C3604
			FPM, CR
			SUS304,SUS316
Connection	Std.	Rc3/8	Refer to Basic model code for details.
	Opt.	3/8SW NPT3/8 etc.	
Mounting	Std.	Thread mount onto panel front	
	MASS (std. type)	0.3 kg	



ALARM OUTPUT

Type	Availability	Reference pages	
Reed switch type alarm unit	General	○	52, 53 page
	CE, UL Version	○	52, 53 page
PAU Optical alarm unit		×	
Optical alarm unit		×	

STANDARD FLOW RATE TABLE

AIR(OMPa, 0°C)	In case alarm output code is 0		In case alarm output code is A to D		Alarm setting range
	Water	Water	Water	Water	
/	0.1~1 L/min ^{*1}	0.1~1 L/min ^{*1}	0.1~1 L/min ^{*1}	0.2~0.8 L/min	
			0.4~1.2 L/min	0.5~1 L/min	
	0.2~2 L/min	0.2~2 L/min	0.2~2 L/min	0.4~1.6 L/min	
		0.3~3 L/min	0.3~3 L/min	1~1.8 L/min ^{*2}	
	0.5~5 L/min	0.5~5 L/min	2~4 L/min		
	0.6~6 L/min	0.6~6 L/min	2~4.8 L/min		
	0.8~8 L/min	0.8~8 L/min	2~6.4 L/min		
	1~10 L/min	1~10 L/min	2~8 L/min		

*1 Available only for P620-U□-4N-R3.
Dimensions are different. Consult factory for details.

*2 Available from 0.75L/min for connection standard "SW".

OTHER AVAILABLE OPTIONS

You can specify the following options:

Two point alarm, Alarm setting on the front face, reed switch lead wire length, double graduations, special graduation, built-in rubber joint type, built-in joint type, etc.

For details, refer to ⑥ [Other Option] on page 59).

BASIC MODEL CODE

SERIES NAME	VALVE	ALARM OUTPUT	WETTED PARTS MATERIALS	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
P-620	U	0	B	N	R	3		
	U	ALARM OUTPUT	WETTED PARTS MATERIALS	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE		
							3	3/8 (Standard)
							Z	Special
							R	Rc thread (Standard)
							N	NPT thread
							S	SW
							Z	Special
							N	NBR(Standard)
							C	CR
							F	FPM
							Z	Special
							B	C3604 (Standard)
							4	SUS304
							6	SUS316
							Z	Special
							0	Not provided
							A	Reed switch alarm (LO)
							B	Reed switch alarm (LC)
							C	Reed switch alarm (HO)
							D	Reed switch alarm (HC)
							Z	Special
							0	Not provided
							U	Top
							Z	Special

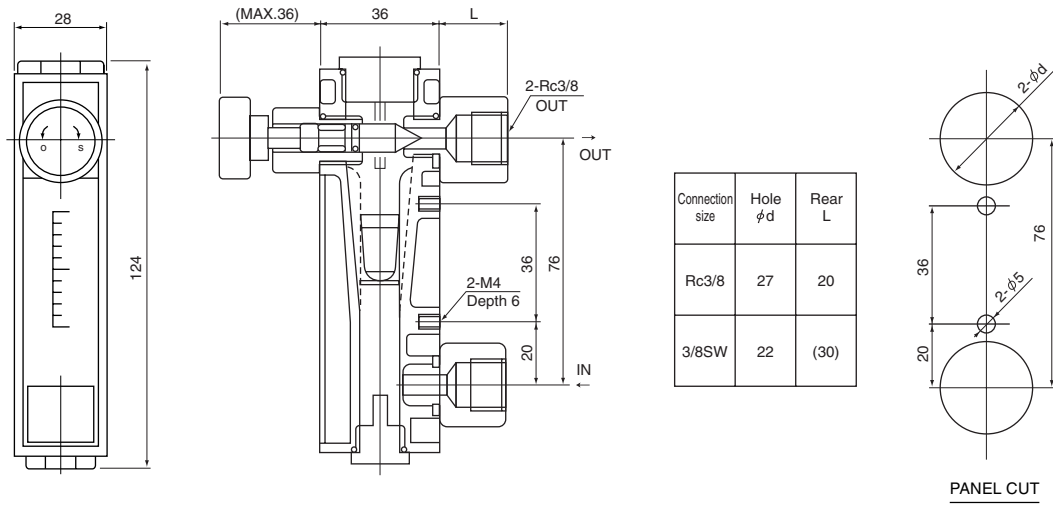
ORDERING INFORMATION

Basic model code	Designation items for detailed specifications					
P-620-□□-□□-□□	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 56)					

DIMENSIONS

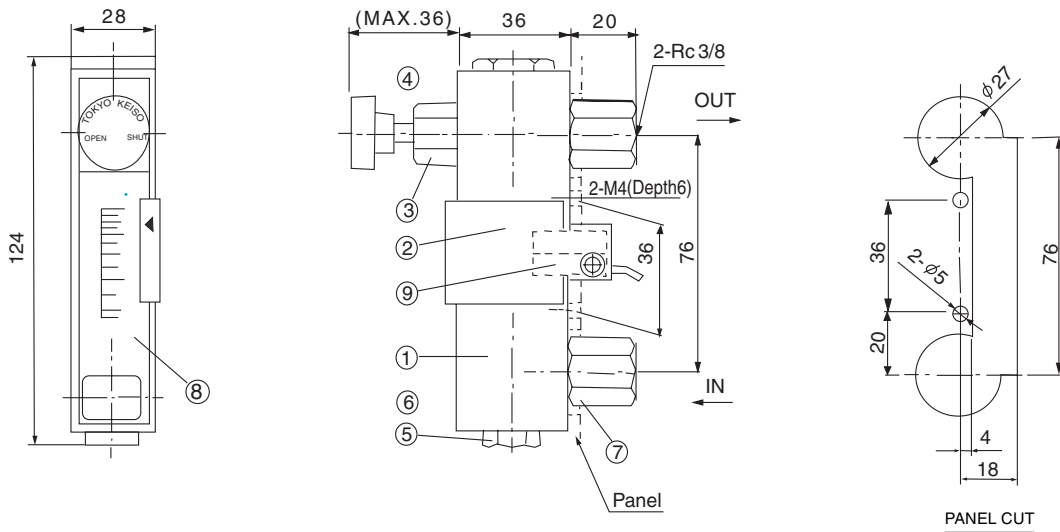
STANDARD TYPE

(P-620-U0-BN-R3 Valve provided at Outlet, Panel front screw fixing)



P-620-U□-□□-R3

Dimensions are different in case of the flow range of 0.1~1L/min.
Consult factory for details.



Caution) Use non-magnetize material for mounting panel.

Standard Material

Parts name	Standard material	Available material
Body, tapered tube	Acryl	—
Packing	NBR	FPM, CR
Float	SUS304	SUS316
Cap	C3604	SUS304, SUS316
Valve body	C3604	SUS304, SUS316
Valve needle	SUS304	SUS316
Fitting	C3604	SUS304, SUS316
Graduation board	Acryl	—

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

In case alarm output code is A to D

A	Reed switch alarm (LO)	Refer to page 52, 53
B	Reed switch alarm (LC)	
C	Reed switch alarm (HO)	
D	Reed switch alarm (HC)	

P-710

GENERAL

Purgemeter made of all fluorocarbon resin. Suitable for various corrosive solutions. Lightweight and extra-compact.

MAJOR APPLICATIONS

General purpose (Small flow rate)

STANDARD SPECIFICATION

Measuring object		Liquids and gases	
Measuring range	Water	Min. 3~30 mL/min. Max. 0.4~2 L/min.	Select P-772 for large flow type
	Air	Min. 50~500 mL/min(nor). Max. 2~20 L/min(nor).	<ul style="list-style-type: none"> Air at 0°C, 0MPa (1atm) When selecting flow range, refer to standard flow rate table. In case Op. Press. of gas is not 0MPa, refer to page 1.
Range ability	10:1		
Accuracy	±5%F.S.		
Max. Op. Press.	0.5MPa		
Max. Op. Temp.	70°C		
Material	Std.	Option (Specify by model code)	
	Body	ETFE	PFA(Connection type T)
	Tapered tube	Heat-resistant glass	PCTFE*
	Packing	PTFE	
	Support	Poly-ascethal	PPS is available as option
Cover	Poly-carbonate		
Connection	Std.	Rc1/8	Refer to Basic model code for details.
	Opt.	Tube connection OD=6.35mm 6mm, 8mm (Specify the tube length)	
Mounting	Std.	Thread mount onto panel front or panel-rear installation,	Refer to ordering information for details.
	Opt.		
MASS (std. type)	0.1 kg		

* Consult factory for details.

ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	54 page
	CE, UL Version	
PAU Optical alarm unit	○	54 page
Optical alarm unit	○	55 page

STANDARD FLOW RATE TABLE

(In case Op. Press at gas is not 0MPa, refer to page 1.)

AIR(0MPa, 0°C)	Water
	3 ~ 30 mL/min (Water)
50 ~ 500 mL/min(nor)	5 ~ 50 mL/min
0.1 ~ 1 L/min(nor)	10 ~ 100 mL/min
0.2 ~ 2 L/min(nor)	20 ~ 200 mL/min
0.3 ~ 3 L/min(nor)	30 ~ 300 mL/min
0.5 ~ 5 L/min(nor)	50 ~ 500 mL/min
1 ~ 10 L/min(nor)	0.1 ~ 1 L/min
2 ~ 20 L/min(nor)	0.12 ~ 1.2 L/min
	0.4 ~ 2 L/min

*The ranges more than or equal to 0.12-1.2L/min of water are applicable only for the models having valve codes 0 and U.

*Standard flow rate of air is applicable only when code G is selected as tapered tube material.

OTHER AVAILABLE OPTIONS

You can specify the following options:

Double graduations, special graduations, built-in joint type, etc. (For details, refer to ⑥ [Other Option] on page 59).



BASIC MODEL CODE

SERIES NAME	VALVE	ALARM OUTPUT	TAPERED TUBE MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
P-710	0	0	T	F	1			
	0	0	T	F	1	Rc 1/8 (Standard)	Only when connection type code is R	
					A	φ6.35×1t	Only when connection type code is T	
					B	φ6×1t	Only when connection type code is T	
					C	φ8×1t	Only when connection type code is T	
					R	Rc thread (Standard)		
					T	Tube end fitting	Pillar fitting	
					Z	Special		
					T	PTFE(Standard)	Rubber cushion provided	
					G	Heat-resistant glass(Standard)		
					T	PCTFE	Alarm output can not be selected.	
		0				Not provided		
		E				PAU ALARM UNIT provided	Refer to page 54.	
		F				Separate type Optical alarm unit	Refer to page 55.	
		Z				Special		
		0				Not provided		
		L				Bottom	Refer to valve position selection guide (Page 60).	
		U				Top		
		Z				Special		

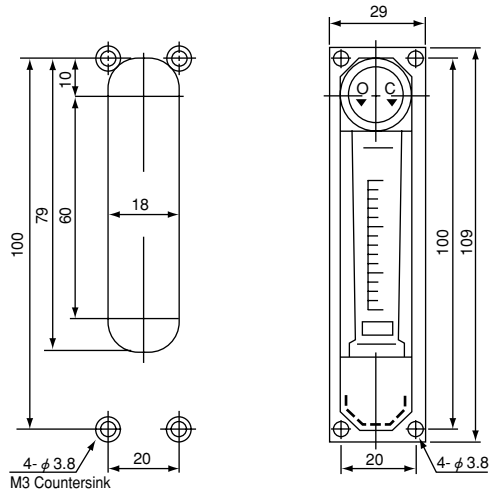
ORDERING INFORMATION

Basic model code	Designation items for detailed specifications					
P-710-□□-□□-□□	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 56)					

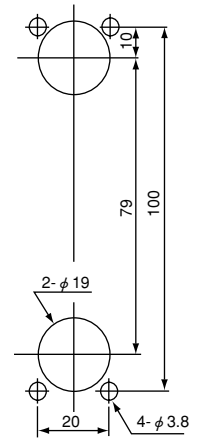
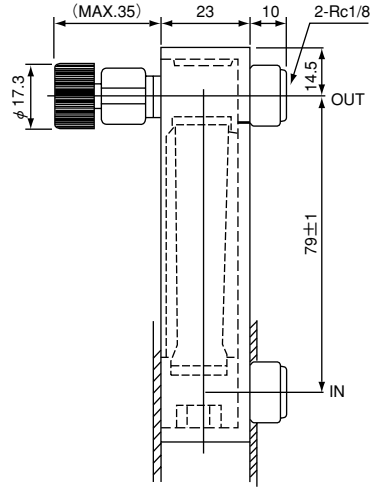
DIMENSIONS

● STANDARD TYPE

(P-710-U0-GT-R1 Valve provided at Outlet, Panel screw fixing)



Panel front installation



Panel front installation

● Standard Material

Parts name	Standard material	Available material
Support	Poly-acethal	PPS resin
Body	ETFE	PFA(Connection type T)
Tapered tube	Heat-resistant glass	PCTFE
Packing	PTFE	-
Float *1	PTFE, Glass, Ruby	-
Valve body	PCTFE	-
Valve needle	PCTFE	-
Cover	Poly-carbonate	-

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

*1 Proper material to be selected according to the specifications.

● In case alarm output code is E to F

E	PAU ALARM UNIT provided	Refer to page 54.
F	Separate Type Optical alarm unit provided	Refer to page 55.

Alarm output cannot be selected when the tapered tube material is PCTFE.

P-771

GENERAL

All fluorocarbon resin, ultra-clean purgometer.
 Non-use of metallic parts including constructive parts prevents rust generation on the wetted parts, even in the surrounding atmosphere.
 All PFA mold, tube ended connection.
 Best choice for Pure/Ultra pure water process and Chemical injection process in Semi-conductor production facilities.

MAJOR APPLICATIONS

Pure/Ultra pure water lines, chemical injection lines in semi-conductor production process.

STANDARD SPECIFICATION

Measuring object		Liquids	
Measuring range	Water	Min. 3~15 mL/min.	Select P-772 for large flow type
		Max. 0.2~2 L/min.	
Range ability		10:1	10:2 for some ranges
Accuracy		±5%F.S.	
Max. Op. Press.		0.5MPa	
Max. Op. Temp.		60°C	
Material		Std.	Option (Specify by model code)
	Body	PFA	Integral mold
	Tapered tube	PFA	
	Packing	PTFE	Valve provided
	Support	PVC	Valve provided
	Cover	PVC	
Connection	Std.	Tube connection OD:6.35mm, ID:4.35mm	Refer to Basic model code for details.
	Opt.	Tube connection OD:6mm,8mm Thread connection:Rc1/8	
Mounting	Std.	Thread mount onto panel front	Refer to ordering information for details
	Opt.		
MASS (std. type)		0.2 kg	



ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	×
	CE, UL Version	×
PAU Optical alarm unit	○	54 page
Optical alarm unit	×	

STANDARD FLOW RATE TABLE

In case alarm output code is 0, E		In case alarm output code is A to D	
AIR(OMPa, 0°C)	Water	AIR(OMPa, 0°C)	Water
	3~15 mL/min	}	
	2~20 mL/min		
	3~30 mL/min		
	5~50 mL/min		
	10~100 mL/min		
	20~200 mL/min		
	30~300 mL/min		
	50~500 mL/min		
	0.1~1 L/min		
	0.2~2 L/min		

*In case of the density and viscosity other than 1.0g/cm³ / 1.0mPa·S, the flow indication accuracy shall be more than ±8% (F.S.).

OTHER AVAILABLE OPTIONS

You can specify the following options:
 Double graduations, special graduation, etc.
 (For details, refer to ⑥ [Other Option] on page 59).

ORDERING INFORMATION

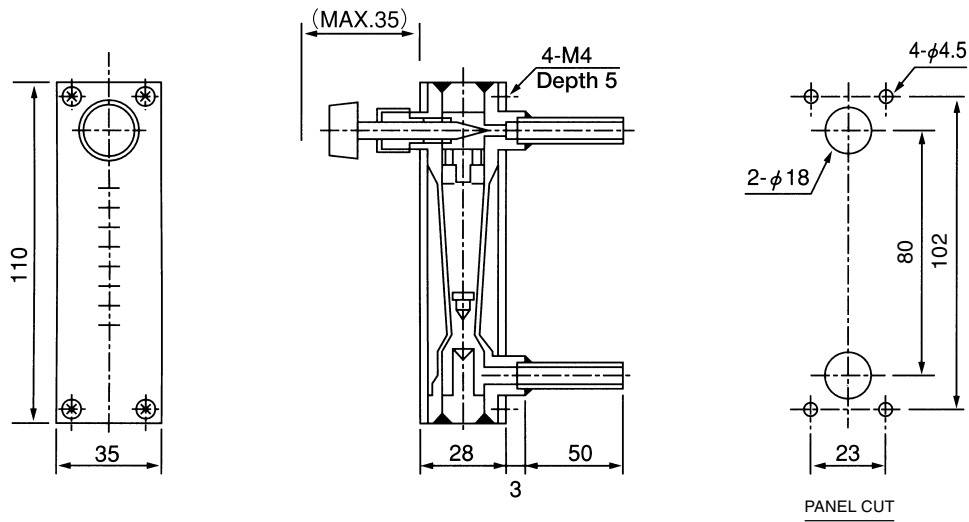
Basic model code	Designation items for detailed specifications					
P-771- □□-□□-□□	①	②	③	④	⑤	⑥
(Use model code table for selection)	Fluid name	Measuring range	Press.	Temp.	Mounting Option	Other Option
	(For specification procedure, refer to page 56)					

BASIC MODEL CODE

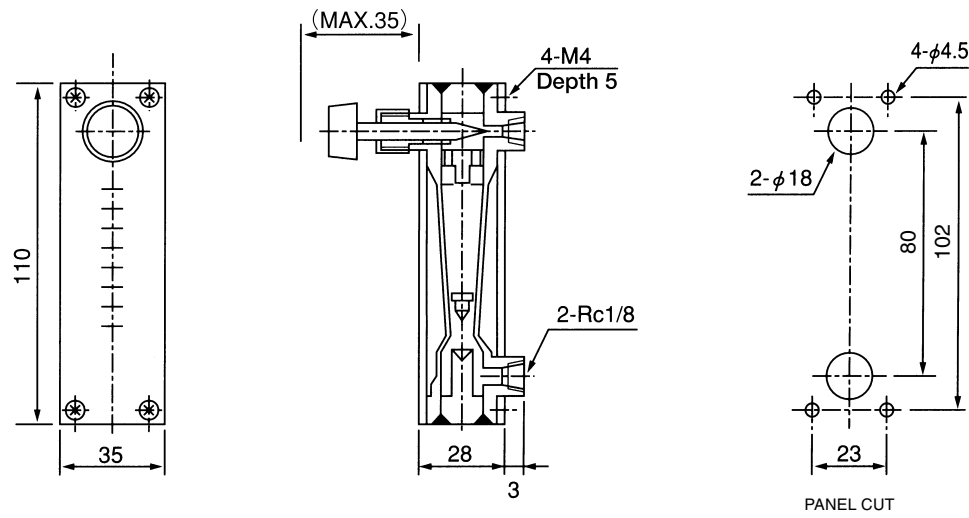
SERIES NAME	VALVE	ALARM OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
P-771	U	0	T	W	T	A		
	U	0	T	W	T	A	φ6.35×1t (Standard)	
						B	φ6×1t	
						C	φ8×1t	
						1	Rc1/8	
						Z	Special	
						T	Tube end fitting (Standard)	
						R	Rc thread	
						Z	Special	
						W	Not provided/Welding construction(Standard)	
						T	PFA(Standard)	Tapered tube material is also PFA.
	Z	Special						
	0	Not provided						
	E	PAU ALARM UNIT provided	Refer to page 54.					
	Z	Special						
	0	Not provided						
	U	Top	Refer to valve position selection guide on page 60.					
	Z	Special						

DIMENSIONS

● P771-U0-TW-TA(Tube end fitting)



● P-771-U0-TW-R1(Rc1/8 fitting)



● Standard Material

Parts name	Standard material	Available material
Body, tapered tube	PFA integral mold	—
Float	PTFE	—
Float stopper	PFA	—
Valve body	PCTFE	—
Valve needle	PCTFE	—
Fitting	PFA	—
Cover	PVC	—
Graduation board	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

E	PAU ALARM UNIT provided	Refer to page 54.
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P-772

GENERAL

Ultra-clean purgemeter made of all fluorocarbon resin. A extra-clean structure is ensured by a fitting directly coupled with tube, similarly to P-771. It is designed in an integral main unit/tapered tube structure, with valve and cap configured in a welded structure. This product provides excellent sealing properties. Compatible with pure water, extra-pure water and chemical solutions to a maximum flow rate of 45L/min.

MAJOR APPLICATIONS

Pure/Ultra pure water lines, chemical injection lines in semi-conductor production process.

STANDARD SPECIFICATION

Measuring object	Liquids		
Measuring range	Water	Min. 0.06-0.6 L/min. Max. 4.5-45 L/min.	
Range ability	10:1		
Accuracy	±5%F.S.		
Max. Op. Press.	0.5MPa		
Max. Op. Temp.	60°C		High.Temp. version up to 90°C available as option. Consult factory.
Material	Std.		Option (Specify by model code)
	Body	PFA	
	Tapered tube	PFA	Integrated mold
	Packing	PTFE	Valve provided
	Support	PVC	
Cover	Transparent PVC		
Connection	Std.	Tube end connection/OD: 19mm, ID: 15.8mm	Refer to Basic model code for details.
	Opt.	Rc1/2, 3/4, NPT1/2, 3/4 etc.	
Mounting	Std.	Thread mount onto panel front	Refer to ordering information for details
	Opt.	Panel-rear installation	
MASS (std. type)	0.8 kg		



ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	52, 53 page
	CE, UL Version	52, 53 page
PAU Optical alarm unit	○	54 page
Optical alarm unit	○	55 page

STANDARD FLOW RATE TABLE

In case alarm output code is 0 and E, F AlR(OMPa, 0°C)	In case alarm output code is A to D				
	Water	Water	Alarm setting range		
	0.06-0.6 L/min				
	0.1-1 L/min				
	0.2-2 L/min				
	0.3-3 L/min			0.3-3 L/min	0.6-2.4 L/min
	0.5-5 L/min			0.5-5 L/min	1-4 L/min
	0.6-6 L/min			0.6-6 L/min	1.2-4.8 L/min
	1-10 L/min			1-10 L/min	2-8 L/min
	1.5-15 L/min			1.5-15 L/min	3-12 L/min
	2-20 L/min			2-20 L/min	4-16 L/min
	3-30 L/min			3-30 L/min	6-24 L/min
	4-40 L/min			4-40 L/min	8-32 L/min
	4.5-45 L/min			4-40 L/min	8-32 L/min

May be different depending on the scale length.

OTHER AVAILABLE OPTIONS

You can specify the following options:
Two point alarm, reed switch lead wire length, double graduations, special graduation, etc.
(For details, refer to ⑥ Other Option on page 59).

ORDERING INFORMATION

Basic model code	Designation items for detailed specifications					
P-772-□□-□-□□	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 56)					

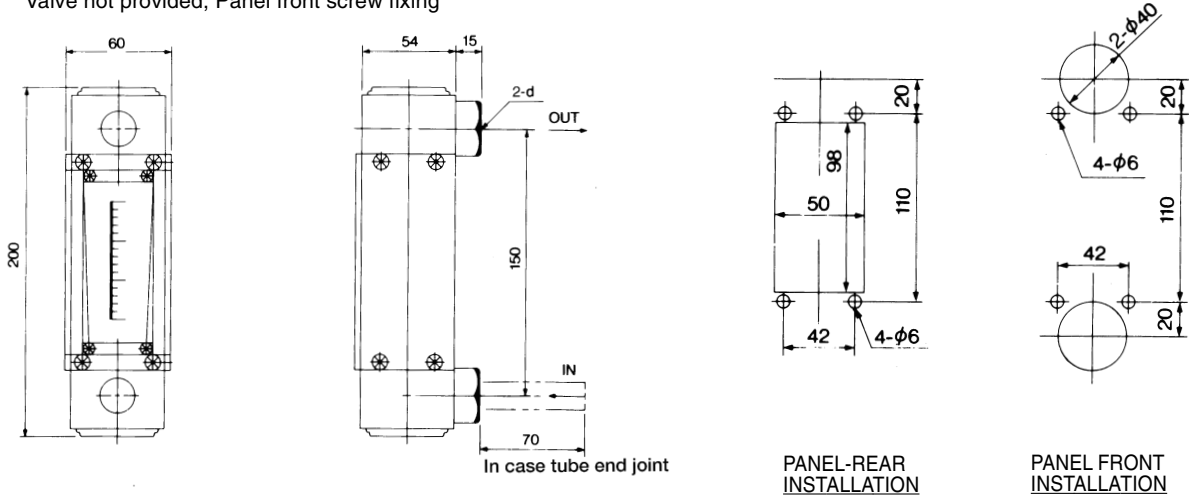
Note: Depending upon the required specifications, Model P772-U with valve falls under goods "Valves or components thereof" listed in (ii)-7 of row 3 of Appended Table 1 of Export Trade Control Order. Contact us for details.

BASIC MODEL CODE

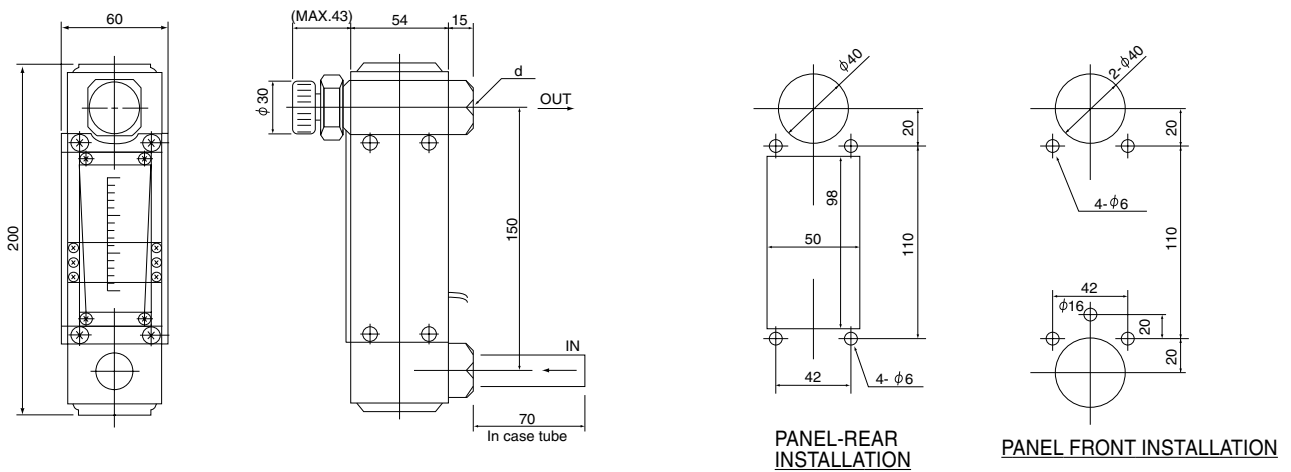
SERIES NAME	VALVE	ALARM OUTPUT	WETTED PARTS MATERIALS	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
P-772	U	0	T	D	φ19 × 1.6t(Standard)		
	U	0	T	D	φ19 × 1.6t(Standard)		
	U	0	T	4	1/2		
	U	0	T	5	3/4		
	U	0	T	Z	Special	φ10/8, 12/10, 12.7/9.5, 19/16, 25/22, 25.4/22.2	
	U	0	T	T	Tube end fitting (Standard)		
	U	0	T	R	Rc thread		
	U	0	T	N	NPT thread		
	U	0	T	Z	Special		
	U	0	T	T	PFA(Standard)		Tapered tube material is also PFA.
	U	0	T	Z	Special		
	U	0	T	0	Not provided		
	U	0	T	A	Reed switch alarm (LO)		Refer to page 52, 53
	U	0	T	B	Reed switch alarm (LC)		
	U	0	T	C	Reed switch alarm (HO)		
	U	0	T	D	Reed switch alarm (HC)		
	U	0	T	E	PAU ALARM UNIT provided		Refer to page 54.
	U	0	T	F	Separate type Optical alarm unit provided		Refer to page 55.
	U	0	T	Z	Special		
	U	0	T	0	Not provided		
	U	0	T	U	Top		Refer to valve position selection guide in page 60.
	U	0	T	Z	Special		

DIMENSIONS

- P-772-00-T-□□, Valve not provided, Panel front screw fixing



- P-772-UA-T-□□



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

● Standard Material

Parts name	Standard material	Available material
Body, tapered tube	PFA integrated mold	—
Float	PTFE	—
Float stopper	PFA	—
Valve body	PCTFE	—
Valve needle	PCTFE	—
Graduation board	Transparent PVC	—
Support board	PVC	—
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 A to D

A	Reed switch alarm (LO)	Refer to page 52, 53
B	Reed switch alarm (LC)	
C	Reed switch alarm (HO)	
D	Reed switch alarm (HC)	

● In case alarm output code is E to F

E	PAU ALARM UNIT provided	Refer to page 54.
F	Separate Type Optical alarm unit provided	Refer to page 55.

P-773

■ GENERAL

P-773 is integrated PFA molded body purgometer. All sealing parts are fusing construction without mechanical sealing such as O rings for perfect sealing capability. Float rod is also eliminated to meet higher clean technology requirements. Compact design with 115mm C/C dimension for easy assembling onto various types of devices.

■ MAJOR APPLICATIONS

Pure/Ultra pure water lines, chemical injection lines in semi-conductor production process.

■ STANDARD SPECIFICATION

Measuring object		Liquids	
Measuring range	Water	Min. 0.1~1 L/min.	
		Max. 1~10 L/min.	
Range ability		10:1	
Accuracy		±5% F.S.	
Max. Op. Press.		0.5MPa	
Max. Op. Temp.		60°C	
Material	Std.		Option (Specify by model code)
	Body	PFA	
	Tapered tube	PFA	Integrated mold
	Packing	PTFE	Valve provided
	Support	PVC	
	Cover	Transparent PVC	
Connection	Std.	Tube end connection/OD:3/8"~ (Refer to model code for details)	Refer to Basic model code for details.
	Other	Rc1/4, 3/8, NPT1/4, 3/8 etc.	
Mounting	Std.	Thread mount onto panel front	Refer to ordering information for details
MASS (std. type)		0.6 kg	

■ ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	X
	CE, UL Version	○
PAU Optical alarm unit	○	54 page
Optical alarm unit	○	55 page

■ STANDARD FLOW RATE TABLE

(In case Op. Press of gas is not OMPa, refer to page 1.)

AIR(OMPa,0°C)	In case alarm output code is 0 and E,F		In case alarm output code is A to D	
	Water	Water	Alarm setting range	
0.1 ~ 1 L/min				
0.2 ~ 2 L/min		0.2 ~ 2 L/min	0.4 ~ 1.6 L/min	
0.3 ~ 3 L/min		0.3 ~ 3 L/min	1 ~ 2.4 L/min	
0.5 ~ 5 L/min		0.5 ~ 5 L/min	1 ~ 4 L/min	
1 ~ 10 L/min		1 ~ 10 L/min	2 ~ 8 L/min	

May be different depending on the scale length.

■ OTHER AVAILABLE OPTIONS

You can specify the following options:
 Reed switch lead wire length, double graduations, special graduation, etc.
 (For details, refer to ⑥ Other Option on page 59).



■ BASIC MODEL CODE

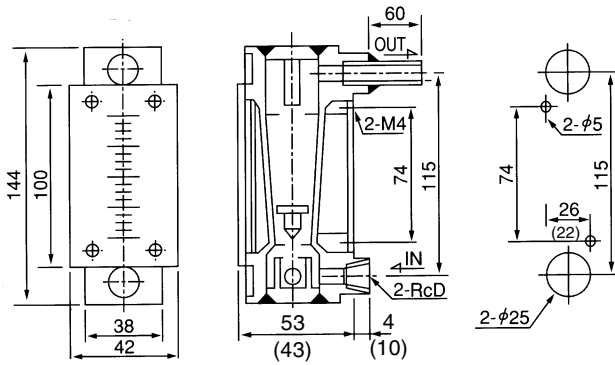
SERIES/NAME	VALVE	ALARM OUTPUT	FLOW RANGE	CONNECTION TYPE	EXAMPLE	
					DESCRIPTION	
P-773	U VALVE	0 ALARM OUTPUT	A FLOW RANGE	5 CONNECTION TYPE		
					1 Rc1/4	
					2 Rc3/8	
					3 NPT1/4	
					4 NPT3/8	
					5 Tube end fitting(3/8"×t1.59)	
					6 Tube end fitting(1/2"×t1.59)	
					7 Tube end fitting(φ8×t1.0)	
					8 Tube end fitting(φ10×t1.0)	
					9 Tube end fitting(φ12×t1.0)	
					Z Special	
				A	0.1~1 L/min	In case alarm output is 0, selection is possible.
				B	0.2~2 L/min	In case alarm output is 0, selection is possible.
				1	0.3~3 L/min	
				2	0.5~5 L/min	
				3	1~10 L/min	
				Z	Other special	
				0	Not provided	
				A	Reed switch alarm (LO)	Refer to page 52, 53
				B	Reed switch alarm (LC)	
				C	Reed switch alarm (HO)	
				D	Reed switch alarm (HC)	
				E	PAU ALARM UNIT provided	Refer to page 54.
				F	Separate type Optical alarm unit provided	Refer to page 55.
				Z	Special	
				0	Not provided	
				U	Top	Refer to valve position selection guide on page 60.
				Z	Special	

■ ORDERING INFORMATION

Basic model code	Designation items for detailed specifications					
P-773-□-□□□	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 56)					

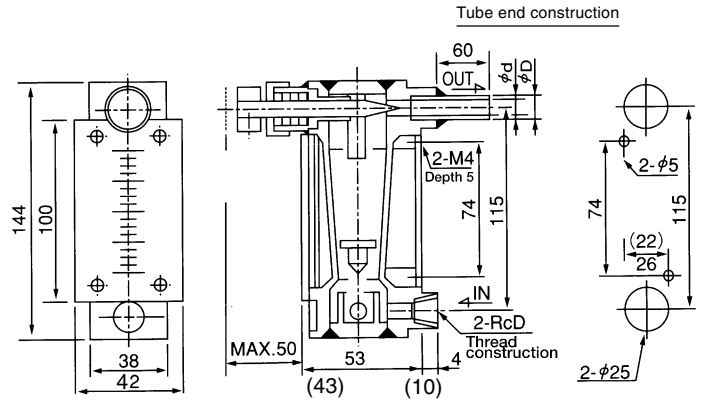
DIMENSIONS

● P-773-0-□□□, Valve not provided



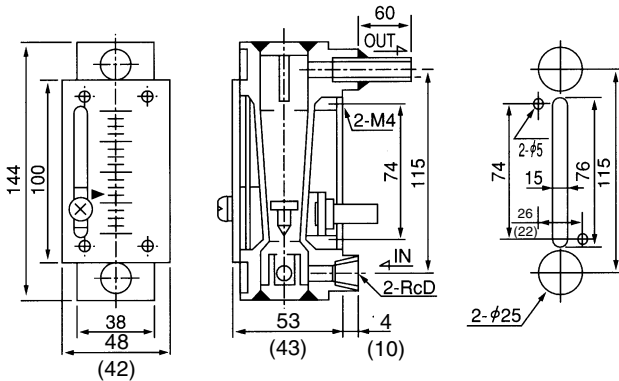
() for 3L/min. or less.

● P-773-U-□□□, Valve provided



() for 3L/min. or less.

● P-773-0-□□□, EN version alarm contact provided



() for 3L/min. or less.

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

Standard Material

Parts name	Standard material	Available material
Body, tapered tube	PFA integrated mold	-
Float	PTFE	-
Float stopper	PFA	-
Valve body	PCTFE	-
Valve needle	PCTFE	-
Graduation board	Transparent PVC	-
Support board	PVC	-
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 A to D

A	Reed switch alarm (LO)	Refer to page 52, 53
B	Reed switch alarm (LC)	
C	Reed switch alarm (HO)	
D	Reed switch alarm (HC)	

● In case alarm output code is E to F

E	PAU ALARM UNIT provided	Refer to page 54.
F	Separate type Optical alarm unit provided	Refer to page 55.

P-774

GENERAL

P-774 model is a new asset to fully fluorocarbon resin purgometer series of Tokyo Keiso Co.,Ltd., having 100mm installation dimension. Cleanliness is ensured by a PFA molded body integrally built with the fitting and the sealing section of welded structure.

MAJOR APPLICATIONS

Pure/Ultra pure water lines, chemical injection lines in semi-conductor production process.

STANDARD SPECIFICATION

Measuring object	Liquids	
Measuring range	Water Min. 0.1~1 L/min. Max. 0.7~7 L/min.	Select P-772 and P-773 for large flow type.
Range ability	10:1	
Accuracy	±5%F.S.	
Max. Op. Press.	0.5MPa	
Max. Op. Temp.	60°C	
Material	Std.	
Body	PFA	Integrated mold
Tapered tube	PFA	
Sealing	PTFE	Valve provided
Support	PVC	
Cover	PVC	
Connection	Std. Opt.	φ10 Pillar fitting (Super fitting) Refer to Basic model code for details.
Mounting	Std. Opt.	Thread mount onto panel front Refer to ordering information for details
MASS (std. type)	0.5kg	

ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	X
	CE, UL Version	○
PAU Optical alarm unit	○	52, 53 page
Optical alarm unit	○	54 page
	○	55 page

STANDARD FLOW RATE TABLE

In case alarm output code is 0 and E,F AIR(OMPa, 0°C)	In case alarm output code is A to D		
	Water	Water	Alarm setting range
/	0.1~1 L/min		
	0.2~2 L/min		
	0.3~3 L/min	0.3~3 L/min	0.6~2.4 L/min
	0.5~5 L/min	0.5~5 L/min	1.0~4.0 L/min
	0.6~6 L/min	0.6~6 L/min	1.2~4.8 L/min
	0.7~7 L/min	0.7~7 L/min	1.4~5.6 L/min

May be different depending on the scale length.

OTHER AVAILABLE OPTIONS

You can specify the following options:
Alarm setting on the front face, reed switch lead wire length, double graduations, special graduation, etc.
(For details, refer to ⑥ [Other Option] on page 59).



BASIC MODEL CODE

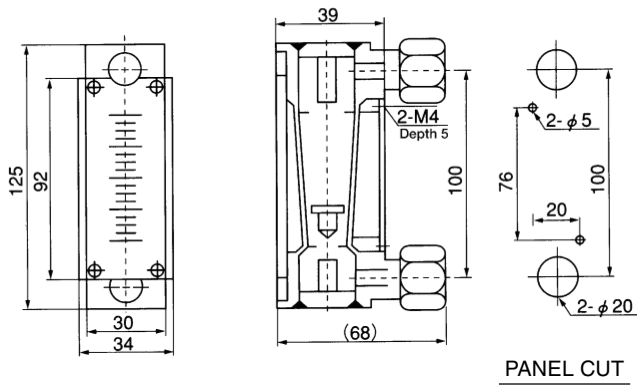
SERIES NAME	VALVE	ALARM OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	DESCRIPTION
P-774	U	0	T	W	P	EXAMPLE
	U	0	T	W	P	Tube end fitting(Standard) Pillar fitting
				Z	Z	Special
			W			Not provided/Welded construction(Standard)
			Z			Special
			T			PFA(Standard) Temperd tube material is also PFA.
			Z			Special
		0				Not provided
		A				Reed switch alarm (LO)
		B				Reed switch alarm (LC)
		C				Reed switch alarm (HO)
		D				Reed switch alarm (HC)
		E				PAU ALARM UNIT provided Refer to page 54.
		F				Separate type Optical alarm unit provided Refer to page 55.
		Z				Special
		0				Not provided
	U					Top Refer to valve position selection guide on page 60.
	Z					Special

ORDERING INFORMATION

Basic model code	Designation items for detailed specifications					
P-774- □□-□□-□	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 56)					

DIMENSIONS

- P-774-00-TW-P, No valve and output provided version



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

● Standard Material

Parts name	Standard material	Available material
Body, tapered tube	PFA integrated mold	—
Float	PTFE	—
Float stopper	PFA	—
Valve body	PCTFE	—
Valve needle	PCTFE	—
Graduation board	Transparent PVC	—
Support board	PVC	—

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

● In case alarm output code is A to D

A	Reed switch alarm (LO)	Refer to page 52, 53
B	Reed switch alarm (LC)	
C	Reed switch alarm (HO)	
D	Reed switch alarm (HC)	

● In case alarm output code is E to F

E	PAU ALARM UNIT provided	Refer to page 54.
F	Separate type Optical alarm unit provided	Refer to page 55.

P-810

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 equipment process

STANDARD SPECIFICATION

Measuring object	Liquids and gases			
Measuring range	Air	Min. 5-50 mL/min(nor). Max. 6-60 L/min(nor).	<ul style="list-style-type: none"> Air at 0°C, OMPa (1atm) When selecting flow range, refer to standard flow rate table. In case Op. Press of gas is not OMPa, 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.	0.8MPa			
Max. Op. Temp.	120°C			
Material	Std.	Option (Specify by model code)	In case FPM seal	
	Body	SCS14		SUS316 (SUS316L is also available. Consult factory)
	Tapered tube	Heat-resistant glass		
	Packing	FPM(max.120°C)		CR(max.80°C)
	Support	SUS304		
	Cover	Transparent PVC		
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	Refer to ordering information for details.	
	Opt.	front Bezel installation,		
MASS (std. type)	0.6 kg(P-813)			

ALARM OUTPUT

Type	Availability		Reference pages
	P-812	P-813	
Reed switch type alarm unit	General	×	54 page
	CE, UL Version	×	
PAU Optical alarm unit	○	○	54 page
Optical alarm unit	×	×	

P-812 / STANDARD FLOW RATE TABLE

(In case Op. Press of gas is not OMPa, refer to page 1.)

In case alarm output code is O, E		
AIR(OMPa, 0°C)	Water	
10-50 mL/min(nor)		
20-100 mL/min(nor)		
40-200 mL/min(nor)		
60-300 mL/min(nor)		
50-500 mL/min(nor) ^{†1}		
0.1-1 L/min(nor)	5-50 mL/min	
0.2-2 L/min(nor)	10-100 mL/min	
0.3-3 L/min(nor)	20-200 mL/min	
0.5-5 L/min(nor)	30-300 mL/min	
1-10 L/min(nor)	50-500 mL/min	
2-20 L/min(nor)	0.1-1 L/min ^{†3}	
3-30 L/min(nor) ^{†2}		
10-50 L/min(nor)		
12-60 L/min(nor)	0.3-1.5 L/min	
	0.4-2 L/min	

^{†1} 10:2 if range is less than 500 mL/min (nor).

^{†2} 10:2 if range is more than 30 L/min (nor).

^{†3} 10:2 if range is more than 1 L/min (nor).

OTHER AVAILABLE OPTIONS

You can specify the following options:

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 59).

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 56)					



P-813 / STANDARD FLOW RATE TABLE

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

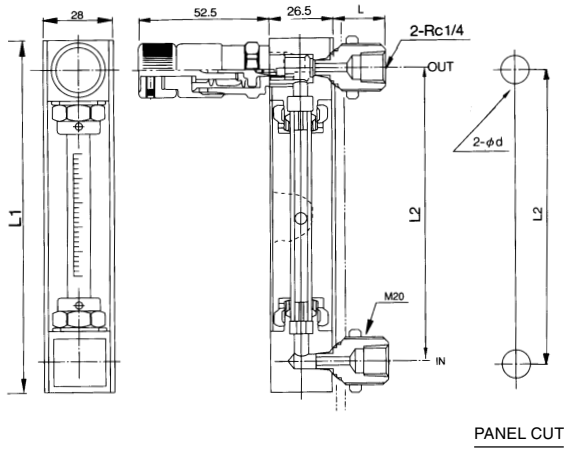
In case alarm output code is 0 and E		
AIR(OMPa, 0°C)	Water	
5-50 mL/min(nor)		
10-100 mL/min(nor)		
20-200 mL/min(nor)		
30-300 mL/min(nor)		
50-500 mL/min(nor)		
0.1-1 L/min(nor)	5-50 mL/min	
0.2-2 L/min(nor)	10-100 mL/min	
0.3-3 L/min(nor)	20-200 mL/min	
0.5-5 L/min(nor)	30-300 mL/min	
1-10 L/min(nor)	50-500 mL/min	
2-20 L/min(nor)	0.1-1 L/min	
3-30 L/min(nor)		
5-50 L/min(nor)		
6-60 L/min(nor)	0.15-1.5 L/min	
	0.2-2 L/min	

BASIC MODEL CODE

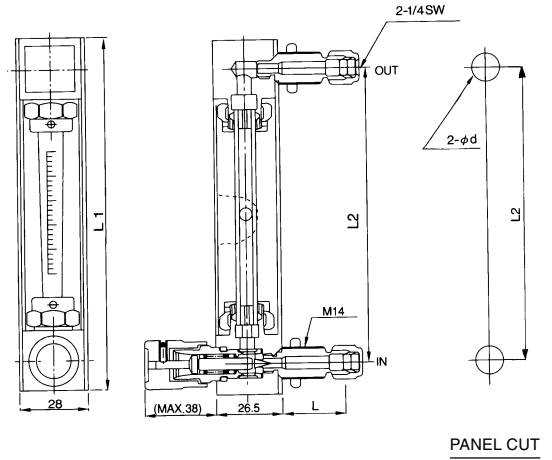
SERIES NAME	L DIMENSION	VALVE	ALARM OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION	
P-81	2	-3	0	-6	L	R	1	R	1/8		Only connection type code R and N can be selected.	
							2	N	1/4 (Standard)		Bezel installation is also possible. Refer to Mounting Option in page 58 for details.	
							3	S	3/8			Only connection type code S and V can be selected.
							Z	V	Special			
								Z	Special.			
						F		F	FPM(Standard)		Select it for ammonia gas.	
						C		C	CR			
						Z		Z	Special			
						6		E	SCS14 (Standard)		High quality type	
						E		Z	SUS316/EP polished			
						Z		0	Special			
						0		E	Not provided		Refer to page 54.	
						E		Z	PAU ALARM UNIT provided			
						Z		0	Special			
						0		1	Not provided			
						1		2	Bellows valve provided at outlet (High grade valve)		Refer to valve position selection guide (Page 60).	
						2		3	Bellows valve provided at inlet (High grade valve)			
						3		4	Needle valve provided at outlet			
						4		Z	Needle valve provided at inlet			
						Z			Special			
						2		2	145mm		Beware, as standard flow rate is different depending on this code.	
						3		3	224mm			
						9		9	Special			

DIMENSIONS

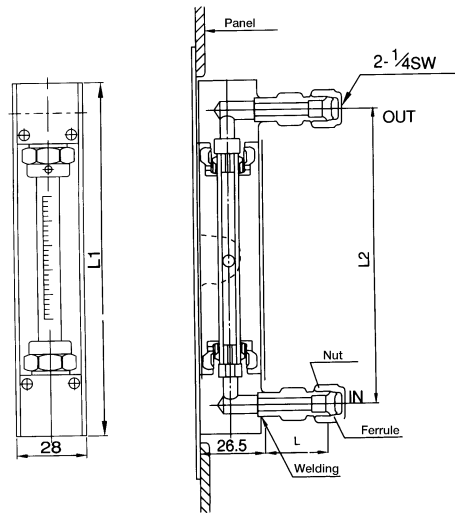
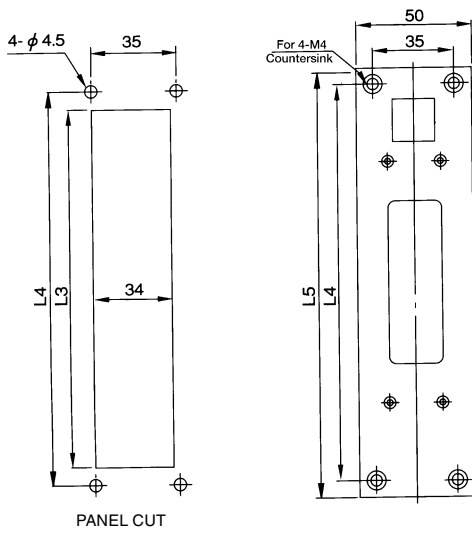
- STANDARD TYPE (Rc 1/4 conn. Bellows valve provided)
(P-81□-10-6F-R2 Valve provided at Outlet, Panel front lock-nut fixing)



- 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

● Standard Material

Parts name	Standard material	Available material
Body	SCS14	SUS316, SUS316L
Tapered tube	Heat-resistant glass	—
Float *1	SUS316, Glass, Ruby	—
Packing	FPM	CR
Sealing press	SUS316	—
Fitting	SUS316	—
Valve	SUS316	—
Mounting board	SUS304	—
Cover	Transparent PVC	—

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

*1 Proper material to be selected according to the specifications.

PANEL CUT SIZE

Connection size	Hole dia(d)(mm)	Rear length 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)

- In case alarm output code is E

E	PAU ALARM UNIT provided	Refer to page 54.
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P-820

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 equipment

STANDARD SPECIFICATION

Measuring object		Liquids and gases	
Measuring range	Air	Min. 4~20 mL/min(nor). Max. 12~60 L/min(nor).	· Air at 0°C, OMPa (1atm) · When selecting flow range, refer to standard flow rate table. · In case Op. Press of gas body is not 1atm, refer to page 1.
	Water	Min. 5~50 mL/min. Max. 0.2~2 L/min.	
Range ability	10:1	10:2 for some ranges	
Accuracy	P-823: ±3%F.S. P-821: ±5%F.S.		
Max. Op. Press.	0.8MPa		
Max. Op. Temp.	120°C		
Material	Std.	Option (Specify by model code)	
	Body	SUS316 (SUS316L is also available. Consult factory)	
	Tapered tube	Heat-resistant glass	
	Packing	FPM(max.120°C)	
	Support	SPCC	
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,	
MASS (std. type)	0.6 kg(P-821)		

ALARM OUTPUT

Type	Availability		Reference pages
	P-821	P-823	
Reed switch type alarm unit	General	○	52, 53 page
	CE, UL Version	○	52, 53 page
PAU Optical alarm unit	○	○	54 page

P-821 / STANDARD FLOW RATE TABLE

(In case Op. Press of gas is not OMPa, refer to page 1.)

In case alarm output code is O, E		In case alarm output code is A to D			
AIR(OMPa,0°C)	Water	AIR(OMPa,0°C)	Alarm setting range	Water	Alarm setting range
4-20 mL/min(nor)					
6-30 mL/min(nor)					
10-50 mL/min(nor)					
10-100 mL/min(nor) ^{†1}					
20-200 mL/min(nor)					
30-300 mL/min(nor)					
50-500 mL/min(nor)					
0.1-1 L/min(nor)	5-50 mL/min	30-500 mL/min(nor)	100-400 mL/min(nor)	5-50 mL/min	10-40 mL/min
0.2-2 L/min(nor)	10-100 mL/min	0.1-1 L/min(nor)	0.2-0.8 L/min(nor)	10-100 mL/min	20-80 mL/min
0.3-3 L/min(nor)	20-200 mL/min	0.2-2 L/min(nor)	0.4-1.6 L/min(nor)	20-200 mL/min	40-160 mL/min
0.5-5 L/min(nor)	30-300 mL/min	0.3-3 L/min(nor)	0.6-2.4 L/min(nor)	30-300 mL/min	60-240 mL/min
1-10 L/min(nor)	50-500 mL/min	0.5-5 L/min(nor)	0.1-4 L/min(nor)	50-500 mL/min	100-400 mL/min
2-20 L/min(nor)		1-10 L/min(nor) ^{†4}	2-8 L/min(nor)		
3-30 L/min(nor) ^{†2}	0.1-1 L/min	3-15 L/min(nor)	3-12 L/min(nor)	0.1-1 L/min ^{†5}	0.2-0.8 L/min
		4-20 L/min(nor)	4-16 L/min(nor)		
10-50 L/min(nor)	0.3-1.5 L/min ^{†3}	6-30 L/min(nor)	6-24 L/min(nor)		
12-60 L/min(nor)	0.4-2 L/min	10-50 L/min(nor)	10-40 L/min(nor)	0.3-1.5 L/min	0.3-1.2 L/min

May be different depending on the scale length.

- †1 10:2 if range is less than 100 mL/min (nor).
- †2 10:2 if range is more than 30 L/min (nor).
- †3 10:2 if range is more than 1.5 L/min (nor).
- †4 10:2 if range is more than 10 L/min (nor).
- †5 10:2 if range is more than 1 L/min (nor).

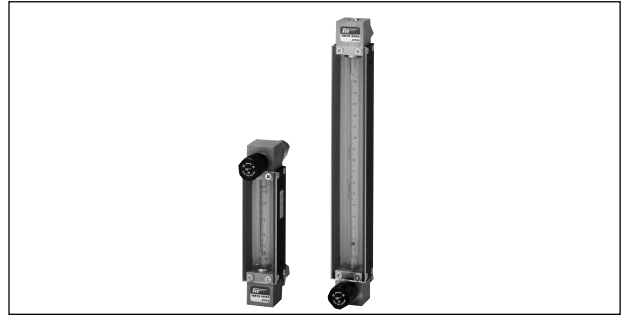
OTHER AVAILABLE OPTIONS

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 59).

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 56)					



P-823 / STANDARD FLOW RATE TABLE

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

In case alarm output code is O and E		In case alarm output code is A to D			
AIR(OMPa,0°C)	Water	AIR(OMPa,0°C)	Alarm setting range	Water	Alarm setting range
5-50 mL/min(nor)					
10-100 mL/min(nor)					
20-200 mL/min(nor)					
30-300 mL/min(nor)					
50-500 mL/min(nor)					
0.1-1 L/min(nor)	5-50 mL/min	50-500 mL/min(nor)	100-400 mL/min(nor)	5-50 mL/min	10-40 mL/min
0.2-2 L/min(nor)	10-100 mL/min	0.1-1 L/min(nor)	0.2-0.8 L/min(nor)	10-100 mL/min	20-80 mL/min
0.3-3 L/min(nor)	20-200 mL/min	0.2-2 L/min(nor)	0.4-1.6 L/min(nor)	20-200 mL/min	40-160 mL/min
0.5-5 L/min(nor)	30-300 mL/min	0.3-3 L/min(nor)	0.6-2.4 L/min(nor)	30-300 mL/min	60-240 mL/min
1-10 L/min(nor)	50-500 mL/min	0.5-5 L/min(nor)	0.1-4 L/min(nor)	50-500 mL/min	100-400 mL/min
2-20 L/min(nor)		1-10 L/min(nor)	2-8 L/min(nor)		
3-30 L/min(nor)	0.1-1 L/min	2-20 L/min(nor)	4-16 L/min(nor)	0.1-1 L/min	0.2-0.8 L/min
		3-30 L/min(nor)	6-24 L/min(nor)		
5-50 L/min(nor)	0.15-1.5 L/min	5-50 L/min(nor)	10-40 L/min(nor)	0.15-1.5 L/min	0.3-1.2 L/min
6-60 L/min(nor)	0.2-2 L/min				

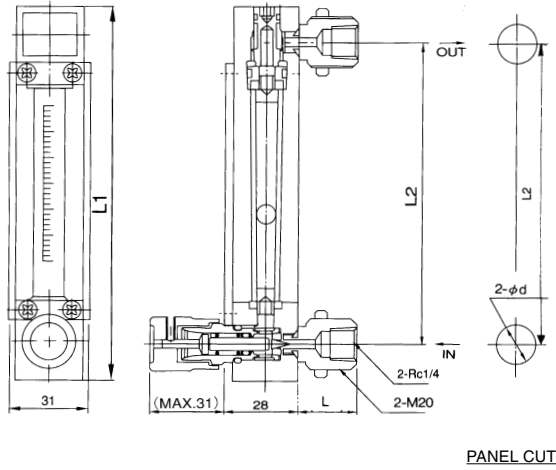
May be different depending on the scale length.

BASIC MODEL CODE

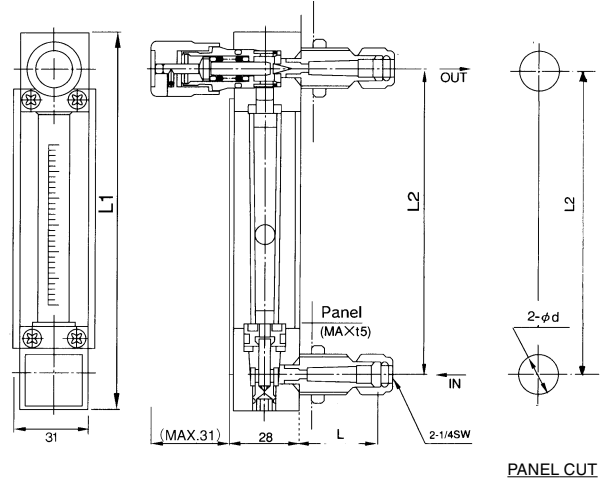
SERIES NAME	L DIMENSION	VALVE	ALARM OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
P-82	1	3	0	6	F	R	2		
		VALVE	ALARM OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE		
							1	1/8	Only connection type code R and N can be 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 58 for details.
						N	NPT thread		
						S	SW		
						V	VCR		
						Z	Special		
					F	FPM(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 52, 53
			B			Reed switch alarm (LC)			
			C			Reed switch alarm (HO)			
			D			Reed switch alarm (HC)			
			E			PAU ALARM UNIT provided			Refer to page 54.
			Z			Special			
			0			Not provided			
			1			Bellows valve provided at outlet (High grade valve)			Refer to valve position selection guide (Page 60).
			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)

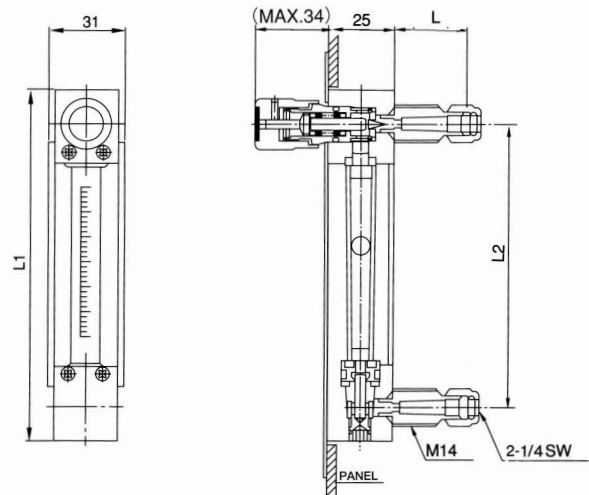
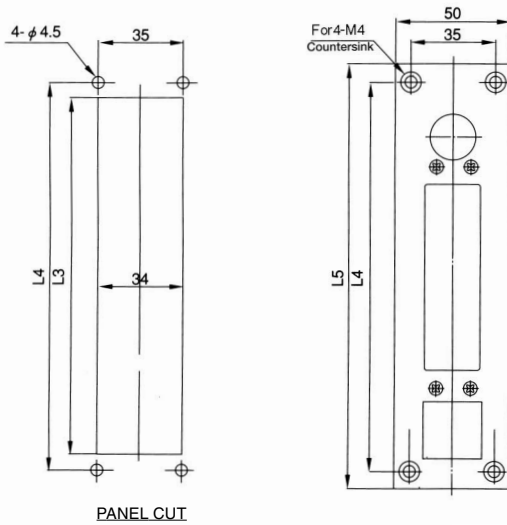


- STANDARD TYPE (SW 1/4 conn. Needle valve provided)
(P-82□-30-6F-S2, Valve provided at Outlet, Panel front lock-nut fixing)



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

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



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	Heat-resistant glass	—
Float *1	SUS316, Glass, Ruby	—
Packing	FPM	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.

*1 Proper material to be selected according to the specifications.

PANEL CUT SIZE

Connection size	Hole dia (d) (mm)	Rear length 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	(31.5)
1/4 VCR	φ 22	(30)
3/8 VCR	φ 32	(35.5)

- In case alarm output code is A to D

A	Reed switch alarm (LO)	Refer to page 52, 53
B	Reed switch alarm (LC)	
C	Reed switch alarm (HO)	
D	Reed switch alarm (HC)	

- In case alarm output code is E

E	PAU ALARM UNIT provided	Refer to page 54.
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P-830

GENERAL

CE marking and compatibility with EN Standards.
Improved by re-examination of conventional purgemeter structure and material, our product ensures a heat resistance of 130°C.

MAJOR APPLICATIONS

Cooling water lines at semiconductor production equipment

STANDARD SPECIFICATION

Measuring object	Liquids		
Measuring range	Water	Min. 0.1~1.0 L/min. Max. 1.5~7 L/min.	
Range ability	10:1	10:2 for some ranges	
Accuracy	±10% F.S.		
Max. Op. Press.	1.0MPa		
Max. Op. Temp.	130°C		
Material	Std.		
	Body	SCS14/SUS304	
	Tapered tube	Heat-resistant glass	
	Packing	FPM	
	Support	Aluminum	
Cover	Acryl		
Connection	Std.	3/8SW	Refer to Basic model code for details.
	Opt.	Rc3/8,NPT3/8 etc.	
Mounting	Std.	Thread mount onto panel front	Refer to ordering information for details.
	MASS (std. type)	0.5 kg	

ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	×
	CE, UL Version	○
PAU Optical alarm unit	×	
Optical alarm unit	×	

STANDARD FLOW RATE TABLE

AIR(OMPa,0°C)	In case alarm output code is 0		In case alarm output code is A to D	
	Water	Water	Water	Alarm setting range
	0.1~1.0 L/min	0.1~1.0 L/min	0.1~0.8 L/min	
	0.4~1.5 L/min	0.4~1.5 L/min	0.4~1.2 L/min	
	0.2~2 L/min	0.2~2 L/min	0.6~1.6 L/min	
	0.3~3 L/min	0.3~3 L/min	0.6~2.4 L/min	
	0.4~4 L/min	0.4~4 L/min	0.8~3.2 L/min	
	0.5~5 L/min	0.5~5 L/min	1~5 L/min	
	1.5~7 L/min	1.5~7 L/min	1.5~7 L/min	

OTHER AVAILABLE OPTIONS

You can specify the following options:
Alarm setting on the front face, reed switch lead wire length, double graduations, special graduation, built-in rubber joint type, built-in joint type, etc.
(For details, refer to ⑥ Other Option on page 59).

ORDERING INFORMATION

Basic model code	Designation items for detailed specifications					
P-831-□□-□□-□□	① Fluid name	② Measuring range	③ Press.	④ Temp.	⑤ Mounting Option	⑥ Other Option
(Use model code table for selection)	(For specification procedure, refer to page 56)					

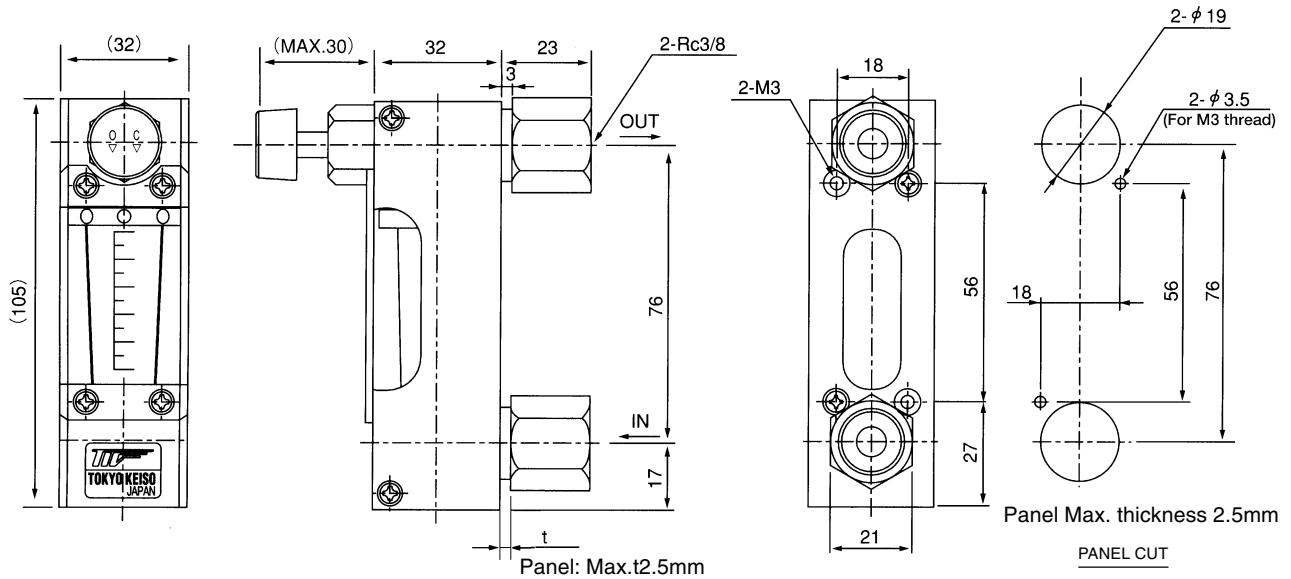


BASIC MODEL CODE

SERIES NAME	VALVE	ALARM OUTPUT	WETTED PARTS MATERIALS	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
P-831	U	A	6	F	S	3		
	U	A	6	F	S	3		
						3	3/8	
						Z	Special	
					F		Rc thread	
					N		NPT thread	
					S		SW(Standard)	
					Z		Special	
			6				SCS14/SUS304	
		0					Not provided	
		A					Reed switch alarm (LO)	Refer to page 52, 53
		B					Reed switch alarm (LC)	
		C					Reed switch alarm (HO)	
		D					Reed switch alarm (HC)	
		Z					Special	
		0					Not provided	
		U					Top	
		Z					Special	

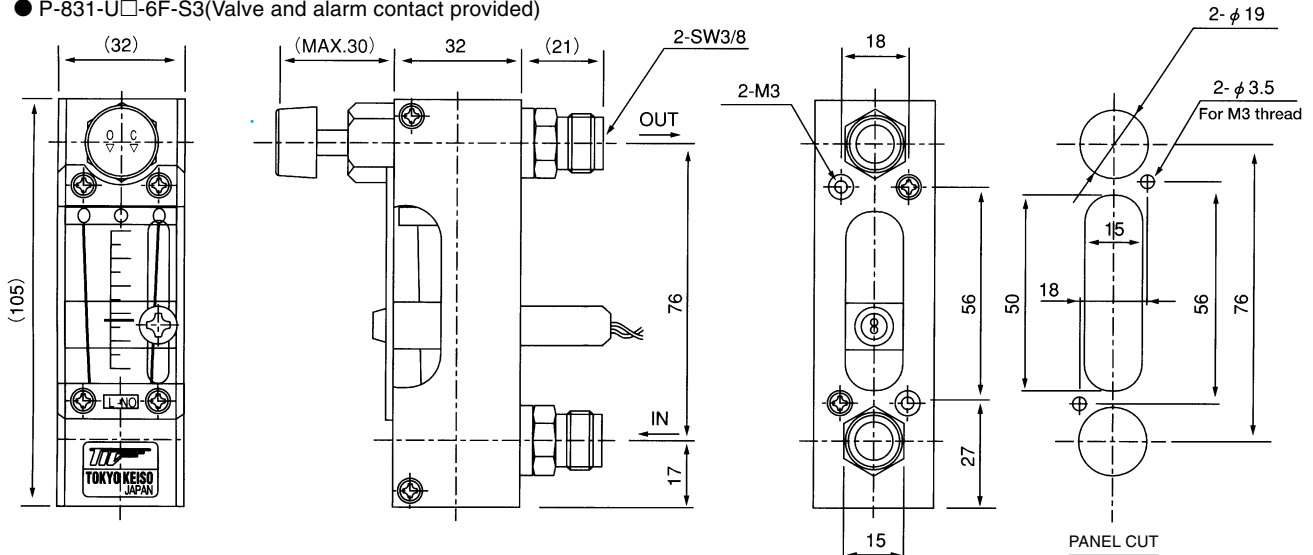
DIMENSIONS

● P-831-U□-6F-R3 (Valve provided)



Caution) Remove joint once before panel installation.

● P-831-U□-6F-S3 (Valve and alarm contact provided)



Caution) Use nonferrous material panel.

● Standard Material

Parts name	Standard material	Available material
Body	SCS14	—
Tapered tube	Heat-resistant glass	—
Float	SUS316	—
Float rod	SUS316	—
O-ring	FPM	—
Valve	SUS304	SUS316
Fitting	SUS304	SUS316
Mounting board	Aluminum	—
Cover	Transparent Acryl	—

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

● In case alarm output code is A to D

A	Reed switch alarm (LO)	Refer to page 52, 53
B	Reed switch alarm (LC)	
C	Reed switch alarm (HO)	
D	Reed switch alarm (HC)	

P-900

GENERAL

Smart designed purgemeter with all stainless steel body. Unified material achieves effective price and quick delivery.

MAJOR APPLICATIONS

Corrosion resistant equipment

STANDARD SPECIFICATION

Measuring object		Liquids and gases	
Measuring range	Air	Min. 80-800 mL /min(nor). Max. 6-60 L/min(nor).	<ul style="list-style-type: none"> Air at 0°C, 0MPa (1atm) When selecting flow range, refer to standard flow rate table. In case Op. Press of gas is not 0MPa, refer to page 1.
	Water	Min. 5-50 mL/min. Max. 0.25-2.5 L/min.	
Range ability		10:1	
Accuracy		P-902: ±3%F.S. P-901: ±5%F.S.	
Max. Op. Press.		0.8MPa	
Max. Op. Temp.		120°C	
Material		Std.	Option (Specify by model code)
Body		SUS304	SUS316 is also available
Tapered tube		Heat-resistant glass	
Packing		FPM	
Support		SUS304	
Cover		Poly-carbonate	
Connection	Std.	Rc1/4	Refer to ordering information for details.
	Opt.	1/4NPT	
Mounting	Std.	Thread mount onto panel front	Refer to ordering information for details.
	Opt.		
MASS (std. type)		0.5 kg(P-901)	

ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	×
	CE, UL Version	×
PAU Optical alarm unit	×	
Optical alarm unit	×	

STANDARD FLOW RATE TABLE

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

In case alarm output code is 0		
AIR(0MPa,0°C)	Water	
80-800 mL/min(nor)	5-50 mL/min	
0.1-1 L/min(nor)	10-100 mL/min	
0.2-2 L/min(nor)	20-200 mL/min	
0.3-3 L/min(nor)	30-300 mL/min	
0.5-5 L/min(nor)	50-500 mL/min	
1-10 L/min(nor)	0.1-1 L/min	
2-20 L/min(nor)	0.15-1.5 L/min	
3-30 L/min(nor)	0.2-2 L/min	
5-50 L/min(nor)	0.25-2.5 L/min	

OTHER AVAILABLE OPTIONS

You can specify the following options:

Double graduations, special graduations, built-in rubber joint type, built-in joint type, etc.

(For details, refer to (6) Other Option on page 59).

DIMENSION TABLE

Model	Dimension (mm)	
	L1	L2
P-901	146	114
P-902	256	224

Standard Material

Parts name	Standard material	Available material
Body	SUS304	SUS316
Tapered tube	Heat-resistant glass	
Float *1	SUS316, Glass, Ruby	—
Packing	FPM	CR
Valve	SUS316	—
Mounting board	SUS304	—
Cover	Poly-carbonate	

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

*1 Proper material to be selected according to the specifications.



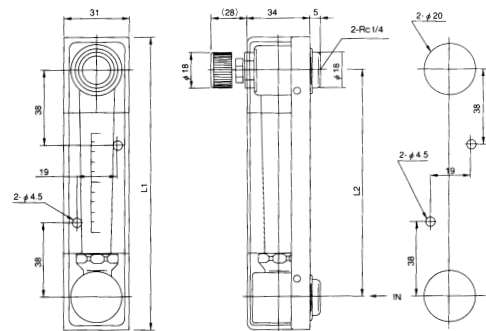
BASIC MODEL CODE

SERIES NAME	VALVE	ALARM OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
P-90	1	-	0	-	R	1/4		
					N	Special		
					Z	Special		
					F	Special		
					Z	Special		
					4	SUS304 (Standard)	Only connection type code R can be selected	
					6	SUS316	Only connection type code N can be selected	
					Z	Special		
					0	Not provided		
					Z	Special		
					0	Not provided		
					L	Bottom (gas for atmospheric pressure scale)	Refer to valve position selection guide (Page 60).	
					U	Top (gas for pressure scale or for negative pressure on the secondary side)		
					Z	Special		
	1					114mm		
	2					224mm		
	9					Special		

DIMENSIONS

STANDARD TYPE

(P-90□-U0-4F-R2)



PANEL CUT

ORDERING INFORMATION

Basic model code	Designation items for detailed specifications					
P-90 □-□□-□□-□□	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 56)					

P-010

GENERAL

P-010 series of flowmeter is the updated version of P-100 series which has been appreciated by many customers. By limiting the measuring fluids to water, air and nitrogen, this lot production flowmeter is suitable for your ordering of more than 10 units with same specifications. The inscription of graduation by the laser on the convex surface makes reading easier.

MAJOR APPLICATIONS

General purpose (for small flow rate, Water lines and Air / Nitrogen lines)

STANDARD SPECIFICATION

Measuring object		Liquid (Water <Density 1.0g/cm ³ and Viscosity 1.0mPas>) Gas (Air / Nitrogen : 0°C, 0 MPa)	
Scale range	Water	Min. range: 5-50mL/min Max. range: 0.4-2L/min	· Gas at 0°C, 0 MPa · When selecting flow rate, refer to model code.
	Gas (Air/Nitrogen)	Min. range: 0.1-1L/min (nor) Max. range: 5-50L/min (nor)	
Range ability		10:1	10:2 occasionally
Accuracy		±5%	
Max. Op. Press.		0.8 MPa	
Max. Op. Temp.		120°C	Max Op. Temp. is 80°C for standard goods because packing material is NBR.
Material	Standard		
	Body	SCS14	
	Tapered tube	Heat-resistant glass	
	Packing	NBR (max. 80°C)	FPM (max. 120°C) ⁽¹⁾
	Support	A6063-T5	
	Front panel	ABS	
Scale plate		Poly-carbonate	
Connection		Rc1/4	
Mounting		Lock-nut mount onto panel front	
Mass (Std. type)		0.5 kg	

Note 1: Max. 80°C in case of water

ALARM OUTPUT

Type	Availability	
Reed switch type alarm unit	General	×
	CE, UL Version	×
PAU Optical alarm unit	×	
Optical alarm unit	×	

STANDARD FLOW RATE TABLE

(In case Op. Press. at gas is not 0MPa, consult factory for details)

In case alarm output code is 0		In case alarm output code is A to D			
AIR(0MPa,0°C)	Water	AIR(0MPa,0°C)	Alarm setting range	Water	Alarm setting range
0.1-1 L/min (nor)	5-50 mL/min 10-100 mL/min				
0.3-3 L/min (nor)	20-200 mL/min 30-300 mL/min				
0.5-5 L/min (nor)	50-500 mL/min				
1-10 L/min (nor)					
2-20 L/min (nor)	0.1-1 L/min				
3-30 L/min (nor)					
4-40 L/min (nor)	0.3-1.5 L/min				
5-50 L/min (nor)	0.4-2 L/min				



BASIC MODEL CODE

SERIES NAME	VALVE	ALARM OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
P-01	0	-	0	+	R	2		
	0	-	0	+	R	2	1/4 (Standard)	
	0	-	0	+	Z	2	Special	
	0	-	0	+	R	R	Rc thread (Standard)	Lock-nut mounting onto panel front
	0	-	0	+	Z	Z	Special	
	0	-	0	+	N	N	NBR (Standard)	
	0	-	0	+	F	F	FPM	
	0	-	0	+	Z	Z	Special	
	0	-	4			4	SCS14 (Standard)	
	0	-	Z			Z	Special	
	0	0				0	Not provided	
	0	Z				Z	Special	
	0	0				0	Not provided	
	L					L	Bottom(gas for atmospheric pressure scale)	Refer to valve position selection guide (Page 60).
	U					U	Top(gas for press. scale or for negative press. on secondary side)	
	Z					Z	Special	
	0					0	Bottom rear → Top rear (Standard)	
	9					9	Special	

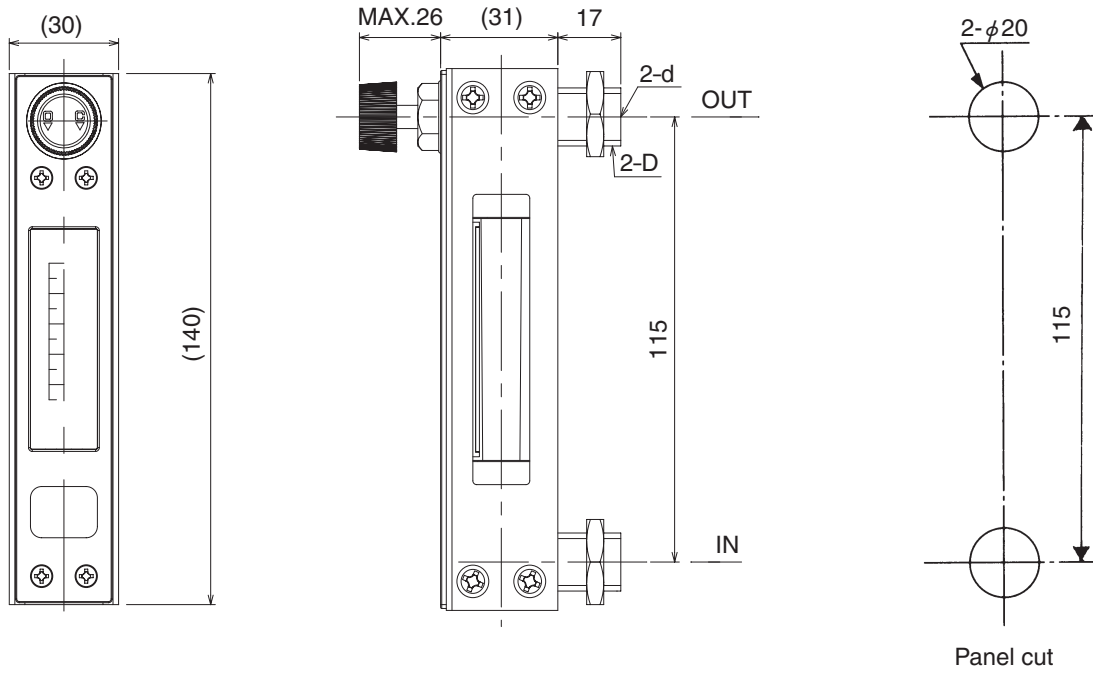
ORDERING INFORMATION

Basic model code	Designation items for detailed specifications					
P-01□-□□-□□-□□	①	②	③	④	⑤	⑥
	Fluid name	Measuring range	Press.	Temp.	Mounting option	Other option
(Use model code table for selection)	(For specification procedure, refer to page 56)					

DIMENSIONS

● STANDARD TYPE

P-010-U0-4N-Rn (Valve provided at Outlet)



● Panel cut size

Connection size	
d = Rc1/4	D = M18

Cautions on the use of glass tube variable area flowmeters

● Standard material

Parts name	Standard material	Available material
Body *	SCS14	
Tapered tube *	Heat-resistant glass	
Float *	SUS304 or Glass	PTFE / Ruby
Packing *	NBR	FPM
Support	A6063-T5	
Front panel	ABS	
Scale plate	Poly-carbonate	

Parts with * contact the measuring fluid.

P-050

Purgemeter (for water lines)

GENERAL

P-050 series is the upgraded version of the conventional P-510 series. The fluid to be used is limited to water, and only SUS 316 is used for the material of the liquid contact part. The visibility of a graduation has been improved by adopting the convex lens by laser, and the alarm output are also available.

MAJOR APPLICATIONS

General purpose (for water lines)

STANDARD SPECIFICATION

Measuring object	Liquid (Water <Density 1.0g/cm ³ and Viscosity 1.0mPa·s>)		
Scale range	Water	Min. range: 0.1~1L/min Max. range: 3~30L/min	When selecting flow rate, refer to model code.
Rangeability	10:1		
Accuracy	±5%F.S.		
Max. Op. Press.	0.8 MPa		
Max. Op. Temp.	120°C	Standard products have the packing materials made of NBR, so Max. Temp. is 80°C.	
Material	Standard		
	Body	SUS316	
	Tapered tube	Heat-resistant glass	
	Packing	NBR (max.80°C)	FPM (max.120°C) ⁽¹⁾
Support	SUS304		
Connection	Std.	Rc3/8	Refer to Basic model code for details.
	Option	Rc1/2	
Mounting	Std.	Thread(M3)mount onto panel front, Lock-nut mount onto panel front	Refer to ordering information for details.
	Mass (Std. type)	2.0 kg	

Note 1: Max. 80°C in case of water



ALARM OUTPUT

Type	Availability	
Reed switch type alarm unit	General	×
	CE, UL Version	×
PAU Optical alarm unit	×	
Optical alarm unit	×	

Refer to our P series catalog (CF030F111) about the details of alarm output.

STANDARD FLOW RATE TABLE

In case alarm output code is 0, E	In case alarm output code is A to D	
Water	Water	Alarm setting range
0.1~1 L/min		
0.2~2 L/min	0.2~2 L/min	0.4~1.6 L/min
0.3~3 L/min	0.3~3 L/min	0.6~2.4 L/min
0.5~5 L/min	0.5~5 L/min	1~4 L/min
1~10 L/min	1~10 L/min	2~8 L/min
1.5~15 L/min	1.5~15 L/min	3~12 L/min
2~20 L/min	2~20 L/min	4~16 L/min
3~30 L/min	3~30 L/min	6~24 L/min

* Available for Viscosity 1.0mPa·s only.

* The fluid name indication of graduation will be "water".

BASIC MODEL CODE

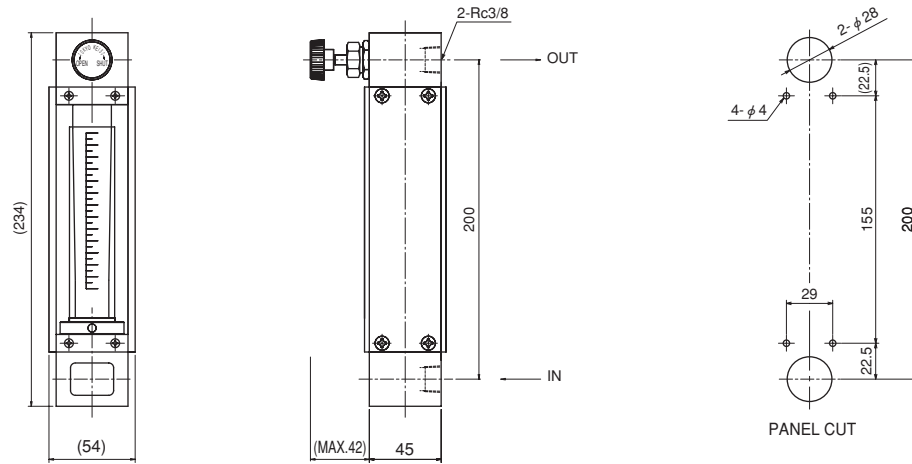
SERIES NAME	FLOW DIRECTION	VALVE	ALARM OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	
								DESCRIPTION	
P-05	0	-I	0	-6	N	-R	3		
		VALVE	ALARM OUTPUT	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE		
							3	3/8 (Standard)	
							4	1/2	Connection type code L only can be selected.
						R	Rc thread	Front thread (M3) of panel, mounting or pipe mounting	
						L	Rc thread	Lock-nut mounting onto panel front.	
					N		NBR (Standard)		
					F		FPM		
					6		SUS316 (Standard)		
			0	Not provided					
			A	Reed switch alarm (LO)					
			B	Reed switch alarm (LC)					
			C	Reed switch alarm (HO)					
			D	Reed switch alarm (HC)					
			E	PAU alarm output					
			Z	Special					
			0	Not provided					
			L	Bottom					
			U	Top					
			Z	Special					
			0	Bottom rear→Top rear (Standard)			Select this code normally		
			1	Bottom→Top					

ORDERING INFORMATION

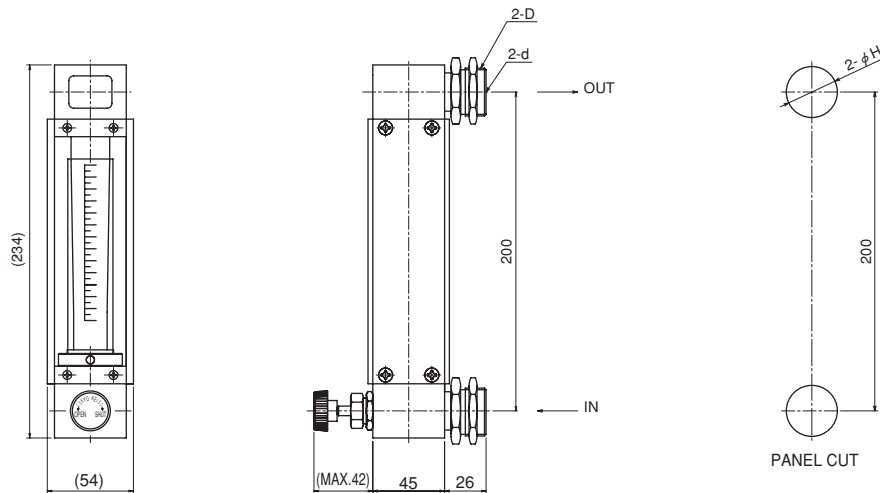
Basic model code
P-05□-□□-□□-□□
(Use model code table for selection)

DIMENSIONS

- Standard type
(P-050-U0-6N-R3 Valve provided at Outlet, panel front thread (M3) mounting type)



- PANEL-FRONT INSTALLATION TYPE
(P-050-L0-6N-L4, Valve provided at Outlet, panel front lock-nut fixing)



- Panel cut size
For PANEL-FRONT INSTALLATION TYPE, panel cut dimension may differ depending on connection size and rating. Refer to following table.

Connection size	Hole dia. ϕd	Rear dia. L
Rc 3/8	$\phi 28$	26
Rc 1/2	$\phi 32$	26

- Standard Material

Parts name	Standard material	Available material
Body*	SUS316	
Tapered tube*	Heat-resistant glass	—
Float*	SUS316	—
Packing*	NBR	FPM
Spindle*	SUS316	
Valve*	SUS316	
Support	SUS304	

Parts with * contact the measuring fluid.

P-060

Purgemeter

GENERAL

P-060 series is an acrylic molded Purgemeter with compact design. It is available in 2 kinds ; one is 105mm in full length and 22mm in width, and other 114mm long and 30mm wide. Smart, low price and optimum for the mass-production. Available with alarm contact.

MAJOR APPLICATIONS

Water lines and Air / Nitrogen lines

STANDARD SPECIFICATION

(In case Op.Press. is not 0MPa, consult factory for details)

Measuring object		Liquid (Water <Density 1.0g/cm ³ and Viscosity 1.0mPa·s>) Gas (Air or Nitrogen)	
Scale range	Water	Small flow rate type (Body code A)	Min. range: 10 ~ 100mL/min Max. range: 0.3 ~ 3L/min
		Large flow rate type (Body code B)	Min. range: 0.3 ~ 3L/min Max. range: 1 ~ 10L/min
	Gas (Air/Nitrogen)	Small flow rate type (Body code A)	Min. range: 0.2 ~ 2L/min (nor) Max. range: 5 ~ 50L/min (nor)
		Large flow rate type (Body code B)	Min. range: 5 ~ 50L/min (nor) Max. range: 30 ~ 300L/min(nor)
Rangeability		10:1 10:2 occasionally	
Accuracy		±5% F.S.	
Max. Op. Press.		0.5 MPa	
Max. Op. Temp.		50°C	
Material		Std.	
Body		PMMA	
Float		SUS304/PTFE/Glass/Ruby	
Packing		NBR	
Cap		POM	
Joint		SUS304	
Scale plate		Polycarbonate	
Lock-nut		POM	
		Not attached to small flow rate type	
Connection	Std.	(Small flow rate type) Rc1/8 (Large flow rate type) Rc3/8	
	Opt.	Rc1/4	
Mounting	Std.	(Small flow rate type) Thread mount onto panel front	
	Opt.	(Large flow rate type) Lock-nut mounting onto panel front	
Mass (Std.type)	(Small flow rate type)	95 g	
	(Large flow rate type)	120 g	

ALARM OUTPUT

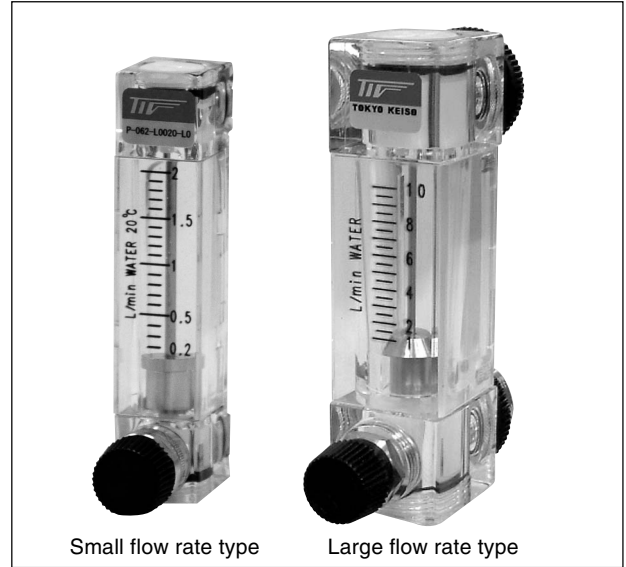
Type	Availability
Reed switch type alarm unit CE, UL Version	○
PAU optical alarm unit	×
Optical alarm unit	×

Refer to P series catalog (CF030F111) for details.

STANDARD FLOW RATE TABLE

(In case Op. Press at gas is not 1 atm, consult factory for details.)

	In case alarm output code is 0		In case alarm output code is A to D			
	Air or N ₂ 0MPa (1atm), 20°C	Water	Air or N ₂ 0MPa (1atm), 20°C	Alarm setting range	Water	Alarm setting range
Small flow rate type	0.2 ~ 2 L/min (nor)	10 ~ 100 mL/min	/	/	/	/
	0.5 ~ 5 L/min (nor)	40 ~ 400 mL/min				
	1 ~ 10 L/min (nor)	0.1 ~ 1 L/min				
	2 ~ 20 L/min (nor)	0.2 ~ 2 L/min				
	3 ~ 30 L/min (nor)	0.5 ~ 2.5 L/min				
Large flow rate type	5 ~ 50 L/min (nor)	0.3 ~ 3 L/min	5 ~ 50 L/min (nor)	10 ~ 40 L/min (nor)	0.3 ~ 3 L/min	0.6 ~ 2.4 L/min
	5 ~ 50 L/min (nor)	0.3 ~ 3 L/min			0.3 ~ 3 L/min	0.6 ~ 2.4 L/min
	10 ~ 100 L/min (nor)	0.5 ~ 5 L/min	10 ~ 100 L/min (nor)	20 ~ 80 L/min (nor)	0.5 ~ 5 L/min	1 ~ 4 L/min
	20 ~ 200 L/min (nor)	1 ~ 10 L/min	20 ~ 200 L/min (nor)	40 ~ 160 L/min (nor)	1 ~ 10 L/min	2 ~ 8 L/min
	30 ~ 300 L/min (nor)	/	30 ~ 300 L/min (nor)	60 ~ 240 L/min (nor)	/	/



Small flow rate type

Large flow rate type

MODEL CODE

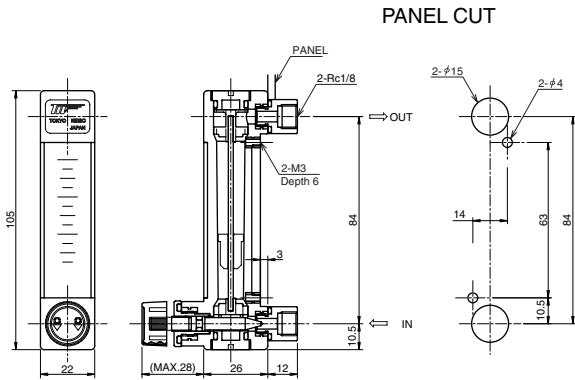
SERIES NAME	FLOW DIRECTION	FLUID	SCALE RANGE	VALVE	ALARM	CONNECTION	BODY CODE	EXAMPLE
								DESCRIPTION
P-06	→	L-FLUID	SCALE RANGE	VALVE	ALARM	CONNECTION	BODY CODE	
	←	R-FLUID	SCALE RANGE	VALVE	ALARM	CONNECTION	BODY CODE	
							A	Small flow rate type (Width 22mm, Length 105mm)
							B	Large flow rate type (Width 30mm, Length 114mm)
							R1	Rc 1/8 (Body code A ... Std.)
							R2	Rc 1/4 (Applicable for Body code A and B)
							R3	Rc 3/8 (Body code B ... Std.)
							0	Not provided
							A	Reed switch alarm (LO)
							B	Reed switch alarm (LC)
							C	Reed switch alarm (HO)
							D	Reed switch alarm (HC)
							0	Not provided
							L	Lower side
			0 0 0 1					Water: 100 mL/min (Conn. size Rc 1/8, Rc 1/4)
			0 0 0 4					" 400 mL/min (Conn. size Rc 1/8, Rc 1/4)
			0 0 1 0					" 1 L/min (Conn. size Rc 1/8, Rc 1/4)
			0 0 2 0					" 2 L/min (Conn. size Rc 1/8, Rc 1/4)
			0 0 2 5					" 2.5 L/min (Conn. size Rc 1/8, Rc 1/4)
			0 0 3 0					" 3 L/min (Conn. size Rc 1/8, Rc 1/4, Rc 3/8)
			0 0 5 0					" 5 L/min (Conn. size Rc 1/4, Rc 3/8)
			0 1 0 0					" 10 L/min (Conn. size Rc 1/4, Rc 3/8)
			0 0 2 0					Air: 2 L/min (nor) (Conn. size Rc 1/8, Rc 1/4)
			0 0 5 0					" 5 L/min (nor) (Conn. size Rc 1/8, Rc 1/4)
			0 1 0 0					" 10 L/min (nor) (Conn. size Rc 1/8, Rc 1/4)
			0 2 0 0					" 20 L/min (nor) (Conn. size Rc 1/8, Rc 1/4)
			0 3 0 0					" 30 L/min (nor) (Conn. size Rc 1/8, Rc 1/4)
			0 5 0 0					" 50 L/min (nor) (Conn. size Rc 1/8, Rc 1/4, Rc 3/8)
			1 0 0 0					" 100 L/min (nor) (Conn. size Rc 1/4, Rc 3/8)
			2 0 0 0					" 200 L/min (nor) (Conn. size Rc 1/4, Rc 3/8)
			3 0 0 0					" 300 L/min (nor) (Conn. size Rc 1/4, Rc 3/8)
			L					Water
			A					Air
			N					Nitrogen
			Z					Special (Liquid/Gas)
			2					Bottom rear → Top rear

ORDERING INFORMATION

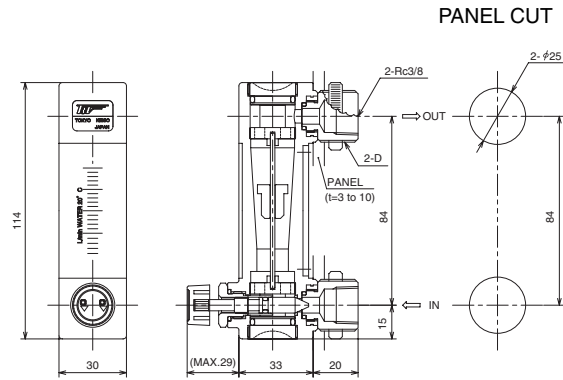
Basic model code
P-062-□□□□-□□-□□□
(Use MODEL CODE table for selection.)

DIMENSIONS

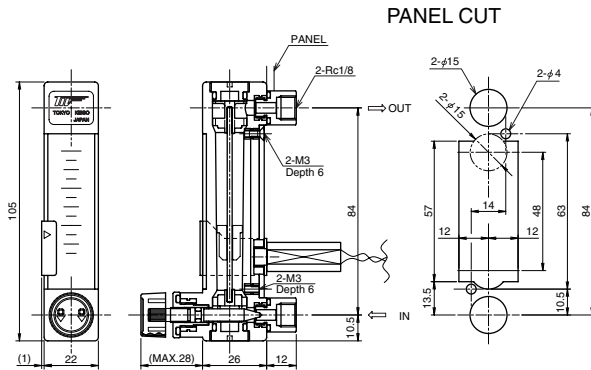
● Body code A Standard type (Connection size Rc1/8)



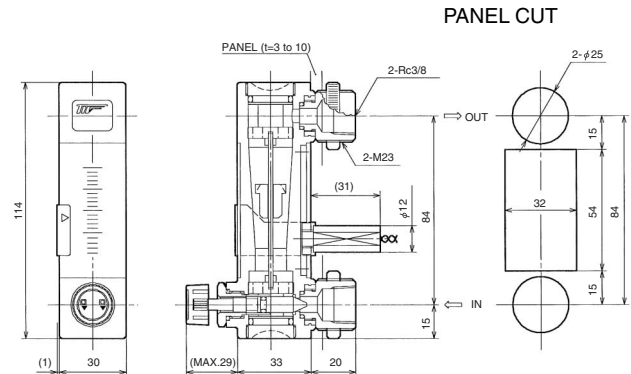
● Body code B Standard type (Connection size Rc3/8)



● Body code A (Connection size Rc1/8 with alarm)



● Body code B (Connection size Rc3/8 with alarm)



<Note>

A magnet is set in the float. In case of the short distance to mount reed switch, they interfere each other, and it may happen that the rate of flow can not be indicated accurately. Contact the factory if the distance to mount is less than 100mm.

● Standard Material

Parts name	Standard material
Body *	PMMA
Float *	SUS304 / PTFE / Glass / Ruby
Valve *	SUS304
Needle *	SUS304
Cap *	POM
Packing *	NBR
Joint *	SUS304
Scale plate	Polycarbonate

Parts with an asterisk (*) contact the measured fluid.

- Material is SUS304, but SUS316 may be used owing to circumstances of the production.
- ASTM or AISI materials corresponding to JIS may be used for certain reasons of production.
- When piping, the joint is to be fixed by a spanner and connected tightly in order that the stress may not be applied to the joint.

NP

GENERAL

Standard graduation type of P-900. Much more cost effective and delivery from stock.

MAJOR APPLICATIONS

Quick delivery, anti-corrosion equipment

STANDARD SPECIFICATION

Measuring object	Liquids and gases	
Measuring range	Air	Min. 0.1~1 L/min (std) Max. 4~40 L/min (std)
	Water	Min. 0.01~0.1 L/min Max. 0.25~2.5 L/min
Range ability	10:1	
Accuracy	NP-□2□: ±3%F.S. NP-□1□: ±5%F.S.	
Max. Op. Press.	0.8MPa	
Max. Op. Temp.	120°C	
Material	Std.	Std.
	Body	SUS316
	Tapered tube	Heat-resistant glass
	Packing	FPM
	Support	SUS304
	Cover	Poly-carbonate
Connection	Std.	NPT1/4
	Opt.	
Mounting	Std.	Thread mount onto panel front
	Opt.	
MASS (std. type)	0.5 kg(NP-□1□)	

ALARM OUTPUT

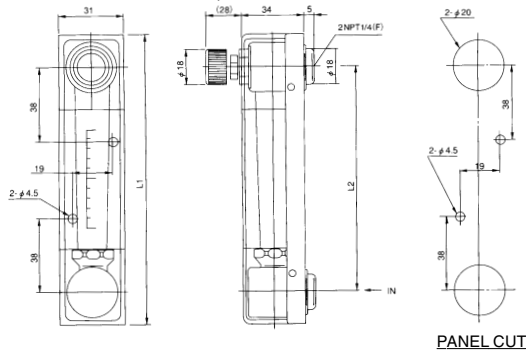
Type	Availability	Reference pages
Reed switch type alarm unit	General	×
	CE, UL Version	×
PAU Optical alarm unit	×	
Optical alarm unit	×	

DIMENSION TABLE

Model	Dimension(mm)	
	L1	L2
NP-□1□	146	114
NP-□2□	256	224

DIMENSIONS

STANDARD TYPE (NP-G□□-□□-□□-□□-□□-□□-□□-□□-□□-□□-□□)



Standard Material

Parts name	Standard material	Available material
Body	SUS316	—
Tapered tube	Heat-resistant glass	—
Float *1	SUS316, Glass	—
Packing	FPM	—
Valve	SUS316	—
Mounting board	SUS304	—
Cover	Poly-carbonate	—

Parts whose names are described in **bold letters** are in contact with fluids to be measured.
*1 Proper material to be selected according to the specifications.

ORDERING INFORMATION

Basic model code	Designation items for detailed specifications
NP-□□□-□□-□□-□□	No designation
(Use model code table for selection)	



BASIC MODEL CODE

SERIES NAME	VALVE	GRADUATION	WETTED PARTS MATERIAL	PACKING MATERIAL	CONNECTION TYPE	CONNECTION SIZE	EXAMPLE	DESCRIPTION
NP-	L11	+	0	F	N	2		
	FLOW RANGE	VALVE	GRADUATION	WETTED PARTS MATERIAL	CONNECTION TYPE	CONNECTION SIZE		
							2	1/4
					N	NPT thread		
				F	FPM			
				6	SUS316			
			0					Flow rate graduation Actual flow rate graduation indication at flow range
			P					Percent graduation Percent graduation indication at flow range
			0					Not provided
			L					Bottom (gas for atmospheric pressure scale)
			U					Top (gas for pressure scale or for negative pressure on the secondary side) Refer to valve location selection guide (Page 60).
	L11							0.01 ~ 0.1 L/min
	L12							0.03 ~ 0.3 L/min
	L13							0.05 ~ 0.5 L/min
	L14							0.1 ~ 1 L/min
	L15							0.15 ~ 1.5 L/min
	L16							0.2 ~ 2 L/min
	L17	Water						0.25 ~ 2.5 L/min
	L21							0.01 ~ 0.1 L/min
	L22							0.03 ~ 0.3 L/min
	L23							0.05 ~ 0.5 L/min
	L24							0.1 ~ 1 L/min
	L25							0.15 ~ 1.5 L/min
	L26							0.2 ~ 2 L/min
	L27							0.25 ~ 2.5 L/min
	G11							0.1 ~ 1 SL/min
	G12							0.2 ~ 2 SL/min
	G13							0.5 ~ 5 SL/min
	G14							1 ~ 10 SL/min
	G15							1.5 ~ 15 SL/min
	G16							2 ~ 20 SL/min
	G17	Air						3 ~ 30 SL/min
	G18							4 ~ 40 SL/min
	G21							0.1 ~ 1 SL/min
	G22							0.2 ~ 2 SL/min
	G23							0.5 ~ 5 SL/min
	G24							1 ~ 10 SL/min
	G25							2.5 ~ 25 SL/min
	G26							4 ~ 40 SL/min

GENERAL

YP purgemeters have small size: 80mm in total length and 60 mm in connection length.

The compact meters are fitted well for assembling into packaged units.

Suitable for both gas and liquid measurement.

MAJOR APPLICATIONS

Simple flow monitoring

STANDARD SPECIFICATION

Measuring object	Liquid water (Water [Density 1.0g/cm ³ and Viscosity 1.0mPa·s], Gas (Air or Nitrogen))	
Scale range	Air (Air)	Min. range : 0.02-0.2 L/min (nor) Max. range : 3-15 L/min (nor)
	Nitrogen (N ₂)	Min. range : 0.02-0.2 L/min (nor) Max. range : 3-15 L/min (nor)
	Water	Min. range : 5-30 mL/min Max. range : 100-500 mL/min
Range ability	10:1	10:2 for same version
Indication accuracy	±10% F.S.	
Operating pressure	0-0.4MPa	Test press 0.5MPa
Operating temperature	0-60°C	
Ambient temperature	0-60°C	
Material	Std.	
	Body	SUS316
	Tapered tube	Heat-resistant glass
	Gasket	FPM
	Support plate	SPCC (Steel)
Protection	Poly-Carbonate	
	Standard	Rc1/8
Connection	Option	
	Standard	Panel front mount by lock nut
Mounting	Option	
	Standard	Bottom rear to Top rear
Flow direction	Bottom rear to Top rear	
MASS (std.type)	0.2 kg	

ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	/
	CE, UL Version	
PAU Optical alarm unit	×	
Optical alarm unit	×	

CALIBRATION AND DESIGN CONDITION

YP purgemeters are calibrated and graduated as follows;
When the valve is not provided or located at the top side, upstream pressure (inlet) is 0 MPa (1 atm).

When the valve is located at the bottom side, downstream pressure (inlet) is 0 MPa (1 atm).

Temperature of both cases is 20°C.

Valve position	Pressure		Temperature
	Inlet(primary)	Outlet(secondary)	
Not provided	0MPa (1atm)	—	20°C
Top	—	0MPa (1atm)	
Bottom	—	0MPa (1atm)	

Compensation calculation is required when the actual operation condition has a deviation from above condition.

The scales are graduated as at 0°C and 0 MPa (1 atm) when measured at 20°C and 0 MPa (1 atm).



BASIC MODEL CODE

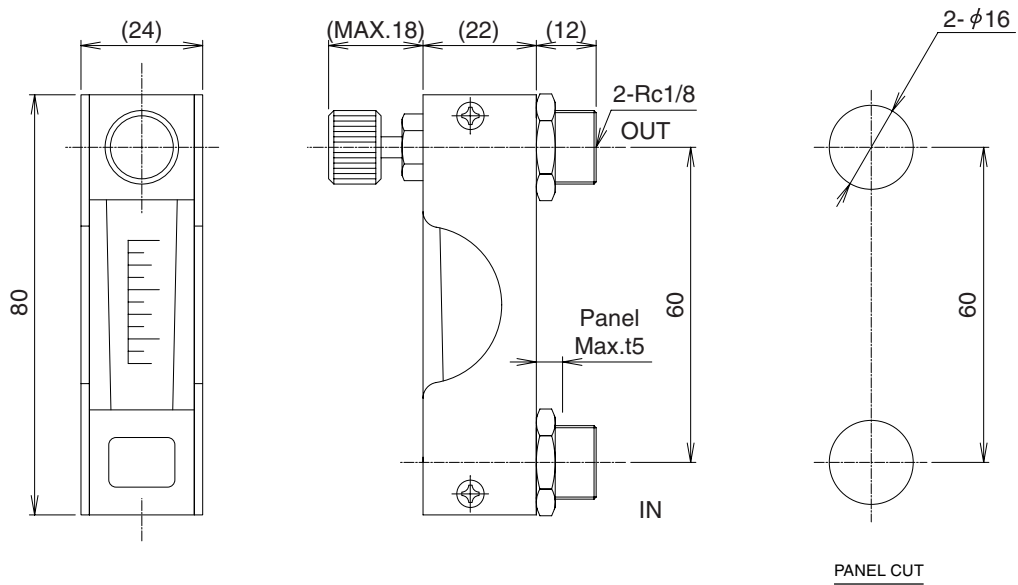
SERIES NAME	VALVE	SCALE RANGE	EXAMPLE	
			DESCRIPTION	
YP	-	-A1		
	VALVE	SCALE RANGE		
		A1	Air	0.02 ~ 0.2 L/min (nor)
		A2		0.05 ~ 0.5 L/min (nor)
		A3		0.1 ~ 1 L/min (nor)
		A4		0.2 ~ 2 L/min (nor)
		A5		0.5 ~ 5 L/min (nor)
		A6		1.5 ~ 8 L/min (nor)
		A7		3 ~ 15 L/min (nor)
		N1	Nitrogen	0.02 ~ 0.2 L/min (nor)
		N2		0.05 ~ 0.5 L/min (nor)
		N3		0.1 ~ 1 L/min (nor)
		N4		0.2 ~ 2 L/min (nor)
		N5		0.5 ~ 5 L/min (nor)
		N6		1.5 ~ 8 L/min (nor)
		N7		3 ~ 15 L/min (nor)
		W1	Water	5 ~ 30 mL/min
		W2		15 ~ 80 mL/min
		W3		30 ~ 100 mL/min
		W4		40 ~ 200 mL/min
		W5		100 ~ 500 mL/min
	0	Non provided		
	L	Lower side (Inlet)		
	U	Upper side (Outlet)		

ORDERING INFORMATION

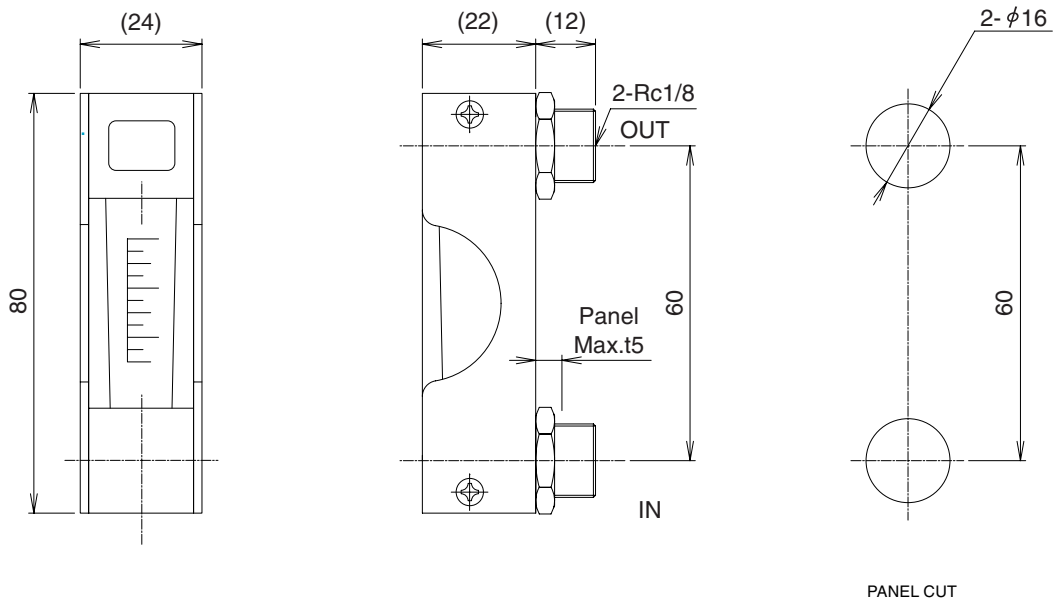
Basic model code	Designation items for detailed specifications					
YP-□-□□	①	②	③	④	⑤	⑥
(Use model code table for selection)	Fluid name	Measuring range	Press.	Temp.	Mounting Option	Other Option
	(For specification procedure, refer to page 56)					

DIMENSIONS

Upper valve version YP-U-□□



Without valve version YP-0-□□



● Standard Material

Parts name	Standard material
Body	SUS316
Tapered tube	Heat-resistant glass
Float *1	SUS316, Glass, Ruby
Packing	FPM
Valve	SUS316
Protection cover	Poly-carbonate
Monuting board	SPCC
Lock-nut	C3604B

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

*1 Proper material to be selected according to the specifications.

■ Cautions and Suggestions

- Do not loosen the lock nut when YP purgometer is installed to process piping directly.
- For panel mounting, remove lock nuts and fix the purgometer onto panel by two lock nuts. The nuts are to be properly tightened to avoid leakage.
- Take care not to give mechanical stress to YP purgometer.

XP

GENERAL

Standard specification type purgometer adopted engineering plastic integrated mold body. Smart and compact design. Quick delivery and low cost.

MAJOR APPLICATIONS

General purpose, quick delivery

STANDARD SPECIFICATION

Measuring object		Liquids and gases	
Measuring range	Gas	Min. 0.1~1 L/min (nor). Max. 2~20 L/min (nor).	· Gas at 20°C, 0MPa (1atm) · When selecting flow range, refer to standard flow rate table.
	Water	Min. 0.02~0.1 L/min. Max. 0.2~1.0 L/min.	
Range ability		10:1	10:2 for some ranges
Accuracy		±5%F.S.	
Max. Op. Press.		0.5MPa	
Max. Op. Temp.		50°C	
Material		Std.	
	Body	POM(Poly-acetals)	Engineering plastic integrated mold
	Tapered tube	Heat-resistant glass	
	Packing	FPM	
	Cover	Poly-carbonate	
Connection	Std.	Rc1/4	Refer to Basic model code for details.
	Opt.		
Mounting	Std.	Thread mount onto panel front	Refer to Dimension for details.
	Opt.		
MASS (std. type)		0.1 kg	

ALARM OUTPUT

Type	Availability	Reference pages
Reed switch type alarm unit	General	×
	CE, UL Version	×
PAU Optical alarm unit	○	Refer to page 48.
Optical alarm unit	×	

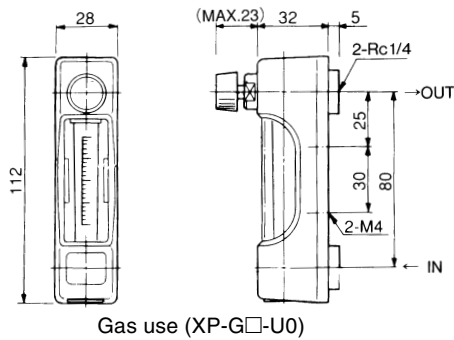
Standard Material

Parts name	Standard material	Available material
Body	Poly-acetals	—
Tapered tube	Heat-resistant glass	—
Float *1	SUS316, Glass	Ruby
Packing	FPM	—
Valve	Poly-acetals	—
Cover	Poly-carbonate	—

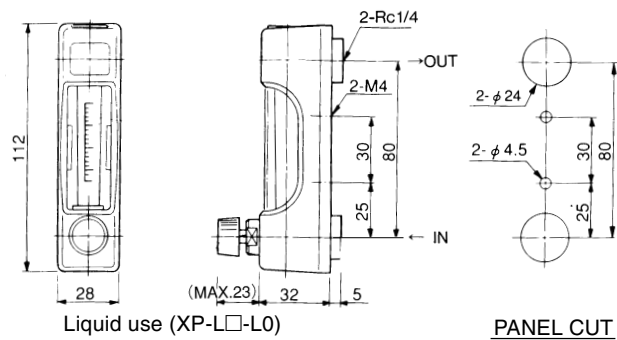
Parts whose names are described in **bold letters** are in contact with fluids to be measured.

*1 Proper material to be selected according to the specifications.

DIMENSIONS



Gas use (XP-G□-U0)



Liquid use (XP-L□-L0)

PANEL CUT

ORDERING INFORMATION

Basic model code	Designation items for detailed specifications (Only when customer designation graduation)
XP-□□-□□	① Fluid name — ② Measuring range — ③ Press. — ④ Temp. — ⑤ Mounting Option — ⑥ Other Option
(Use model code table for selection)	(For specification procedure, refer to page 56)



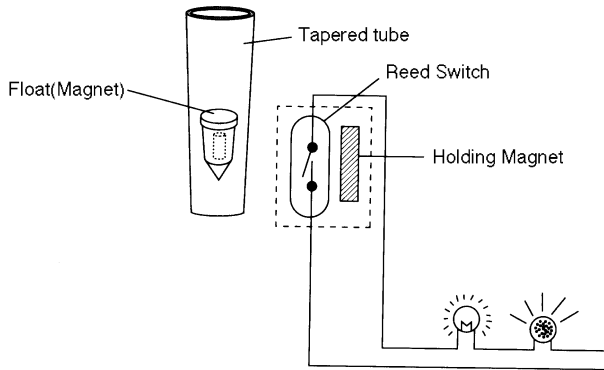
BASIC MODEL CODE

SERIES NAME	FLOW RANGE	VALVE	ALARM OUTPUT	DESCRIPTION
XP-	L1	-L	0	EXAMPLE
	FLOW RANGE	VALVE	ALARM OUTPUT	
			0	Not provided
			E	PAU ALARM UNIT provided Refer to page 48.
			0	Not provided
		L		Bottom (gas for atmospheric pressure scale) Refer to valve position selection guide (Page 60).
		U		Top (gas for pressure scale)
	L1			0.02~0.1 L/min
	L2			0.04~0.2 L/min
	L3	Water		0.06~0.3 L/min
	L4			0.1~0.5 L/min
	L5			0.2~1.0 L/min
	G1			0.1~1 L/min (nor)
	G2			0.3~3 L/min (nor)
	G3	Gas		0.6~6 L/min (nor)
	G4	(Air)		1.0~10 L/min (nor)
	G5			2.0~20 L/min (nor)
	00	Customer designation graduation		Refer to [Designation items for detailed specifications in page 50.]

REED SWITCH TYPE

● Purgemeter with alarm Code **A B C D**

Reed switch contact for flow alarm can be mounted on P series purgemeters. You can get the lower or upper limit flow alarm contact in addition to monitoring of the instantaneous flow rate by float position. This is effectively used for monitoring of flow interruption in various purging processes and for such control as inflow restrictions. (Note that some restrictions are placed on the flow range as well as the models that can be installed.) In addition to general reed type switches, reed switches compatible with CE (conforming to EN Standards) are also available to meet world-wide requirements.



Caution) Use non-magnetize material for mounting panel.

STANDARD SPECIFICATION

● General type reed switch

Models where reed switch type alarm is available.
 P-100,P-200,P-510,P-520,P-530,P-540,P-550,P-620,
 P-772,P-773,P-774,P-820,P-830, P-060

Number of point 1 point (High or Low)
 2 point alarm also available as option. But subject to limitation of scale range and setting point. Consult factory for details.

Alarm setting range Std. 20~80% of full scale (H: 50 to 80%, L: 20 to 50%)
 *The alarm setting ranges on the front face type is different from standard. consult factory for details.

Contact Reed switch (Self-holding type)
 Max. contact capacity AC10VA,DC10W
 Max. voltage AC125V,DC100V
 Max. current 0.5A

Connection Lead wire connection (50cm) (2m is also available)
 You can specify "no terminal required" when using the other option codes for both models P-510 and P-520.

Reset-Span	Model	Reset-Span(%F.S)
	P-100,P-200,P-821	25
	P-510,P-520,P-530, P-540,P-550,P-620, P-772,P-773,P-774, P-823,P-830,P-060	20

*May be different depending on the scale length.

Construction Water proof

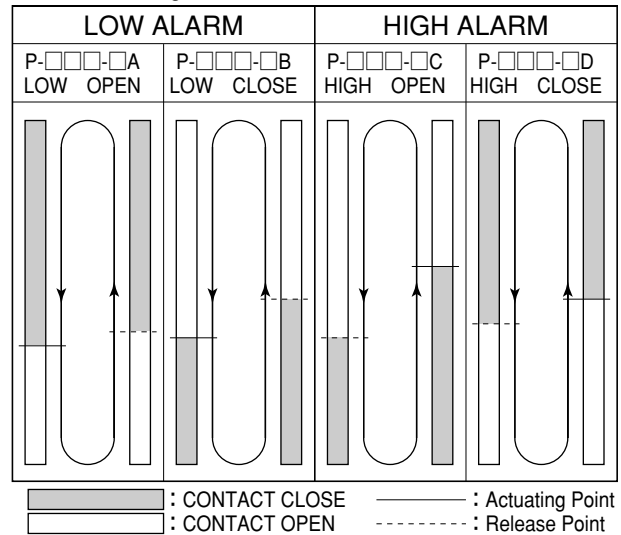
Amb. Temp. -10 to 60°C

<Note> Do not mount the meters too closely. Otherwise nearby meters might give false indication with the interference caused by the embedded magnets into the floats. Consult Tokyo Keiso if you will install them in less than 100 mm for further information.



P-510 Purgemeter equipped with the reed switch

Contact Actuating



● Reed switch compatible with CE and EN Standards

Reed Switch alarm accepted EN Standard is available which is suitable for applicable area.
 EN standard
 EN 60950: 1992
 EN 61010: 1993

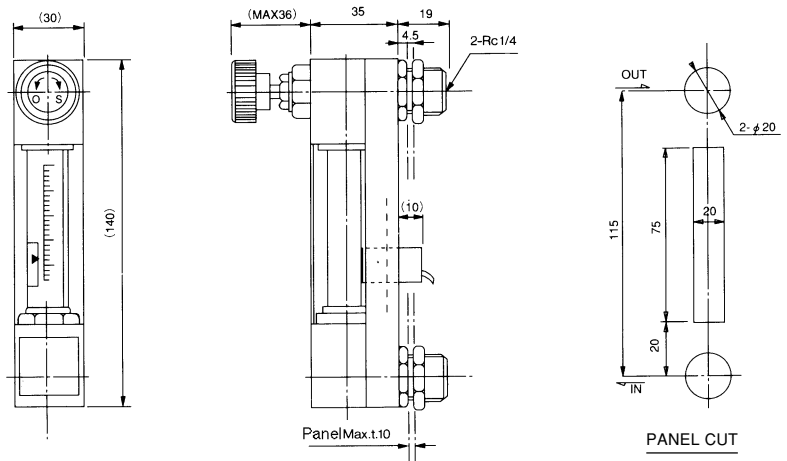
Contact Read switch contact
 Connection Lead wire (50cm) (2m is also available)
 Construction Water proof (IP 67 equ.)
 Amb. Temp. -10 to 60°C

● Reed switch compatible with UL standards

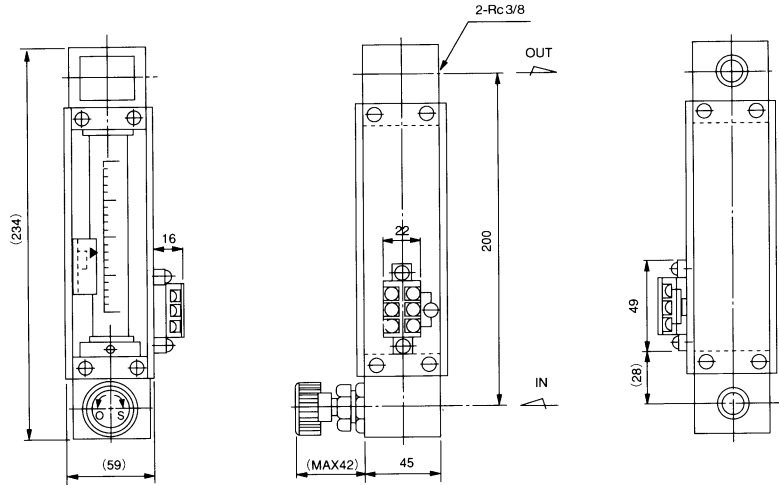
UL standard UL508
 Contact Reed switch contact
 Max. Capacity 10W
 Max. Voltage DC24V
 Max. Current 0.5A
 Connection Lead wire(200cm attached)
 Construction Water proof (IP 67 equ.)
 Amb. Temp 0 to 50°C

● REED SWITCH TYPE
STANDARD DIMENSIONS OF PURGEMETERS
WITH REED SWITCH ALARM

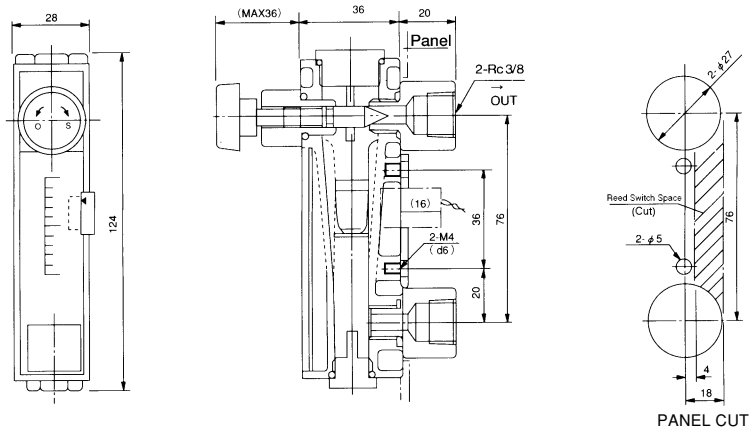
P-100-U□-4N-R2 model



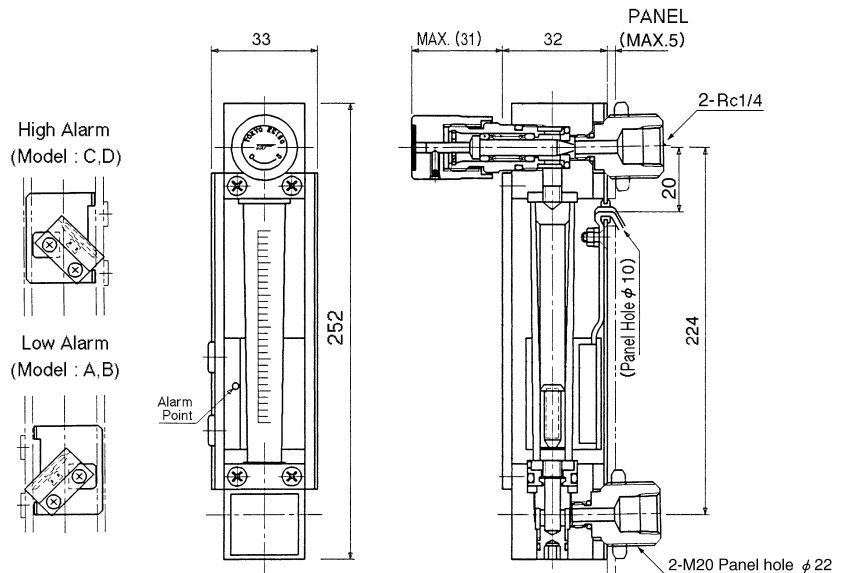
P-510-L□-4N-R3 model



P-620-U□-BN-R3 model



P-823-3□-6F-R2 model



For high alarm, the lead wire should be routed from the bottom.

GENERAL

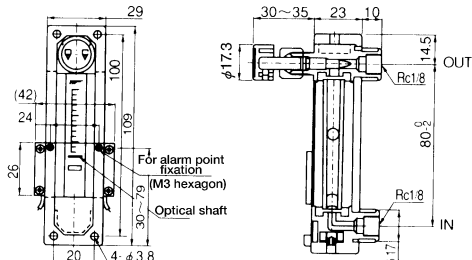
PAU is an optical sensing type alarm unit, and can be mounted on almost all the purgemeters. This highly reliable optical system ensures flow interruption alarm, and allows working flow to be verified. With low cost, this unit changes your local indication into the remote flow monitoring and control system by just adding the unit to direct reading purgemeters.

STANDARD SPECIFICATION

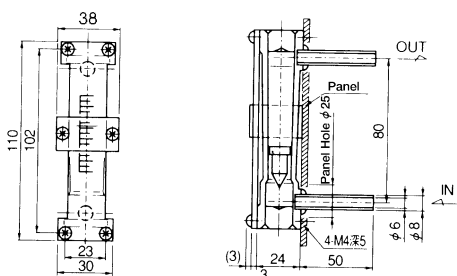
- Models of purgemeters compatible with this unit
 Models :P-100,P-200,P-510,P-520,P-710,P-771,
 P-772,P-773,P-774,P-810,P-820
 P-820,XP series purgometer
- Output :Open collector (NPN) rated output
 DC30V, 80mA
- Operation :Dark ON (The open collector turns on when light is cut off)
- Response time :0.5 ms or less
- Power supply :DC24V +/- 10% (power ripple 10% or less)
- Current consumption :37mA or less (light projection and receiver)
- Photosensitive adjust knob :Provided
- Operation display :LED display lamp
- Electric connection :By cord pull-put (connection of lead wire)
- Cord length :Projector 0.1mm2 x 2C 2m
 Receiver 0.1mm2 x 3C 2m
- Structure :Water-proof enclosed type (equivalent to IP64)
- Material :Exterior: liquid crystal polyester (filled with polypropylene)
- Ambient illumination :3000 lux or less
- Ambient temperature :-25 to + 55°C (no dew condensation)
- Ambient humidity :85%RH or less

INSTALLATION EXAMPLE ON PURGEMETER

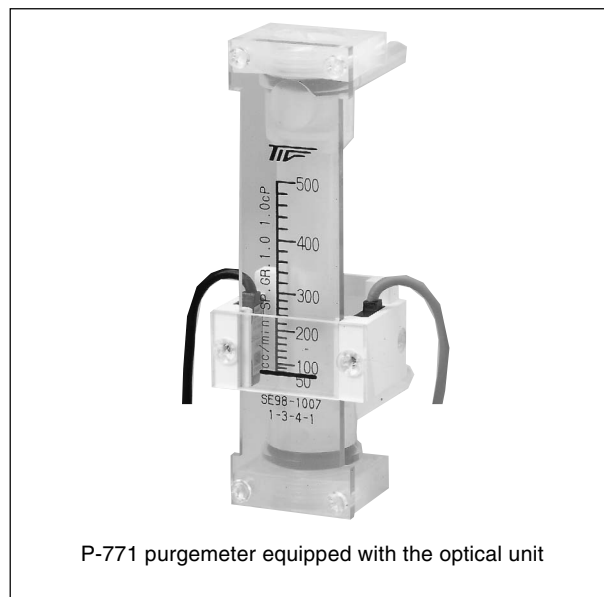
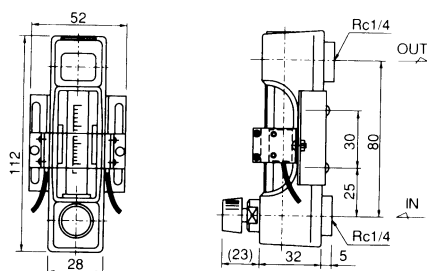
P-710-UE-GT-R1 model



P-771-0E-TW-TB model



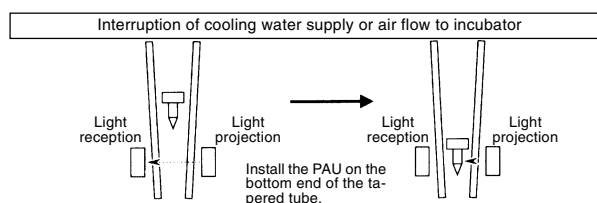
XP-□□-LE model



P-771 purgometer equipped with the optical unit

EXAMPLES OF USING PAU ALARM UNIT

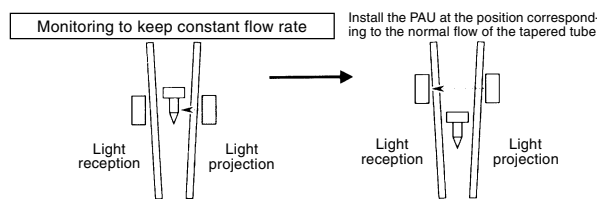
Detection of no flow and alarm



If the fluid flows correctly, light passes by and alarm does not operate.

When the flow is suspended or reduced, the float is lowered to cut off light. This will cause the alarm to operate. The lamp and buzzer are provided to notify flow interruption.

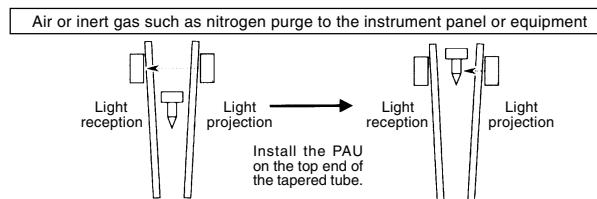
Detection of flow change and alarm



Normal flow rate keeps light to cut off.

Increase (or decrease) of the flow rate causes the float to move, and allows the light to transmit. This will cause alarm to be turned off. The lamp and buzzer are provided to notify changes in flow rate.

Detection of leakage and alarm



Normal flow of fluid allows the light to transmit, and the alarm does not operate.

If there is any leakage, the float goes upward to cut off light. This will cause the alarm to operate. The lamp and buzzer are provided to notify flow interruption.

SEPARATE AMPLIFIER TYPE OPTICAL ALARM UNIT

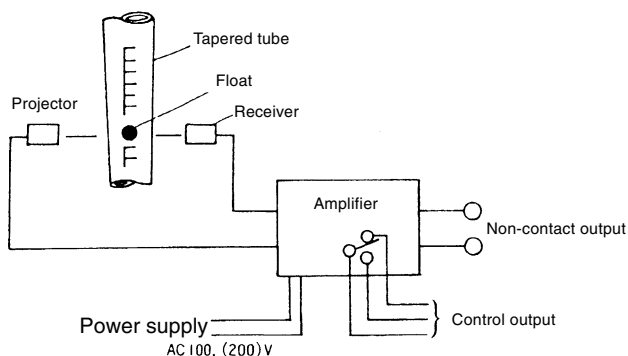
Code **F**

GENERAL

The separate amplifier type optical alarm unit comprises of a projector, receiver and amplifier unit. Relay contact output and non-contact output are provided from the amplifier, depending on the presence or absence of the float.

OPERATING PRINCIPLE

Install the projector and receiver so as to hold the tapered tube in-between. The system detects if the float is present at the specified position or not. You can use the switches for selection; LIGHT ON when light is applied (without float) and DARK ON when light is cut off (with float). Since operation is provided by instantaneous contact, the holding circuit must be configured to meet the purpose of use when you want to use alarm on a continuous basis.

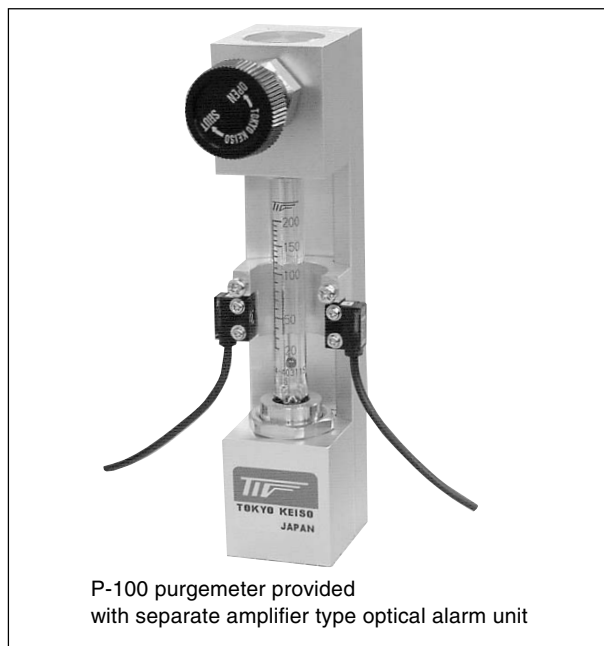


Block diagram

STANDARD SPECIFICATIONS

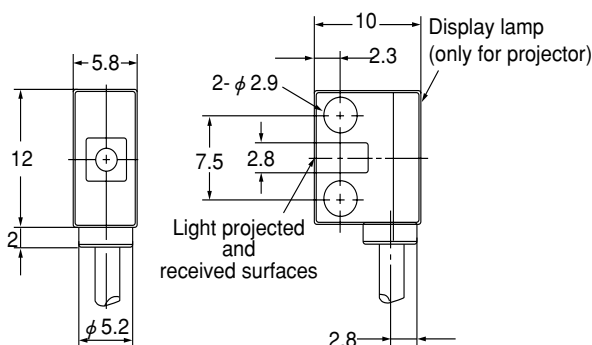
Models of purgemeters compatible with this unit : P-100, P-200, P-710, P-772, P-773, P-774
 (There are restrictions to the flow range. For details, see the description on relevant pages).

- Power voltage : AC100/200V ±10% (for common use), 50/60Hz (for common use)
- Projector and receiver setup distance : 10cm or less
- Detected substances : Non-transparent substances (standard)
- Minimum detected substance width : Non-transparent substances 2mm
- Operating : by selector switch
 DARK ON when light is cut off
 LIGHT ON when light is applied
- Response time : Non-contact output 1/2 ms or less, and Contact output 20 ms or less
- Control output : Contact output 1C AC220V 1A (cos φ=1)
 Non-contact output, output current 1.5 to 4 mA
- Ambient illumination : 3000 luxes or less on the light receiving surface (incandescent lamp)
- Receiver orientation angle : 10 to 60 deg.
- Vibration resistance: complex width: 1.5 mm durable 10 to 50 Hz Three directions, X, Y and Z, two hours each
- Shock resistance : approx. 50G (about 30G for amplifier unit)
- Power consumption : 3W or less
- Ambient temperature : -25 to + 70 °C for projector and receiver
 -10 to +55 °C for amplifier unit
- Ambient humidity : 35 to 85 %RH
- Extension cord : Shielded cord (max. length: 9m)

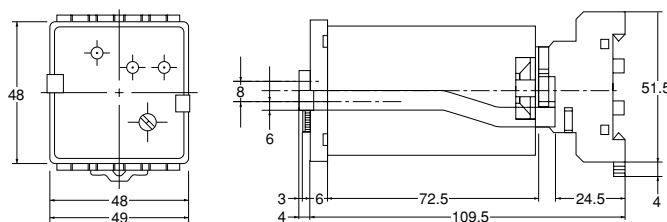


P-100 purgemeter provided with separate amplifier type optical alarm unit

EXTERNAL DIMENSIONS

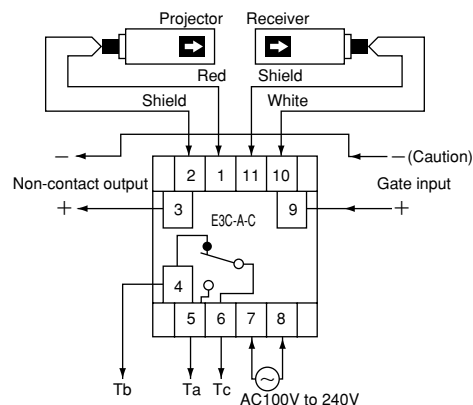


Sensor/transmission type



Amplifier unit

CONNECTION DIAGRAM



- Caution) 1. Regarding the edge left for peeling off shielded wire, make it 2cm or less for the receiver side (white line) and 5cm or less for the projector side (red line).
 2. Model E3C-A has no function of gate input.

ADVICE FOR YOUR PRODUCT SELECTION

- "Ordering information" given for each model contains the following description.
(Example) P-100 series

Basic model code	Designation items for detailed specifications					
P-10□-□□-□□-□□	① Fluid name	② Flow range	③ Press.	④ Temp.	⑤ Mounting option	⑥ Other options

(Use the model code table for selection.)

Basic model code: Use the model code table of each series for selection.
Contact us if you have selected a special one such as "Z" in the basic mode code.

- Designation items for detailed specifications
Selection procedure to omit the items when filled with "Need not be specified".

Basic model code		Designation items for detailed specifications															
Page	Model name	① Fluid name	② Flow range	③ Press.	④ Temp.	⑤ Mounting method (optional)	⑥ Other options										
3	P-100	Specify the fluid name. (Models NP and XP: "need not be specified")	Specify the max. flow rate. (Refer to the standard flow rate table). (P-773, NP, YP, P-060, XP: "need not be specified")	Specify the setup pressure.		Specify the setup standard temperature.	Specify the mounting method.	Specify the option.									
5	P-200	Example of entries • Water • Pure water • Other fluids • N ₂ • AIR • O ₂ • H ₂ • Ar • He • CO ₂ • C ₃ H ₈ • Other Gases	Fluid Gas	Fluid Gas	Normal temperature (20°C) Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required. When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required. When "Other options" on page 59 is required.										
7	P-300							Specify the fluid name.	Specify the max. flow rate.	Specify the setup pressure.	Specify the setup standard temperature.	Specify the mounting method.	Specify the option.				
9	P-400							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
11	P-510							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
13	P-520							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
15	P-530							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
17	P-540							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
19	P-550							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
21	P-610							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
23	P-620							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
25	P-710							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
27	P-771							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
29	P-772							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
31	P-773							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
33	P-774							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
35	P-810							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
37	P-820							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
39	P-830							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
41	P-900							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
42	P-010							Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.
44	P-050	Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.						
46	P-060	Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.						
48	NP	Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.						
49	YP	Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.						
51	XP	Fluid	Gas	Fluid	Gas	Normal temperature (20°C)	Other than normal temperature (20°C)	When "Mounting option" on page 58 is not required.	When "Mounting option" on page 58 is required.	When "Other options" on page 59 is not required.	When "Other options" on page 59 is required.						
Example of entries		□□ mL / min. etc. □□ L / min. etc.	□□ mL/min (nor) etc. □□ L/min (nor) etc.	Omit MPa etc.	Omit MPa etc.	Omit °C etc.	Omit Specify the code number according to the selection table.	Omit Specify the code number according to the selection table.									

If you have found out unclear points or questions, refer to the [One-Point Advice](#) on pages 51 to 55.

*Must be specified for XP, YP and P-060 when the scale has been specified by the customer.

① **Fluid name**
One-point advice

- Specify the name of the fluid you want to use.
<Example> Water, N₂, Air, O₂, H₂, Ar, He, CO₂, C₃H₈, etc.
- Inform us of fluid density and viscosity.
For the name of the fluid as shown above, enter only the fluid name.

② **Flow range**
One-point advice

- Specify the maximum flow according to the standard flow rate table.
*2L/min in the case of 0.2 to 2L/min
*10L/min(nor) in the case of 1 to 10L/min(nor).
- You can also select the flow range other than the standard flow rate.
- You can also select the unit of flow other than the standard flow rate.

<Example of flow rate unit>

- Liquid →
- 1000mL/min =1L/min
 - 1000mL/h=1L/h
- Gas →
- 1000mL/min(nor) =1L/min(nor)
 - 1000L/h(nor)=1m³/h(nor)
 - 1000mL/min(std) =1L/min(std)
 - 1000L/h(std)=1m³/h(std) etc.

- When fluid is other than water (with a density of 1.0 g/cm³ and viscosity of 1.0mPa·s) or air (with a temperature of 0°C and pressure of 1atm), use the conversion formula to make compensation and apply it to the relevant flow range.

<Conversion formula>

For liquid - Refer to the right on page 1.

For gas - Refer to the left on page 1.

③ **Pressure**
One-point advice

- Specify the operating pressure and pressure unit.
<Example of entries>
0MPa(=1atm)
0.1MPa

④ **Temperature**
One-point advice

- Specify the design standard temperature and temperature unit.
<Example of entries>
20°C



In selecting the glass tube type variable area flowmeter, the below-mentioned items shall be considered and examined.

The following specification condition and environment of the fluid are not suitable.

1. The fluid line where the dynamic pressure (shock pressure) is expected.
2. A line where the secondary disaster is expected when the glass tube is damaged.
 - Fluid with the toxicity (including the stimulus and anesthesia etc.)
 - Fluid with the flammability
 - Fluid with the explosion
3. The injury or death is expected when glass tube is damaged in the gaseous fluid and pieces of glass may scatter.
4. The glass damage may be caused at the installation place by the foreign substance dispersed from the outside.
5. When a float is suddenly raised in the ON/OFF operation, the glass tube may be damaged by that collision.
6. Line where the thermal shock (rapid cooling, urgent heat) in operation is expected.
7. For those corrosive liquids to glass like hydrogen fluoride and caustic soda.

⑤ **Mounting option** **One-point advice**

- You can specify other than standard mounting methods.
- Specify the following code number if you want to use special mounting method.
- Omit the entry for "need not be specified". (Assumed as having been selected in terms of the basic model code)
- When installation set screws are attached for △, specify it separately.

Selection Table for mounting option

Mounting method		Lock nut mount onto panel front	Thread mount onto panel front	Panel-rear installation	Bezel installation (trim strip)	Flange mounting (Must be specified except for JIS 10K)	Panel mounting by attached metal fitting	With stand
Code number		A	B	C	D	E	F	G
Model and page								
P-100	3	Need not be specified	×	○	○	×	×	○
P-200	5	Need not be specified	×	○	○	×	×	○
P-300	7	×	×	×	×	○	○	×
P-400	9	Need not be specified	×	×	×	○	×	○
P-510	11	Need not be specified	Need not be specified	△	○	○	×	○
P-520	13	○	Need not be specified	○	×	×	×	×
P-530	15	×	Need not be specified	○	○	×	×	×
P-540	17	×	Need not be specified	○	○	×	×	×
P-550	19	Need not be specified	×	×	×	×	×	×
P-610	21	×	Need not be specified	×	×	×	×	×
P-620	23	×	Need not be specified	×	×	×	×	×
P-710	25	×	Need not be specified	Need not be specified	×	×	×	×
P-771	27	×	Need not be specified	○	×	×	×	×
P-772	29	×	Need not be specified	△	×	×	×	×
P-773	31	×	Need not be specified	○	×	×	×	×
P-774	33	×	Need not be specified	×	×	×	×	×
P-810	35	Need not be specified	×	×	○	×	×	○
P-820	37	Need not be specified	×	×	○	×	×	○
P-830	39	×	Need not be specified	×	×	×	×	×
P-900	41	×	Need not be specified	×	×	×	×	×
P-010	42	Need not be specified	×	×	×	×	×	×
P-050	44	Need not be specified	Need not be specified	×	×	×	×	×
P-060(Body code A)	46	×	Need not be specified	×	×	×	×	×
P-060(Body code B)	46	Need not be specified	×	×	×	×	×	×
NP	48	×	Need not be specified	×	×	×	×	×
YP	49	○	×	×	×	×	×	×
XP	51	×	Need not be specified	×	×	×	×	×

<How to Specify (Example)>

When you want to specify **Bezel installation** for the standard P-100 series, N2, 1 to 10 L/min(nor), and valve bottom:

①
②
③
④
⑤
⑥
 P-10□-□□-□□-□□ - Fluid name - Flow rate range - Press. - Temp. - **Mounting option** - Other options

Specify **D** according to the code number in the selection table.

Thus, your ordering format should be as follows:

P 100 L0 4N R2 N2 10L/min(nor) D
 └──────────┬──────────┬──────────┬──────────┬──────────┬──────────┬──────────┘
 Standard model with valve inlet Fluid name Flow range Specify "Bezel installation".

Note: Press. and temp. **Need not be specified**, so they are omitted.

⑥ **Other options** **One-point advice**

- You can specify the following options.
- Specify the following code number if there is an option you want to choose.
- Specify the consecutive code numbers if there are two or more options you want to choose.
- For the details of option, contact us.

Other options (Selection Table)

Option	Alarm setting on the front face	Two point alarm	Reed switches compatible with CE or UL	Specify terminal position or "No terminal".	Specify the length of the reed switch lead wire.	Dual scale / special scale	Built-in check	Valve lock mechanism (Consult factory for details)	With various fittings
Code No.	L	M	N	O	P	Q	R	S	T
Optional item	Alarm position can be set from the front. (Need not be specified for P-773, P-774 and P-830)	For standard one-point alarm, you can specify two-point alarm such as upper/lower limit alarm and lower/lower limit alarm.	Reed switches on page 48 (Need not be specified for P-773, P-774 and P-830)	You can specify alarm terminal position (rear, top) or "No terminal" (if you do not want to have a terminal).	For the standard lead wire length of 50cm, you can specify 2m.	You can specify the dual graduation, one-point graduation or percent graduation.	You can specify the built-in check valve type for prevention of counterflow.	You can specify the valve with a mechanism to avoid deviation of flow setup values.	You can specify such attachments as SW, VCR, male/female sockets, hose connector. (Size and material must be specified).
Model and page									
P-100	3	×	×	○	×	○	○	○	○
P-200	5	×	○	○	×	○	○	○	○
P-300	7	×	×	×	×	○	×	×	○
P-400	9	×	×	×	×	○	×	×	○
P-510	11	○	○	○	○	○	○	×	○
P-520	13	×	○	○	○	○	×	×	○
P-530	15	×	×	Need not be specified	×	○	×	×	×
P-540	17	○	○	Need not be specified	×	○	×	×	○
P-550	19	Need not be specified	△	Need not be specified	×	○	×	×	○
P-610	21	×	×	×	×	○	×	×	○
P-620	23	○	×	△	×	○	×	×	○
P-710	25	×	×	×	×	○	×	×	○
P-771	27	×	×	×	×	○	×	×	×
P-772	29	×	○	○	×	○	×	×	×
P-773	31	Need not be specified	×	○	×	○	×	×	×
P-774	33	Need not be specified	×	○	×	○	×	×	×
P-810	35	×	×	×	×	○	×	×	○
P-820	37	×	○	○	×	○	×	×	○
P-830	39	Need not be specified	×	Need not be specified	×	○	×	×	○
P-900	41	×	×	×	×	○	×	×	○
P-010	42	×	×	×	×	×	×	×	×
P-050	44	×	×	×	×	×	×	×	×
P-060(Body code A)	46	×	×	Need not be specified	×	Need not be specified	×	×	×
P-060(Body code B)	46	×	×	Need not be specified	×	Need not be specified	×	×	×
NP	48	×	×	×	×	×	×	×	×
YP	49	×	×	×	×	×	×	×	×
XP	51	×	×	×	×	×	×	×	×

<How to Specify (Example)>

When you want to specify **two-point alarm** for the standard P-510 series, "Mounted on the panel front by screws" with water of 0.3MPa at 20°C, 2 to 20L/min. with reed switch equipped with lower limit open alarm and with valve outlet:

P-51□-□□-□□-□□ - Fluid name - Flow rate range - Press. - Temp. - Mounting method (optional) - Other options

Specify **M** according to the code number in the selection table.

Thus, your ordering format should be as follows:

P 510 UA 4N R3 Water 20L/min M

Valve outlet Alarm code A standard type Fluid name Flow range Specify "Two point alarm".

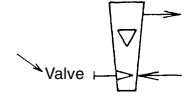
Note: Pressure and temperature **Need not be specified**, so they are omitted.

⑦ **Valve position selection guide** **One-point advice**

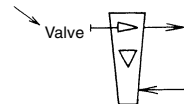
Use	Conditions	Valve position	Application
For liquid	Not in particular	Top recommended	Top recommended to ensure float stability
For gas	Pressurized gas	Top (outlet side)	Shipped with the tapered tube at your specified pressure
	Negative pressure on the secondary side		If a valve is provided on the inlet side, the tapered tube will be vacuum and hunting will occur to the float.

Valve position
1. For liquid, the valve may be located on the inlet or outlet side.

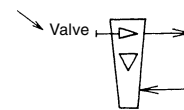
2. For gas,
(1) Gas to be measured has a pressure of 1 atm.



(2) Gas to be measured is pressurized.



(3) Gas to be measured is vacuum.



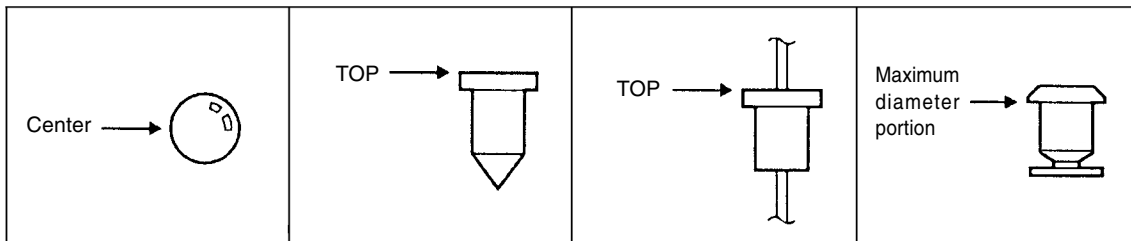
- 1) Specify the inlet and outlet pressure in case of purgemeter with valve
- 2) If there is no suggestion, valve is designed as different pressure 0.05MPa.
- 3) Consult factory for details if different pressure is under 0.05MPa.
- 4) In case of gas application, when the valve position is required to make it lower (inlet), this product is manufactured, making the pressure of tapered tube to be 1atm. For further details, contact factory.

⑧ **Density of gases** **One-point advice**

· A major gas property chart is given on the bottom line of page 1. Use it for your flow rate conversion.

⑨ **Float reading position** **One-point advice**

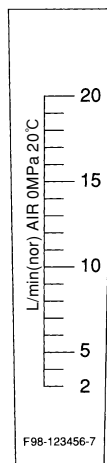
· Read the graduation on the glass tube and float position to get the flow rate. The reading position differs depending on the float shape. The following shows general reading positions according to float profile. For details, refer to the Instruction Manual of each product.



⑩ **When you want to have the same product as you are now using:** **One-point advice**

· Specify our serial production number of the product you are now using.

We will produce and ship the same product in conformity to our production record.(Ex.F98-123456-7)



⑪ **How to make quick model selection** **One-point advice**

· You will find at-a-glance guide "INDEX & QUICK REFERENCE" on page 2.

⑫ **How to compensation calculation** **One-point advice**

· An indication error will occur to the purgometer for the measurement principle if the specifications of the fluid to be measured and physical property values are different from those of the design conditions.

1) Liquid measuring specifications

$$C_{\gamma} = \sqrt{[\gamma_d(\gamma_f - \gamma)] / [\gamma(\gamma_f - \gamma_d)]}$$

C_{γ} : Conversion coefficient

γ_d : Design density (See the approval drawing).

γ : Design liquid density (density of the liquid to be measured this time)

γ_f : Density at float section

· How to calculate compensation (example)

Put alcohol into the flow meter designed based on water (with a density of 1.0 g/cm³), and the flow meter indicates 10L/min. (float material: stainless steel)

$$\begin{aligned} \text{Alcohol true flow rate} &= 10 \times \sqrt{[1.0 \times (7.9 - 0.8)] / [0.8 \times (7.9 - 1.0)]} \\ &= 11.34 \text{L/min} \end{aligned}$$

Errors may also occur when measuring the liquid having a viscosity considerably different from that in design conditions.

Compensation in this case is different according to design conditions of individual flow meter. So contact us for information.

2) Gas measurement specifications

● Density conversion

$$C_{\gamma} = \sqrt{\gamma_d / \gamma}$$

C_{γ} : Density conversion coefficient

γ_d : Design density kg/m³(nor) (Refer to approval drawing).

γ : Density of gas to be measured kg/m³(nor)

● Pressure conversion

When a graduation is either "(nor)" or "(std)" indication:

$$C_p = \sqrt{(p_d + 0.1013) / (p + 0.1013)}$$

When a graduation is under operating indication:

$$C_p = \sqrt{(p_d + 0.1013) / (p + 0.1013)}$$

C_p : Pressure conversion coefficient

p_d : Design pressure MPa (Refer to approval drawing).

p : Operating pressure MPa

● Temperature conversion

When a graduation is either "(nor)" or "(std)" indication:

$$C_t = \sqrt{(t_d + 273) / (t + 273)}$$

When a graduation is under operating indication:

$$C_t = \sqrt{(t + 273) / (t_d + 273)}$$

C_t : Temperature conversion coefficient

t_d : Design temperature °C (Refer to approval drawing).

t : Operating temperature °C

● How to calculate compensation (example)

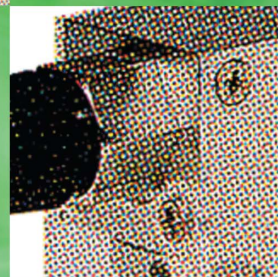
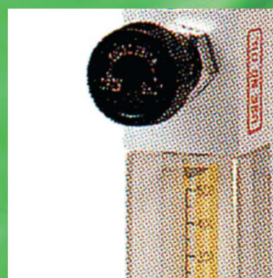
The flow meter designed under the conditions of 1.293 kg/m³(nor) of air at 20 °C and 0.3 MPa indicates 10L/min(nor). when 1.977 kg/m³(nor) of carbon dioxide gas is fed at 40 °C and 0.6 MPa.

$$\begin{aligned} \text{True flow rate of carbon dioxide gas} &= 10 \times C_{\gamma} \times C_p \times C_t \\ &= 10 \times \sqrt{1.293 / 1.977} \\ &\quad \times \sqrt{(0.6 + 0.1013) / (0.3 + 0.1013)} \\ &\quad \times \sqrt{(20 + 273) / (40 + 273)} \\ &= 10.34 \text{L/min(nor)} \end{aligned}$$

<MEMO>

P SERIES

PURGEMETERS



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Individual catalogues or technical guidances are available for all the products introduced in this general guidance.
Contact your agent or TOKYO KEISO.

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* Specification is subject to change without notice.

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