Small size, 1/2,000 resolution connector type digital pressure sensor

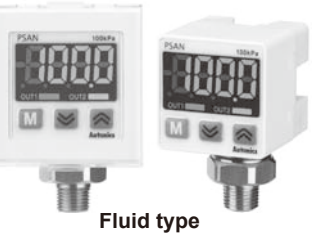
▣ Features

- Ideal for a wide range of applications of gas, liquid, and oil. (Inappropriate to corrosion environment for SUS316L)
- 1/2,000 high resolution for indication
- Hold/Auto shift input function : Enables to output stably regardless of changing normal primary pressure and One unit performs two units functions (Only for models with Hold/Auto shift input type)
- 2 independent outputs and N.O./N.C. output selectable
- Forced-output mode embodied for easy operation test and monitoring
- One-touch connector type for easy maintenance
- Analog output (resolution: automatically changes as 1/1,000 or 1/2,000 by display unit, voltage : 1-5VDC, current : DC4-20mA)
- Zero-point adjustment function, peak monitoring function, and chattering prevention function

Please read "Caution for your safety" in operation manual before using.

Pneumatic type

Line-up



Fluid type

▣ Ordering information

PS AN – [ ] V 01 C P V – Rc1/8

Pressure port※1	R1/8	Standard(Fluid type), Option(Pneumatic type)
	Rc1/8	Standard(Pneumatic type)
	NPT1/8	Option
	7/16-20UNF	Option(Fluid type)
Option output(Function)	V	Voltage(1-5VDC) output
	A	Current(DC4-20mA) output
	H	Hold/Auto shift input
Output type	No mark	NPN open collector output
	P	PNP open collector output
Cable	C	Connector type
Pressure range	01	100kPa
	1	1,000kPa
Pressure type	No mark	Standard pressure
	V	Negative pressure
	C	Compound pressure
Applicable fluid	No mark	Pneumatic type(Gas)
	L	Fluid type(Gas, Liquid, Oil)
Appearance	AN	Regular square New type(30mm×30mm)
Item	PS	Pressure Sensor

※1: In case of using M5 port, use PSO-Z01(M5 Gender) together.

▣ Pressure and Max. pressure display range

Type	MPa	kPa	kgf/cm²	bar	psi	mmHg	inHg	mmH₂O
Negative pressure	—	**0.0 to -101.3** (5.0 to -101.3)	**0.000 to -1.034** (0.051 to -1.034)	**0.000 to -1.013** (0.050 to -1.013)	**0.00 to -14.70** (0.74 to -14.70)	**0 to -760** (38.0 to -760.0)	**0.0 to -29.9** (1.50 to -29.90)	**0.0 to -103.4** (5.1 to -103.4)
Standard pressure	**0 to 0.100** (-0.005 to 0.110)	**0.0 to 100.0** (-5.0 to 110.0)	**0.000 to 1.020** (-0.051 to 1.122)	**0.000 to 1.000** (-0.050 to 1.100)	**0.00 to 14.50** (-0.72 to 15.96)	—	—	—
	0 to 1.000 (-0.050 to 1.100)	**0 to 1000** (-50 to 1100)	**0.00 to 10.20** (-0.51 to 11.22)	**0.00 to 10.00** (-0.50 to 11.00)	**0.0 to 145.0** (-7.2 to 159.6)	—	—	—
Compound pressure	—	**-101.3 to 100.0** (-101.3 to 110.0)	**-1.034 to 1.020** (-1.034 to 1.122)	**-1.013 to 1.000** (-1.013 to 1.100)	**-14.70 to 14.50** (-14.70 to 15.96)	**-760 to 750** (-760.0 to 824.0)	**-29.9 to 29.5** (-29.88 to 32.58)	**-103.4 to 102.0** (-103.4 to 112.2)

※( ) is Max. pressure display range.
※For using a unit mmH_2O, multiply display value by 100.

▣ Pressure conversion chart

from \ to	Pa	kPa	MPa	kgf/cm²	mmHg	mmH_2O	psi	bar	inHg
1Pa	1	0.001	0.000001000	0.000010197	0.007501	0.101972	0.000145038	0.000010000	0.0002953
1kPa	1000.000	1	0.001000	0.010197	7.500616	101.9716	0.145038	0.010000	0.2953
1MPa	1000000	1000	1	10.197162	7500.61683	101971.553	145.038243	10	295.299875
1kgf/cm²	98066.54	98.066543	0.09806	1	735.5595	10000.20	14.22334	0.980665	28.95878
1mmHg	133.322368	0.133322	0.000133	0.001359	1	13.5954	0.019336	0.001333	0.039370
1mmH_2O	9.80665	0.00980	–	0.000099	0.0735578	1	0.00142	0.000098	0.002895
1psi	6894.757	6.89757	0.00689	0.070307	51.71630	703.07	1	0.068947	2.036003
1bar	100000.0	100.0000	0.100000	1.019689	750.062	10196.89	14.50339	1	29.52998
1inHg	3386.417	3.388418	0.003386	0.034532	25.40022	345.31849	0.491158	0.033863	1

Ex) For calculating 760mmHg as kPa : According to above chart, 1mmHg is 0.133322kPa, therefore 760mmHg will be 760×0.133322kPa=101.32472kPa.

▣ Specifications

Pressure type		Gauge pressure			
		Negative pressure	Standard pressure		Compound pressure
Model ※1	Voltage(1-5VDC) output	PSAN-(L)V01C(P)V-□	PSAN-(L)01C(P)V-□	PSAN-(L)1C(P)V-□	PSAN-(L)C01C(P)V-□
	Current(DC4-20mA) output	PSAN-(L)V01C(P)A-□	PSAN-(L)01C(P)A-□	PSAN-(L)1C(P)A-□	PSAN-(L)C01C(P)A-□
	Hold/Auto shift input	PSAN-(L)V01C(P)H-□	PSAN-(L)01C(P)H-□	PSAN-(L)1C(P)H-□	PSAN-(L)C01C(P)H-□
Rated pressure range		0.0 to -101.3kPa	0.0 to 100.0kPa	0 to 1,000kPa	-101.3kPa to 100.0kPa
Display pressure range		5.0 to -101.3kPa	-5.0 to 110.0kPa	-50 to 1,100kPa	-101.3kPa to 110.0kPa
Min.display unit		0.1kPa	0.1kPa	1kPa	0.1kPa
Max. pressure range		2 times of rated pressure	2 times of rated pressure	1.5 times of rated pressure	2 times of rated pressure
Applied vapor		• **Pneumatic type** - Air, Non-corrosive gas			
Applied fluid		• **Fluid type** - Air, Non-corrosive gas and fluid that will not corrode SUS316L			
Power supply		12V-24VDC ±10%(ripple P-P:Max. 10%)			
Current consumption		Max. 50mA(Analog Current Output type Max 75mA)			
Control output		NPN or PNP open collector output • Load voltage: Max. 30VDC • Load current: Max. 100mA • Residual voltage - NPN: Max. 1V, PNP: Max. 2V			
	Hysteresis ※2	Min. display range			
	Repeat error	±0.2%F.S. ± Min. display range			
	Response time	Selectable 2.5ms, 5ms, 100ms, 500ms, 1000ms			
	Short circuit protection	Built-in			
Analog output ※3	Voltage output	• Output voltage: 1-5VDC ±2% F.S. • Linear: Within ±1% F.S. • Output impedance: 1kΩ • Zero point: Max. 1VDC ±2% F.S. • Span: Max. 4VDC ±2% F.S. • Response time: 50ms • Resolution: Automatically changed to 1/1000 or 1/2000 by display unit			
	Current output	• Output current: DC4-20mA ±2% • Linear: Max. ±1% F.S. • Zero-point: Max. DC4mA ±2% F.S. • Span: Max. DC16mA ±2% F.S. • Response time:70ms • Resolution: Automatically changed to 1/1000 or 1/2000 by display unit			
Display digit		4½digit			
Display method		7 segment LED Display			

Min. Display interval ※4	Resolution / Pressure unit	Negative pressure 1000	Negative pressure 2000	Standard pressure 1000	Standard pressure 2000	Pressure 1000	Pressure 2000	Compound pressure 1000	Compound pressure 2000
	MPa	—	—	0.001	—	0.001	—	—	—
	kPa	0.1	—	0.1	—	1	—	—	0.1
	kgf/cm²	0.001	—	0.001	—	0.01	—	—	0.001
	bar	0.001	—	0.001	—	0.01	—	—	0.001
	psi	—	0.01	—	0.01	—	0.1	—	0.02
	mmHg	—	0.4					—	0.8
	inHg	—	0.02					—	0.03
	mmH_2O	0.1	—					—	0.1

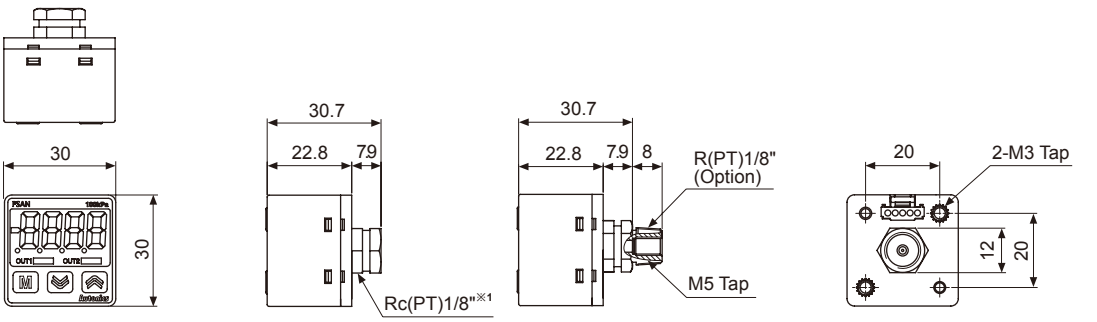
Display accuracy		0℃ to 50℃ : Max. ±0.5% F.S., -10 to 0℃ : Max. ±1% F.S.
Dielectric strength		1000VAC 50/60Hz for 1 minute
Insulation resistance		Min. 50MΩ(at 500VDC megger)
Vibration		1.5mm amplitude at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z direction for 2 hours
Environment	Ambient temperature	-10 to 50℃, storage : -20 to 60℃
	Ambient humidity	30 to 80%RH, storage :30 to 80%RH
Protection		IP40(IEC specification)
Material		• **Pneumatic type** - Front case: PC, Rear case: PC, Pressure port: Nickel Plated Brass • **Fluid type** - Front case: PC, Rear case: PA6, Pressure port: SUS316L
Cable		Connector cable (ø4mm, 5-wire, Length: 2m) (AWG 24, Core diameter: 0.08mm, Number of cores : 40, Insulator out diameter: ø1mm)
Approval		CE
Weight ※5		• **Pneumatic type** - Approx. 165g(Approx. 80g) • **Fluid type** - Approx. 173g(Approx. 88g)

※1: For '(L)', '(P)', '□' of model name, refer to '▣ Ordering information'.
※2: In hysteresis output mode, detection difference is variable.
※3: It is allowed to select one analog output type only.
※4: Resolution(1000/2000) of min. Display interval is automatically selected depend on pressure units.
※5:This weight is with packaging and the weight in parentheses is only unit weight.
※F.S. : Rated pressure.
※There may be ±1digit error in hysteresis by pressure unit calculation error.
※Environment resistance is rated at no freezing or condensation.

▣ Dimensions

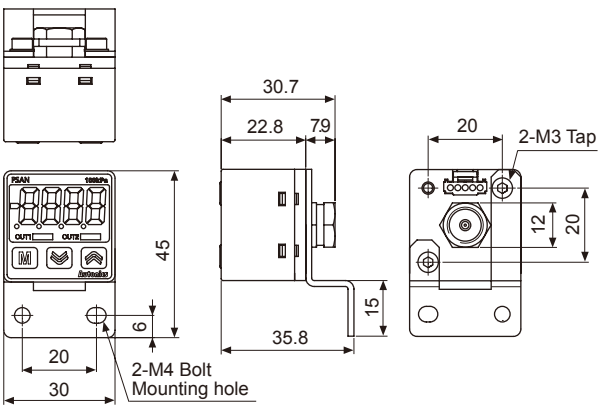
◎ Pneumatic type

(unit: mm)

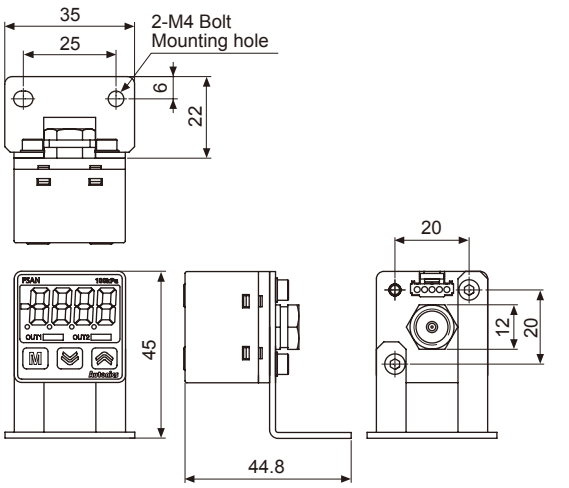


※1: Rc(PT)1/8"(Standard), NPT1/8"(Option) Depth 8mm

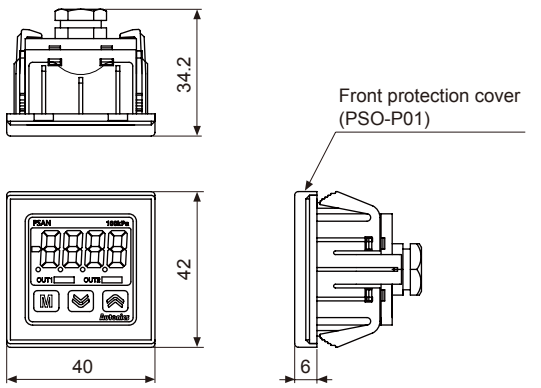
● Mounting the bracket A



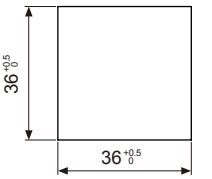
● Mounting the bracket B



● Mounting the panel bracket



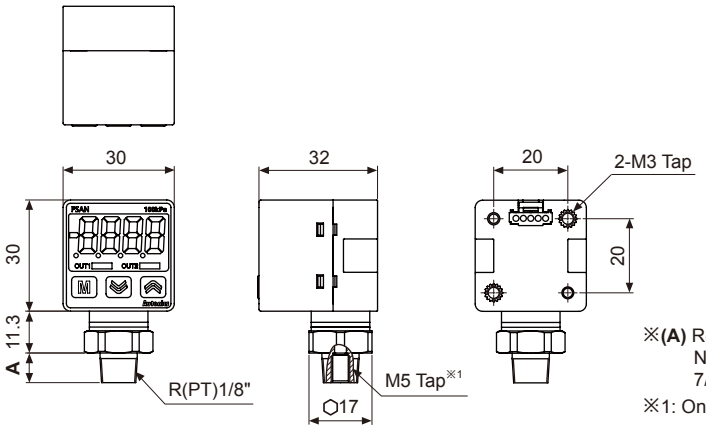
● Panel cut-out



(Panel thickness: 0.8mm to 3.5mm)

◎ Fluid type

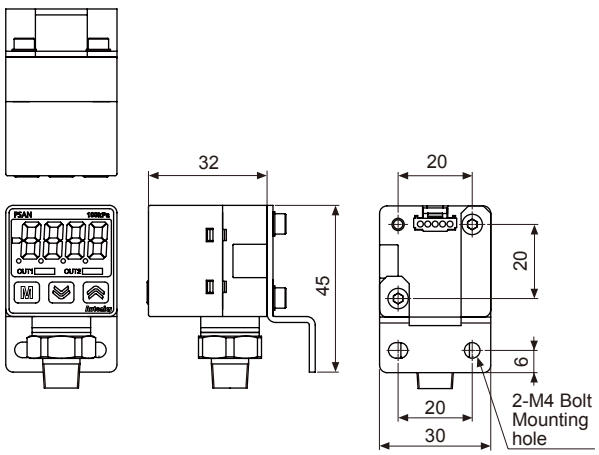
(unit: mm)



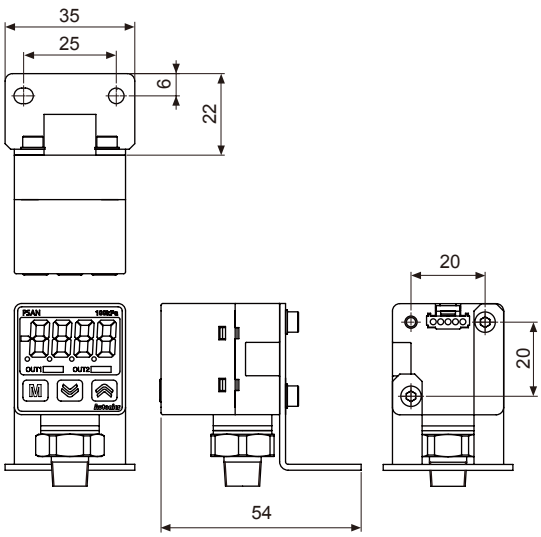
※**(A)** R(PT)1/8"(Standard): 8mm,
NPT1/8"(Option): 8mm,
7/16"-20 UNF(Option): 11mm

※1: Only for R(PT)1/8"(Standard), NPT1/8"(Option)

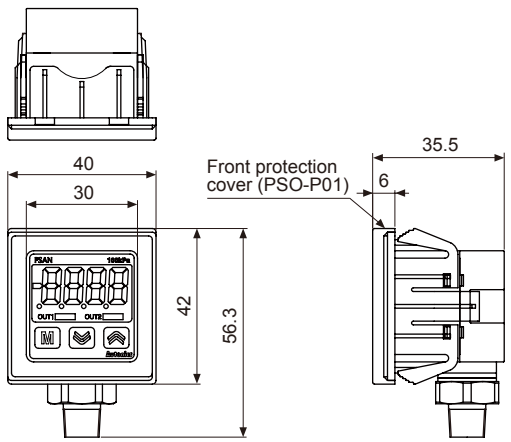
● Mounting the bracket A



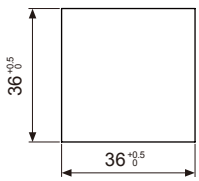
● Mounting the bracket B



● Mounting the panel bracket

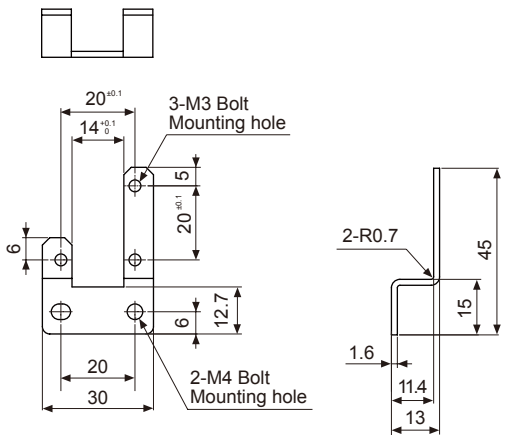


● Panel cut-out



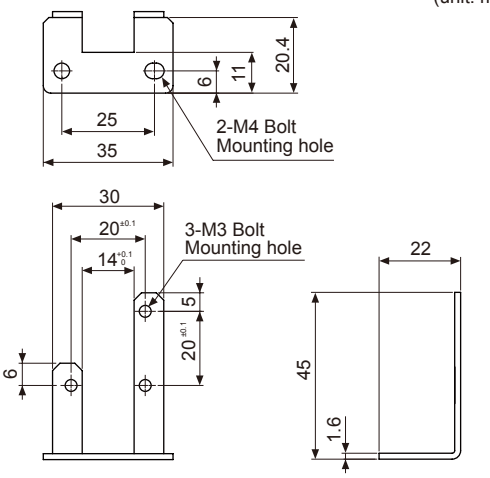
(Panel thickness: 0.8mm to 3.5mm)

● **Bracket A**

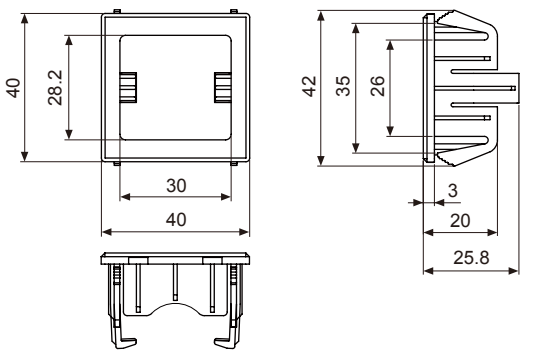


● **Bracket B**

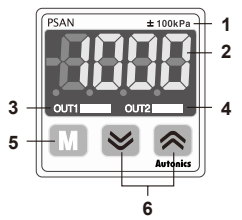
(unit: mm)



● **Panel bracket(PSO-B02)**



▣ Front panel identification and function



1. Range of rated pressure
: It is possible to change the pressure unit in Pressure sensor.
Use different unit as label for your application.

2. 4digit LED display(Red)
: Used to indicate measured pressure value, setting value and error message.

3. Output1 indicator(Red): Output 1 is ON, LED will be ON.

4. Output2 indicator(Green): Output 2 is ON, LED will be ON.

5. M key: Used to enter into Preset/Parameter setting mode and to save Setting mode.

6. ▽, △ key: Used to set parameter and preset, peak value check mode, function setting or output operation mode.

▽ + △ key : Used for zero point adjustment function by pressing ▽ + △ keys over 1 sec simultaneously in RUN mode.

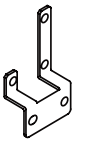
▣ Accessory

● **Pressure unit label**

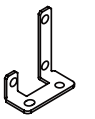
±100kPa	-101.3kPa	2kPa	10kPa	100kPa	1MPa
±1.020kgf/cm²	-1.034kgf/cm²	2.040kgf/cm²	10.20kgf/cm²	1.020kgf/cm²	10.20kgf/cm²
±14.50psi	-14.70psi	29.00psi	145.0psi	14.50psi	145.0psi
±1.000bar	-1.013bar	2.000bar	10.00bar	1.000bar	10.00bar
±750mmHg	-760mmHg				
±29.5inHg	-29.9inHg			/100	/100
±102.0mmH$_2$O	-103.4mmH$_2$O	2.040mmH$_2$O	10.20mmH$_2$O	X100	X100

DISPLAY UNIT LABEL

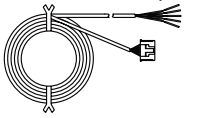
● **Bracket A**



● **Bracket B**

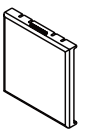


● **Connector cable (PSO-C01, 2m)**

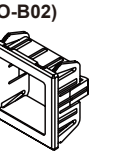


◎ Sold separately

● **Front cover (PSO-P01)**



● **Panel bracket (PSO-B02)**

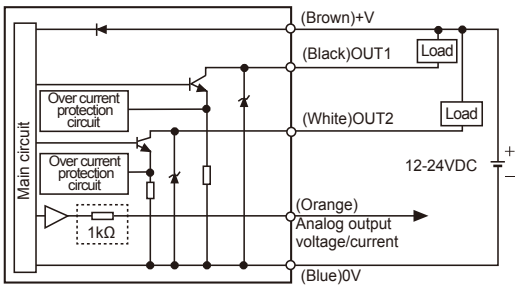


● **M5 Gender (PSO-Z01)**

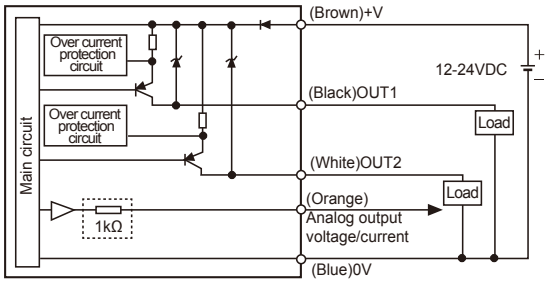
■ Control output diagram

◎ Voltage (1-5VDC) output type (PSAN-□□□□□V-□)
Current(DC4-20mA) output type (PSAN-□□□□□A-□)

● NPN open collector output type



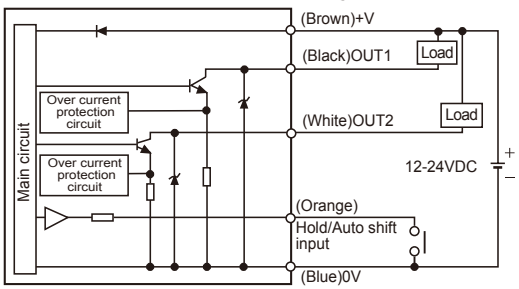
● PNP open collector output type



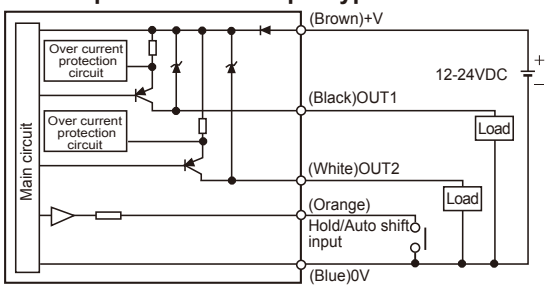
※In case of analog voltage output type models short-circuit protection is not embodied. (: For voltage output type only.) Do not connect with power source or load directly.
※Be careful with input impedance of connecting devices when using analog voltage output type models.
※Be careful with voltage drop due to cable resistance when extending sensor cable.

◎ Hold/Auto shift input (PSAN-□□□□□H-□)

● NPN open collector output type

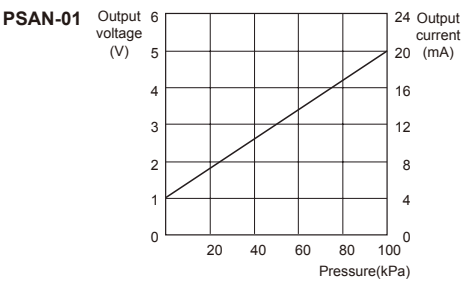


● PNP open collector output type

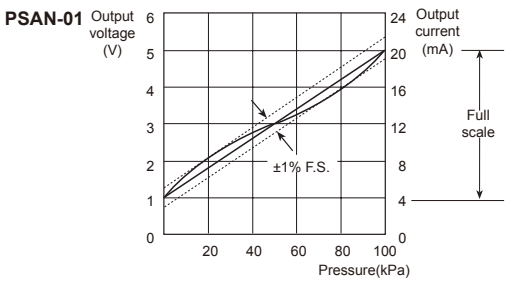


■ Analog output characteristic

● Analog output voltage and current - Pressure characteristic



● Analog output voltage and current - Linear characteristic

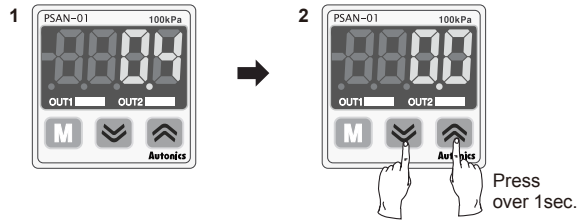


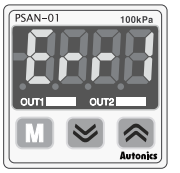
■ Setting

RUN mode

Press M key over 3sec.	Parameter setting	Pressure unit setting ▶ Output operation mode setting ▶ Output type setting ▶ Response time setting ▶ Analog output scale and Hold/Auto Shift input setting ▶ Key lock setting
M	Preset value setting	Detection level 1 setting (out1) ▶ Detection level 2 setting (out2)
	Forced output control mode setting	The forced output control mode is applied with pressing M key after selecting forced output control mode [F.oUt] in output operation mode [oUt.M] parameter. For more detailed information, refer to '● Forced output control mode' ' ■ Output operation mode'
Press ▲ key over 3sec.	Peak hold	High peak value check ▶ Low peak value check ▶ Auto shift input setting (In case of Hold/Auto shift input type model)
Press ▼+▲ keys over 1sec.	Zero-point adjustment	Zero-point adjustment

▣ Zero point adjustment





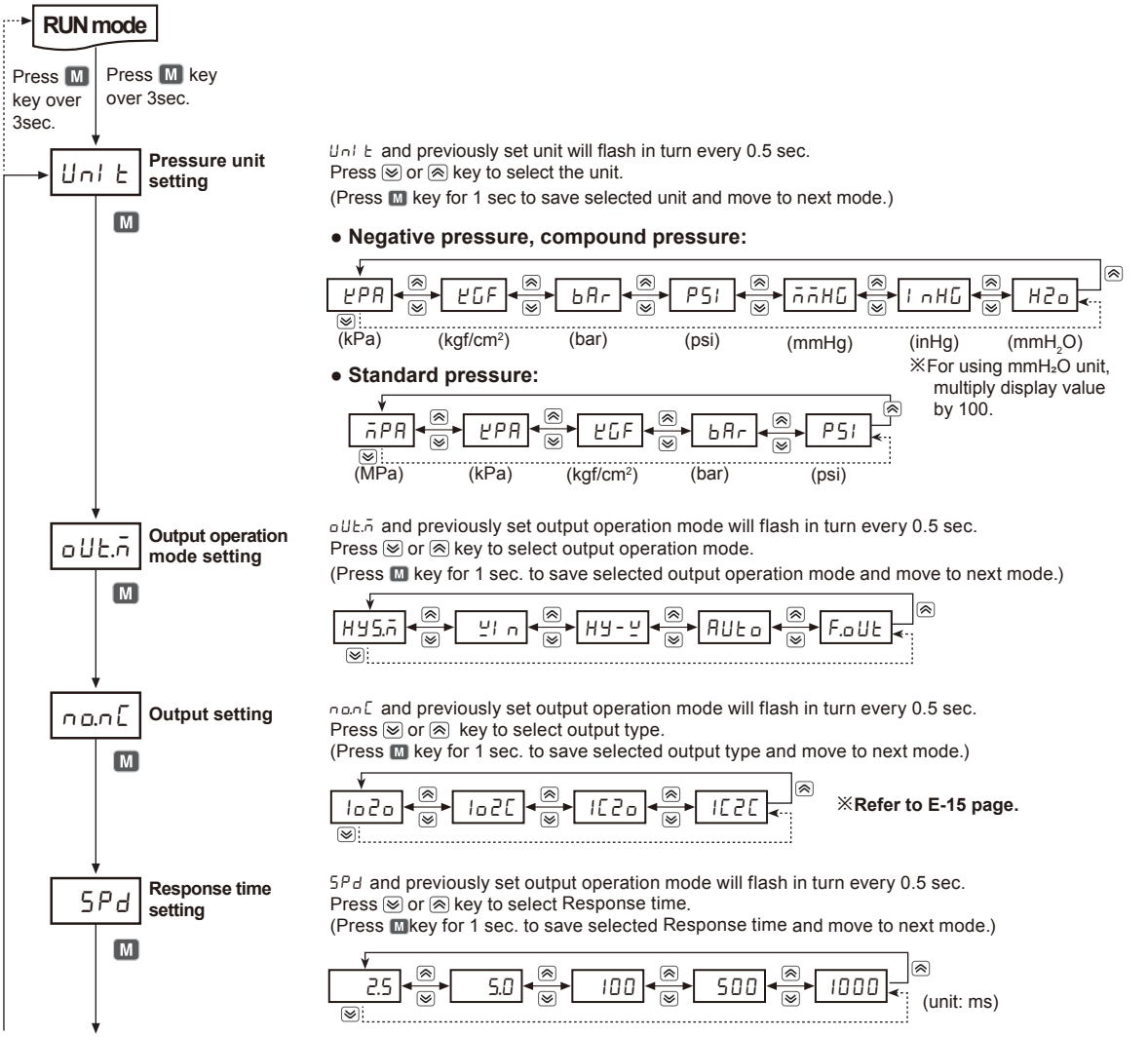
1. In state of atmospheric pressure during RUN mode, press ⩒ key and ⩓ key at the same time for over 1sec.
2. When the zero-point adjustment is completed, it will display 0.0 and return to RUN mode automatically.

※Please execute zero-point adjustment regularly.

If executing zero point adjustment when external pressure has been applied, Err1 will flash. Please execute zero-point adjustment again in state of atmospheric pressure without external pressure.

▣ Parameter setting

1. It is able to set pressure unit, display resolution, output operation mode, output type, Response time, analog output scale, Hold/Auto shift and key lock setting in parameter setting mode.
2. If the key lock is set (lock1 or lock2), unlock the key lock before setting parameters. (Refer to Key Lock setting below.)



※Refer to E-13 page.

Voltage(1-5VDC) output type (PSAN-□□□□□V-□)

※1 A-Iu **1V scale setting** → M → ※2 A-5u **5V scale setting** → M

Current(DC4-20mA) output type (PSAN-□□□□□A-□)

※1 A-04 **4mA scale setting** → M → ※2 A-20 **20mA scale setting** → M

Hold/Auto shift input type (PSAN-□□□□□H-□)

※3 d-In **Select external input function** → M → SH.ot **Select the control output for Auto shift function** → M

※1: A-Iu (voltage output)/ A-04 (current output)and previously set pressure value will flash in turn every 0.5 sec.
Press ▼ or ▲ key to set analog output scale value for 1V and 4mA.
Setting range: Min. rated pressure ≤ [A-Iu, A-04] ≤ 90% of rated pressure
(Press M key for 1 sec to save selected pressure value as a scale value for 1V and 4mA and move to next mode.)

※2: A-5u (voltage output)/ A-20 (current output) and previously set pressure value will flash in turn every 0.5 sec.
Press ▼, ▲ Key to set analog output scale value for 5V and 20mA.
Setting range:[A-Iu, A-04]+10% of rated pressure ≤ [A-5u, A-20] ≤ Max. rated pressure
(Press M key for 1 sec to save selected pressure value as a scale value for 5V and 20mA and move to next mode.)

※3: d-In and previously set control function will flash in turn every 0.5 sec. Press ▲, ▼ key to select external function.
(Press M key for 1 sec to save selected function and move to next mode.)

● **Select external input function**

Hold ⇄ SHFt

● **Select the control output for Auto shift function**

oUt1 ⇄ oUt2 ⇄ ALL

LoCK **Key Lock** → M

LoCK will flash in turn with previous setting parameter. Press ▼, ▲ key to select key lock setting.
(Press M key for 1 sec. to save selected lock setting. Then, it will be returned to pressure unit setting mode.)

LoC1 ⇄ LoC2 ⇄ oFF

※When pressing M key for 3 sec. in the middle of parameter setting, current setting value will be saved in EEPROM and it will be returned to RUN mode.
※All settings are saved in EEPROM regardless of power failure. Make sure that EEPROM has a limited write life cycle(100,000 times).

▣ Preset setting

◎ Hysteresis mode [HYS.n]

RUN mode → M → St1 → M → HYS1 → M → St2 → M → HYS2 → M → **RUN mode**

RUN mode

St1 and previously set value will flash in turn every 0.5 sec.

HYS1 and previously set value will flash in turn every 0.5 sec.

St2 and previously set value will flash in turn every 0.5 sec.

HYS2 and previously set value will flash in turn every 0.5 sec.

Press ▼ or ▲ Key to select St1 setting value.

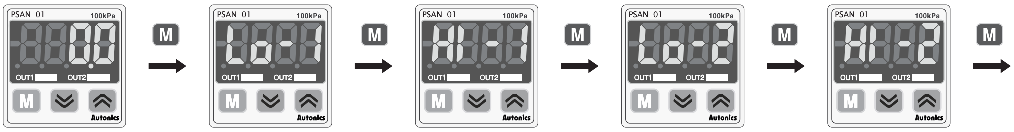
Press ▼ or ▲ key to select HYS1 setting value.

Press ▼ or ▲ key to select St2 setting value.

Press ▼ or ▲ key to select HYS2 setting value.

※St1 setting range : Min. display pressure < St1 ≤ Max. display pressure
※HYS1 setting range : Min. display pressure < HYS1 ≤ St1
※St2 setting range : Min. display pressure < St2 ≤ Max. display pressure
※HYS2 setting range : Min. display pressure < HYS2 ≤ St2

◎ Window comparison output mode [Win]



RUN mode

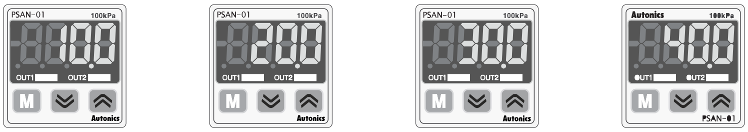
RUN mode

Lo-1 and previously set value will flash in turn every 0.5 sec.

HI-1 and previously set value will flash in turn every 0.5 sec.

Lo-2 and previously set value will flash in turn every 0.5 sec.

HI-2 and previously set value will flash in turn every 0.5 sec.



Press ⓥ or ⓐ Key to select Lo-1 setting value.

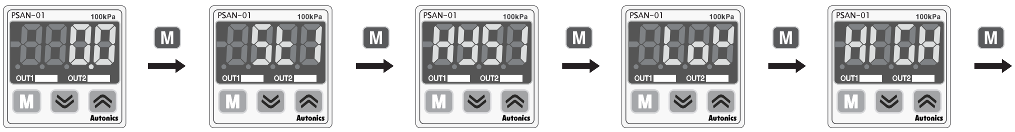
Press ⓥ or ⓐ Key to select HI-1 setting value.

Press ⓥ or ⓐ Key to select Lo-2 setting value.

Press ⓥ or ⓐ Key to select HI-2 setting value.

※Lo-1 setting range: Min. display pressure < Lo-1 ≤ Max. display pressure-(3×Min. display interval)
※HI-1 setting range: Lo-1+(3×Min. display interval) ≤ HI-1 ≤ Max. display pressure
※Lo-2 setting range: Min. display pressure < Lo-2 ≤ Max. display pressure-(3×Min. display interval)
※HI-2 setting range: Lo-2+(3×Min. display interval) ≤ HI-2 ≤ Max. display pressure
※The minimum display interval for hysteresis is fixed to 1.

◎ Hysteresis-Window comparison output mode [HY-W]



RUN mode

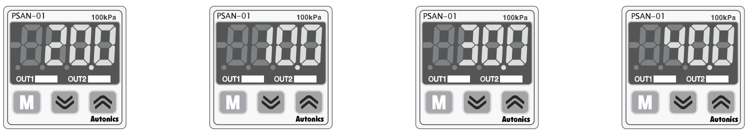
RUN mode

St1 and previously set value will flash in turn every 0.5 sec.

HYS1 and previously set value will flash in turn every 0.5 sec.

LoW and previously set value will flash in turn every 0.5 sec.

HIGH and previously set value will flash in turn every 0.5 sec.



Press ⓥ or ⓐ Key to select St1 setting value.

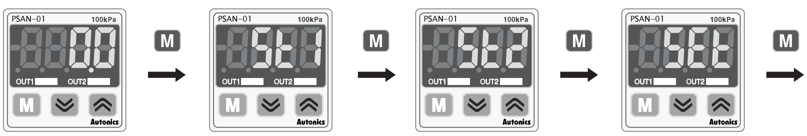
Press ⓥ or ⓐ Key to select HYS1 setting value.

Press ⓥ or ⓐ Key to select LoW setting value.

Press ⓥ or ⓐ Key to select HIGH setting value.

※St1 setting range : Min. display pressure < St1 ≤ Max. display pressure
※HYS1 setting range : Min. display pressure < HYS1 ≤ St1
※LoW setting range : Min. display pressure < LoW ≤ Max. display pressure - (3×Min. display interval)
※HIGH setting range : Low value + (3×Min. display interval) ≤ HIGH ≤ Max. display pressure
※In case HYS1 and St1 have the same setting values, it will have the minimum display unit as a hysteresis.

◎ Automatic sensitivity setting mode [AUto]



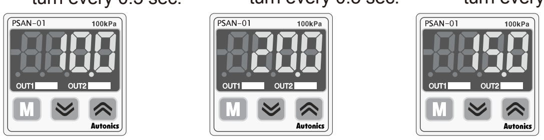
RUN mode

RUN mode

St1 and previously set value will flash in turn every 0.5 sec.

St2 and previously set value will flash in turn every 0.5 sec.

SEt and previously set value will flash in turn every 0.5 sec.



Sensitivity will be automatically SEt. Press ⓥ or ⓐ key to fine-adjust the setting value between St1 and St2.

$$SEt = \frac{St1 + St2}{2}$$

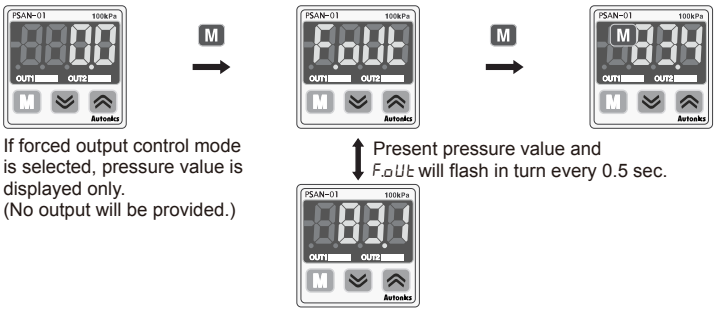
Press ⓥ or ⓐ Key to select St1 setting value.

Press ⓥ or ⓐ Key to select St2 setting value.

Press ⓥ or ⓐ Key to select SEt setting value.

※St1 setting range : Min. display pressure < St1 ≤ Max. display pressure - 1% of rated pressure
※St2 setting range : St1 + 1% of rated pressure < St2 ≤ Max. display pressure
※If certain detection level difference is not ensured, or setting conditions are not met, Err3 message will flash three times and returned to St2 setting mode. Check all setting conditions and set proper setting values.

◎ Forced output control mode [F.oUt]



If forced output control mode is selected, pressure value is displayed only.
(No output will be provided.)

Present pressure value and F.oUt will flash in turn every 0.5 sec.

Control output 1 OFF ⇄ Control output 1 OFF

Control output 2 OFF ⇄ Control output 2 OFF

※If there is no additional key operation within 60 sec while setting, it is returned to Run mode (Except for force output mode). Previously set values are remained.

※In case of changing output operation mode, no preset values will be initialized. Instead, previous output operation settings will become the preset values.

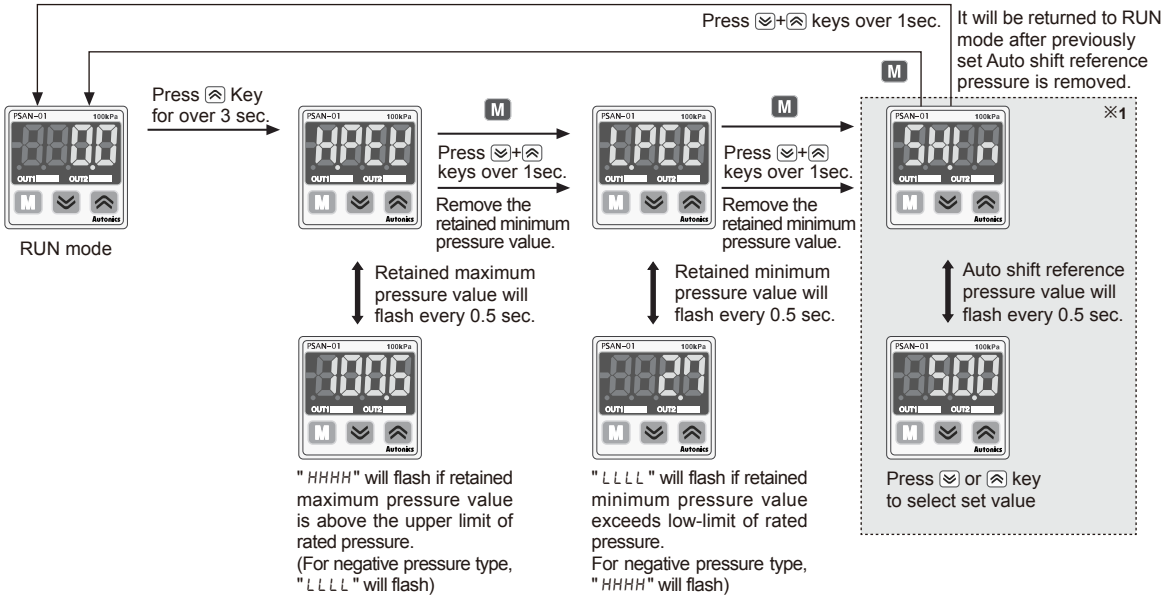
※When using the forced output function, Hold/Auto shift function is not available to use in Hold/Auto shift model.

※When changing pressure display unit, resolution, and Hold Auto shift input function, preset values will be initialized as shown the next table. (When changing pressure display unit, preset value will be automatically switched to changed pressure unit.)

● **Factory default** (unit: kPa)

Output mode	Negative pressure 0.0 to -101.3	Standard pressure 0.0 to 100.0	Standard pressure 0 to 1,000	Compound pressure -101.3 to 100.0
HYS.n	St 1:-50.0 HYS 1:0.0 St2:-50.0 HYS2:0.0	St 1:50.0 HYS 1:0.0 St2:50.0 HYS2:0.0	St 1:500 HYS 1:0 St2:500 HYS2:0	St 1:50.0 HYS 1:-50.0 St2:50.0 HYS2:-50.0
d-In	Lo- 1:0.0 HI - 1:-50.0 Lo-2:0.0 HI -2:-50.0	Lo- 1:0.0 HI - 1:50.0 Lo-2:0.0 HI -2:50.0	Lo- 1:0 HI - 1:500 Lo-2:0 HI -2:500	Lo- 1:-50.0 HI - 1:50.0 Lo-2:-50.0 HI -2:50.0
HY-U	St 1:-50.0 HYS 1:0.0 LoU:0.0 HI GH:-50.0	St 1:50.0 HYS 1:0.0 LoU:0.0 HI GH:50.0	St 1:500 HYS 1:0 LoU:500 HI GH:0	St 1:50.0 HYS 1:-50.0 LoU:-50.0 HI GH:50.0
AUto	St 1:0.0 St2:-50.0 SEt:-25.0	St 1:0.0 St2:50.0 SEt:25.0	St 1:0 St2:500 SEt:250	St 1:-50.0 St2:50.0 SEt:0.0

▣ High peak/Low peak function and Auto shift reference pressure check/change



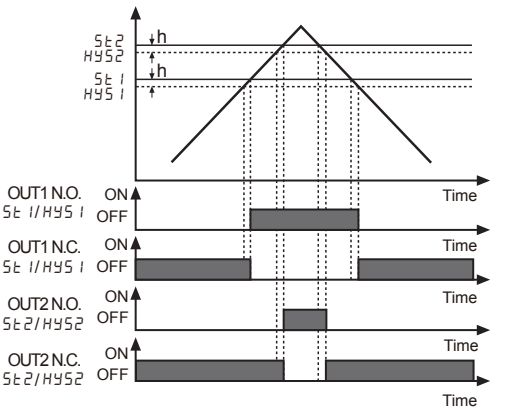
※1: Displayed only when d-In is set to SHFt (PSAN- □□□□□H-□ models only)

※If there is no Auto shift input, "0" will be displayed.(Refer to E-15 page for more details.)

▣ Output operation mode

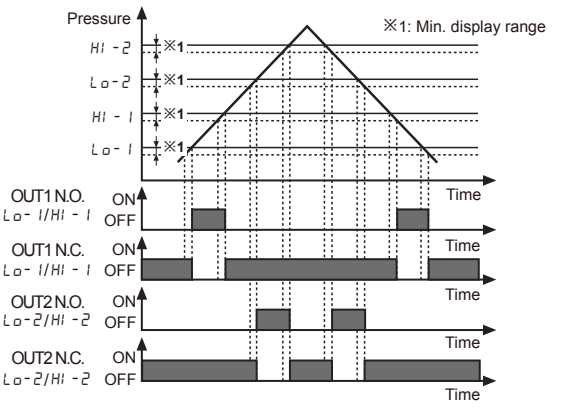
1. Hysteresis mode [HYS.n]

It is able to set certain value for pressure detection level [St 1, St2] and hysteresis [HYS 1, HYS2].



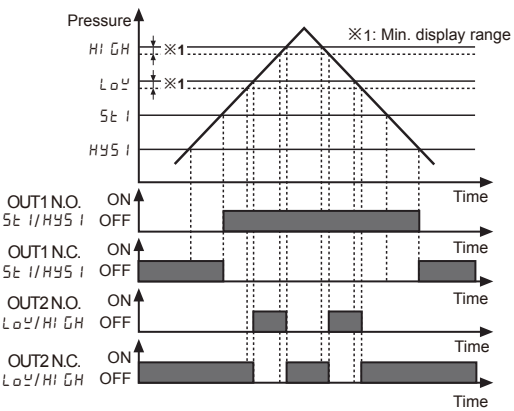
2. Window comparison output mode [Y1 n]

① It is able to set the range for high [Hi - 1,Hi -2], low [Lo- 1, Lo-2] limit of pressure detection level when it is required to detect pressure at a certain range.
② Detection hysteresis is fixed to min. display range.



3. Hysteresis-window comparison output mode [HY-Y]

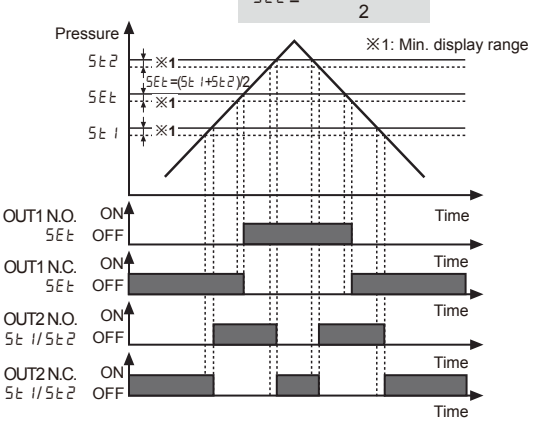
① It is available to set hysteresis mode and window comparison output mode when both hysteresis mode [St 1, St2] and window comparison output mode [LoY, Hi GH] are necessary.
② Detection hysteresis is fixed to min. display range.



4. Automatic sensitivity setting mode [AUto]

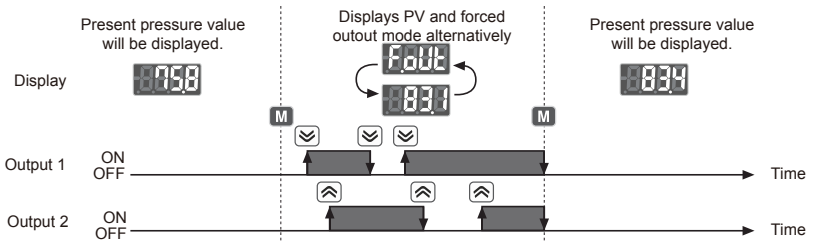
① This function is to set pressure detection level to the proper position automatically. It is set by applied pressure from two positions [St 1, St2].
② Detection hysteresis is fixed to min. display range.
③ The pressure detection level[SEt] is shown in the following calculation.

$$SEt = \frac{(St\ 1+St2)}{2}$$



5. Forced output control mode [F.oUt]

① Used to display pressure with forcibly holding comparing output OFF regardless of setting value.
② In parameter setting, if output operation mode setting 'oUt.n' is changed to 'F.oUt', forced output control mode is operated.
③ Output 1, 2 can be ON/OFF manually by pressing ⋙, ⋘ key while the forced output control mode is applied.



▣ Functions

◎ Pressure unit change

PSAN-V01C(P) and PSAN-C01C(P) has 7 kinds of pressure unit, PSAN-01C(P) and PSAN-1C(P) has 5 kinds of pressure unit. Please select the proper unit for application.

• PSAN-V01C(P), PSAN-C01C(P)
: kPa, kgf/cm², bar, psi, mmHg, inHg, mmH_2O
• PSAN-01C(P), PSAN-1C(P) : MPa, kPa, kgf/cm², bar, psi
※When using mmH_2O unit, multiply display value by 100.

◎ Output mode change

There are 5 kinds of control output mode in order to realize the various pressure detection.

• Hysteresis mode [HYSn]
When needed to change hysteresis for detecting pressure.
• Window comparison output mode [Win]
When needed to detect pressure in certain area.
• Hysteresis - Window comparison output mode [HY-Wi]
When both hysteresis mode and window comparison output mode are required.
• Automatic sensitivity setting mode [AUto]
When needed to set detection sensitivity automatically at proper position.
• Forced output control mode [FoUt]
When needed to display pressure with remaining comparison output OFF regardless of setting value.

◎ Control output change

Type of control output for Out1 and Out2 can be able to set Normally Open or Normally Closed.
※Note that Normally Open and Normally Closed provide opposite output.

OUT1 output	OUT2 output	Parameter setting value
Normally Open	Normally Open	`1o2o`
Normally Open	Normally Closed	`1o2C`
Normally Closed	Normally Open	`1C2o`
Normally Closed	Normally Closed	`1C2C`

◎ Response time change (chattering prevention)

It can prevent chattering of control output by changing Response time. It is able to set 5 kinds of Response time (2.5ms, 5ms, 100ms, 500ms, 1000ms) and if the Response time is getting longer, the detection will be more stable by increasing the number.

◎ Analog output scale setting

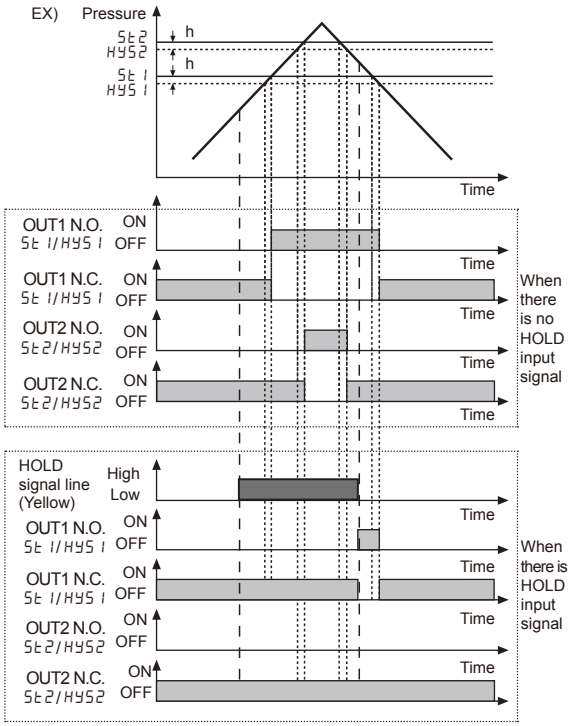
• Analog voltage output scale setting
The scale function for analog output voltage(1-5VDC) is not fixed to the rated pressure range. It can be changed for User's application. Analog output voltage range will be fixed to 1-5VDC within the pressure range from pressure point of 1VDC output [A-1u] to pressure point of 5VDC output [A-5u].

• Analog current output scale setting
The scale for analog output Current (DC4-20mA) is not fixed to the rated pressure range. It can be changed for User's application. Analog output voltage will be fixed to 4-20mA within the rated pressure range from pressure point of 4mA output [A-04] to pressure point of 20mA output [A-20].

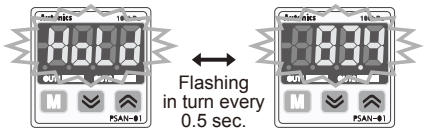
◎ Hold/Auto shift input setting

• Hold
A function to hold present pressure value and control output at the time of hold signal input.
※Present pressure value and Hold message will flash in turn every 0.5 sec. while Hold function is set. Make sure that Hold function is not able to execute while forced output mode is executed.

▸ Control output timing chart
When Hold signal is applied in Hysteresis mode, refer to '▣ Control output diagram' of E-9 page.



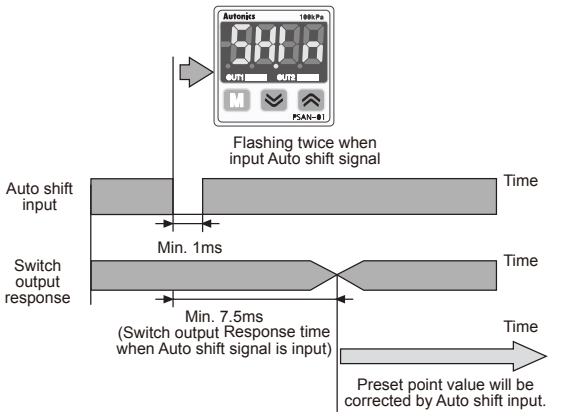
※[HoLd] and present pressure value will flash in turn every 0.5 sec. while Hold signal is applied.



• Auto shift
A function to use the measured pressure at the moment of auto shift input as a reference pressure in order to correct the set point values of control output when initial pressure changes.
※Reference pressure is fixed to atmospheric pressure (0.0kPa) when Auto shift function is not used.
※SHIn (Auto shift compensation value) will be reset to 0 when changing control output or preset values.
※Auto shift function will not be executed if "HHHH" or "LLLL" error occurs or if forced output mode is set.
• SHot : Reference pressure change through setting.
• oUt1 : Changed reference will be applied to control output 1 only.
• oUt2 : Changed reference will be applied to control output 2 only.
• ALL : Changed reference will be applied to both control output 1 and control output 2.

▸ **When Auto shift is used**

When Auto shift input signal remains at low level more than 1ms, the measured pressure at this point will be saved as a reference value to make correct judgment regardless of pressure changes. Corrected preset pressure value will be applied after 7.5ms.
Measured reference pressure value will be saved in [SHI n].



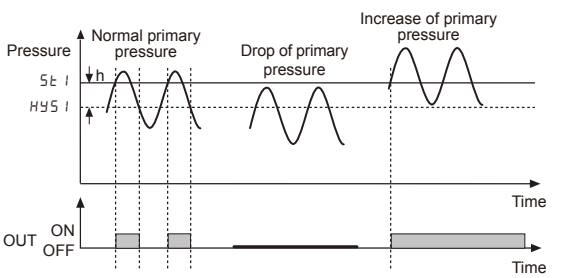
※When Auto shift function is used, the possible set pressure range will be wider than rated set pressure range.
※The possible set pressure range for Auto shift type models.

Pressure type	Set pressure range	Possible set pressure range for Auto shift type models
Vacuum pressure	-101.3kPa to 5.0kPa	-101.3kPa to 101.3kPa
Vacuum pressure	-5.0kPa to 110.0kPa	-110.0kPa to 110.0kPa
	-50.0kPa to 1100kPa	-1100kPa to 1100kPa
Compound pressure	-101.3kPa to 110.0kPa	-101.3kPa to 110.0kPa

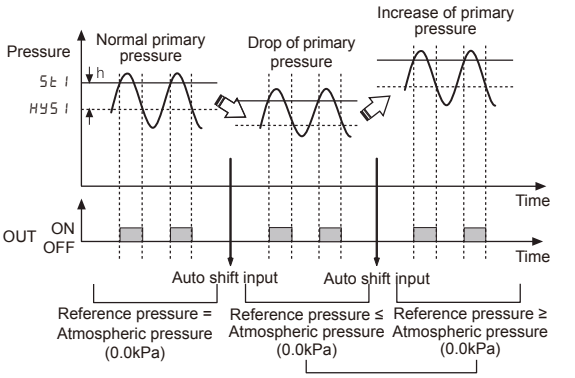
※If the set point value corrected by auto shift input exceeds set pressure range,an error message will flash three times and corrected value is not saved.
→[-HH-] displayed when the set point value corrected by Auto shift input is above the upper limit of set pressure range.
→ [-LL-] displayed when the set point value corrected by Auto shift input is below the lower limit of set pressure range.
※The correction value will be saved in EEPROM.

▸ **Example of Auto shift**

< When Auto shift is not used >



< When Auto shift is used >



Correction set value: SET = SET + SHI n
Correction set value: HYS1 = HYS1 + SHI n
※ SHI n is the reference pressure set by Auto shift input.

◎ Key lock

The key lock function prevents key operations so that conditions set in each mode.
- LOC1: All keys are locked; therefore it is not available to change parameter settings, preset value, zero adjustment, High/Low peak check, and SHI n data initialization. (Lock setting change is available)
- LOC2: Partially locked status; therefore it is not available to change parameter settings only(Lock setting change is available). Other settings are still available.
- OFF: All of the setting is available, all keys are unlocked. to set detection sensitivity automatically at proper position.

◎ Zero-point adjustment

The key lock function prevents key operations so that conditions set in each mode.
The zero-point adjustment function forcibly sets the pressure value to "zero" when the pressure port is opened to atmospheric pressure. When the zero adjustment is applied, analog output [Voltage or Current] is changed by this function.
(Press ⩛ + ⩓ keys over 1 sec. in RUN mode.)

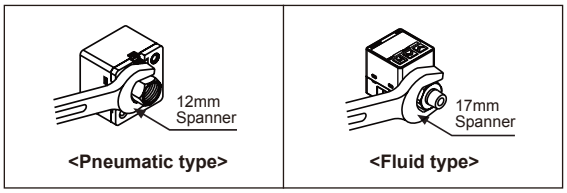
◎ High Peak / Low Peak Hold

This function is to diagnosis malfunction of the system caused by parasitic pressure or to check through memorizing the max./min. pressure occurred from the system.

Error display	Description	Troubleshooting
Err1	When external pressure is input while adjusting zero point	Try again after removing external pressure
Err2	When overload is applied on control output	Remove overload
Err3	When setting condition is not met in Auto sensitivity setting mode	Check setting conditions and set proper setting values
LLLL	When applied pressure exceeds Low-limit of display pressure range	Apply pressure within display pressure range
HHHH	When applied pressure exceeds High-limit of display pressure range	
-HH- -LL- -Ho-	Auto shift correction error	Set the corrected setting value within setting pressure range.

▣ Installation

1. Pressure port is divided as standard and option specification. Therefore, be sure that to use commercially available one touch fitting.
   - Standard - Pneumatic type: Rc(PT)1/8"
     - Fluid type: R(PT)1/8"
   - Option - Pneumatic type: NPT1/8", R(PT)1/8"
     - Fluid type: NPT1/8", 7/16"-20 UNF
2. Please connect it by using spanner(pneumatic type 12mm, fluid type 17mm) at the metal part in order not to overload on the body when connecting one touch fitting.

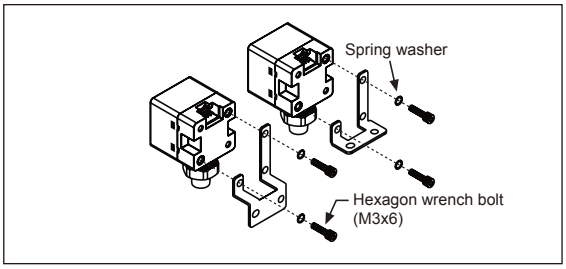


<Pneumatic type> <Fluid type>

⚠Caution

The tightening torque of one touch fitting should be max.100kgf·cm. If not, it may cause mechanical problem.

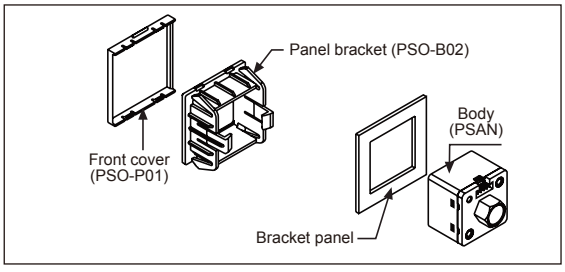
3. Two different brackets are provided for PSAN model. Select proper one with considering your application environments.
4. At first, please unscrew hexagon wrench bolt and assemble the bracket on this unit by fixing hexagon the wrench bolt.



⚠Caution

In this case, tightening torque of hexagon wrench should be max. 30kgf·cm. If not, it may cause mechanical problem.

5. Panel bracket(PSO-B02) and front cover (PSO-P01) are sold separately. Please see the pictures for installation.

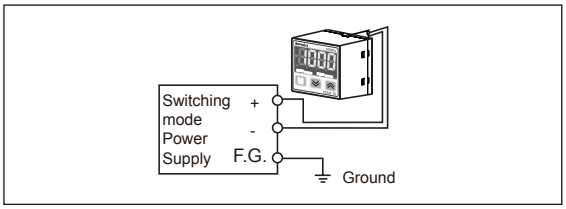


▣ Proper usage

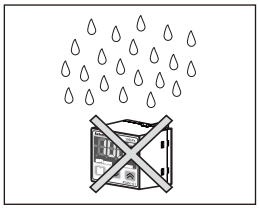
⚠Caution

PSAN Series is for sensing of non corrosive gas. Do not use this product at corrosive gas or flammable gas, etc.

- Please using this unit within the range of specification, if applying pressure is larger than specification, it may not be working properly due to damage.
- After supplying power, it takes 3 sec. to work.
- When using switching mode power supply, frame ground (F.G.) terminal of power supply should be grounded.



- It may cause malfunction by noise, when wiring with power line or high voltage line.
- Do not insert any sharp or pointed object into pressure port. It may cause mechanical problem due to sensor damage.
- Do not use this unit with flammable gas, because this is not an explosion proof structure.
- Be sure that this unit should not be contacted directly with water, oil, thinner, etc.



- Wiring must be done with power off.