Autonics

Digital Pressure Sensor (fluid type)

PSAN Series

INSTRUCTION MANUAL







Thank you very much for selecting Autonics products. For your safety, please read the following before using.

Safety Considerations

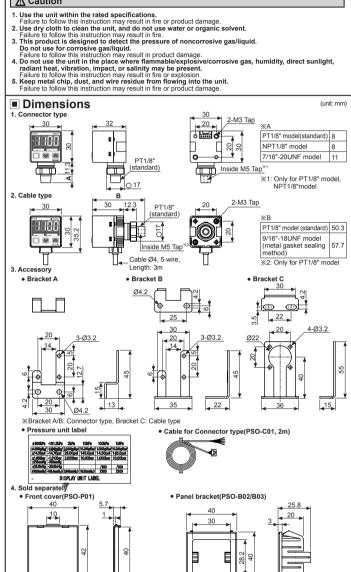
M 🔛 🙈

∆Warning Serious injury may result if instructions are not followed. **∆Caution** Product may be damaged, or injury may result if instructions are not follow *The following is an explanation of the symbols used in the operation manual.

△ Caution: Injury or danger may occur under special conditions

- Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention
- véhicles, railways, aircraft, combustion apparatus, safety equipment, crime/d devices, etc.)
 Failure to follow this instruction may result in fire, personal injury, or economic loss.
 2. Install on a device panel or to a pressure port directrly to use.
 Failure to follow this instruction may result in fire.
 3. Do not connect, repair, or inspect the unit while connected to a power source Failure to follow this instruction may result in fire.
 4. Check 'Connections' before wiring.
 Failure to follow this instruction may result in fire.
 5. Do not disassemble or modify the unit.
 Failure to follow this instruction may result in fire.

⚠ Caution



36 +0.5 Functions

Panel cut-out

%PSO-B02(white): Connector type

PSO-B03(black): Cable type

(panel thickness: 0.8 to 3.5mm)

- Pressure unit change Function
 PSAN-LV01C(P) and PSAN-LC01C(P) has 7 kinds of pressure unit, PSAN-L01C(P) and PSAN-L1C(P) has 5 kinds of pressure unit Pseasure unit Pseas
- output mode are required.

 Automatic sensitivity setting mode [RUE_D]: When needed to set detection sensitivity automatically at proper position.

 Forced output control mode [F_DUE]: When needed to display pressure with remaining comparison output OFF regardless of set value.

 Control output change function

 Type of control output for OUT1 and OUT2 can be able to set Normally Open and Normally Closed.

 X Note that Normally Open and Normally Closed provide oppositie output.

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 Response time change function(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 of digital filter.

 Analog output scale setting and Holf/Aut0 Shift setting function

 Analog output scale setting and Holf/Aut0 Shift setting function

 Analog output is 1-5VDC) is not fixed to the rated pressure paine. It can be changed for User's application. Analog output is 1-5VDC within the pressure range from the pressure point [R L₂] for 1VDC to the pressure point [R 5L₂] for 5VDC.

 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 is 4-20mA within the pressure range from the pressure point [R 2M] for Am to the pressure point [R 2M] for 20mA.

 Hold/Auto Shift input setting

 Hold/Auto Shift input setting

 Hold/Auto Shift Afunction to compensate the set value for changed value of reference pressure as threshold level if reference pressure of the device changes.

 Key lock function

 The key lock function prevents key operations so that conditions set in each mode. [preset/parameter mode are not inadvertently changed. There are 2 kinds of key lock functions available.

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 1. o [1: All keys are locked; therefore it is not available to change parameter settings, preset value, zero adjustment, High/Low peak check and [54] a] data initialization. (Lock setting change is available)

 1. o [2: Partially locked status; therefore it is not available to change parameter settings only(Lock setting change is available). Other settings are still available.

 2. pre-1: All of the setting is available, all keys are unlocked.

 2. Zero point adjustment function

- 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.)

 ③ High Peak / Low Peak Hold Function
- High Peak / Low Peak Hold Function
 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.

Display	Description	Troubleshooting
Errl	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 set values.
LLLL	When applied pressure exceeds Low-limit of display pressure range.	Apply pressure within display pressure
нннн	When applied pressure exceeds High-limit of display pressure range.	range.
-HH-,-LL-,-HL-	Auto shift correction error.	Set the corrected set value within setting

*The above specifications are subject to change and some models may be discontinued without notic
*Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

Specifications



Unit Descriptions



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

2. 4digit LED display(Red): Used to indicate measured pressure value, set 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. ■ key: Used to enter into Preset/Parameter setting mode and to save Setting mode

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

② + @ key: Used for zero point adjustment function by pressing ◎ + @ keys over 1 sec. simultaneously in RUN mode.

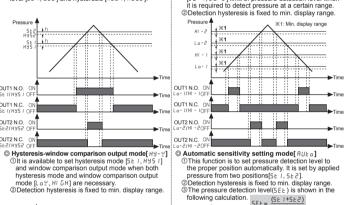
hysteresis by pressure unit calculation error. **For using mmH₂O unit, multiply

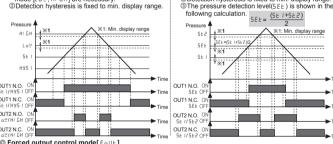
display value by 100

- over 1 sec. simultaneously in RUN mode.

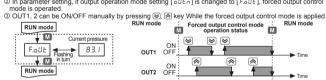
Output Operation Mode

the proper output operation mode by the detection. Window comparison output mode $[{}^{U_1} \circ]$ Olt is able to set the range for high[H = I, H = 2] low $[L \circ -I, L \circ -2]$] limit of pressure detection level whe it is required to detect pressure at a certain range.





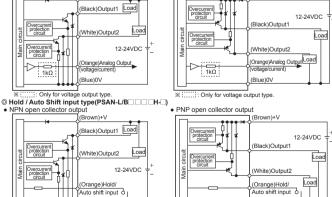
 Forced output control mode[F,aUL]
 Used to display pressure with forcibly holding
 In parameter setting, if output operation mode y holding comparing output OFF regardless of set value. tion mode setting [ⴰⵍⵍⴰ] is changed to [ғ.ⴰⵍ٤], forced output control



■ Input/Output Circuit and Diagram

V--, current output PSAN-L - A--)

PNP open collector output Analog output type (voltage output PSAN-L/B□□
 NPN open collector output

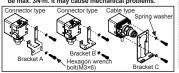


(Blue)0V (Blue)0V

Installation Pressure port is divided as basic and option specification. Therefore, be sure that to use commercially available one touch fitting (Standard: R(PT)1/8", Option: NPT1/8", 9/16"-18UNF, 7/16" - 20 UNF)

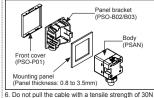
Please connect it by using spanner(17mm) at the metal part in order not to overload on the body when connecting one touch fitting.

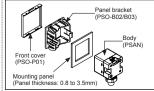
touch fitting.
PSAN Series provides 2 brackets for connector type, 1 bracket for cable type. The 2 types of installation is available by for installation environments.
At first, please unscrew hexagon wrench bolt and assemble the bracket on this unit by fixing hexagon the wrench bolt. In this case, tightening torque of hexagon wrench should be max. 3N-m. It may cause mechanical problems.

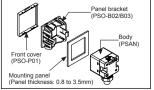




Please see the figure for installation.







Parameter Setting

Setting

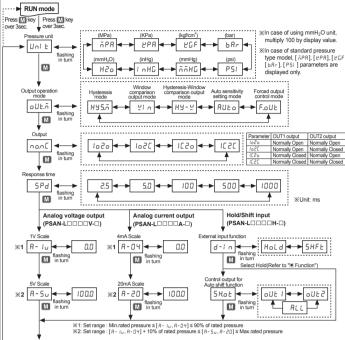
Press M ke

Press M key

ess M key

- ※ If the key lock is set (lock1 or lock2), unlock the key lock before setting paramete ※ Press ⑤, ᢙ key to change set values.
 ※ Press M key to save set value in each parameter and move to next parameters.

- ※ When pressing M key for 3 sec in the middle of parameter setting, current set value will be saved and [r∪n]. will flash twice, then returned to RUN mode.



💥 If there is no additional key operation within 60 sec. while setting, current set value is not valid and previous set value will be remained

RUN mode

flashing in turn

flashing M in turn

flashing in turn

5£2 <

566 ◀

Preset Default >

AULo

2 0.0

※Min.display pressure
≤ [5₺ r]≤Max. display
pressure - 1% of rated
pressure

※ [E r r ∃] Error flashes 3 times in case setting

conditions are not met, resetting is on standby s is no additional key operation within 60 sec. while t it is returned to Run mode (Except for force output

setting, it is returned to Run mode (Except for force output mode). Previous set values are remained. (In case of changing output operation mode, no preset values will be initialized. Instead, previous output operation

settings will be included. Instead, previous output operations settings will become the preset values. When changing pressure display unit, resolution and Hold/ Auto Shift input function, preset values will be initialized as shown the table below. (When changing pressure display unit, preset value will be automatically switched to changed pressure unit.

| 00 to -100.0 | 00 to 100.0 |

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

Preset Setting

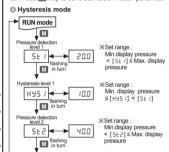
flashing in turn

Lo[Y ◀

※ [run] flashes twice when returning to RUN mode

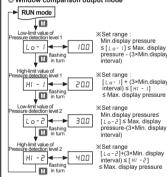
※ Press ♥, ♠ key to change set values.
 ※ Press M key to save set value in each parameter and move to next parameters.

O Automatic sensitivity setting mode

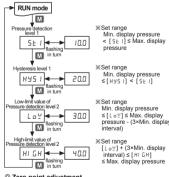


flashing in turn Window comparison output mode

H952 ◀



O Hysteresis-Window comparison output mode



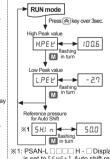
© Zero point adjustment

1. Please press ⓑ + ً ଛ keys for over 1sec. at the same time putting an applied pressure in state of the atmospheric pressure.

2. When the zero point adjustment is completed, it will display 0.0 and return to RUN mode automatically. uisplay but and return to Korn mode automatically. «If executing zero point adjustment on external pressure being at pressure port [£rr |] flashes 5 times. Please execute it in the atmospheric pressure after removing external pressure. **XPlease execute zero point adjustment regularly.

Press key over 3sec

Peak Hold / Auto Shift Check/Change



X1: PSAN-L □ □ □ H - □ Displayed only when [d-In] is set to [SHFL]. Auto shift reference pressure can lo set to [JAFE]. Auto still reterence pressure can be set within display error range.(Low_Range ≤ [5H/ n] ≤ High_Range) • Low_Range = Min.display pressure - Min. preset se

value
• High_Range = Max.display pressure - Max. preset set value

set value

st value

st fyressing * + (a) keys for over 1sec. in case of High
peak / Low peak/ Auto shift reference pressure value,
set value will be erase and return to next operation.

[[u] flashes twice, then return to RUN mode.

Cautions during Use

- 1. Follow instructions in 'Cautions during Use'
- Otherwise, It may cause unexpected accidents 2. 12-24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power
- supply device. Use the product, 3 sec after supplying power.
- 4. When using switching mode power supply, frame ground (F.G.) terminal of power supply should be
- grounded.

 5. Wire as short as possible and keep away from high voltage lines or power lines, to prevent inductive
- 6. This unit may be used in the following environments
- ①Indoors (in the environment condition rated in 'Specifications') @Altitude max. 2.000m

Major products

Buzzers upplies ber, CO₂, Nd:YAG)

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Autonics Corporation http://www.autonics.com

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