#### 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 × A

ase observe all safety considerations for safe and proper product operation to avoid hazards ★★ symbol represents caution due to special circumstances in which hazards may occur

▲ Warning Failure to follow these instructions may result in serious injury or death.

▲ Caution Failure to follow these instructions may result in personal injury or product date

- | 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, when the substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, state and the substantial explosive state and the substantial explosion or fire.

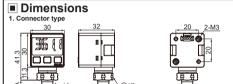
  Install on a device panel or to a pressure port directly to use. Failure to follow this instruction may result in fire.

  Do not connect, repair, or inspect the unit while connected to a power source. Failure to follow this instruction may result in fire.

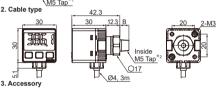
  Check \*Connections\* before wiring.
  Failure to follow this instruction may result in fire.

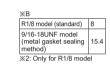
  Do not disassemble or modify the unit.
  Failure to follow this instruction may result in fire.

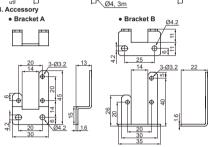
- 1. Use the unit within the rated specifications.
  Failure to follow this instruction may result in fire or product damage.
  2. Use dry cloth to clean the unit, and do not use water or organic solvent.
  Failure to follow this instruction may result in fire.
  3. This product is designed to detect the pressure of noncorrosive gas/liquid.
  Do not use for corrosive gas/liquid.
  Failure to follow this instruction may result in product damage.
  4. Keep metal chipl, dust, and wire residue from flowing into the unit.
  Failure to follow this instruction may result in fire or product damage.

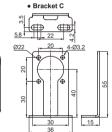


R1/8 model (standard) 8 NPT1/8 model 7/16-20UNF model 11 X1: Only for R1/8 model. NPT1/8 model









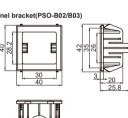


Connector type(PSO-C01)



eter: 0.08mm number of cores: 40, insulator diameter: Ø1mm)

Panel cut-out



## Functions

□36 <sup>+0.5</sup>

- P CHICLOTIS

  © Pressure unit change
  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. Please select the proper unit for application.

   PSAN-LV01C(P), PSAN-LC01C(P): kPa, kgf/cm², bar, psi, mmHg, inHg, mmH₂O
   PSAN-L01C(P), PSAN-L1C(P): MPa, kPa, kgf/cm², bar, psi

   When using mmH₂O unit, please multiply display value by 100.

- \*\*NSAN-LUTC(F), FORWARD (A), A with the second process of the seco
- א האטרים וויינים פור ופקטוופט. Automatic sensitivity setting mode [אולנים]: When needed to set detection sensitivity automatically at proper position Forced output control mode [אולנים]: When needed to display pressure with remaining comparison output OFF regardless of set value.

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

  W Note that Normally Open and Normally Closed.

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

  ※ Note that Normally Open and Normally Closed provide opposite output.

  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 of digital filter.

  Analog output scale setting and Hold/Auto Shift 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 is 1-5vDC within the pressure range from the pressure point [R 1 √ ] for TVDC to the pressure point [R 5 √ ] 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 2 √ ] for TwA to the pressure point [R 2 √ ] for Awa to the pressure point [R 2

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

  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] n] 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. preset in a svailable of the setting is available, all keys are unlocked.

  2. Pero point adjustment.
- ② Zero point adjustment
  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 ☑ + ᢙ keys over 1 sec. in RUN mode.)
  ⑤ High Peak / Low Peak Hold
- 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.

E LITOI		
Display	Description	Troubleshooting
Err I	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		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.
-HHLLHL-	Auto shift correction error.	Set the corrected set value within setting

XThe 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 Sealed gauge pressure \*\*6(In case of 100.0kPa/Standard pressure is Pressure type PSAN-LV01C(P)V-PSAN-L01C(P)V-DSAN L 1C/D)V PSAN-I C01C(P)V-PSAN-B1(P)V-Current output PSAN-L01C(P)A-Connector PSAN-LV01C(P)A-PSAN-LC01C(P)A-PSAN-L1C(P)A-Hold/Auto Connector PSAN-LV01C(P)H- PSAN-L01C(P)H- hhift input Cable PSAN-LV01C(P)H- PSAN-LV01C(P)H-PSAN-LC01C(P)H-PSAN-L1C(P)H-PSAN-B1(P)H PSAN-BC01(P)H 0.0 to 100.0kPa Display pres Min.display -5.0 to 1 0.1kPa sure range Max. pressure range 2 times of rated pressure Air, Non-corrosive gas and fluid that will not corrode SUS316L 12V-24VDC= ±10%(ripple P-P:Max. 10%) Max. 50mA(Analog Current Output type Max 75mA) Applied fluid Current consumption NPN or PNP open collector output Load voltage: Max. 30VDC=- Load current: Max. 100mA • Residual voltage - NPN: Max. 1VDC=-, PNP: Max. 2VDC ontrol output Hysteresis Min. display range ±0.2%F.S. ± Min. display range Selectable 2.5ms, 5ms, 100ms, 500ms, 1000ms - Output voltage: 1-5VDC= ±2% F.S. \* Linear: Max. ±1% F.S. \* Output impedance: 1kΩ 2 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 pressure unit Voltage 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 pressure unit 7segment LED Display 1000 2000 1000 2000 1000 2000 1000 2000 Pressure unit .001

.001 0.02 Min 0.1 0°C to 50°C : Max. ±0.5% F.S., -10 to 0°C : Max. ±1% F.S 1000VAC 50/60Hz for 1 minute Over 50MΩ(at 500VDC megger) Display accuracy Dielectric strength

nm amplitude at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z direction for 2 hour -10 to 50°C, storage : -20 to 60°C -To to 30°C, storage: "-20 to 60°C 30 to 80%RH, storage: 30 to 80%RH, storage: 30 to 80%RH Connector type: IP40(IEC standards), Cable type: IP65 (IEC standards) Front case: PC, Rear case: PA6, Pressure port: SUS316L Connector cable (204, 5-wire, Length: 2m) (AWG24, Core diameter: 0.08mm, Number of cores: 40, Insulator out diameter: Approval Weight<sup>×5</sup>

Weight\*® Connector type: Approx. 173g (approx. 88g), Cable type:

%1: (P) is PNP output type, □ of model name is as pressure port.

Standard: R18, option: NPT18, 9/16-18UNF(cable type),

7/16-20UNF(connector type).

%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 by pressure units.

%5: This weight is with packaging and the weight in parentheses is only unit weight.

%6: The unit is sealed structure. It is based on atmospheric pressure 101.3kPa. hysteresis by pressure unit calculation error.

\*\*For using mmH<sub>2</sub>O unit, multiply display value by 100. Environment resistance is rated

#### Unit Descriptions



Connector type: Approx. 173g (approx. 88g), Cable type: Approx. 167g (approx. 90g)

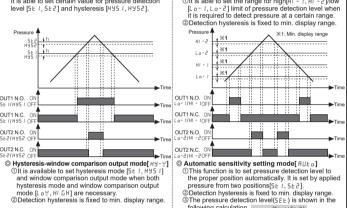
※F.S.: Rated pressure.
※There may be ±1digit error in

### Output Operation Mode

the proper output operation mode by the detection.

Window comparison output mode[½! \(\alpha\)]

Olt is able to set the range for high[n! \(\beta\), n! \(\beta\)] prosessure detection level whe it is required to detect pressure at a certain range.



 $5Et = \frac{(5t \ 1+5t \ 2)}{2}$ 5±2 SEE

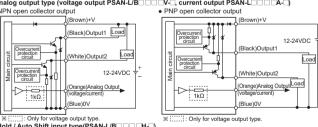
HI GH Lo! SŁ OUT1 N.C. SEE ( OUT2 N.C OUT2 N.C. Forced output control mode[Folls]
 Used to display pressure with forcibly h
 In parameter setting, if output operation

comparing output OFF regardless of set value. setting [ﻣﺎﻟﺨﺒﮧ] is changed to [チﺒឆ⊔೬], forced output control

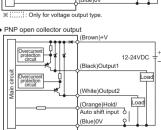
② in paramiters searing, in support of the paramiter of Forced output control mode operation status RUN mode OUT1 OFF Flashing 83.1

### Control Output and Connection Diagram

NPN open collector output



(White)Output2 12-24VDC Auto shift input O (Blue)0V

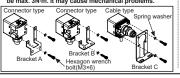


# Installation

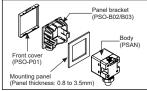
Pressure port is divided as basic and option specification.
Therefore, be sure that to use commercially available one touch fitting (Standard: R1/8, Option: NPT1/8, 9/16-18UNF,

Please connect it by using spanner (17mm) at the m in order not to overload on the body when connecting took 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.
Af 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.

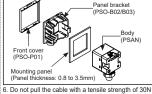






# The tightening torque of one touch fitting should be max. 10N·m. It may cause machani problems.

Please see the figure for installation.



## Parameter Setting

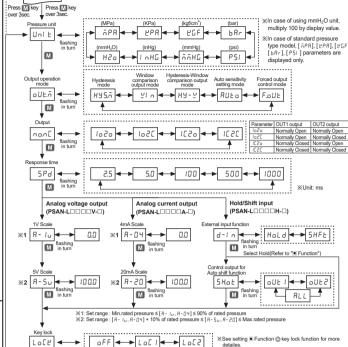
Setting

Press M ke

Press M key

ss M key

- will flash twice, then returned to RUN mode. ► 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

M flashing

flashing M in turn

flashing M in turn

2 0.0

5£2 <

5*EE* ◀

Preset Default >

SE 1:-50.0 H455:-50.0 H455:-50.0 H552:-50.0 Lo-1:0.0 H1-1:-50.0 H1-2:-50.0 H1-2:-50.0 H251:-50.0 H351:-50.0

AULo

«Min.display pressure
≤ [5₺ /] ≤Max. display
pressure - 1% of rated
pressure

5E 1:500 195 1:0

※ [ E ← ∈ ∃] 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 or mode). Previous set values are remained. (In case of changing output operation mode, no preset values will be initialized. Instead, previous output oper

values will be initialized. Instead, previous output operation 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.)

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

Peak Hold / Auto Shift Check/Change

#### Preset Setting

M

※ [ r un] flashes twice when returning to RUN mode

※ Press ♥, ♠ key to change set values.

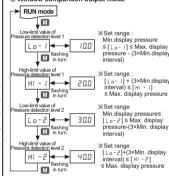
※ Press 

M key to save set value in each parameter and move to next parameters. O Automatic sensitivity setting mode

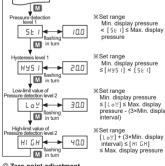
O Hysteresis mode ► RUN mode Set range : Min.display pressure < [5½ /] ≤ Max. display pressure 5E 1 ◀ 20.0 M H95 I ◀ 10.0 M flashing in turn Set range .
Min.display pressure
< [5₺2] ≤ Max. displa 5£2**⋖**─ M flashing in turn

flashing in turn Window comparison output mode

H952 ◀



O Hysteresis-Window comparison output mode ► RUN mode



© Zero point adjustment

1. Please press № 1+ exeys for over 1 sec. at the same time putting an applied pressure in state of the atmospheric pressure.

 When the zero point adjustment is completed, it will display 0.0 and return to RUN mode automatically. display LU and return to RUN mode automatically. If executing zero point adjustment on external pressure being at pressure port [Err I] flashes 5 times. Please execute it in the atmospheric pressure after removing external pressure. XPlease execute zero point adjustment regularly.

RUN mode Press ⊗ k H.PEL M L.PEĽ ◀ M ii Reference pressure for Auto Shift K1 5H,I ∩ ◀ M in turn

★1: PSAN-L □ □ □ H - □ Displayed only when [d-l n] is set to [5HFt]. Auto shift reference pressure can is set to [ 3 nr c ]. Auto still reterence pressure can be set within display error range.(Low\_Range ≤ [ 5 H/ n] ≤ High\_Range) • Low\_Range = Min.display pressure - Min. preset se

value
• High\_Range = Max.display pressure - Max. preset set value

set value

#If pressing 
#If p

## 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.
- 3. 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

Buzzers Supplies iber, CO<sub>2</sub>, Nd:YAG)

# Major products

#### Autonics Corporation http://www.autonics.com

TEL: 82-51-519-3232 ■ E-mail: sales@autonics.

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