

Autonics DIGITAL PRESSURE SENSOR(Pneumatic type) PSAN SERIES INSTRUCTION MANUAL

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

Safety Considerations

- Please observe all safety considerations for safe and proper product operation to avoid hazards.
- 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 damage.

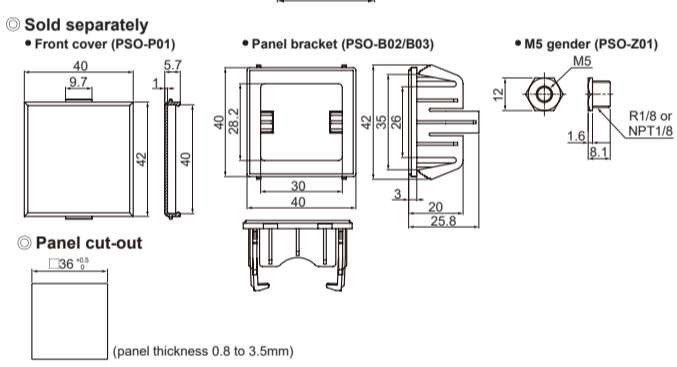
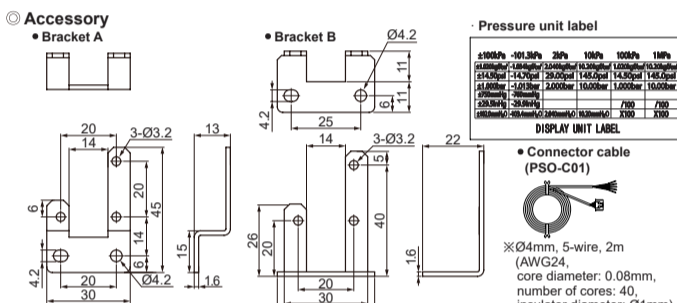
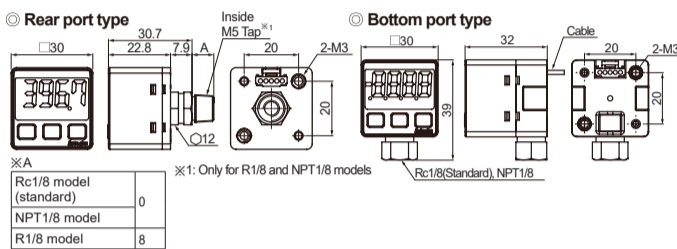
Warning

- 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 devices, etc.) Failure to follow this instruction may result in personal injury, economic loss or fire.
- Do not use in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present. Failure to follow this instruction may result in 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.

Caution

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

Dimensions



Unit Descriptions

- Range of rating pressure: It is possible to change the pressure unit in Pressure sensor. Please use different unit as label for your application.
- 4digit LED display(RED): Used to indicate measured pressure value, setting value and error message.
- Output1 indicator(RED): Output 1 is ON, LED will be ON.
- Output2 indicator(GREEN): Output 2 is ON, LED will be ON.
- Key: Used to enter into Preset/Parameter setting mode and to save Setting mode.
- 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 key over 1 sec. simultaneously in RUN mode.

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.
- Output mode change**: There are 5 kinds of control output mode in order to realize the various pressure detection.
- Control output change**: Type of control output for Out1 and Out2 can be able to set Normally Open and Normally Closed.
- Response time change(chattering prevention)**: It can prevent chattering of control output by changing response time.
- 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.
- Key lock**: 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.]
- Zero point adjustment**: The zero point adjustment function forcibly sets the pressure value to "Zero" when the pressure port is opened to atmospheric pressure.
- 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.

Error

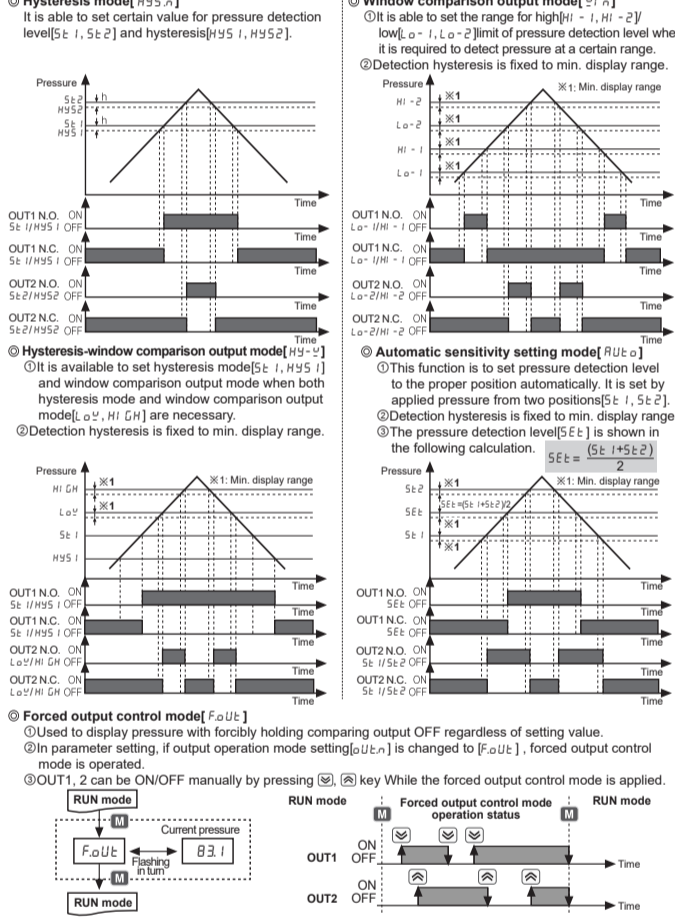
Display	Description	Countermeasures
Err1	When external pressure is input while adjusting zero point.	Try again after removing external pressure.
Err2	When overload is applied on control output	Remove overload.
Err3	When setting condition is not met in Auto sensitivity setting mode.	Check setting conditions 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.	Apply pressure within display pressure range.
-HH- / -LL-	Auto shift correction error.	Set the corrected setting value within setting pressure range.

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

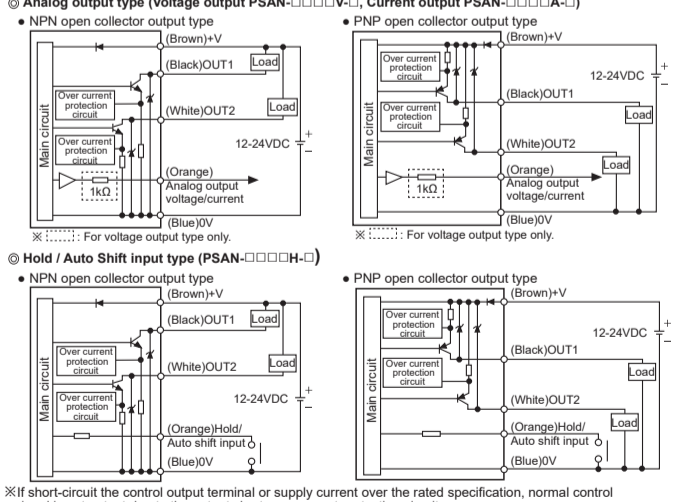
Specifications

Pressure type	Gauge pressure			
	Negative pressure	Standard pressure	Compound pressure	Compound pressure
Model	PSAN-(D)V01C(P)V-	PSAN-(D)01C(P)V-	PSAN-(D)1C(P)V-	PSAN-(D)C01C(P)V-
Voltage output	PSAN-V01C(P)A-	PSAN-01C(P)A-	PSAN-1C(P)A-	PSAN-C01C(P)A-
Current output	PSAN-V01C(P)H-	PSAN-01C(P)H-	PSAN-1C(P)H-	PSAN-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	-101.3 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 fluid	Air, Non-corrosive gas			
Power supply	12-24VDC ± 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. 1VDC, PNP: Max. 2VDC			
Hysteresis	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	Voltage output	• Output voltage: 1-5VDC ± 2% F.S. • Linear: Max. ±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 pressure 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 pressure unit		
Display method	Resolution	1000	1000	1000
	Resolution	1000	1000	1000
Display accuracy	0°C to 50°C	Max. ±0.5% F.S., -10 to 0°C: Max. ±1% F.S.		
	50°C to 100°C	Max. ±1% F.S.		
Dielectric strength	1000VAC 50/60Hz for 1 minute			
Insulation resistance	Over 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 temp. -10 to 50°C, storage: -20 to 60°C Ambient humi. 30 to 80%RH, storage: 30 to 80%RH			
Protection	IP40 (IEC specification)			
Rear port type	Front case: Polycarbonate, Rear case: Polycarbonate, Pressure port: Nickel Plated Brass			
Material	Front case: Polycarbonate, Rear case: Polybutylene Terephthalate + Glass Fiber 15%, Pressure port: Nickel Plated Brass			
Cable	Connector cable (Ø4mm, 5-wire, Length: 2m) (AWG24, Core diameter: 0.08mm, Number of cores: 40, Insulator out diameter: Ø1mm)			
Approval	CE			
Weight	Rear port type: Approx. 165g (approx. 80g)		Bottom port type: Approx. 170g (approx. 85g)	

Output Operation Mode



Input/Output Circuit and Connections

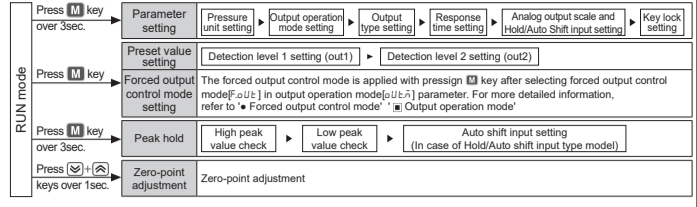


Installation

- Pressure port is divided as basic and option specification. Therefore, be sure that to use commercially available one touch fitting.
- Place connect it by using spanner (12mm) at the metal part in order not to overload on the body when connecting one touch fitting.
- Two different fixing brackets are provided for PSAN model. Select proper one with considering your application environments.
- At first, please unscrew hexagon wrench bolt and assemble the bracket on this unit by fixing hexagon the wrenchbolt. In this case, tightening torque of hexagon wrench should be max. 3N·m. It may cause mechanical problems.

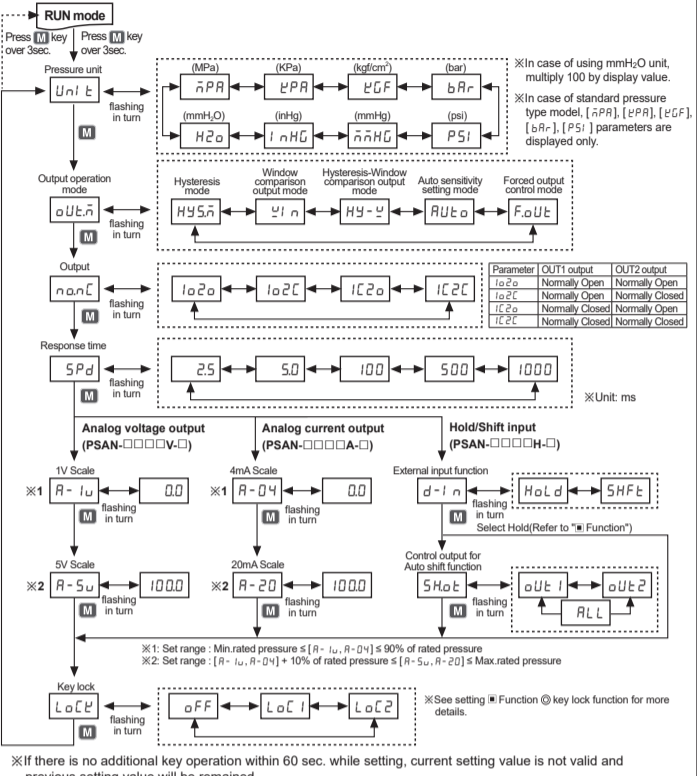
Do not pull the cable with a tensile strength of 30N or over.

Setting



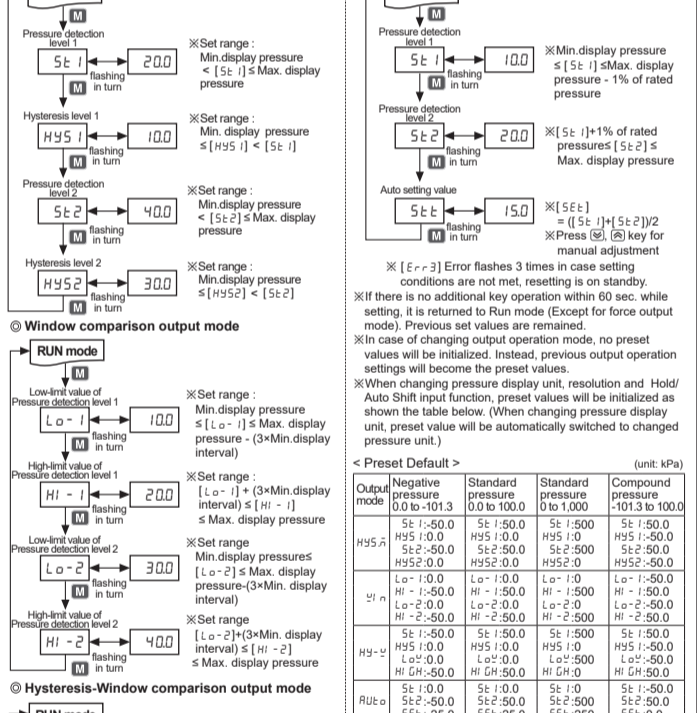
Parameter Setting

- If the key lock is set (lock1 or lock2), unlock the key lock before setting parameters.
- Press key to change setting values.
- Press key to save setting value in each parameter and move to next parameters.
- When pressing key for 3 sec in the middle of parameter setting, current setting value will be saved and [run] will flash twice, then returned to RUN mode.



Preset Setting

- [run] flashes twice when returning to RUN mode.
- Press key to change setting values.
- Press key to save setting value in each parameter and move to next parameters.



Zero point adjustment

- Press key over 1sec. 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.
- When the zero point adjustment on external pressure being at pressure port [Err1] flashes 5 times. Please execute it in the atmospheric pressure after removing external pressure.

Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- 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.
- When using switching mode power supply, frame ground (F.G.) terminal of power supply should be grounded.
- Wire as short as possible and keep away from high voltage lines or power lines, to prevent inductive noise.
- This unit may be used in the following environments:
 - Indoors (in the environment condition rated in 'Specifications')
 - Altitude max. 2,000m
 - Pollution degree 3
 - Installation category II