

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

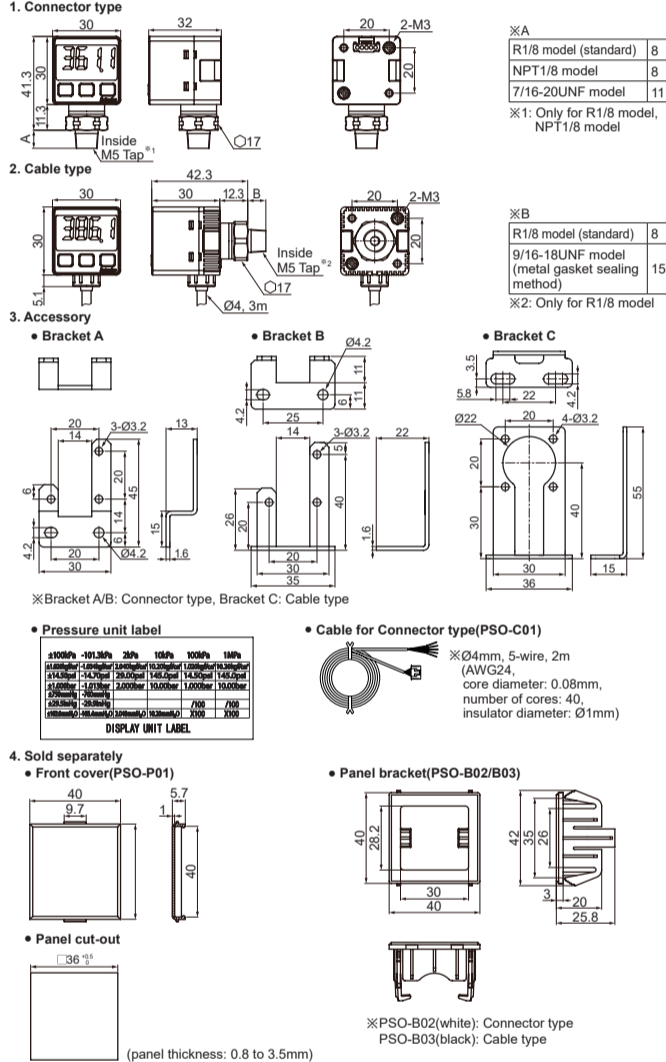
Please observe all safety considerations for safe and proper product operation to avoid hazards.
Warning symbol represents caution due to special circumstances in which hazards may occur.

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 damage.

- 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.)
- Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**
- Install on a device panel or a pressure port directly to use.**
- Do not connect, repair, or inspect the unit while connected to a power source.**
- Check "Connections" before wiring.**
- Do not disassemble or modify the unit.**

- Use the unit within the rated specifications.**
- Use dry cloth to clean the unit, and do not use water or organic solvent.**
- This product is designed to detect the pressure of noncorrosive gas/liquid.**
- Keep metal chip, dust, and wire residue from flowing into the unit.**

Dimensions



Functions

- 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.
- 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.
- Key lock**: The key lock function prevents key operations so that conditions set in each mode.
- 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**: 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 set 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-, -L-, -H-	Auto shift correction error.	Set the corrected set value within setting pressure range.

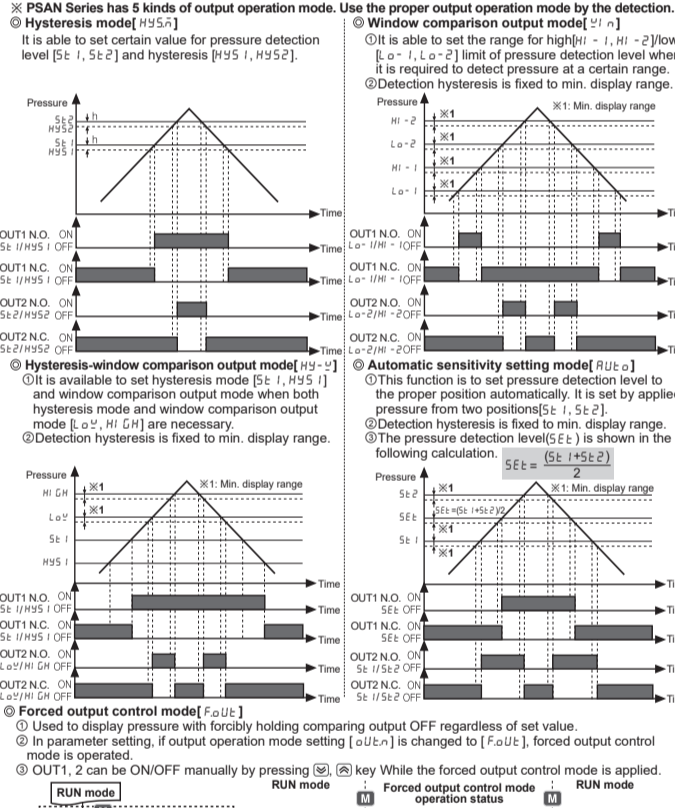
Specifications

Model*	Sealed gauge pressure ^(*) (In case of 100.0kPa/Standard pressure is gauge pressure.)			
	Negative pressure	Standard pressure	Compound pressure	Compound pressure
Voltage output	PSAN-LV01C(P)-□	PSAN-L01C(P)-□	PSAN-L1C(P)-□	PSAN-LC01C(P)-□
Current output	PSAN-LV01C(P)-□	PSAN-L01C(P)-□	PSAN-L1C(P)-□	PSAN-LC01C(P)-□
Rated pressure range	0.0 to -101.3kPa	0.0 to 100.0kPa	0 to 1,000kPa	-101.3kPa to 100.0kPa
Min. display unit	0.1kPa	0.1kPa	0.1kPa	0.1kPa
Max. pressure range	2 times of rated pressure			
Applied fluid	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 - PNP: 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 Current output			
Display method	7segment LED Display			
Pressure unit	1000	2000	1000	2000
Resolution	0.001	0.001	0.001	0.001
MPa	0.1	0.1	1	0.1
kgf/cm ²	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	0.4	4	0.8
inHg	0.02	0.02	0.2	0.03
mmH ₂ O	0.1	0.1	1	0.1
Display accuracy	0°C to 50°C: Max. ±0.5% F.S., -10 to 0°C: Max. ±1% F.S.			
Dielectric strength	1000VAC 50/60Hz for 1 minute			
Insulation resistance	Over 50MQ (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			
Environ. ment	-10 to 50°C, storage: -20 to 60°C			
Ambient temp.	30 to 80%RH, storage: 30 to 80%RH			
Protection	Connector type: IP40 (IEC standards), Cable type: IP65 (IEC standards)			
Material	Front case: PC, Rear case: PA6, Pressure port: SUS316L			
Cable	Connector cable (Ø4, 5-wire, Length: 2m) (AWG24, Core diameter: 0.08mm, Number of cores: 40, Insulator out diameter: Ø1mm)			
Approval	CE			
Weight	Connector type: Approx. 173g (approx. 88g), Cable type: Approx. 167g (approx. 90g)			

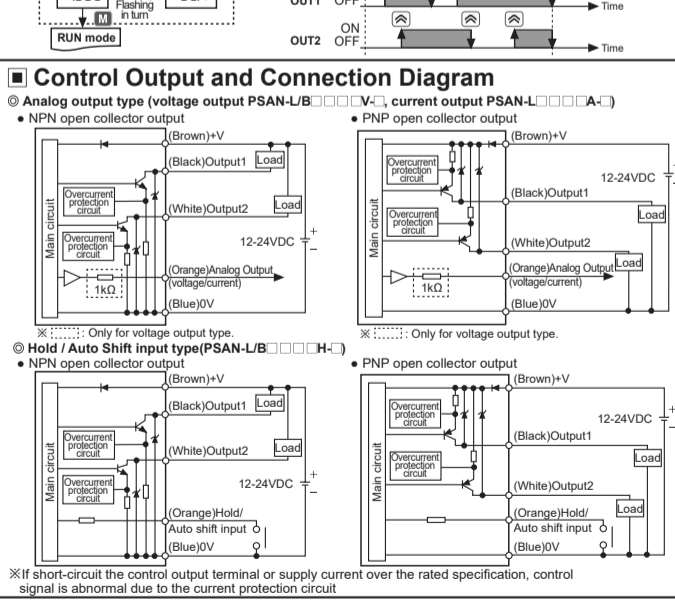
Unit Descriptions

- Range of rated pressure**: It is possible to change the pressure unit in Pressure sensor. Please use different unit label for your application.
- 4digit LED display (Red)**: Used to indicate measured pressure value, set value and error message.
- Output2 indicator (Red)**: Output 1 is ON, LED will be ON.
- Output2 indicator (Green)**: Output 2 is ON, LED will be ON.
- M 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 Ⓜ+Ⓜ keys over 1 sec. simultaneously in RUN mode.

Output Operation Mode



Control Output and Connection Diagram



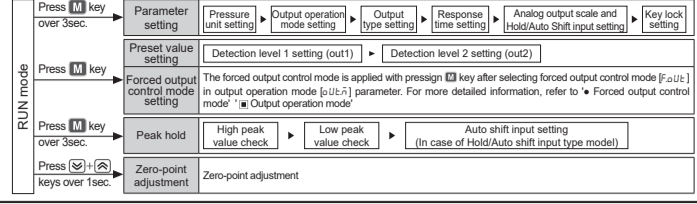
Installation

- 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, 7/16-20UNF).
- Please connect it by using spanner (17mm) at the metal part in order not to overload on the body when connecting one touch fitting.
- PSAN Series provides 2 brackets for connector type, 1 bracket for cable type. The 2 types of installation is available for installation environments.
- At first, please unscrew hexagon wrench bolt and assemble the bracket on the 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.

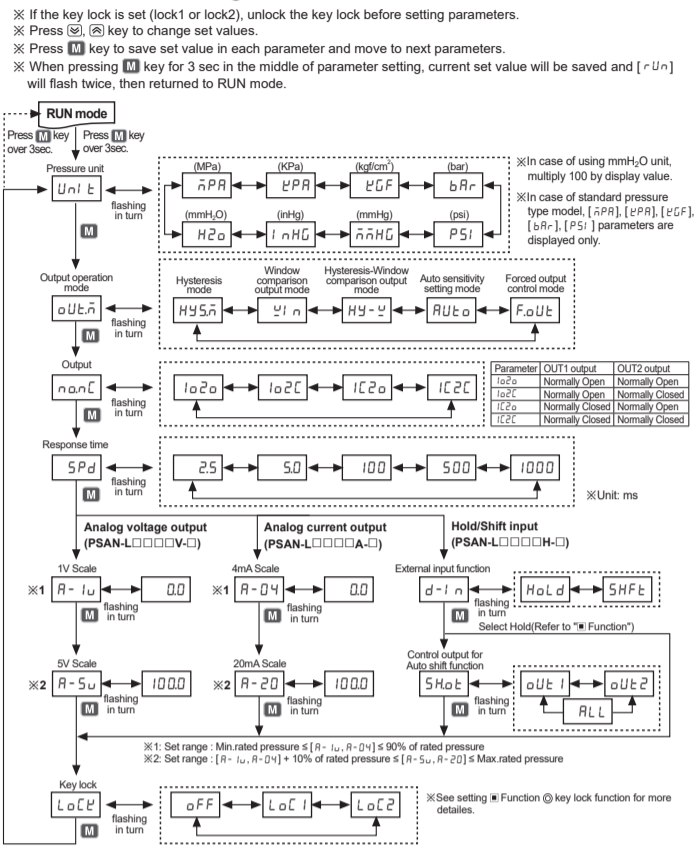
Caution

- The tightening torque of one touch fitting should be max. 10N·m. It may cause mechanical problems.
- Do not pull the cable with a tensile strength of 30N or over.

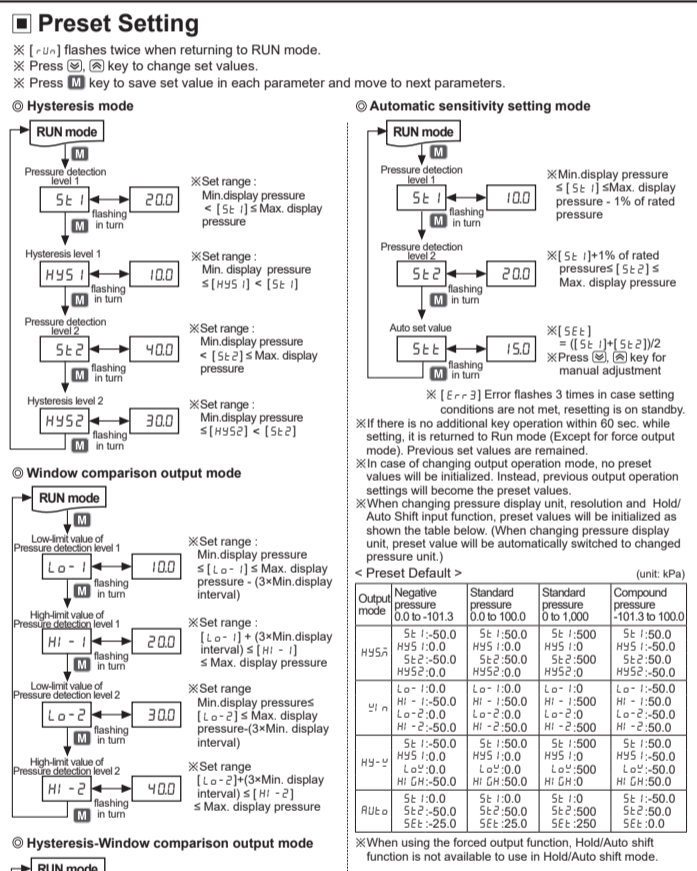
Setting



Parameter Setting



Preset Setting



Zero point adjustment

- Press Ⓜ+Ⓜ keys for 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 executing zero point adjustment on external pressure being at pressure port [Err3] 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

Major products

- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connector/Sockets
- Graphic/Logic Panels
- Field Network Devices
- Control Switches/Amplifiers
- Laser Marking System (Fiber, CO₂, Nd:YAG)
- Laser Welding/Cutting System
- Temperature Controllers
- Temperature/Humidity Transducers
- SSR/Power Controllers
- Counters
- Timers
- Panel Meters
- tachometer/Pulse(Rate) Meters
- Display Units
- Sensor Controllers
- IO Terminal Blocks & Cables
- Stepper Motors/Drivers/Motion Controllers
- Switching Mode Power Supplies
- Laser Marking System (Fiber, CO₂, Nd:YAG)
- Laser Welding/Cutting System

Autonics Corporation
http://www.autonics.com

HEADQUARTERS:
18, Bansong-ro 513 beon-gil, Haundae-gu, Busan, South Korea, 48002
TEL: 82-51-519-3232
E-mail: sales@autonics.com