

Autonics DIGITAL PRESSURE SENSOR (Fluid type) PSQ SERIES INSTRUCTION MANUAL



Thank you for choosing our Autonics product. Please read the following safety considerations before use.

Safety Considerations

- Please observe all safety considerations for safe and proper product operation to avoid hazards.
- Safety considerations are categorized as follows.
 - 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.
- The symbols used on the product and instruction manual represent the following.
 - A triangle symbol represents caution due to special circumstances in which hazards may occur.

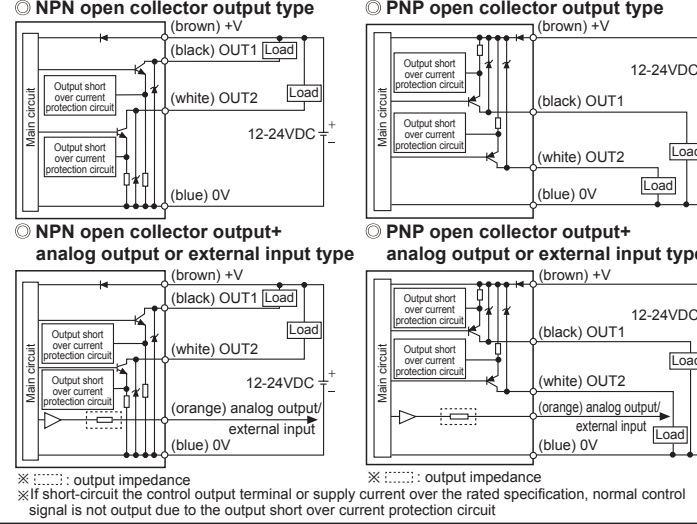
Warning

- 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 fire, personal injury, or economic loss.
- 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.

Caution

- 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.
- Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.
- Keep metal chip, dust, and wire residue from flowing into the unit.

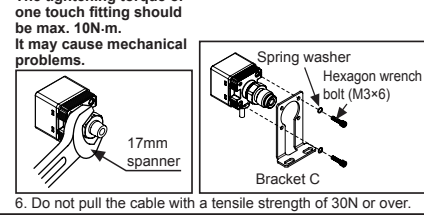
Input/Output Circuit and Connections



Installation

- Pressure port is R1/8. Therefore, make sure use commercially available one touch fitting.
- Use a spanner (17mm) at the metal part of the unit in order not to overload on the body when connecting one touch fitting.
- Fixing bracket is provided for PSQ Series.
- 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.
- PSQ Series' has panel bracket (PSO-B02), front cover (PSO-P01) are sold separately. When mounting the unit on panel, please follow the below figure.

Caution

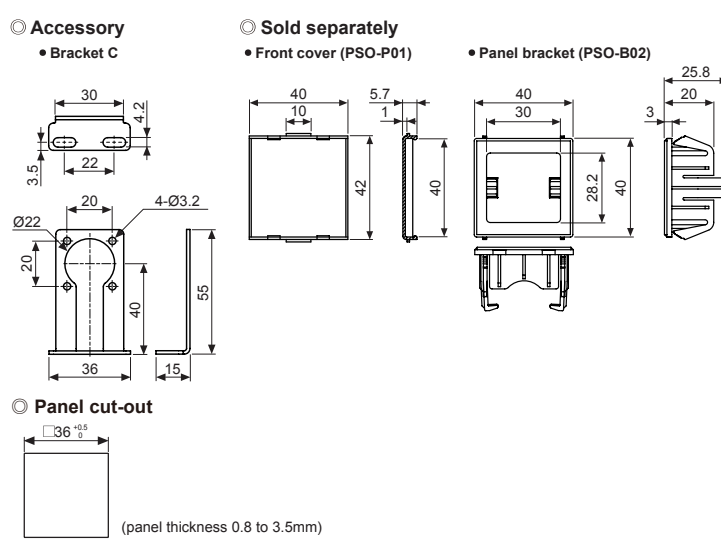
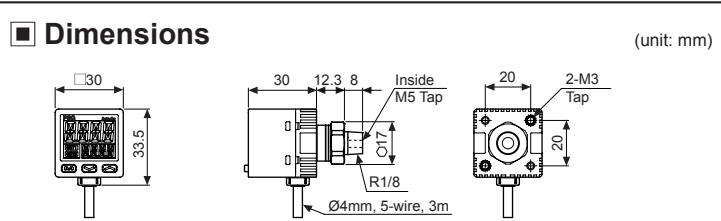
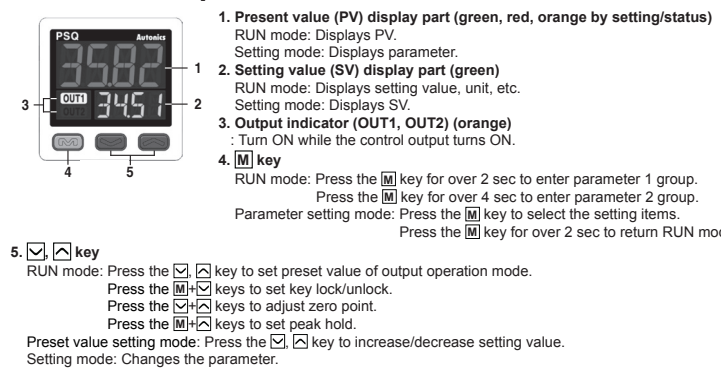


Error and Troubleshooting

Display	Cause	Troubleshooting
ERR1	When adjusting zero point while external pressure is input.	Try again after removing external pressure.
ERR2	When over-current is applied on control output.	Remove the over current conditions by adjusting load resistance.
ERR3	When the range of Auto sensitivity setting mode SE1, SE2 is set incorrectly.	Check the setting range and set SE1, SE2.
ERR4	When connection between master and slave is wrong during copying parameters.	Check the cables between sensors and the control unit.
ERR5	When entering invalid password.	Enter valid password.
HHHH	When applied pressure exceeds the high-limit of display pressure range.	Apply pressure within the display pressure range.
LLLL	When applied pressure exceeds the low-limit of display pressure range.	Apply pressure within the display pressure range.
-H-	When the correction value of auto shift, remote zero exceeds the high-limit of the setting range.	Set the correction value of auto shift, remote zero within the setting range.
-LL-	When the correction value of auto shift, remote zero exceeds the low-limit of the setting range.	Set the correction value of auto shift, remote zero within the setting range.
-HL-	When [H], [L] occur both.	Set the correction value of auto shift, remote zero within the setting range.

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Unit Descriptions

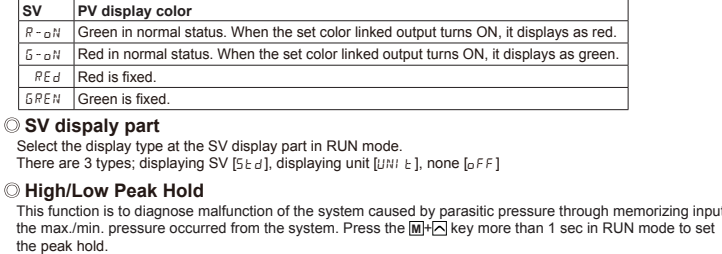
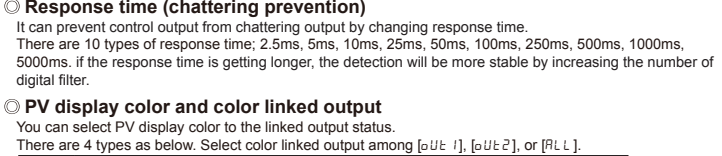
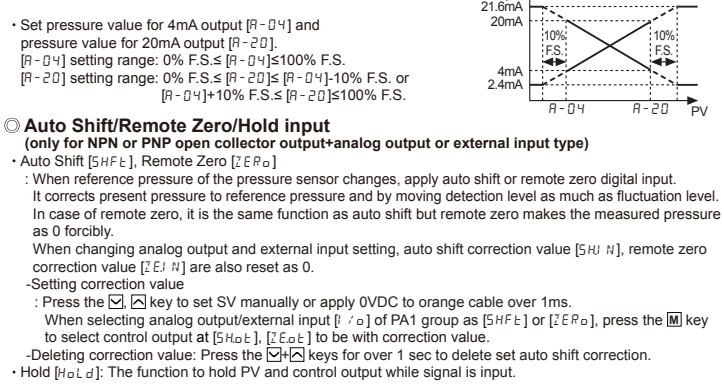
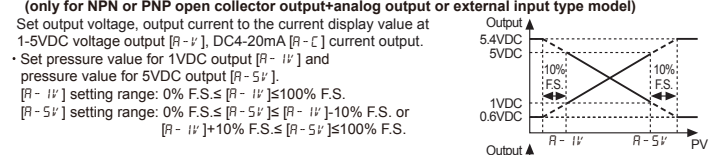
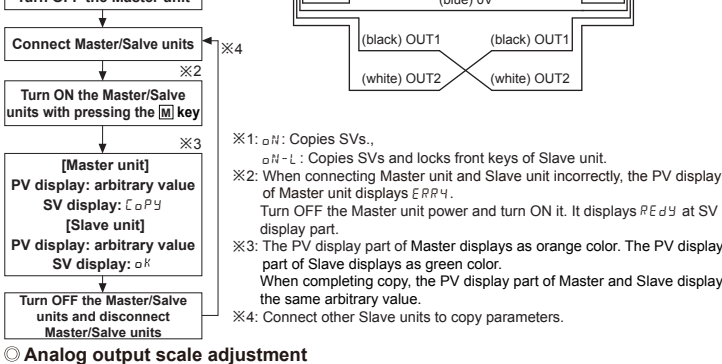
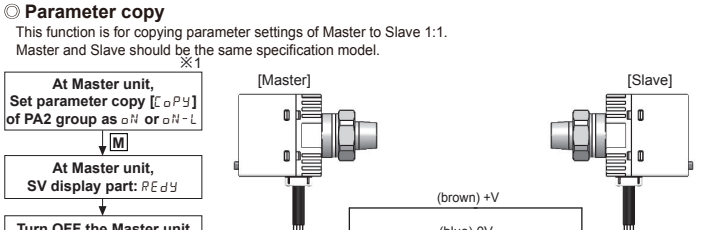


Specifications

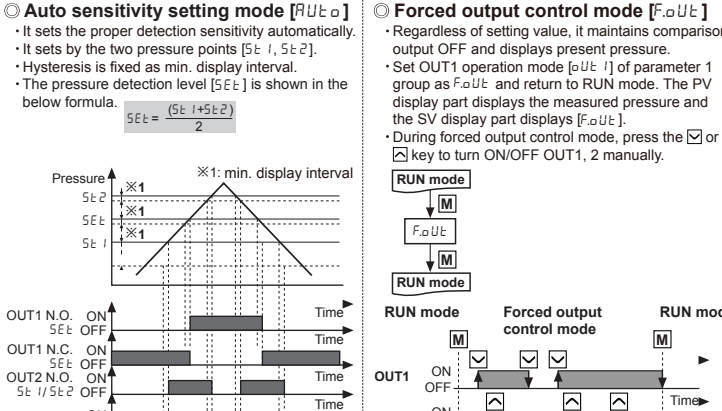
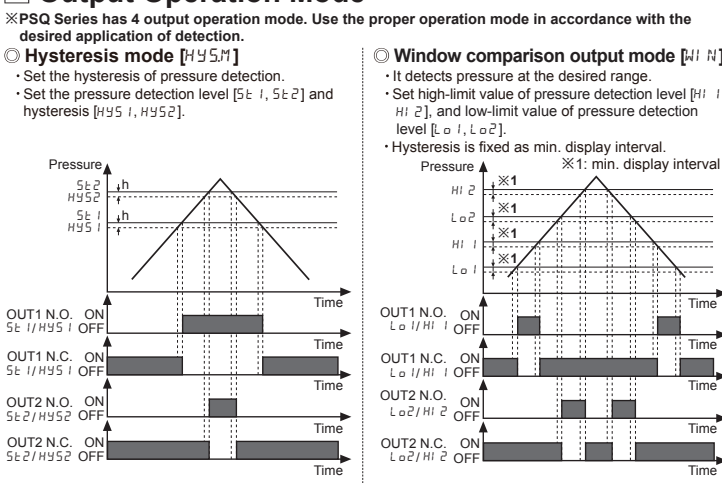
Pressure type	Sealed gauge pressure*
Type	NPN or PNP open collector output type
Model	PSQ-BC01-R1/8, PSQ-BC1U-R1/8, PSQ-BC01U-R1/8, PSQ-BC1U-R1/8
Rated pressure range	-100.0 to 100.0kPa, -100 to 1,000kPa, -100.0 to 100.0kPa, -100 to 1,000kPa
Display & Setting pressure range	-101.3 to 110.0kPa, -101 to 1,100kPa, -101.3 to 110.0kPa, -101 to 1,100kPa
Min. display unit	0.1kPa, 1kPa, 0.1kPa, 1kPa
Max. pressure range	3 times of rated pressure
Applied fluid	Air, non-corrosive gas and fluid that do not corrode stainless steel 316L
Power supply	12-24VDC = (ripple P-P: max. 10%)
Allowable voltage range	90 to 110% of rated voltage
Current consumption	Max. 50mA (Max. 50mA (current output: max. 70mA))
Control output	NPN or PNP open collector output
Hysteresis**	Min. display interval
Repeat error	±0.2% F.S. ±Min. display interval
Response time	Select one: 2.5ms, 5ms, 10ms, 25ms, 50ms, 100ms, 250ms, 500ms, 1,000ms, 5,000ms
Protection circuit	Output short over current protection circuit
Voltage output	-
Current output	-
External input**3	-
Display digits	Present value (PV) indicator, setting value (SV) indicator: 4-digit
Display method	12 segment LCD method
Min. display interval	-
Display accuracy	0 to 50°C: Max. ±0.5% F.S., -10 to 0°C: Max. ±1% F.S.
Insulation resistance	Over 50MΩ (at 500VDC megger)
Dielectric strength	1,000VAC 50/60Hz for 1 min
Vibration	1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours
Environment	Ambient temp: -10 to 50°C, storage: -20 to 60°C
Relative humidity	30 to 80%RH, storage: 30 to 80%RH
Cable	Ø4mm, 5-wire, 3m, (AWG24, core diameter: 0.08mm, number of cores: 40, insulator out diameter: Ø1mm)
Protection structure	IP65 (IEC standard)
Material	Front case: polycarbonate, rear case: polyamide 6, pressure port: stainless steel 316L
Approval	CE
Weight**4	Approx. 210g (approx. 125g)

*1: The unit is sealed structure. It is based on atmospheric pressure 101.3kPa. *2: In hysteresis output mode, it is variable. *3: Select one between analog output (voltage or current) and external input. *4: The weight includes packaging. The weight in parentheses is for unit only. **For using mmH₂O unit, multiply display value by 100. **Environment resistance is rated at no freezing or condensation.

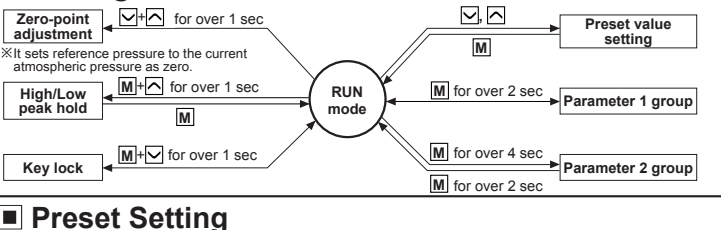
Functions



Output Operation Mode

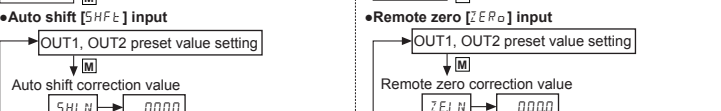
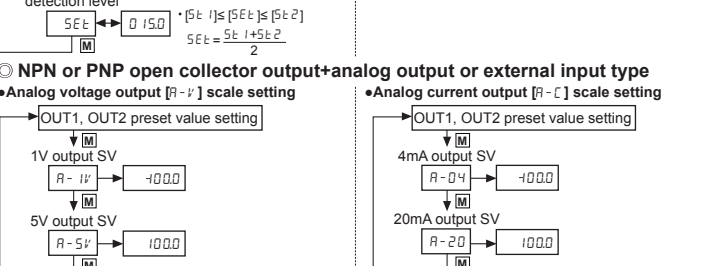
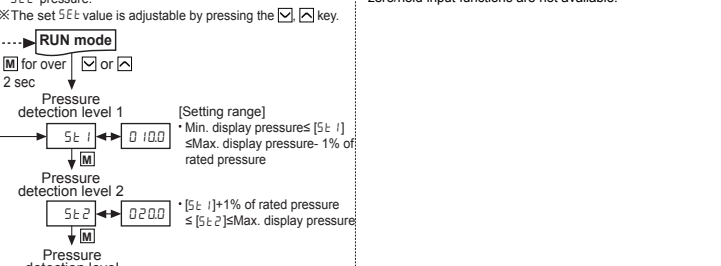
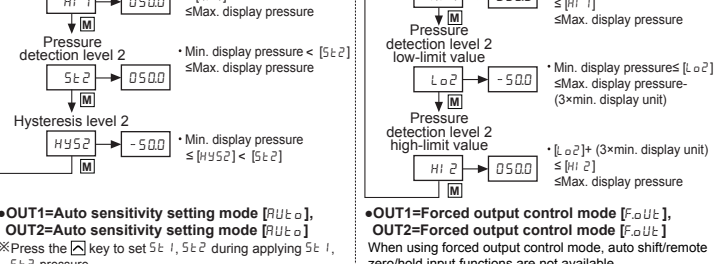
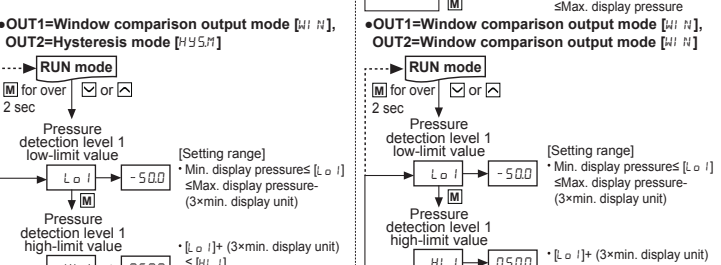
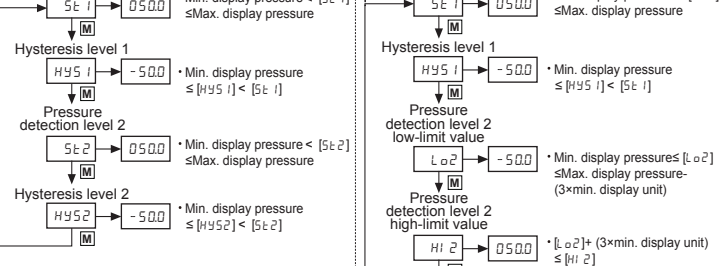
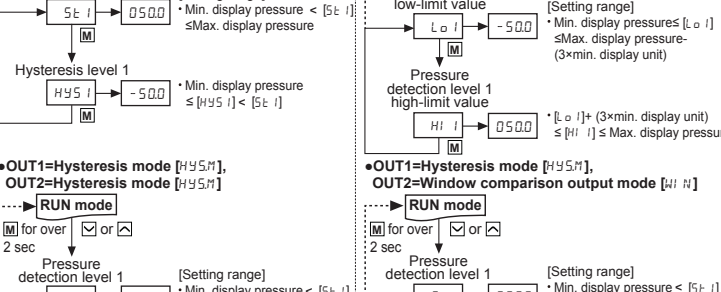
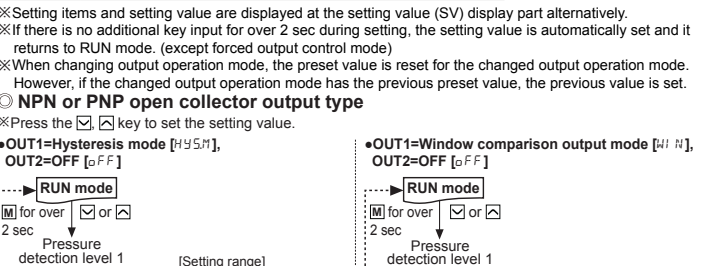


Setting for Each Mode

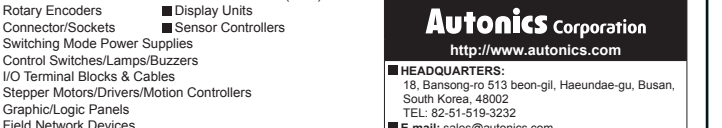
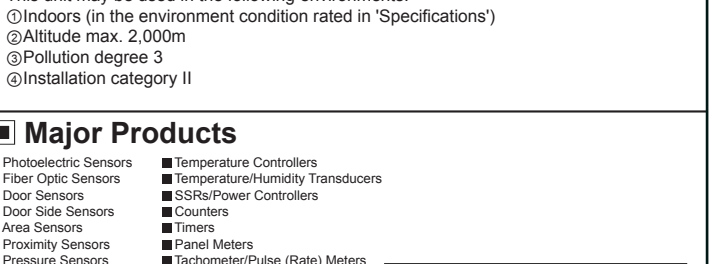
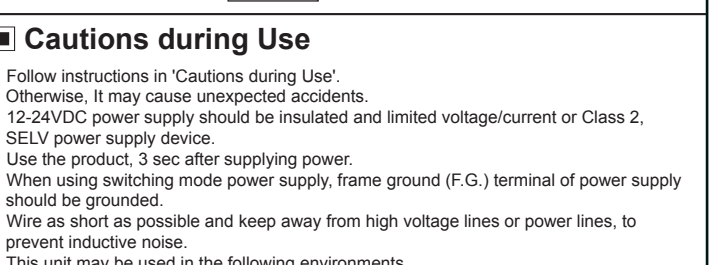
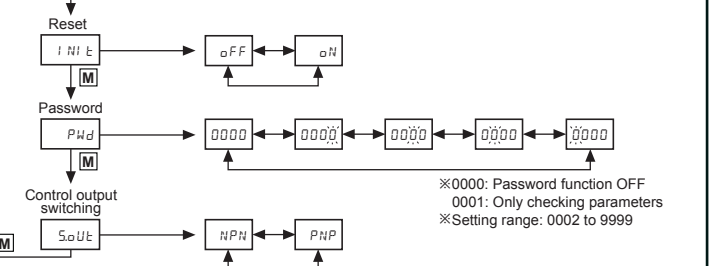
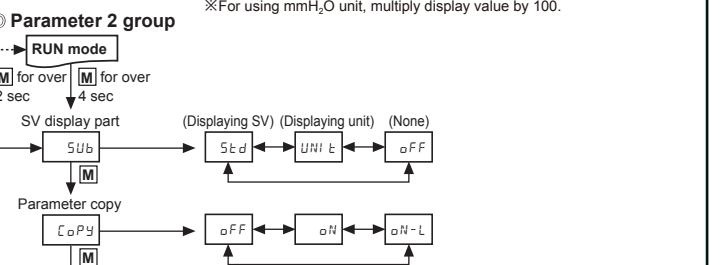
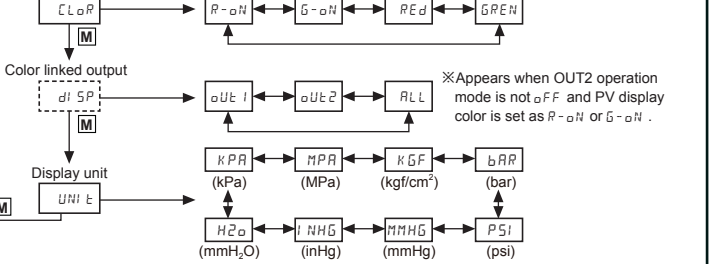
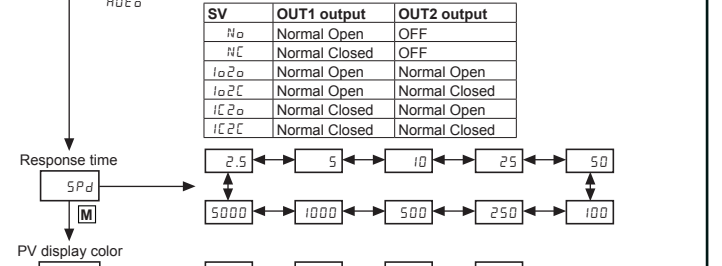
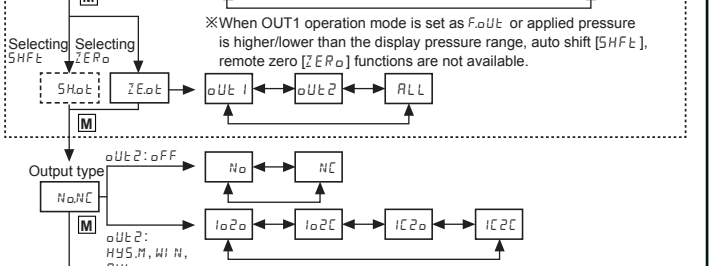
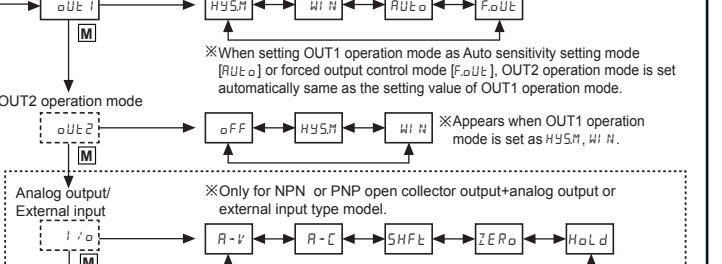
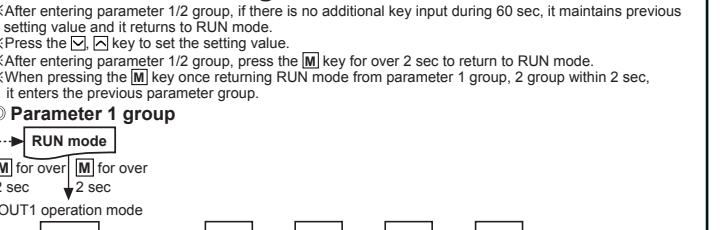


Preset Setting

Pressure range	Pressure range	Pressure range	Pressure range
-100.0 to 100.0kPa	-100 to 1,000kPa	-100.0 to 100.0kPa	-100 to 1,000kPa
Output mode	Output mode	Output mode	Output mode



Parameter Setting



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