Pressure measurements can easily be taken any time, anywhere.

- **Compact and lightweight**
  Portable type with a lightweight of only about 100 g (unit 50 g, battery 50 g) can also be held in the palm of the hand.

- **Back light for easy viewing in dark locations**

- **Long service life of 12 months continuous operation**
  One year of continuous operation is possible with 2 type AA batteries (3 V).

- **Convenient hand strap for carrying**
  Keeping practical use in mind, the hand strap is a standard feature.

- **Zero/span calibration is possible**
  Offset adjustment with the zero clear function, and span calibration with the trimmer can be performed.

- **Peak/Bottom hold function**
  With pressure being displayed, variations in supply pressure can be grasped instantly with one touch switching of the display from peak value to bottom value.

- **Auto power off function to save batteries**
  Power turns off automatically if not operated for more than 5 minutes.

- **Case holder is available**
  The case holder is provided as an option to allow for situations where portability is not required.
Pressure measurements can easily be taken any time, anywhere.

Application Example

Confirmation of air line source pressure
Human reading error is eliminated by the ability to confirm line pressure on the digital display. It is also possible to check pulsation in the source pressure using the peak/bottom display function.

Confirmation of regulator set pressure
Setting a regulator can be performed more precisely than with a dial gauge by viewing the digital display while making the setting. Furthermore, power lines are not needed for this battery operated unit.

Related products for line pressure measurement
Convenient for easy line pressure measurement without removing piping or stopping supply pressure, etc.

- **Tube coupler**
  Pressure can be supplied or stopped by inserting or removing the tube.

- **Finger valve**
  Pressure can be easily applied or released by switching the control.

Can also be used as an energy saving related device

- **Measures the total pressure received by an air blown workpiece**
  Used in combination with the pressure probe (KNP-1), total pressure can be easily measured.

For specifications, refer to page 903.
Compact Manometer

PPA Series

PPA100/101/102

For details about the Pressure Switch Precautions and Specific Product Precautions, refer to the Best Pneumatics No.8.

How to Order

PPA10

<table>
<thead>
<tr>
<th>Pressure specifications</th>
<th>Unit specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Nil with PPA-B</td>
</tr>
<tr>
<td>1</td>
<td>Nil with PPA-B</td>
</tr>
<tr>
<td>2</td>
<td>Nil with PPA-B</td>
</tr>
</tbody>
</table>

Option/Case holder

<table>
<thead>
<tr>
<th>Nil</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>With PPA-B</td>
</tr>
</tbody>
</table>

Note) Fixed unit
For vacuum/compound pressure: kPa
For positive pressure: MPa

PPA Series

Compact Manometer

PPA100/101/102

Specifications

For details about the Pressure Switch Precautions and Specific Product Precautions, refer to the Best Pneumatics No.8.

<table>
<thead>
<tr>
<th>Model</th>
<th>PPA100 for high press.</th>
<th>PPA101 for vacuum</th>
<th>PPA102 for low press.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated pressure range</td>
<td>–0.1 to 1 MPa</td>
<td>–101 to 10 kPa</td>
<td>–10 to 100 kPa</td>
</tr>
<tr>
<td>Display method</td>
<td>3 digit LCD back light</td>
<td>3 digit LCD back light</td>
<td>3 digit LCD back light</td>
</tr>
<tr>
<td>Pressure display discrimination</td>
<td>1/100</td>
<td>1/100</td>
<td>1/100</td>
</tr>
<tr>
<td>Min. display units</td>
<td>kPa</td>
<td>MPa</td>
<td>mmHg</td>
</tr>
<tr>
<td>(1)</td>
<td>—</td>
<td>0.01</td>
<td>—</td>
</tr>
<tr>
<td>—</td>
<td>5</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>—</td>
<td>0.1</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>—</td>
<td></td>
<td>0.01</td>
<td>—</td>
</tr>
<tr>
<td>—</td>
<td></td>
<td>0.01</td>
<td>—</td>
</tr>
</tbody>
</table>

Error display

Over pressure, Memory data error, Change battery sign

Function

Peak/bottom display, Backlight, Auto power OFF
Zero clear, Units display switching

Withstanding pressure

1.5 MPa 200 kPa 200 kPa

Applicable fluid

Air, Non-corrosive gases, Nonflammable gas

Power supply voltage

3 VDC, Type AA dry cell x 2 pcs.

Battery life

12 months continuous operation (Without backlighting, temperature conditions: at 25°C)

Response speed

250 ms

Display accuracy

±2% F.S. or less (Temperature conditions: at 25°C) (2)

Repeatability

±1% F.S. or less (Temperature conditions: at 25°C)

Temperature characteristics

±3% F.S. or less (0 to 50°C with 25°C standard)

Connection port size

M5 x 0.8

Operating temperature range

0 to 50°C (With no condensation)

Operating humidity range

35 to 85% RH (With no condensation)

Enclosure

IP40

Weight

Approx. 100 g (Unit 50 g, batteries 50 g)

Standard

CE/RoHS

*2 pcs. of type AA dry batteries (manganese R6 or alkaline LR6) are not included.

Note 1) For the unit switching function (Types without the unit switching function is fixed in SI unit (kPa or MPa).)

Note 2) In regards to the compatibility condition of the EMC directives, the pressure display value variation is ±15% F.S. or less.
Description of Operating Parts

“P” for peak display  
“b” for bottom display

In lock mode

Power button
• Power ON/OFF
• Peak mode switching

LIGHT button
• Turns on back light

LCD
• Present pressure display
• Peak/bottom value display
• Units display

Operation and Functions

(PPA100 shown, Unit: MPa)

Initial Setting

Be certain to perform initial setting when using for the first time and after changing batteries, as the unit will indicate memory data error.

1. Confirmation of display
   • When the power is applied, and “Err” is displayed on LCD, cut the power off for a time. After turning OFF (i.e. the state in which nothing is displayed on LCD), then proceed to 2. Besides, in the case that nothing is displayed on LCD, proceed to 2 with doing nothing.

2. Press and hold the POWER button for 6 seconds or more.
   • The unit will go into zero clear. When this happens “CAL” will appear on the LCD.

3. Release the POWER button.
   • When zero clear is finished, the unit can be operated.

Power ON

Press the POWER button.
• The power comes ON as it is pressed.
• When pressed and held for 6 seconds or more, the unit goes into zero clear.

Power OFF

Press and hold the POWER button for 3 seconds or more.
• When pressed and held for 3 seconds or more, the power turns OFF.
• When there is no button operation for more than 5 minutes, the power turns OFF. (auto power OFF function)
**Turning on the Backlight**

It normally lights up while the button is being pressed. In the lock mode, it lights up when pressed and turns off when pressed again. However, the maximum lighting time is approximately one minute.

**Zero Clear**

The zero point displayed at atmospheric pressure can be automatically adjusted. By this means it is possible to eliminate a display discrepancy at atmospheric pressure.

- **Turn the power OFF.**
- **Release the supply pressure to the atmosphere.**
- **When continuously pressed for 6 seconds or more, zero clear is performed and “CAL” is displayed on the LCD.**

**Peak/Bottom Display**

Note) Since this is combined with power OFF operation, the button should be released at the point when “P” or “b” is displayed.

**Auto Power OFF Function**

When the power is turned ON and there is no button operation for more than 5 minutes, the power will turn OFF. Note) For cancelling this function, refer to the functions and operation of the lock mode (below).

**Lock Mode (Auto power OFF cancel)**

Press and hold the POWER and LIGHT buttons for 6 seconds or more.

The auto power OFF function is canceled by activating the lock mode (auto power OFF cancel). When continuously pressed for 6 seconds or more, “L” is displayed on the LCD. Moreover, when the power is turned OFF, the lock mode is released.

---

**Unit Display Switching**

Note) This operation cannot be done for the type which does not have the unit switching function.

1. Press and hold the POWER and LIGHT buttons for 3 seconds or more.
2. Press the LIGHT button.
3. Press the POWER button.

**High pressure (PPA100)**

<table>
<thead>
<tr>
<th>Unit</th>
<th>kPa</th>
<th>bar</th>
<th>psi</th>
<th>kgf</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPA</td>
<td>→</td>
<td>→</td>
<td>→</td>
<td></td>
</tr>
</tbody>
</table>

**Vacuum (PPA101)**

<table>
<thead>
<tr>
<th>Unit</th>
<th>kPa</th>
<th>bar</th>
<th>psi</th>
<th>inHg</th>
<th>mmHg</th>
</tr>
</thead>
<tbody>
<tr>
<td>kPa</td>
<td>→</td>
<td>→</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bar</td>
<td>→</td>
<td>→</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>psi</td>
<td>→</td>
<td>→</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>inHg</td>
<td>→</td>
<td>→</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Low pressure (PPA102)**

<table>
<thead>
<tr>
<th>Unit</th>
<th>kPa</th>
<th>bar</th>
<th>psi</th>
<th>kgf</th>
</tr>
</thead>
<tbody>
<tr>
<td>kPa</td>
<td>→</td>
<td>→</td>
<td>→</td>
<td></td>
</tr>
<tr>
<td>bar</td>
<td>→</td>
<td>→</td>
<td>→</td>
<td></td>
</tr>
<tr>
<td>psi</td>
<td>→</td>
<td>→</td>
<td>→</td>
<td></td>
</tr>
</tbody>
</table>

Note) The “inHg” unit cannot be displayed.

---

**Operation and Functions**

(PPA100 shown, Unit: MPA)

---

901

**Turning on the Backlight**

It normally lights up while the button is being pressed. In the lock mode, it lights up when pressed and turns off when pressed again. However, the maximum lighting time is approximately one minute.

**Zero Clear**

Press the POWER button for 6 seconds or more.

The zero point displayed at atmospheric pressure can be automatically adjusted. By this means it is possible to eliminate a display discrepancy at atmospheric pressure.

- **Turn the power OFF.**
- **Release the supply pressure to the atmosphere.**
- **When continuously pressed for 6 seconds or more, zero clear is performed and “CAL” is displayed on the LCD.**

---

**Auto Power OFF Function**

When the power is turned ON and there is no button operation for more than 5 minutes, the power will turn OFF. Note) For cancelling this function, refer to the functions and operation of the lock mode (below).

---

**Lock Mode (Auto power OFF cancel)**

Press and hold the POWER and LIGHT buttons for 6 seconds or more.

The auto power OFF function is canceled by activating the lock mode (auto power OFF cancel). When continuously pressed for 6 seconds or more, “L” is displayed on the LCD. Moreover, when the power is turned OFF, the lock mode is released.
Dimensions

Note) Dimension X includes the One-touch fitting (Back)

| ø4 | 123 |
| ø6 | 124 |

**Option/Case holder**

- Fitting port diameter: M5 x 0.8
- Thread depth: 5

**Connecting tube port**

**Body**

**Accessory One-touch fitting**

**Span calibration**

**Type AA dry batteries (2 pcs.)**

**PPA Series**

**A**
Error Correction

When errors occur, they should be corrected as shown below.

<table>
<thead>
<tr>
<th>Display</th>
<th>Contents</th>
<th>Corrective action</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>Pressure being applied is above the rating.</td>
<td>Operate within the rated pressure range.</td>
</tr>
<tr>
<td>Err</td>
<td>Memory data has probably been corrupted in some way.</td>
<td>Perform zero clear.</td>
</tr>
</tbody>
</table>

Entire display flashes

Battery voltage is low.

Replace the batteries.

Maintenance

- Span calibration method
  **Caution**
  Do not touch the span calibration trimmer except when performing span calibration.
  1. Perform zero clear at atmospheric pressure.
  2. Apply the maximum rated pressure, and calibrate the span while comparing with a standard pressure gauge.
  3. If the display value of the compact manometer is “0” after returning to atmospheric pressure, then calibration is complete.
  If the display value is not “0”, calibrate again by repeating steps 1 and 2.

- Replacing the batteries
  When battery voltage becomes low the entire LCD will flash.
  When the LCD flashes replace the batteries. Use 2 pcs. of type AA dry batteries.
  **Caution**
  To replace the batteries, turn the power OFF and replace them within approximately 30 seconds.
  When not completed within 30 seconds, “Err” will be displayed. In that case, perform zero clear once again.
  In the event that the display runs out of control, remove the batteries for one minute or longer, and then perform zero clear again for inserting the batteries and turning on the power.

Related Products Useful for Measuring Line Pressure

These products are convenient for measuring line pressure easily without the need to remove piping or stop supply pressure, etc.

Switching between pressurization and atmospheric release can be easily performed by switching the control.

**Finger valve**

**VHK Series**

Specifications

<table>
<thead>
<tr>
<th>Valve type</th>
<th>2 port valve, 3 port valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Air</td>
</tr>
<tr>
<td>Proof pressure</td>
<td>1.5 MPa</td>
</tr>
<tr>
<td>Maximum operating pressure</td>
<td>1.0 MPa</td>
</tr>
<tr>
<td>Operating vacuum pressure</td>
<td>–100 kPa</td>
</tr>
<tr>
<td>Ambient and fluid temperature</td>
<td>0 to 60°C</td>
</tr>
<tr>
<td>Applicable tubing material</td>
<td>Nylon, Soft nylon, Polyurethane</td>
</tr>
<tr>
<td>Option</td>
<td>Bracket</td>
</tr>
</tbody>
</table>

Note 1) Please note that when the valve is used at micro pressures of 0.1 MPa or less, valve leakage may be more than the standard value (5 cm³/min).

Note 2) Use caution with soft nylon and polyurethane at the maximum operating pressure. (For details, refer to pages 464 and 465.)

For a vacuum application, use VHK2 (2 way valve).

Symbol

2 port valve

\[ \text{2 port valve} \]

3 port valve

\[ \text{3 port valve} \]

Refer to Best Pneumatics No. 1-2 for details.

Pressure can be supplied or stopped by inserting or removing a tube.

**Self-seal fittings**

**KC Series**

Applicable Tubing

<table>
<thead>
<tr>
<th>Tubing material</th>
<th>Nylon, Soft nylon, Polyurethane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tubing O.D.</td>
<td>ø4, ø6, ø8, ø10, ø12</td>
</tr>
</tbody>
</table>

Specifications

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum operating pressure</td>
<td>1 MPa</td>
</tr>
<tr>
<td>Proof pressure</td>
<td>3 MPa</td>
</tr>
<tr>
<td>Ambient and fluid temperature</td>
<td>–5 to 60°C (No freezing)</td>
</tr>
<tr>
<td>Mounting section</td>
<td>JIS B 0203 (Taper threads for piping)</td>
</tr>
<tr>
<td>Nut section</td>
<td>JIS B 0205 (Metric fine thread)</td>
</tr>
<tr>
<td>Seal on the threads (Standard)</td>
<td>With sealant</td>
</tr>
<tr>
<td>Copper-free (Standard)</td>
<td>Brass parts are all electroless nickel plated.</td>
</tr>
</tbody>
</table>

Principal Parts Material

<table>
<thead>
<tr>
<th>Body</th>
<th>C3604, PBT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stud</td>
<td>C3604 (Thread portion)</td>
</tr>
<tr>
<td>Chuck spring</td>
<td>Stainless steel 304</td>
</tr>
<tr>
<td>Guide</td>
<td>Stainless steel 304, PBT</td>
</tr>
<tr>
<td>Collet release bushing</td>
<td>POM</td>
</tr>
<tr>
<td>Valve retainer</td>
<td>POM</td>
</tr>
<tr>
<td>Stopper</td>
<td>C3604, POM</td>
</tr>
<tr>
<td>Seal O-ring</td>
<td>NBR</td>
</tr>
<tr>
<td>Gasket</td>
<td>Stainless steel 304, NBR</td>
</tr>
</tbody>
</table>

For details, refer to page 207.