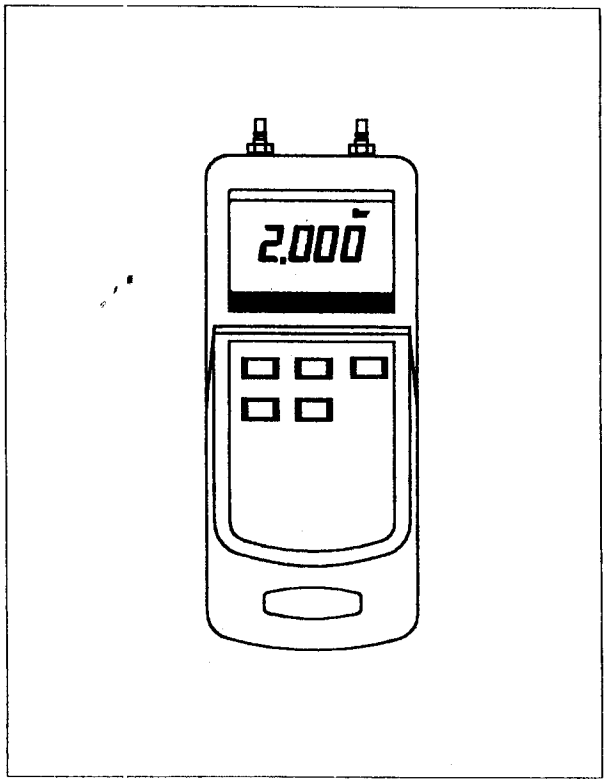
*Dual & differential input*

# MANOMETER



# TABLE OF CONTENTS

# 1. FEATURES

* Dual & differential input, ± 2000 mbar max. range.
* Application : Industrial, laboratory, heating, ventilation, medical hospital, used for air or not corrosive and not ionized gas & liquid.
* Sensor is built inside the housing.
* Single lugs for pipe connection.
* 8 kind display units ( mbar, psi, $Kg/cm^2$, mm Hg, inch Hg, meter $H_2O$, inch $H_2O$, Atmosphere ) select by push button on the front panel
* Auto shut off saves battery life.
* Zero button on the front panel, easy to offset the zero value.
* Microprocessor circuit assures maximum possible accuracy, provides special functions and features,
* Super large LCD display with contrast adjustment for best viewing angle.
* Records maximum & minimum readings with recall.
* Data Hold function for stored the desired value on display.
* Built-in low battery indicator.

# 2. SPECIFICATIONS

## *2-1 General Specifications*

| | |
|---|---|
| Circuit | Microprocessor LSI circuit. |
| Display | 61 mm x 34 mm supper large LCD display. 15 mm ( 0.6" ) digit size. |

| | |
|---|---|
| Display units | mbar, psi, Kg/cm$^2$, mm Hg, inch Hg, meter $H_2O$, inch $H_2O$, Atmosphere. |
| Function | Dual & differential input, data hold, zero/relative, memory. |
| Zero adjust | Push button on the front panel. |
| Sensor | * Sensor is built inside the housing. |
| | * Piezoelectric sensor. |
| | ⚠ *** Used for air or not corrosive and not ionized gas & liquids.** |
| Data hold | By push button. |
| Data record | Record maximum & minimum readings. |
| Sampling time | Approx. 0.8 second. |
| Power off | Auto shut off, saves battery life or manual off by push button. |
| Operating temperature | 0 to 50 °C ( 32 to 122 °F ). |
| Operating humidity | Less than 80% R.H. |
| Power supply | 006P DC 9V battery ( heavy duty ). |
| Power current | Approx. DC 6.0 mA. |
| Weight | 345 g/0.76 LB . |
| Dimension | 185 x 73 x 38 mm ( 7.2 x 3.0 x 1.4 inch ) |
| Accessories included | * Instruction manual..... 1 PC.<br>* Hard carrying case..... 1 PC.<br>* PLug for quick coupler..... 2 PCs. |

## 2-2 Electrical Specifications

| Unit | Max. range | | Resolution | |
|---|---|---|---|---|
| mbar | ±2000 | mbar | 1 | mbar |
| psi | ±29 | psi | 0.02 | psi |
| Kg/cm$^2$ | ±2.040 | Kg/cm$^2$ | 0.001 | Kg/cm$^2$ |
| mm Hg | ±1500 | mm Hg | 1 | mm Hg |
| inch Hg | ±59.05 | inch Hg | 0.05 | inch Hg |
| meter $H_2O$ | ±20.40 | meter $H_2O$ | 0.01 | meter $H_2O$ |
| inch $H_2O$ | ±802 | inch $H_2O$ | 0.5 | inch $H_2O$ |
| Atmosphere | ±1.974 | Atmosphere | 0.001 | Atmosphere |

| Unit | Max. range | | Accuracy |
|---|---|---|---|
| mbar | ±2000 | mbar | ± 2 % F. S. |
| psi | ±29 | psi | |
| Kg/cm$^2$ | ±2.040 | Kg/cm$^2$ | *Note :* |
| mm Hg | ±1500 | mm Hg | **23 ± 5 °C.* |
| inch Hg | ±59.05 | inch Hg | **F.S. : full scale* |
| meter $H_2O$ | ±20.40 | meter $H_2O$ | **Included linearity, hysteresis and repeatability* |
| inch $H_2O$ | ±802 | inch $H_2O$ | |
| Atmosphere | ±1.974 | Atmosphere | |

***Remark :***

| Measuring unit | Display unit |
|---|---|
| mbar | **m Bar** |
| psi | **Psi** |
| Kg/cm$^2$ | **Kg /cm$^2$** |
| mm Hg | **mm /Hg** |
| inch Hg | **in/Hg** |
| meter $H_2O$ | **m $H_2O$** |
| inch $H_2O$ | **inch $H_2O$** |
| Atmosphere | **ATP** |

## 3. FRONT PANEL DESCRIPTION

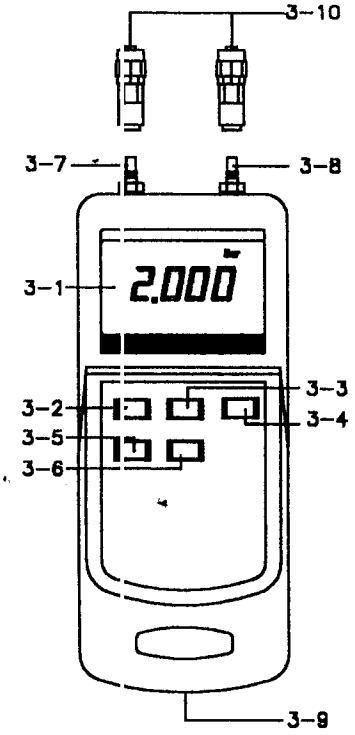



Fig. 1

3-1 Display
3-2 Power Off/On Button
3-3 Hold Button
3-4 Zero Button
3-5 " MAX./MIN. " Button
3-6 Unit Button
3-7 P1 input socket
3-8 P2 input socket
3-9 Battery Compartment /Cover
3-10 PLug/ quick coupler

## 4. MEASURING PROCEDURE

1) Power on the meter by pressing the " Power Off/On Button " ( 3−2, Fig. 1 ).
2) Select the desired temperature units ( mbar, psi, $Kg/cm^2$, mm Hg, inch Hg, meter $H_2O$, inch $H_2O$, Atmosphere ) by pushing the " Unit Button " ( 3−6, Fig. 1 ).
3) **Zero adjusting**
   Adjust the display reading to zero value by pushing the " Zero Button " ( 3−4, Fig. 1 )
4) Install the measuring pipe to " Plug/quick coupler " ( 3−10, Fig. 1 ).
5) The meter is build the two input socket ( P1 input socket, P2 input socket) for accepting the differential pressure input.
   Connecting the pipe along the " Plug " ( 3−10, Fig. 1) to
   a. *" P1 input socket " ( 3−7, Fig. 1 ) only*
   b. *" P2 input socket " ( 3−8, Fig. 1 ) only*
   c. *Both P1 & P2 input socket*
   The LCD will show the measuring pressure value.

   *Note :*
   * *If the P1 pressure > P2 pressure, the display will get positive reading.*
   * *If the P1 pressure < P2 pressure, the display will get negative reading.*

6) **Data Hold**
* During the measurement, pressing the " Hold Button " ( 3−3, Fig. 1 ) will freeze the measured value & the LCD will show " HOLD " symbol.
* Press the " Hold Button " again to cancel the data hold function.

7) **Data Record ( Maximum, Minimum reading )**

* The DATA RECORD function displays the maximum and minimum readings. To start the DATA RECORD function, press the " MAX./MIN. Button " ( 3–5, Fig. 1 ) once. " REC " symbol will appear on the LCD display.
* With the " REC " symbol on the display :
  (a) Press the " MAX./MIN. Button " ( 3–5, Fig. 1 ) once, the " Max " symbol along with the maximum value will appear on the display.
  (b) Press the " MAX./MIN. Button " again, the " Min " symbol along with the minimum value will appear on the display.
  (c) To exit the memory record function, press the " MAX./MIN. Button " continuously for at least 2 seconds. The display will revert to the current reading.

8) **For quick measurement, follow the procedures shown below :**

**Main procedures :**

POWER ON → *ZERO ADJUST* → *DETERMINE UNIT*

**Optional measuring procedures :**

DATA HOLD

MEMORY RECORD → Max., Min.

**Power management**

AUTO POWER OFF (Not activated during Memory Record Selection) or MANUAL POWER OFF

## 5. AUTO POWER OFF DISABLE

The instrument has built-in " Auto Power Shut-off " in order to prolong battery life. The meter will switch off automatically if none of the buttons are pressed within 10 min.
To de-activate this feature, Select the memory record function during measurement, by pressing the " MAX./MIN. Button " ( 3-5, Fig. 1 ).

## 6. BATTERY REPLACEMENT

1) When the left corner of LCD display show " LBT ", it is necessary to replace the battery. However, in-spec measurement may still be made for several hours after low battery indicator appears before the instrument become inaccurate.
2) Slide the Battery Cover ( 3-9, Fig. 1 ) away from the instrument and remove the battery.
3) Install a 9 V battery (PP3 type) and replace the cover.