

# OPERATION MANUAL

## DIGITAL MANOMETER



Model: ■ 82012 (0~ ± 1 psi)  
■ 82062 (0~ ± 6 psi)  
■ 82152 (0~ ± 15 psi)

Congratulations on your purchase of the Manometer ! This instrument is portable, battery operated device for measuring differential pressure. The Manometer is ideal for HVAC/R technicians measuring pressure level , Medical equipment , Computer peripherals , Pneumatic Controls.

## INTRODUCTION

- ✓ The meter will display all LCD segments when it is first turned on for approx. 3 seconds.
- ✓ The LCD is divided into two distinct sections : One large (Primary) screen and one smaller bottom screens (Relative Clock). The primary screen keep you constantly updated of the pressure measurements.
- ✓ The Meter measures **Gauge pressure** -a measure of pressure with reference to ambient pressure, and **Differential pressure** -a measure of the difference between two pressures .
- ✓ 11 pressure units are selectable for Imperial and Metric in the different area .: inHg,ftH<sub>2</sub>O, Ozin<sup>2</sup>, kPa, Kgcm<sup>2</sup>, mmHg, psi, inH<sub>2</sub>O, bar, mbar,mmH<sub>2</sub>O.
- ✓ 3 models of Manometer for choice:  
Pressure range: 0~ ± 1psi (#82012)  
" : 0~ ± 6psi (#82062)  
" : 0~ ± 15psi (#82152)
- ✓ Please check the tubing is not leaking or damaged before using.

## MATERIAL SUPPLIED

### This package contains:

- ✓ The meter x 1
- ✓ Battery x 6 (AAA)
- ✓ Connection hose 4mm(ID)x6mm (OD) x 500mm length x 2 pcs
- ✓ Operation manual
- ✓ Hard carrying case

### Optional accessory:

- ✓ RS232 or USB cable and software disk

## POWER SUPPLY

The meter is powered by battery only. Unscrew the battery cover and insert 6pcs AAA batteries in correct polarity and it can start measuring.

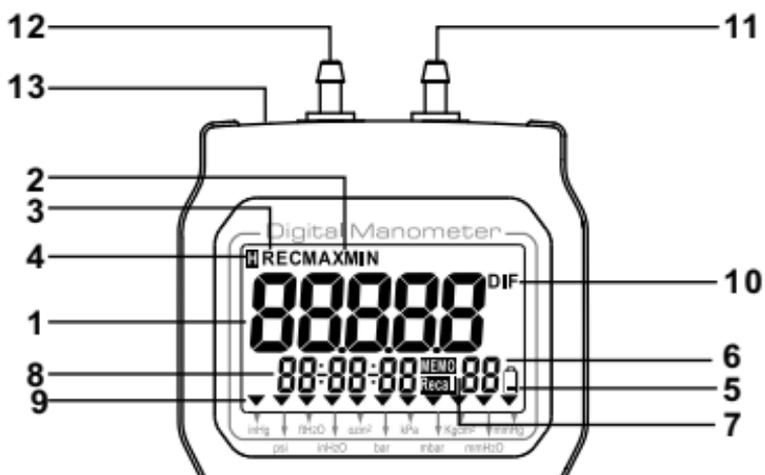
**Note:** Always remove battery from instruments when you do not plan to use it for a month or longer time.

## MODEL SELECTION

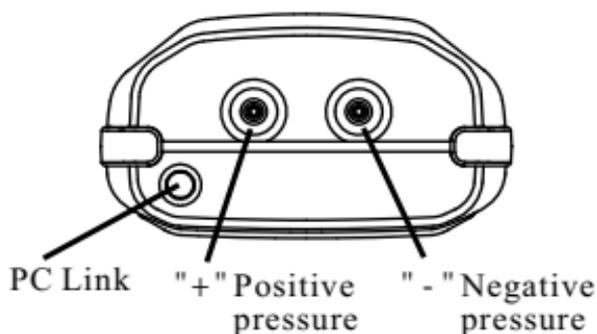
### *Models and measuring range: ±*

<small>unit model</small>	<b>Psi</b>	<b>InH<sub>2</sub>O</b>	<b>mbar</b>	<b>kg/cm<sup>2</sup></b>
<b>82012</b>	1.000	27.68	68.9	0.070
<b>82062</b>	6.000	166.08	413.7	0.422
<b>82152</b>	15.000	415.20	1034.2	1.055

## INDICATORS



1. **Primary screen** displays pressure value ("-" : Minus pressure).
2. **MAXMIN** displays Max/Min pressure in recording status.
3. **REC** starts data recording.
4.  Freezes reading on the display
5.  Low battery voltage
6. **88** Number of the saved reading
7. **MEMO** saves single reading in meter / Review the saved data
8. **88:88:88** Displays duration time in the order of Hour / Minute / Second.
9.  Pressure unit indication.
10. **DIF**. Pressure change mode.
11. **"-"** Negative pressure hose plug.
12. **"+"** Positive pressure hose plug.
13. **PC Link port**



## OPERATION

There are seven function keys for mode selection and measuring operation. For your convenience, the meter reserves the setting used in the last operation. The following lists the operation for each function key.



 Turns instrument on and off.

 Press momentarily to save reading into meter memory (Total storage is 99 points). **MEMO** icon and a number displayed at the lower right screen with a blinking reading to indicate readings saved. Press and hold  for 3 seconds, it enters **MEMO** recall mode (See Fig. A). To view each recorded data by pressing  or .

Short press  and it escapes from recall mode.

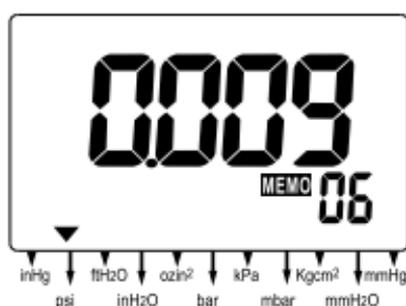


Fig. A

To delete all records in **MEMO**, press and hold  for 3 seconds in recall mode.

 Press momentarily and the back-light illuminates for approx. 10 seconds then turns off automatically.

 Press momentarily to enter Record mode. **REC** icon shows at the left top screen and the timer starts (Fig. B). Press  again and the display cycles through **MAX** (Fig. C) and **MIN** (Fig. D) and back to current recording. Other button functions are locked out in this mode except for  and .

**Note:**

Max/Min function is only available in Record mode. It shows the Max/Min reading since  is pressed.

Press and hold  for 3 seconds to turn off the record function and return to the normal mode.

 Press this button to freeze the current reading (Fig. E) and press it again to return to normal mode.

**Fig. B**



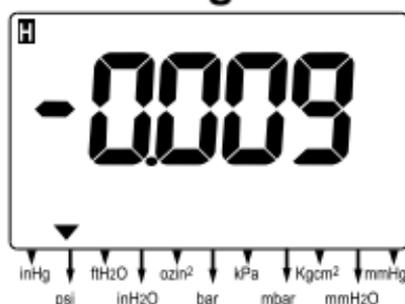
**Fig. C**



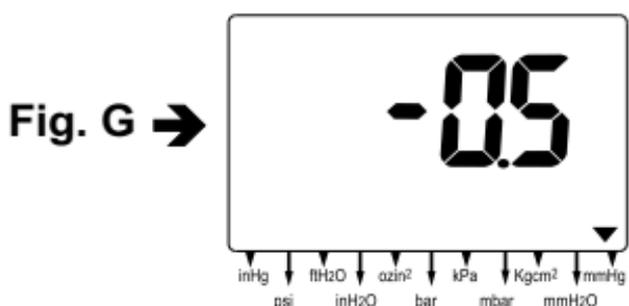
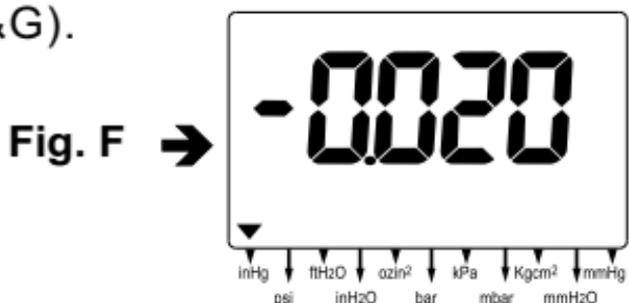
**Fig. D**



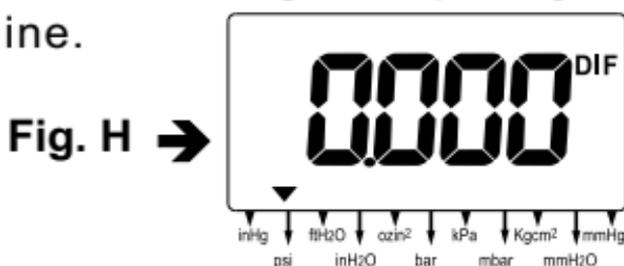
**Fig. E**



**UNIT** Press momentarily and the unit cycles through "inHg", "psi", "ftH2O", "inH2O", "Ozin<sup>2</sup>", "bar", "kPa", "mbar", "Kgcm<sup>2</sup>", "mmH2O", and "mmHg". A "▼" indicator will be moving upon the selected unit. (See Fig.F &G).



**DIF** Press to enter Difference mode to monitor pressure change. **DIF** icon appears on the right side of the LCD and the meter will take the current reading as the baseline and set it as relative zero (see Fig.H). In this mode, readings on the main display indicates the pressure change comparing to the baseline.

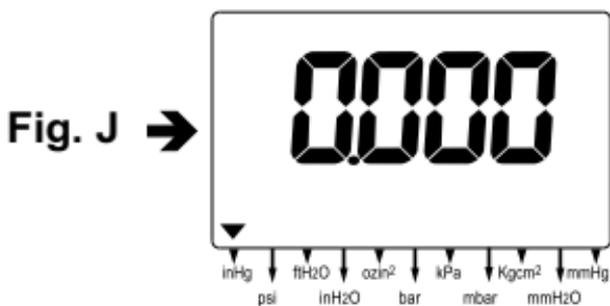
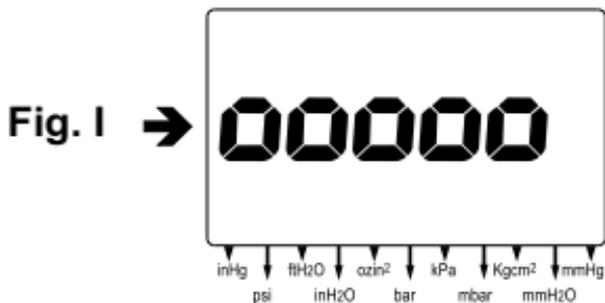


(Note: The displayed readings here is not the differential pressure between two ports, but pressure change from a certain differential pressure)

Press this button again and it returns to normal mode.

## MANUAL ZERO SETTING

Conduct zero setting to make sure the meter is ready for a new measurement. While the meter is on and no pressure applied to the connector, press  for 5 seconds, it displays "0.0.0.0" from right side of the LCD to the left (See Fig.I) and returns to normal mode (See Fig.J). The zero setting is completed.



## AUTO POWER OFF (SLEEP FUNCTION)

This instrument shuts off automatically in approx. 20 minutes of inactivity. For recording or operating over longer periods of time, you can disable the sleep mode by pressing  and  simultaneously before power on. An "n" will appear in the middle of the screen at which time you can release the  button (See Fig. K). The disabled setting will be invalid after power off.

Fig. K →



## PC CONNECTION

The meter can be linked to PC for real time data transmission. The compatible cable sets are #VZRS232BN (RS232 cable) and VZUSBAZM (USB cable).

### Connection procedures:

1. Connect meter to PC with a RS232 or USB cable. (Install driver first if you are using a USB cable.)
2. Run Software set up.
3. Complete COM Port setting and the following protocol, then the real time readings appear on the main screen.

**Baud Rate : 2400 bit/sec, Data Bit : 8 ,  
Stop Bit : 1, No parity**

## TROUBLESHOOTING

### ? Power on but no display.

Check if the batteries are in good contact and correct polarity.

### ? Battery indication.

The battery voltage is running out.

### ? E02. The value is under range.

### ? E03. The value is over range.

**Note:** Over ranged measurement will damage the sensor.

### ? E04. Data source error. The error is caused by original data problem. For example, the Min/Max display in record mode. Or the reading in DIF mode.

### ? E05. Reading exceeds the maximum display range. Change to view in other pressure unit or reverse the tubing.

**Note:** The error only occurs when viewing mmH<sub>2</sub>O display in model 82152.

## SPECIFICATION

	<b>Pressure</b>
<b>Range</b>	0~ ±1psi(82012); 0~ ±6psi(82062) 0~ ±15psi(82152)
<b>Resolution</b>	See data sheet below
<b>Accuracy</b>	Accuracy ±0.3% FS at 25°C Repeatability ±0.2%~0.5% FS Linearity/Hysteresis ±0.29%~1%FS Combined accuracy ±1.0%FS
<b>Response time</b>	0.5 seconds
<b>Lug&amp;Tubing</b>	4mm lug- orange tube 500mm long 8mm lug- black tube 500mm long
<b>Operation Condition</b>	0~50°C <80% RH
<b>Storage Condition</b>	-20~50°C <90% RH
<b>Dimension</b>	169 x 78.3 x 34.4 mm(meter)
<b>Unit Weight</b>	Approx. 200 gram (with battery)
<b>Max. Pressure</b>	82012- 2psi; 82062- 12psi 82152- 30psi

### Range&resolution

Model RANGE & RESOLUTION	82012	82062	82152
psi ±	1.000 <sub>(0.001)</sub>	6.000 <sub>(0.001)</sub>	15.000 <sub>(0.001)</sub>
KPa ±	6.89 <sub>(0.01)</sub>	41.36 <sub>(0.01)</sub>	103.42 <sub>(0.01)</sub>
mmHg ±	51.7 <sub>(0.1)</sub>	310.3 <sub>(0.1)</sub>	775.7 <sub>(0.1)</sub>
Kgcm <sup>2</sup> ±	0.070 <sub>(0.001)</sub>	0.422 <sub>(0.001)</sub>	1.055 <sub>(0.001)</sub>
mBar (hpa) ±	68.9 <sub>(0.1)</sub>	413.7 <sub>(0.1)</sub>	1034.2 <sub>(0.1)</sub>
bar ±	0.069 <sub>(0.001)</sub>	0.414 <sub>(0.001)</sub>	1.034 <sub>(0.001)</sub>
inH <sub>2</sub> O ±	27.68 <sub>(0.01)</sub>	166.08 <sub>(0.01)</sub>	415.20 <sub>(0.01)</sub>
mmH <sub>2</sub> O ±	703 <sub>(1)</sub>	4218 <sub>(1)</sub>	10546 <sub>(1)</sub>
inHg ±	2.036 <sub>(0.001)</sub>	12.216 <sub>(0.001)</sub>	30.540 <sub>(0.001)</sub>
ftH <sub>2</sub> O ±	2.307 <sub>(0.001)</sub>	13.840 <sub>(0.001)</sub>	34.600 <sub>(0.001)</sub>
Oz/inch <sup>2</sup> ±	16.00 <sub>(0.01)</sub>	96.00 <sub>(0.01)</sub>	240.00 <sub>(0.01)</sub>

## **WARRANTY**

The meter is warranted to be free from defects in material and workmanship for one year from the date of purchase. This warranty covers normal operation and does not cover battery, misuse, abuse, alteration, tampering, neglect, improper maintenance, or damage resulting from leaking batteries. Proof of purchase is required for warranty repairs. Warranty is void if the meter has been opened .

## **RETURN AUTHORIZATION**

Authorization must be obtained from the supplier before returning items for any reason. When requiring a RA (Return Authorization), please include data regarding the defective reason, the meters are to be returned along with good packing to prevent any damage in shipment and insured against possible damage or loss .

## **Accuracy, the Zenith of Measuring / Testing Instruments !**

- ▲ Hygrometer/Psychrometer
- ▲ Thermometer
- ▲ Anemometer
- ▲ Sound Level Meter
- ▲ Air Flow meter
- ▲ Infrared Thermometer
- ▲ K type Thermometer
- ▲ K.J.T. type Thermometer
- ▲ K.J.T.R.S.E. type Thermometer
- ▲ pH Meter
- ▲ Conductivity Meter
- ▲ T.D.S. Meter
- ▲ D.O. Meter
- ▲ Saccharimeter
- ▲ Manometer
- ▲ Tacho Meter
- ▲ Lux / Light Meter
- ▲ Moisture Meter
- ▲ Data logger
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