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Instruction Manual
Manometer PCE-PXX

Congratulations on your purchase of the Manometer! This instrument is portables battery operated pressure measuring device.

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. Though you might have seen DATALOGGER, Y/M/D, REL, AVG ... these are not available for the meter. The meter with data logger features named 8205D/821 5D/8280D/821 OOD. Please contact the store or the place you purchased.
- The LCD is divided into two distinct sections: One large (Primary) top screen and one smaller right-bottom bottom screens (relative Clock), The 2 display areas keep you constantly updated with the) pressure measurements.
- The Meter measures Gauge pressure-a measure of pressure in psi that is referenced to ambient pressure and Differential pressure - a measure of the difference two pressures.
- 11 pressure units are selectable for Imperial and Metric in the different area: bar, mmHg, ozin², kgcm², psi, inH2, kPa, ftH2O|, inHg, cmH2O, mbar.
- Please check the tubing is not leakage or damaged before using

CONVERSION

Manometer	PSI	Inch of H2O	mbar	kg/cm³
PCE-P05	5	138	345	0,35
PCE-P15	15	415	1034	1,05
PCE-P30	30	830	2068	2,10
PCE-P50	100	2768	6895	7,03

CONROLS AND INDICATORS

1. Primary Data Screen displays pressure value.
2. **"-"**: Minus pressure display.
3. **MAX MIN**: pressure recorded.
4. **REC**: starts recording mode and displays max./min. pressure recorded,
5. **AVG**: Average records (N/A).
6. **DC**: power in Jack.
7. **RS232**: output port.
8. **H/M/S** 88:88:88: displays data for Hour / Minute / Second.
9. **▼** : Pressure unit indication.
10. **BAT**: Battery low indicator.
11. **DIF**: Differential pressure mode.
12. **"+"**: Positive pressure home plug.
13. **"-"**: Negative pressure hose plug.
14. **HOLD**: Freezes pressure reading.
15. **REL**: Establish a relative zero for the primary screen information. (N/A)

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"-" Negative pressure   "+" Positive pressure
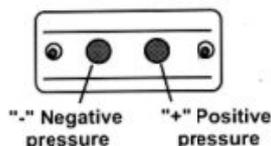
Note: There are two connecting metal lug 5mm, plastic lug 9.25mm for different application purpose . Make sure which one you want before purchasing the unit.

AUTO POWER OFF (SLEEP FUNCTION)

This instrument will shut off automatically in approx. 20 minutes for every power on.
For recording or operating over longer periods of time, you can disable the sleep mode by pressing ⏻ and HOLD simultaneously before power on.
An "n" will appear in the middle of the screen at which tinge you can release the HOLD button. (See Fig. A) The disable steep mode will be invalid after paper off.
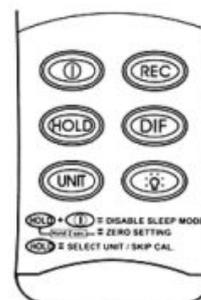
Fig. A ➔

MODE OPTIONS

Delete and replace with program cable user selectable start-up mode.
The display will default to the mode last used.
For your convenience the setting used during the last operation.
The following table lists the modes of operation that can be invoked by   pressing the button indicated.


⏻   Turns instrument on (Default setting) and off.

REC   Press momentarily and relative clock starts in the lower right screen.
REC is displayed in the middle deft of (Fig. B) other button functions are locked out except Power, Unit and Backlight.
Press momentarily again and the unit cycles through MAX (Fig. C) and man (Fig. D) and back to current pressure; the record mode is displayed on the LCD.
Press and hold for 3 seconds to turn off the normal mode.

Fig. B ➔

Fig. C ➔

Fig. D ➔

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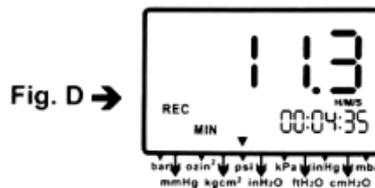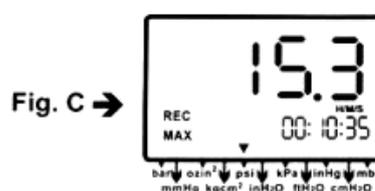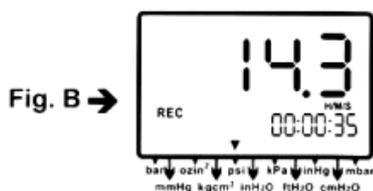
(HOLD)   Press momentarily to freeze the pressure reading. (Fig. E)


Fig. E →
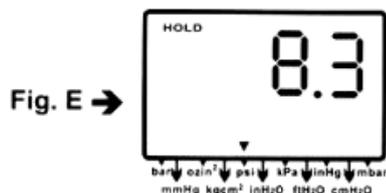
(DIF)   Press momentarily, DIF appears on top of the LCD and tile display indicates the relative zero re (Relative zero causes the value of the display to show as "0,0") -only the amount of pressure change will be indicated. Press momentarily again and the unit returns to the normal mode of pressure differential (see Fig. F).

Fig. F →
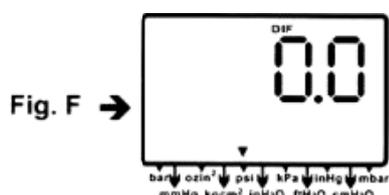
Differential Pressure: A measure of the difference between two pressures, i.e. use differential pressure sensor to measure gauge pressure by 1eaving one process connection open to atmosphere and connecting the second sensor port to your system.

(UNIT)   Press momentarily and the unit will cycle through bar, mmHg, ozin², kgcm², psi, inH2, kPa, ftH2O, inHg, cmH2O, mbar, which indicated on the bottom of the display (See Fig. G & H).

Fig. G →

Fig. H →
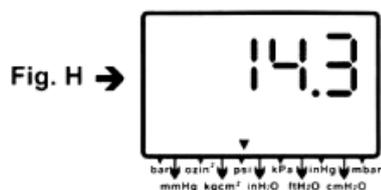
(✿)   Press momentarily and the backlight illuminates for approx. 30 seconds then turns off automatically. Or press momentarily to decrease the figure when calibration is being performed.

MAINTENANCE

- The meter is calibrated in house before shipping. To maintain the meter in the good condition for use, recommend to calibrate the meter after tong time using.
- When properly maintained, the meter will maintain an accuracy specification to ensure your meter is performing at its peak; send it to the factory or a qualified instrument calibration facility for annual calibration.
- Recommend always to get zero before measurement prefer to the zero setting procedure in page 10.

Cleaning:
Use a damp cloth and mild soap to clean the case of the Manometer do kcal use harsh detergents or abrasives as these may mar the finish or damage the unit's case with an adverse chemical reaction.
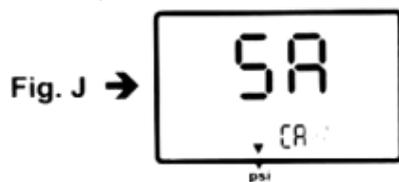
CALIBRATION MODE

Calibration mode is only applicable for a standard Manometer calibrator or any qualified meter calibration facility for annual calibration,

1. First, please manually set the display to zero (no pressure applied to the connector), refer to the Manual zero procedure.
2. Turn the meter off.
3. Press REC & ⏻ simultaneously "CA" appears on the display, (See Fig. I) the meter enters to the calibration mode, make sure the pressure unit to be pointed under the arrow mark   is psi start positive (+) pressure calibration

Fig. I ➔
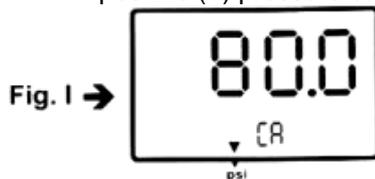
4. The meter has defaulted as 80 psi calibration point, the adjustable pressure range in from 78.0 to 82.0 if calibration pressure source is not 80 psi , to increase the figure by pressing REC key , or decrease the figure by pressing ⊗ key to set calibration point as required.
5. Save the calibration point by pressing REC key , "SA" and small "CA" appears on the display (See Fig. J) in 2 seconds , the meter auto-skip to the negative pressure (-) point for next calibration mode.

Fig. J ➔

6. Follow the same procedure as step 4 for the negative pressure calibration point by pressing UNIT key , the LCD now displays " -80 ,0 " and small "CA" (See Fig. K), do the necessary calibration figure refer to your pressure standard if needed.

Fig. K ➔
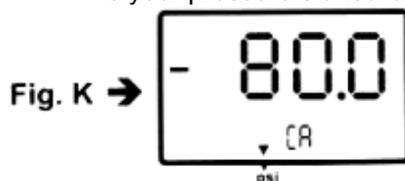
7. Again save the calibration point by pressing REC key, "SA" and "CA" appears in 2 seconds and then " End" and "CA" appears in another 2 seconds, the meter turns back to the normal mode (See Fig . L).

Fig. L ➔
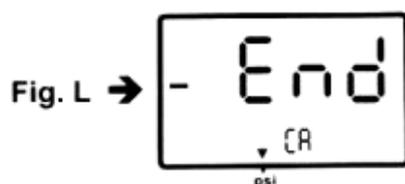
If you can't save by press REC key, i.e. no "SA" appeared, please check: (a) The calibration pressure source is between 75.0 and 85.0, or check (b) if you enter the right positive pressure (+) or negative pressure (-) . If you want to skip positive (+) calibration when entered to the Calibration mode, press to UNIT skip to negative (-) calibration point.

Above calibration is an example for model 82100, i.e. the pressure range is from 0 to +100psi (Positive pressure) or from 0 to -100 psi (Negative pressure).

CALIBRATION POINT REFERENCE

Model	psi-range	Calibration point	(±) Recommend
PCE-P05	0 ~ ±5	4,000	3,900 ~ 4,100
PCE-P15	0 ~ ±15	12,00	11,70 ~ 12,30
PCE-P30	0 ~ ±30	24,00	23,40 ~ 24,60
PCE-P50	0 ~ ±100	80,00	78,00 ~ 82,00

MANUAL ZERO SETTING

When you set the display to zero (no pressure applied to the connector), press button ⬭HOLD for 2 seconds, now the meter display "0 .0.0.0" from right to left and then disappear each "0" from left back to right, the LCD display shows a normal mode.

TROUBLESHOOTING

- Power on but no display. Check the batteries are in place and making good contact or correct polarity, replace a new battery or attach optional AC adaptor for the weak battery caused.
- BAT indication. Replace with a now battery when LCD display BAT at the middle bottom.
- No Display. Make sure battery is not empty, if the display disappears, check sleep mode is active. Refer to the Disable sleep mode function for a long time using the measurement. Or check the tubing is connected to the meter tightly.
- Err.1. For the pressure value exceed the maximum range, "Err. 1" appears on the display, p1ease change the sensor, otherwise, the sensor will be hurt for going on the over range measurement.
- Err.2. For the measurement pressure is less than minimum range, "Err. 2" will appear recommend to change the sensor (meter).
- Err.3. For operating the DIF function, the differential pressure value is larger than maximum display digit, Err.3 appears on the display.
- Err.4. When you set zero, make sure you have disconnected the tubing, no pressure applied to the connector. Then if you see an Err.4 appears on the display, it means the sensor or meter damaged. Return the unit to the store you purchased for repaired.
  Err.4 will be also appeared while the tube or hose is connecting during setting zero mode.
- E1OL or E2UL. When you see the errors while operating RS232 software, it means pressure source is less or over than the range of the instrument.

REPLACING THE BATTERY

Replace your 9-volt battery when:
- The BAT icon appears on the right of the screen.
- The meter will not power on.
- Use of the back-light causes the BAT icon to appear.

Even if the battery was recently replaced check its voltage level if you get no response from your instrument.
To replace the battery:
1. Remove the tubing of the instrument.
2. Lay the instrument face-down on a clean, flat surface.
3. Remove the battery by screw driver and observe indicated polarity and close the cover after replacing with a new battery.

Remove battery from instruments that you do not plan to use for a month or more.
Do not leave battery in instrument.

OPERATING CONDITIONS

- Compensated temperature range: 0 – 50°C
- Operating temperature 0 – 50°C (32 – 122°F)
- Storage temperature range: -20 – 60°C
- Operating Humidity Max. 80% RH
- Power: One 9.0 volt battery
- Exceeding Maximum pressure will cause permanent sensor damage.

SPECIFICATION

	PCE-P05	PCE-P15	PCE-P30	PCE-P50
Range	0 – 5 psi	0 – 15 psi	0 – 30 psi	0 – 100 psi
Resolution	0,003 psi	0,01 psi	0,02 psi	0,1 psi
Accuracy	±0,3% of full scale at 25°C			
Dimension	72 x 182 x 30 mm			
Unit Weight	Approx. 220 gram (with battery)			
Response time	0,5 seconds			
Data Format	Baud Rate: 2400 bit/sec Data Bit: 8 Stop Bit: 1 P XXXXX. P -XXXXX (unit)			

The meter Pressure measurement instruments are not suitable for the absolute pressure measurement.

The meter instruments are fitted with two 4.8mm lugs. Before you connect the instruments to a pressure sources, check carefully the security of ail fitting.

RS232 OUTPUT

The meter can link both personal computer to capture on-line dates display pressure records with real-time output, you can retrieve file save the datas for operating data analysis, records statistic, multi-files display in the screen,....versatile functions for your choice.

Connection procedures:
1. Plug the optional accessory RS232 cable onto the DC jack port (at the right side of the meter)
2. Insert the D-sub 9P type connector onto computer's Com 1 or 2 port or…
3. Start to set up RS232 software by inserting the CD-ROM or Floppy diskette.
4. When installing the RS232 software please follow the operation manual procedure in the software package.

WARRANTY

The meter is warranted to be free from defects in material and workmanship for a period of 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.

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In this direction will find a vision of the measurement technique:
http://www.industrial-needs.com/measuring-instruments.htm

NOTE: "This instrument doesn't have ATEX protection, so it should not be used in potentially explosive atmospheres (powder, flammable gases)."