



DM8252/8252RS

USER'S MANUAL



HIGH RESOLUTION DIGITAL MANOMETER

**Test Equipment
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DM8252

DM8252RS

INCLUDES 4 RUBBER
STOPPERS FOR DUCT
SMOKE DETECTORS

Thank you for purchasing this Digital Manometer. This instrument is a portable, 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 see DATALOGGER, Y/M/D, REL, AVG... these segments are not available for this meter.

- ✓ The LCD is divided into two distinct sections: One large (primary) top screen and one smaller right-bottom screen (relative Clock). The 2 display areas keep you constantly updated with the pressure measurements.

- ✓ The meter measures:
 - Gauge pressure -**
a measurement of pressure that is referenced to ambient pressure.
 - Differential pressure -**
a measurement of difference of two pressures.

- ✓ Meter has 5 selectable units of measure: InH₂O, psi, mbar, bar, mmH₂O.
- ✓ Please check tubing is not leaking or damaged before using.

CONVERSION & RESOLUTION

1 mbar =		Resolution
Inch of H ₂ O	0.401	0.01
psi	0.0145	0.004
mbar	1	0.1
bar	0.001	0.001
mm of H ₂ O	10.2	1

MANOMETER QUICK START

- ✓ Unscrew battery compartment on rear of instrument and fit PP3 (or Equivalent) battery replace cover and secure with screw.
- ✓ Press **(I)** to switch the instrument on.
- ✓ Press **(UNIT)** to select unit of pressure measurement required. To zero by pressing **(HOLD)** and hold for three seconds, the instrument now reads gauge pressure.
- ✓ Press **(DIF)** for differential pressure measurement.

- ✓ Press **HOLD** to freeze reading. Press **HOLD** again to cancel feature.
- ✓ Press **REC** to start clock, press **REC** again to see time, since start of recording of Max. reading. Press **REC** again to see time, since start of recording of Min. reading. Pressing **REC** again returns to real time recording mode.
- ✓ Press and hold **REC** for three seconds to turn clock feature off.

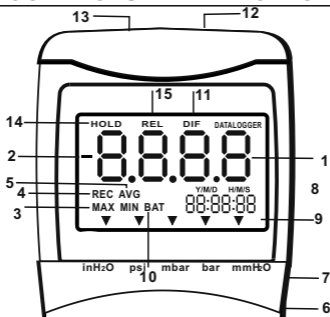
Note:

The clock feature is available with gauge pressure only, not differential. The instrument will automatically switch off after 20 minutes unless sleep mode is disabled, see page 5 **AUTO POWER OFF**.

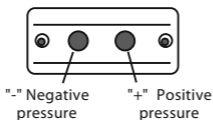
Press **Ⓛ** to display backlight. It illuminates for approximately 30 seconds and automatically switches off.



CONTROLS 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 time for Hour / Minute / Second.
9. ▼ Pressure unit indication.
10. **BAT** Battery low indicator.
11. **DIF** Differential pressure mode.
12. "+" Positive pressure connection.
13. "-" Negative pressure connection.
14. **HOLD** Freezes pressure reading.
15. **REL (N/A)**
Establish a relative zero for the primary screen information.



AUTO POWER OFF (SLEEP FUNCTION)

This instrument will automatically shut off 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 powering on.

An "n" will appear in the middle of the screen at which time you can release the **HOLD** button. (See Fig.A) The disable sleep mode will be invalid after power off.

Fig. A →

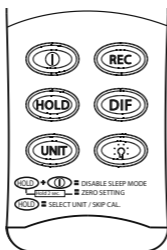


MODE OPTIONS

Delete and replace with programmable user selectable start-up mode.

The display will default to the mode last used.

The following table lists the modes of operation that can be invoked by pressing the button indicated.



- ① Turns instrument on (default setting) and off.
- Ⓡ Press momentarily and relative clock starts in the lower right screen.

REC is displayed in the middle left of screen (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 **MIN** (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 record function and return to normal mode.

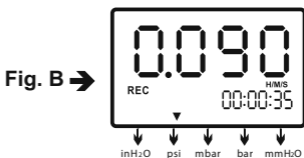


Fig. C →

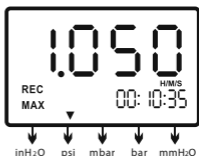
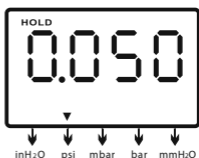


Fig. D →



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

Fig. E →



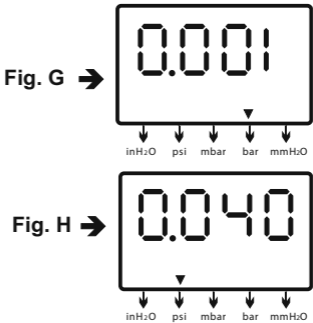
DIF Press momentarily, DIF appears on top of the LCD and the display indicates the relative zero (relative zero causes the value of the display to show as "0.0") - only the amount of pressure change will be indicated. Press momentarily again and the unit returns to the normal mode of pressure differential (see Fig.F).

Fig. F →



Differential Pressure: a measurement of the difference between two pressures, i.e. use differential pressure sensor to measure gauge pressure by leaving one process connection open to atmosphere and connecting the second sensor port to your system.

UNIT Press momentarily and the units will cycle through " **inH₂O**", "**psi**", "**mbar**", "**bar**", "**mmH₂O**" which are indicated on the bottom of the display (See Fig.G &H).



Lightbulb Press momentarily and the back-light 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.
- ✓ When properly maintained, the meter will maintain its 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.
- ✓ It is recommended to always set zero before taking a measurement. Refer to zero setting procedure on page 12.

Cleaning:

Use a damp cloth and mild soap to clean the case of the Manometer, do not use harsh detergents or abrasives as these may mar the finish or damage the unit's case with an adverse chemical reaction.

CALIBRATION MODE

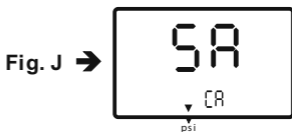
Calibration mode is only applicable for a standard manometer calibrator or any qualified meter calibration facility for annual calibration.

1. First, manually set the display to zero (no applied to the connector), refer to the manual zero procedure on page 13.

2. Turn the meter off.
3. Press **REC** & **①** simultaneously, "**CA**" appears on the display, (See Fig.I) the meter enters to the calibration mode, make sure the units setting on "**psi**" to start positive (+) pressure calibration.

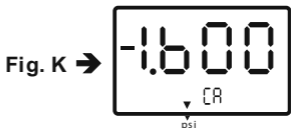


4. The meter has a 1.6 psi calibration point by default. The adjustable pressure range is from 1.5 to 1.7. If calibration pressure source is not 1.6 psi, increase by pressing **Dif** key, or decrease by pressing **Ⓜ** key to set calibration point as required.
5. Save the calibration point by pressing **REC** key, "**SA**" and small "**CA**" appears on the display (See Fig.J) in 2 seconds, the meter auto-skips to the negative pressure (-) point for next calibration mode.

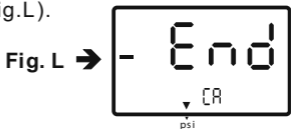


6. Follow the same procedure as step 4 for the negative pressure calibration point.

The LCD now displays **"-1.600"** and small **"CA"** (See Fig.K), do the necessary calibration figure refer to your pressure standard if needed.



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



If you can't save by pressing **UNT** key, i.e. no **"SA"** appears, please check: (a) the calibration pressure source is between 1.5 and 1.7, or (b) if you entered the correct positive pressure (+) or negative pressure (-).

If you want to skip positive (+) calibration when in the calibration mode, press **UNT** to skip to negative (-) calibration point.

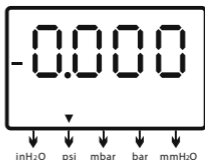
Calibration point reference

psi range	Calibration point (\pm)	Reommend (\pm)
0~ \pm 2	1.6	1.5~1.7

MANUAL ZERO SETTING

When you set the display to zero (no pressure applied to the connector), press **HOLD** button for 2 seconds, now the meter displays "- 0 .000" from right to left (See Fig.M), then the LCD display shows a normal mode.

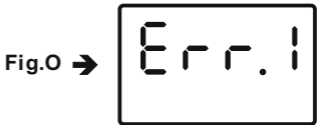
Fig. M →



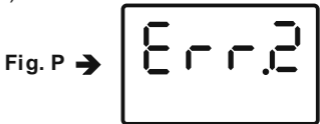
TROUBLESHOOTING

- **Power on but no display.** Check the battery connections. Replace with a new battery or attach optional AC adaptor.
- **BAT indication.** Replace with a new battery when LCD displays **BAT** at the middle bottom.
- **No Display.** Make sure battery is not dead. If the display disappear, check if sleep mode is active. Refer to the disable sleep mode function for a long time use (page 5). Or check that the tubing is connected to the meter tightly.

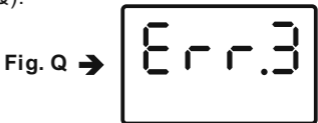
- **Err.1.** For the pressure value exceeding the maximum range, "Err.1" appears on the display (See Fig.O). Do not exceed rated over pressure range of manometer. Sensor will be damaged.



- **Err.2.** For the measurement pressure less than minimum range, "Err. 2" will appear (See Fig.P).

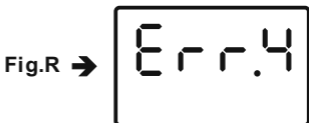


- **Err.3.** For a differential pressure value larger than maximum display, "Err.3" appears on the display (See Fig.Q).



- **Err.4.** When you set zero, make sure that you have disconnected the tubing. If you see an "Err.4" appear on the display, it means the manometer is damaged (See Fig.R).

P.S. Err.4 Will be also appear if the tubing is connected during zero set.



- **E1OL or E2UL**. When you see the errors while operating RS232 software, it means that the pressure source is less or over than the range of the instrument.

REPLACING THE BATTERY

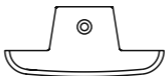
Replace your “9V” battery when:

- ✓ 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 from the instrument.
2. Lay the instrument face-down on a clean, flat surface.
3. Remove battery cover.



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

OPERATING CONDITIONS

- ✓ Compensated temperature range:
32° to 122°F (0° to 50°C)
- ✓ Operating temperature range:
32° to 122°F (0° to 50°C)
- ✓ Storage temperature range:
-4° to 140°F (20° to 60°C)
- ✓ Operating Humidity: Max. 80%RH
- ✓ Power: One "9V" battery
- ✓ Exceeding Maximum pressure will cause permanent damage to sensor.

MATERIALS SUPPLIED

This package contains:

- ✓ The meter
- ✓ Battery ("9V")
- ✓ Operation manual
- ✓ Rubber boot
- ✓ Connection hose: 0.24" (6mm (ID))
x 0.35" (9mm (OD)) x 19.7" (500mm
length) x 2 pcs

OPTIONAL ACCESSORIES

- ✓ RS232 software CD with D-sub
connector
- ✓ DC Adaptor

SPECIFICATIONS

	Pressure
Range	0 ~ ±138 mbar = 0 ~ ±55.4 inH ₂ O = 0 ~ ±1410 mmH ₂ O = 0 ~ ±0.138 bar = 0 ~ ±2 psi
Resolution	See Page 2 data sheet
Accuracy	±0.3% of full scale at ±25°C
Dimensions	7.2" x 2.8" x 1.2" 182 x 72 x 30mm
Unit Weight	Approx. 7.8oz (220g) with battery)
Response time	0.5 seconds
Format	Baud Rate: 2400 bit/sec Data Bit: 8, Stop Bit: 1 P XXXXX, P - XXXXX (unit)

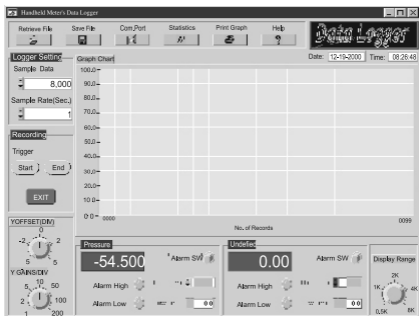
RS232 OUTPUT

The meter can link with a personal computer to capture on-line data. It can display pressure records with real-time output. You can retrieve files, and save the data for operating data analysis, record statistics, multi-files display on the screen. It has versatile functions for your choice.

Connection procedures:

- 1.Plug the optional accessory RS232 cable into the DC jack port (at the right side of the meter).
- 2.Insert the D-sub 9P type connector into the computer's Com.1 or 2 port or...

3. Start to setup RS232 software by inserting the CD-ROM
4. When installing the RS232 software, please follow the operation manual procedure in the software package.



WARRANTY

This 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 requesting a Return Authorization (RA), please include data regarding the defective reason.

The meter is to be returned along with good packing to prevent any damage in shipment and insured against possible damage or loss.

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