Wide Range Pressure Meter

840065
Instruction Manual
INTRODUCTION

This unit covers a wide pressure range, 0 to 725 PSI, not usually found in a single meter and is compatible with both liquids and gases. Useful in measuring pneumatic pressure, automobile engine vacuum pressure, super heat measurements, hydraulic servo controls, refrigeration, air conditioning, and food processing. Features eight units of measure (Bar, Psi, Kg/cm mm/1meter/H$_2$O, inch/H$_2$O, Atmosphere), min-max, hold, and auto power off.

PANEL DESCRIPTION

1. Pressure Sensor
   Socket & Plug
2. Display
3. Power Button
4. Hold Button
5. Sensor Type Selector
6. Max/Min Button
7. Unit Button
8. Zero Button
9. Pressure Sensor
   Main Housing
10. Pressure Sensor
    Port Connector
11. Battery Cover (on back)
OPERATING INSTRUCTIONS

Sensor Types
The meter works with optional pressure sensors. When changing the sensor, re-calibration is not required.

The optional pressure sensor are:

- 2 Bar pressure sensor
- 5 Bar pressure sensor
- 10 Bar pressure sensor
- 20 Bar pressure sensor
- 50 Bar pressure sensor
- 100 Bar pressure sensor
- 200 Bar pressure sensor

Changing the Sensor
1. Turn the meter off.
2. Push and hold the following 3 buttons at the same time: 
   **HOLD** Button, **MAX/MIN** Button, **SENSOR TYPE** Button
3. Continue to hold the 3 buttons, while pushing the **POWER** Button. Release the buttons and the display will indicate the previous sensor type.
4. Push the **SENSOR TYPE** Button to select the sensor (2, 5, 10, 20, 50, 100, or 200 Bar). When the display indicates the desired sensor, push the Zero button. The new sensor type will be stored in memory, even after the unit has been turned off.
5. Turn off the meter. This completes the sensor selection.

Measuring Procedures
1. Connect the Pressure Sensor Plug to the meter’s Sensor Input Socket.
2. Press the **POWER** Button.
3. Press the **SENSOR TYPE** Button to check that the meter’s sensor type is correct.
4. Press the **UNIT** Button to select the desired unit of measure: Bar, Psi, Kg/cm², mm/Hg, inch/Hg, meter/H₂O, inch/H₂O, or Atmosphere.
5. Press the **ZERO** Button and the display reading will show zero.
6. Attach the Pressure Sensor Port Connector to the object to be measured.
7. Apply pressure and the meter will indicate the pressure value.
Data Hold
1. Press the HOLD Button during measurement to freeze the displayed value. “HOLD” is shown on the LCD.
2. Press the HOLD Button a second time to resume measurement.

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 once. The LCD display will indicate “REC.” Press the MAX/MIN Button again and the “Max” symbol (along with the maximum value) will appear on the LCD display. Press the MAX/MIN Button a third time and the “Min” symbol (along with the minimum value) will appear on the display. To exit the memory record function, press and hold the MAX/MIN Button for approximately 2 seconds. The display will revert back to the current reading.

Measuring Procedures Overview
1. Connect the Sensor Plug to the meter’s Input Socket
2. Turn on the meter
3. Select the display unit.
4. Zero the meter by pressing the ZERO Button.
5. Connect the pressure sensor to the object being measured.
6. Apply pressure and meter will display the pressure value.

Measuring Considerations
• The sensor diaphragm can be damaged by solid or sharp objects. Never insert objects into the inlet port.
• The pressure sensor operates with industrial gases and liquids that are compatible with 316 stainless steel or ceramic materials. To determine the compatibility of a liquid or gas, refer to manufacture’s specification.

Auto Power Disable
This unit has a built-in Auto Power Off function to prolong battery life. The meter will shut off automatically if no buttons are pressed within 10 minutes. To deactivate this feature, select the memory record function during measurement, by pressing the MAX/MIN Button.
CALIBRATION
Generally, it is not necessary to perform calibrations on the pressure meter or the external pressure sensor. Each unit is preadjusted and calibrated.

Zero Calibration
After a long period of operation or due to the environment, the zero and gain (span) may drift. To ensure an accurate reading, perform a Zero Calibration as follows:
1. Connect the pressure sensor and shut on the meter.
2. Press and hold both the MAX/MIN Button and the HOLD Button. The zero value will be displayed in both large and small digits.
3. Continue pressing the MAX/MIN and HOLD Buttons and press the ZERO Button. The display will flash once and return to zero.
4. Release all three buttons and the new zero value will be stored.

Gain Calibration (Span Adjust)
1. Turn on the meter and allow it to warm up for two minutes.
2. Push the ZERO Button.
3. Connect the pressure regulator to a nitrogen bottle and the reference gauge to the pressure regulator.
4. Press and hold both the MAX/MIN Button and the HOLD Button. Results will be displayed in both the large and the small digits.
5. Continue pressing the MAX/MIN and HOLD Buttons and press the SENSOR TYPE Button once, to add one count to the small digit value.
6. Press the UNIT Button once to decrease the small digit value by one count.
7. When the desired value is reached (for example 9.00), release the HOLD and MAX/MIN Buttons. The display will flash. Push the SENSOR TYPE Button within 5 seconds. The new gain value will be stored in the unit.

BATTERY REPLACEMENT
When the top left corner of LCD display indicates “LBT,” it is time to replace the battery. Accurate readings may be taken for several hours after the low battery indicator appears. Open the battery cover, install a fresh 9V battery and replace the cover.
### SPECIFICATIONS - TRANSDUCERS

<table>
<thead>
<tr>
<th>Transducer</th>
<th>840066</th>
<th>840067</th>
<th>840068</th>
<th>840069</th>
<th>840070</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar</td>
<td>2</td>
<td>0.002</td>
<td>5</td>
<td>0.005</td>
<td>10</td>
</tr>
<tr>
<td>PSI</td>
<td>29</td>
<td>0.02</td>
<td>72.5</td>
<td>0.1</td>
<td>145</td>
</tr>
<tr>
<td>Kg cm²</td>
<td>2.040</td>
<td>0.002</td>
<td>5.095</td>
<td>0.005</td>
<td>10.19</td>
</tr>
<tr>
<td>mm Hg</td>
<td>1500</td>
<td>2</td>
<td>3750</td>
<td>5</td>
<td>7500</td>
</tr>
<tr>
<td>In Hg</td>
<td>59.05</td>
<td>0.05</td>
<td>147.6</td>
<td>0.1</td>
<td>295.2</td>
</tr>
<tr>
<td>Meter H₂O</td>
<td>20.40</td>
<td>0.02</td>
<td>50.95</td>
<td>0.05</td>
<td>101.9</td>
</tr>
<tr>
<td>In H₂O</td>
<td>802</td>
<td>1</td>
<td>2006</td>
<td>2</td>
<td>4010</td>
</tr>
<tr>
<td>Atmospheres</td>
<td>1.974</td>
<td>0.002</td>
<td>4.935</td>
<td>0.005</td>
<td>9.87</td>
</tr>
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</table>

### SPECIFICATIONS - METER

<table>
<thead>
<tr>
<th>Circuit</th>
<th>Microprocessor LSI circuit.</th>
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</thead>
<tbody>
<tr>
<td>Sensor type</td>
<td>Works with optional 2, 5, 10, 20, 50, 100, 200 bar sensor, new calibration is not necessary when the sensor is changed.</td>
</tr>
<tr>
<td>Measuring units</td>
<td>Bar, Psi, Kg/cm², mm/Hg, inch/Hg, meter/H₂O, inch/H₂O Atmosphere.</td>
</tr>
<tr>
<td>Accuracy</td>
<td>± 0.5% + 1d, within 23°C ± 5°C</td>
</tr>
<tr>
<td>Zero adjust</td>
<td>Push button on the front panel.</td>
</tr>
<tr>
<td>Span adjust</td>
<td>Push button gain adjustment for precise calibration.</td>
</tr>
<tr>
<td>Input signal from sensor</td>
<td>DC 100 mV for full scale.</td>
</tr>
<tr>
<td>Sampling time</td>
<td>Approx. 0.8 second.</td>
</tr>
<tr>
<td>Operating Temp.</td>
<td>0 to 50°C (32 to 122°F), Less than 80% R.H.</td>
</tr>
<tr>
<td>Power supply</td>
<td>Alkaline or heavy duty type DC 9V battery, 006P, MN1604 (PP3) or equivalent.</td>
</tr>
<tr>
<td>Power current</td>
<td>Approx. DC 7.0 mA.</td>
</tr>
<tr>
<td>Dimensions</td>
<td>7&quot; × 3&quot; × 1½&quot; (178 × 76 × 38 mm)</td>
</tr>
<tr>
<td>Weight</td>
<td>13 oz (369 g)</td>
</tr>
</tbody>
</table>
WARRANTY

Sper Scientific warrants this product against defects in materials and workmanship for a period of one (1) year from the date of purchase, and agrees to repair or replace any defective unit without charge. If your model has since been discontinued, an equivalent Sper Scientific product will be substituted if available. This warranty does not cover probes, batteries, battery leakage, or damage resulting from accident, tampering, misuse, or abuse of the product. Opening the meter to expose its electronics will break the waterproof seal and void the warranty.

To obtain warranty service, ship the unit postage prepaid to:

SPER SCIENTIFIC LTD.
8281 East Evans Road, Suite #103
Scottsdale, AZ 85260

The defective unit must be accompanied by a description of the problem and your return address. Register your product online at www.sperwarranty.com within 10 days of purchase.