Wide Range Pressure Meter

840065

Wide Range Pressure Meter - 840065

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INTRODUCTION

This unit covers a wide pressure range, 0 ~ 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/H20, inch/H20, Atmosphere), min-max, hold, auto power off and an RS232 computer interface.

PANEL DESCRIPTION

1. RS232 Output Terminal

2. Pressure Sensor
   Socket & Plug

3. Display

4. Power Button

5. Hold Button

6. Sensor Type Selector

7. Max/Min Button

8. Unit Button

9. Zero Button

10. Pressure Sensor
    Main Housing

11. Pressure Sensor
    Port Connector

12. 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/H20, inch/H20, 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.

RS232 PC SERIAL INTERFACE

The unit features an RS232 output via 3.5 mm Terminal.
The connector output is a 16 digit data stream which can be utilized by user's specific application. An RS232 lead with the following connection will be required to link the instrument with the PC serial input.

Meter (3.5 mm jack plug)	PC (9W "D" Connector)
Center Pin	Pin 2
Ground/Shield	Pin 5

The 16 digits data stream will be displayed in the following format:	
D15 D14 D13 D12 D11 D10 D9 D8 D7 D6 D5 D4 D3 D2 D1 D0	
Each digit indicates the following status:	
D0	End Word
D1 & D8	Display reading, DI " LSD, D8 MSD. For example: If the display reading is 1234, then D8 to D I is: 00001234
D9	Decimal Point(DP), position from right to the left 0 " No DP, 1 " 1 DP, 2 2 DP, 3 " 3 DP
D11 & D12	Anunuciator for Display Bar = 22 mm/Hg 78 inch/H2O=25 Psi = 23 inch/Hg=80 ATP = 26 K /cm2 = 77 meter/H2O=79
D13	1
D14	4
D15	Start Word

SPECIFICATIONS - TRANSDUCERS

Transducer	840066		840067		840068		840069		840070	
	Max Range	Res.	Max Range	Res.	Max Range	Res.	Max Range	Res.	Max Range	Res.
Bar	2	0.002	5	0.005	10	0.01	20	0.02	50	0.05
PSI	29	0.02	72.5	0.1	145	0.2	290	0.2	725	1
Kg cm2	2.040	0.002	5.095	0.005	10.19	0.01	20.40	0.02	50.95	0.05
mm Hg	1500	2	3750	5	7500	10	15000	20	37500	50
In Hg	59.05	0.05	147.6	0.1	295.2	0.2	590.5	0.5	1476	1
Meter H$_2$O	20.40	0.02	50.95	0.05	101.9	0.1	204.0	0.2	509.5	0.5
In H$_2$O	802	1	2006	2	4010	5	8020	10	20050	20
Atmospheres	1.974	0.002	4.935	0.005	9.87	0.01	19.74	0.02	49.35	0.05

SPECIFICATIONS - METER

Circuit	Microprocessor LSI circuit.
Sensor type	Works with optional 2, 5, 10, 20, 50, 100, 200 bar sensor, new calibration is not necessary when the sensor is changed.
Measuring units	Bar, Psi, Kg/cm2, mm/Hg, inch/Hg, meter/H2O, inch/H2O Atmosphere.
Accuracy	± 0.5% + 1d, within 23°C ± 5°C
Zero adjust	Push button on the front panel.
Span adjust	Push button gain adjustment for precise calibration.
Input signal from sensor	DC 100 mV for full scale.
Data output	RS 232 PC serial interface.
Sampling time	Approx. 0.8 second.
Operating Temp.	0 ~ 50°C (32 ~ 122°F), Less than 80% R.H.
Power supply	Alkaline or heavy duty type DC 9V battery, 006P, MN1604 (PP3) or equivalent.
Power current	Approx. DC 7.0 mA.
Dimensions	7" × 3" × 1½" (178 × 76 × 38 mm)
Weight	13 oz (369 g)

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.