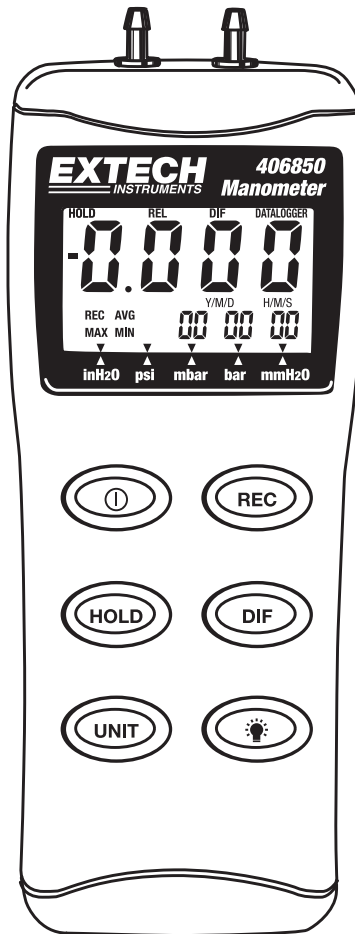


# User's Guide



## Differential Pressure Manometer

### Model 406850



## ***Introduction***

Congratulations on your purchase of the Extech 406850 Differential Pressure Manometer. This device measures Gauge/Differential Pressure from 0 to 55.40 inH<sub>2</sub>O (inches of water). It features 5 selectable units of measure: inH<sub>2</sub>O, psi, bar, mbar, mmH<sub>2</sub>O. Additional features include: Data Hold, Auto Power Off disable, and an RS-232 interface for capturing readings to a PC using optional software (407752). Careful use of this meter will provide years of reliable service.

## ***Specifications***

<b>Function</b>	<b>Range</b>	<b>Resolution</b>
<b>inH<sub>2</sub>O</b>	±55.40inH <sub>2</sub> O	0.01inH <sub>2</sub> O
<b>psi</b>	±2.000psi	0.001psi
<b>bar</b>	±0.137bar	0.001bar
<b>mbar</b>	±137.8mbar	0.1mbar
<b>mmH<sub>2</sub>O</b>	±1407mmH <sub>2</sub> O	1mmH <sub>2</sub> O

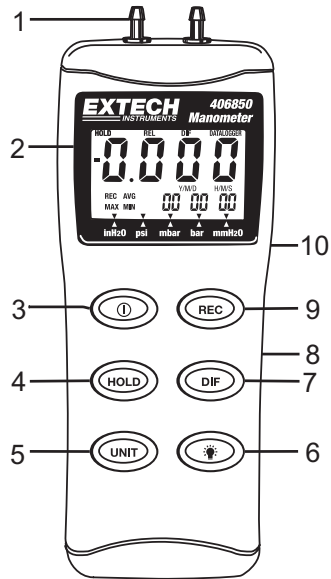
<b>Display</b>	Dual LCD
<b>Accuracy</b>	±0.3%FS at ±25°C
<b>Repeatability</b>	±0.2% to 0.5%FS
<b>Linearity/Hysteresis</b>	±0.2%FS
<b>Combined Accuracy</b>	±1.0%FS
<b>Connectors</b>	Two metal 4.8mm ports for flexible tubing
<b>Maximum Pressure</b>	20psi
<b>Response Time</b>	0.5 seconds typical
<b>Compatibility</b>	Air or Non-Corrosive Gases
<b>Low Battery Indicator</b>	Yes
<b>Ovrange Indicator</b>	Err.1
<b>Underrange Indicator</b>	Err.2
<b>Compensated Temperature Range</b>	32 to 122°F (0 to 50°C)
<b>Operating Conditions</b>	32 to 122°F (0 to 50°C); < 80% RH non-condensing
<b>Storage Conditions</b>	-4 to 140°F (-20 to 60°C); <80% RH non-condensing
<b>Power Supply</b>	1 x 9V battery
<b>Dimensions / Weight</b>	7.1 x 2.8 x 1.1" (182 x 72 x 30mm); 7.7 oz. (220g)

**Note:** Exceeding maximum pressure will cause sensor damage.

## Meter Description

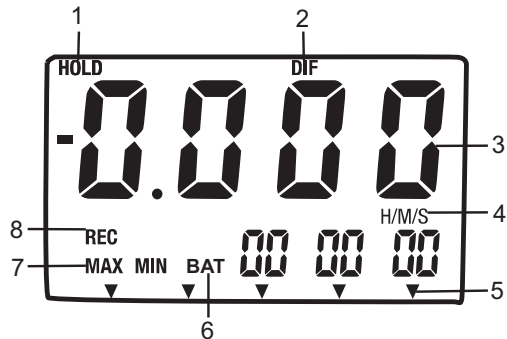
1. 4.8mm input connectors
2. Dual LCD Display
3. On/Off
4. Data Hold and Zero Adjust
5. Unit of Measure
6. Backlight
7. Differential Function and Zero Offset
8. AC adaptor input
9. Min/Max Record
10. RS-232 input

Note: The battery compartment is located on the bottom of the instrument



## Display Description

1. Hold Function
2. Differential Mode
3. Primary Data screen
4. Relative Time Clock
5. Pressure Unit indicator
6. Low Battery indicator
7. Max/Min
8. Record Mode



## Operation

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### Power

Press the ON/OFF button to turn power on or off. The meter will perform a short self-test when turned on. The meter defaults to the setting used during the last operation.

### Zero Adjust and Offset

Before use and without fittings attached to the meter, press the **HOLD** button for more than 2 seconds to zero the meter. The meter will reset and display “o o o o” from right to left. “0.0” will now be displayed.

If it is desired to offset the meter's display, press the **DIF** button while taking a measurement. Subsequent readings will be the difference between the current measurement and the measurement that was on the display when the **DIF** button was pressed.

### Data Hold

Press the **HOLD** button momentarily to freeze the displayed reading. The 'HOLD' icon will appear on the upper left-hand side of the display. Press the HOLD button again to return to normal operation.

### Record

The MAX/MIN mode allows the user to view only the highest (**MAX**) or lowest (**MIN**) readings with relative time stamp.

1. Press the **REC** button once and “**REC**” appears on the display (All other functions are locked out except for Power & Backlight). The relative time clock also appears in the secondary display and starts counting.
2. Press the **REC** button again and “**MAX**” appears on the display. The display is now showing the maximum pressure and relative time that it was recorded.
3. Press the **REC** button again to display the minimum “**MIN**” reading with the relative time.
4. Press the **REC** button again to continue recording min/max measurements.
5. To exit the MIN/MAX mode, press the **REC** button for 3 seconds to return to normal operation.

### Backlight Display

Press the  key to turn on the backlight. It will remain on for 30 seconds.

### Automatic Power Off

The meter will automatically shut off after 20 minutes to conserve battery life. To disable Auto Power Off, hold down the **HOLD** button and turn the meter on. An “n” will appear in the display indicating that Auto Power Off mode is disabled. The meter will return to normal operation when it is turned off.

### Unit

Press the **Unit** button momentarily and the meter will cycle through the 5 available units of measure as indicated by the cursor on the bottom of the display.

## ***RS-232 PC Communications Interface***

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The meter has a built-in RS-232 serial port for use with the optional PC Interface Data Acquisition Software/Hardware kit (407752).

### **Error Codes**

An error message will appear on the display if the meter fails an internal diagnostic test.

**Note:** Error messages E10L and E2UL will not display on the LCD. They will be transmitted to the PC via the RS-232 cable.

1. **Err.1:** Pressure value is over the range.
2. **Err.2:** Pressure is below the range.
3. **Err.3:** DIF function, the differential pressure value is over range.
4. **Err.4:** Zero function, disconnect tubing or repair/replacement necessary.
5. **E10L:** RS-232 error, Pressure value is over the range.
6. **E2UL:** RS-232 error, Pressure is below the range.

## ***Maintenance***

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### **Cleaning and storage**

1. The meter should be cleaned with a damp cloth and mild detergent when necessary. Do not use solvents or abrasives.
2. Store the meter in an area with moderate temperature and humidity (refer to the operating and storage range in the specifications chart earlier in this manual).

### **Battery Replacement**

When the battery power falls low, "**BAT**" will appear on the LCD. Replace the 9V battery by removing the Phillips screw on the battery compartment door and accessing the battery compartment. Ensure that the compartment cover is securely fastened when finished.

## ***Calibration and Repair Services***

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Extech offers repair and calibration services for the products we sell. Extech also provides NIST certification for most products. Call the Customer Service Department for information on calibration services available for this product. Extech recommends that annual calibrations be performed to verify meter performance and accuracy.

## **Warranty**

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EXTECH INSTRUMENTS CORPORATION warrants the basic instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 EXTENSION 210 for authorization or visit [www.extech.com](http://www.extech.com) for more information. **A Return Authorization (RA) number must be issued before any product is returned to Extech.** The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.



### **Support line (781) 890-7440**

Technical support: Extension 200; E-mail: [support@extech.com](mailto:support@extech.com)

Repair & Returns: Extension 210; E-mail: [repair@extech.com](mailto:repair@extech.com)

#### **Product specifications subject to change without notice**

For the latest version of this User's Guide, Software updates, and other up-to-the-minute product information, visit our website: [www.extech.com](http://www.extech.com)  
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