

# User's Manual for 8890A4 Digital Manometer



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## Overview

The 8890A4 measures Gauge/Differential Pressure from -55.4inH<sub>2</sub>O to +55.4 inH<sub>2</sub>O ( $\pm 2$  psi), it features 11 selectable units of measure: inH<sub>2</sub>O, psi, bar, mbar, kPa, inHg, mmHg, ozin<sup>2</sup>, ftH<sub>2</sub>O, cmH<sub>2</sub>O, cmH<sub>2</sub>O, kgcm<sup>2</sup>. Additional features include Data Hold, Auto Power Off Disabled, and a USB Port for capturing reading to a PC using the supplied software. Careful use of this meter will provide years of reliable service.

### Specifications:

Display	Dual LCD
Accuracy	$\pm 0.3\%$ FSO (25 °C)
Repeatability	$\pm 0.2\%$ (Max.+/- 0.5% FSO)
Linearity/Hysteresis	$\pm 0.29\%$ FSO
Pressure Range	$\pm 2$ psi
Maximum Pressure	10psi
Response Time	0.5 Seconds typical
Low Battery Indicator	Yes
Over range Indicator	Err.1
Under range Indicator	Err.2
Operating Conditions	0 to 50 °C
Storage Conditions	-10 to 60 °C
Power Supply	1 each 9V Battery or external 9Vdc Power Supply

CP2102 USB to UART Bridge Controller

Serial format: Baud rate: 9600 Baud, 8 Data Bits.

Function	Range	Resolution	Function	Range	Resolution
inH <sub>2</sub> O	55.40	0.01	oz <sub>i</sub> n <sup>2</sup>	32.00	0.01
psi	2.000	0.001	ftH <sub>2</sub> O	4.612	0.001
mbar	137.8	0.1	cmH <sub>2</sub> O	140.6	0.1
kPa	13.79	0.01	kgcm <sup>2</sup>	0.140	0.001
inHg	4.072	0.001	bar	0.137	0.001
mmHg	103.4	0.1			

### Function Buttons:

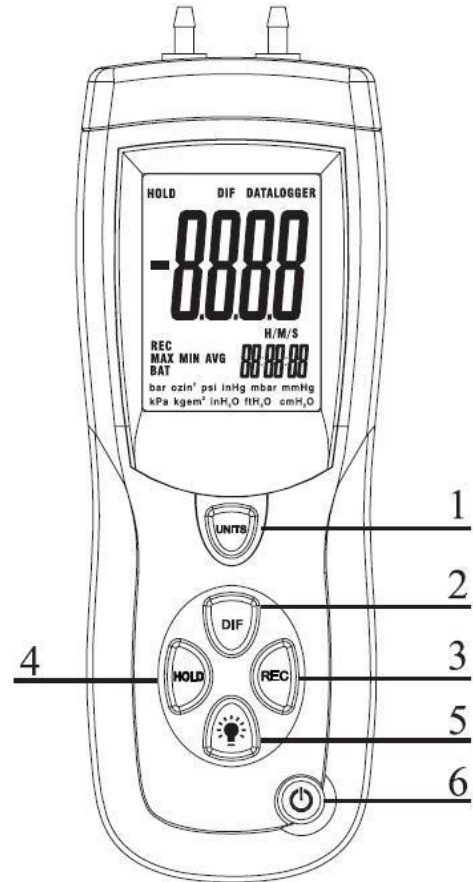
The 8890A4 has six buttons. See **Figure 1**.

1. UNITS
2. DIF
3. REC
4. HOLD
5. BACKLIGHT
6. ON/OFF

### Display Description:

The 8890A4 will display the following. See **Figure 2**.

1. Hold Function
2. Differential Mode
3. Primary Data Screen
4. Record Mode
5. MAX/MIN/AVG
6. Low Battery Indicator
7. Pressure Unit indicator
8. Relative Time Clock
9. Data Output from USB



**Figure 1**

### Operation:

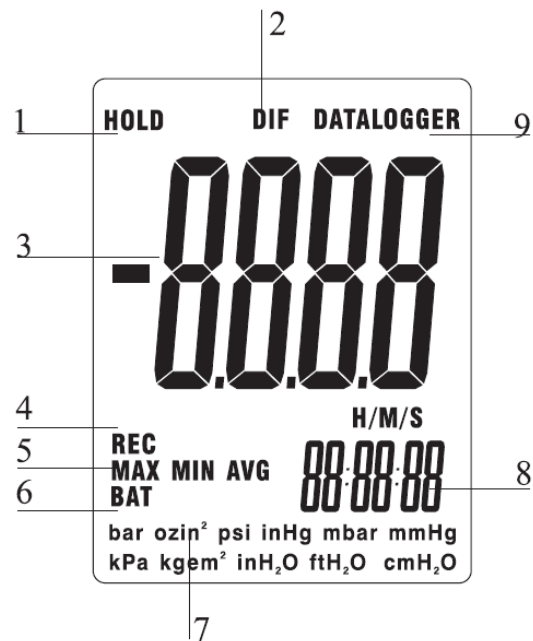
#### 1. Power

Press the **ON/OFF** button to turn the meter 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.

#### 2. Zero Adjust and Offset

Before using and without hoses or fittings attached to the meter, press the **HOLD** button for more than 2 seconds to zero the meter. The meter will reset and display “0000” from right to left and **0.000** will be displayed.

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



**Figure 2**

### 3. 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. If the pressure value is over the range, error codes will show on the screen. Press the **HOLD** button again to return to normal operation.

### 4. Record

The MAX/MIN mode allows the user to view only the highest (**MAX**), lowest (**MIN**) or average (**AVG**) 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 to display the minimum **MIN** reading with the relative time.
4. Press the **REC** button to display the average value **AVG** reading with the relative time.
5. Press the **REC** button again to continue recording **Max/MIN/AVG** measurements.
6. To exit the **MIN/MAX/AVG** mode, press the REC button for 3 seconds to return to normal operation.

### 5. Backlight Display

Press the **Backlight** button to turn on the backlight. It will remain on for 40 seconds.

### 6. 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 on the meter. 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.

### 7. Units of Measure

Press the Unit button momentarily and the meter will cycle through the 11 available units of measure as indicated by the cursor on the bottom of the display.

### USB

The meter has a USB port for use with the PC interface Data Acquisition Software/Hardware kit. The meter will show all readings in 'real time'. To save readings, a computer must be attached and the software loaded onto the computer.

## **Error Codes**

An error message will appear on the display if the meter fails an internal diagnostic test. With a failure the meter will freeze all the buttons.

1. Err.1: Pressure value is over the range.
2. Err.2: Pressure value is below the range.
3. Err.3: DIF function, the differential pressure value is over range.
4. Err4: DIF function, the differential pressure value is below range.

## **Battery Replacement**

When the battery power does not provide enough power for correct measurements, “**BAT**” will appear on the LCD display. Replace the 9V battery by removing the back cover.

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