
Digital Pressure Gauge Instruction Manual



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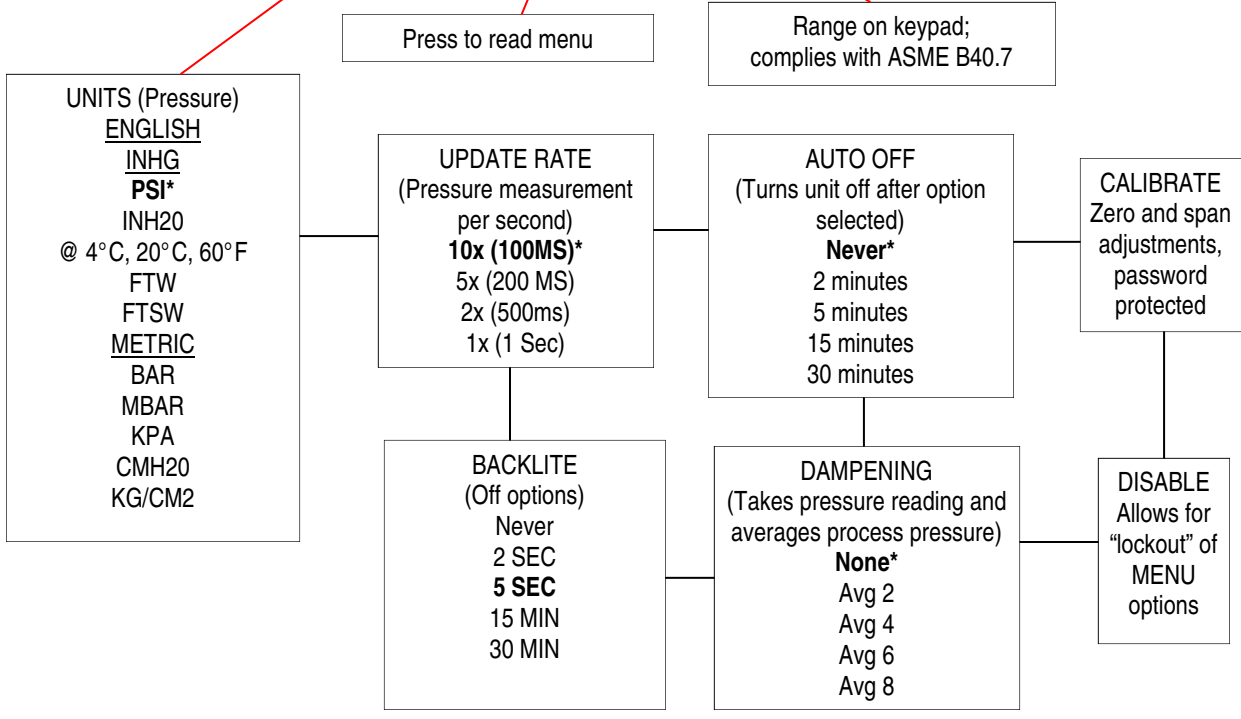
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Table of Contents

Section/Title	Page
1. Digital Gauge Instruction	1
1: Quick Reference Diagram.....	1
2: Keypad Functions	2-9
3: Battery Replacement.....	10

1: QUICK REFERENCE DIAGRAM



* indicates default

2: KEYPAD FUNCTIONS

ON/OFF

Turns the gauge on and off. When pressing the ON/OFF key while in the off position, gauge start-up display first indicates the software version followed by the model number and gauge pressure range. The gauge will then display indicated pressure and be ready for use.

ZERO CLR

Press this key for one second prior to gauge usage to re-zero any initial zero shift. If zero shift is greater than programmed zero allowance, the gauge will display **Offset** (blinking) for one second, then return to the measure mode. To clear minimum and maximum values, press **ZERO/CLR** button (when min/max values are indicated). Gauge will auto advance once zeroed.

MAX/ MIN



The **MAX/MIN** key allows review of minimum and maximum pressure values since unit star-up or last push of the clear key. Press key to:

1) Indicate maximum pressure.

2) Indicate minimum pressure.

3) Exit **MAX/MIN** mode and return the unit to pressure measurement mode. To clear minimum and maximum values press **ZERO/CLR** key (must be in **MAX/MIN** mode).

The ▼ (down arrow key) is used in the **MENU** mode; see following **MENU** section.

MENU

This key allows for customization of the gauge. Pressing the **MENU** key allows cycling through the main **MENU** items: **UNITS, CONFIG, GRAPH, OFF, UPDAT & DAMP**. Any item changed in the **MENU** becomes the new default setting(s). Revised settings are saved in the event of power loss.

The ▲ (up arrow key) or ▼ (down arrow key) on the keypad allows for scrolling through the **MENU** options to increase or decrease numeric values as required. If in the **MENU** mode, gauge will automatically advance to measure mode once selected **MENU** item has been set.



▲
Key for gauge
With Backlite.

[Key for gauge
Without backlite
Displayed with
▲ (up arrow)
Icon only]

This key manually turns the **BACKLITE** on or off. Five options are available; they include: **NEVER, 10 SEC, 30 SEC, 1 MIN & 5 MIN***. With the **NEVER** option, the gauge **BACKLITE** will remain lit whenever the gauge is in the **ON** mode or until the **BACKLITE** button is pushed again. Options, **10 SEC, 30 SEC, 1 MIN & 5 MIN*** allow the **BACKLITE** to automatically turn off after a selected period of time.

To use the **BACKLITE** option:

Step 1: Press the **MENU** key.

Step 2: Press the ▲ (up arrow key) or ▼ (down arrow key) until the word **LITE** appears.

Step 3: Press **ENTER**.

Step 4: Press the ▲ (up arrow key) or ▼ (down arrow key) to select the **BACKLITE** option.

Step 5: Press the **ENTER** key to finalize your choice of **LITE** options.

ENTER

This key allows for selecting the gauge features in the **MENU** finalizing selection. Use of the **ENTER** key is described throughout the operating instructions.

MENU OPTIONS

UNITS: 12 units of measurement are available: **psi, mmHg, inH₂O** (with three temperature options: **20°C, 60°F, 4°C***), **mBar, inHg, ftH₂O, mPa, kPa, kg/cm²** and **bar**.

STEP 1: Press the **MENU** key until the word **UNITS** appears.

STEP 2: Press **ENTER**.

STEP 3: Press the ▲ (up arrow key) or ▼ (down arrow key) to select the required unit of measure.

STEP 4: Press **ENTER** to finalize the **UNIT** selection.

*Note: For **inH₂O** range with three temperature options, press the ▲ (up arrow key) or ▼ (down arrow key) to select the desired temperature. Then press **ENTER** to finalize the **UNIT** selection.*

CONFIG: This option allows access to additional **MENU** options. Options include:

- **ENTPW** or “enter password” (*this appears as a sub-menu in the **CONFIG** mode if a user password has been set*).
- **RECAL** allows for zero, span and mid-scale calibration of the gauge).
- **ObUNT** (or **ZERO** key) allows for adjustment of % of range that can be zeroed.
- **diSAb** allows for disabling **MENU** options.

SETPW allows for a user defined numeric password. If a user password is not set, all features in the **CONFIG** mode will be accessible without a password. If a user password is set, all items in the **CONFIG** menu options are accessible with or without a user password. If a user password is programmed, it will be required to access the **CONFIG** menu options.

MENU FUNCTIONS

How to Use Your Menu Functions

To set a user password (SETPW):

Step 1: Press the **MENU** key on the keypad.

Step 2: Press the ▲ (up arrow key) or ▼ (down arrow key) until the word **CONFIG** appears.

Step 3: Press **ENTER**. The word **SETPW** appears on the gauge display.

Step 4: Press **ENTER**. A five-digit numeric password is now required

Step 5: Press the ▲ (up arrow key) or ▼ (down arrow key) on the keypad to select the first digit of the password.

Step 6: Press **ENTER**.

Step 7: Repeat until the five-digit password is shown on the gauge display.

Step 8: Press **ENTER**.

*Note: to erase password at any time while in the **SETPW** (set password) mode. Press the **ZERO/CLEAR** key. The user will be prompted to reprogram the password once the five-digit password is entered. The gauge will display **SAVE**.*

Step 9: Press **ENTER** to save the password setting.

ENTPW: Once a user password has been established and entry into the **CONFIG** mode is required, the user will be prompted to **ENTPW** (or “enter password”). **Follow steps 4-8 above.**

RECAL (or “recalibrate”): Allows for zero, mid-scale, full-scale and factory default calibration of the gauge. The **RECAL** feature also allows for recalibration of gauges with 4-20mA output.

To use the RECAL option:

- Step 1:** Press the **MENU** key on the keypad.
- Step 2:** Press the ▲ (up arrow key) or ▼ (down arrow key) on the keypad until the word **CONFIG** appears.
- Step 3:** Press **ENTER**.
- Step 4:** Enter user password if it has been programmed.
- Step 5:** Press the ▲ (up arrow key) or ▼ (down arrow key) until the word **RECAL** appears.
- Step 6:** Press **ENTER**
- Step 7:** The gauge will now flash between **INPUT** and unit of measure on the lower line and .00 on the top line. Apply zero pressure to the gauge.
- Step 8:** Press **ENTER**. Zero pressure is now set.
- Step 9:** The gauge will display full-scale pressure. Apply full scale pressure to the gauge.
- Step 10:** Press **ENTER**. Full scale pressure is now set.
- Step 11:** The gauge will now display mid-scale pressure. Apply mid-scale pressure to the gauge.
- Step 12:** Press **ENTER**. Mid-scale pressure is now set.

Note: For compound ranges this will be full vac.

FOR FACTORY CALIBRATED SETTINGS:

- Step 13:** To reinstate factory calibrated settings for zero, full-scale and mid-scale press the ▼ (down arrow key) **MENU** key until the word **FACT** appears.
- Step 14:** Press **ENTER**. Factory calibration settings are now reinstated.
- Step 15:** After zero, full-scale and/or mid-scale or factory default calibration have been set, the word **SAVE** appears on the gauge display.
- Step 16:** Press **ENTER** to finalize calibration.

*Note: Calibration of Zero, mid-scale or span can be set independently of each other. For instance, if only half scale calibration is required, press the ▼ (down arrow key) until the gauge indicates full-scale pressure. Press **ENTER** and proceed as indicated above. Calibration of zero, mid-scale and full-scale is recommended when recalibrating the gauge.*

ZERO KEY (ObUTN): This feature allows the user to select percent of full-scale at which the gauge can be re-zeroed using the **ZERO/CLEAR** key on the keypad. Options include: **5% FULL-SCALE**, **10% FULL-SCALE** or **DISAB** (“disable” of the **ZERO** key).

To use the ZERO option:

Step 1: Press the **MENU** key on the keypad.

Step 2: Press the ▲ (up arrow key) or ▼ (down arrow key) on the keypad until the word **CONFIG** appears.

Step 3: Press **ENTER**.

Step 4: Enter user password if it has been programmed.

Step 5: Press the ▲ (up arrow key) or ▼ (down arrow key) until the word **ObUTN** appears.

Step 6: Press **ENTER**.

Step 7: Press the ▲ (up arrow key) or ▼ (down arrow key) to select **5PCT*** (5% full-scale), **dISAb** (disable zero key) or **10PCT** (10% full-scale).

Step 8: Press **ENTER** to finalize the selection.

DISAB (or “disable”): This feature allows the user to **dISAb** (“disable”) or **ENAb** (“enable”) items in the **MENU**. Some keypad keys can also be enabled or disabled. Any or all **MENU** items can be enabled or disabled.

To use the DISAB option:

Step 1: Press the **MENU** key on the keypad.

Step 2: Press the ▲ (up arrow key) or ▼ (down arrow key) on the keypad until the word **dISAb** appears.

Step 3: Press **ENTER**. The current setting (**ENAb** or **dISAB**) will be displayed.

Step 4: Press the ▲ (up arrow key) or ▼ (down arrow key) on the keypad to select a setting.

Step 5: Press **ENTER** to finalize the selection.

GRAPH: This option allows the user to change the **BAR** graph on the gauge display to correspond to any desired pressure within the pressure limits of the gauge. This option is useful when identifying a select portion of the full-scale range of the gauge. The default setting of the **GRAPH** is zero and full scale pressure. For compound gauges, the default setting for zero is set at full-scale vacuum. Full-scale pressure is set at the positive pressure as displayed on the gauge keypad.

For gauges supplied with the 4-20mA output option, the default is 4mA equals 0% of the bar graph and 20 mA equals 100% of the bar graph.

Note: Changing the graph to a pressure other than 0 and 100% of range will also change the 4-20 mA output to correspond with the new bar graph pressures for 0 and 100%.

To use GRAPH option:

- Step 1:** Press the **MENU** key on the keypad.
- Step 2:** Press the ▲ (up arrow key) or ▼ (down arrow key) on the keypad until the word **GRAPH** appears.
- Step 3:** Press **ENTER**. The gauge display will indicate the set full-scale pressure range setting on the top line. The middle line indicates the bar graph at 100% of full-scale. The bottom line of the display will indicate **SETFS** to set the full-scale range as displayed by the bar graph and 4-20 mA.
- Step 4:** Press the ▲ (up arrow key) or ▼ (down arrow key) on the keypad to increase or decrease gauge value at 100% of range.
- Step 5:** Press the **ENTER** key to finalize your choice. The gauge display will now display **SET**. After two seconds the screen will display the pressure value for 0% on the top line. The middle line indicates the bar graph at 100% of full-scale. The bottom line will display **SET 0**.
- Step 6:** Press the ▲ (up arrow key) or ▼ (down arrow key) on the keypad to increase or decrease gauge value at 0% of range.
- Step 7:** Press the **ENTER** key to finalize your choice. The new values for the bar graph and the 4-20 mA settings have now been saved.

OFF: This option sets the amount of time before the gauge will turn itself off. Offerings are: **NEVER**, **30MIN**, **10MIN**, **5MIN**, and **2MIN**.

To use the OFF option:

- Step 1:** Press the **MENU** key.
- Step 2:** Press the ▲ (up arrow key) or ▼ (down arrow key) on the keypad until the word **OFF** appears.
- Step 3:** Press **ENTER**.
- Step 4:** Press the ▲ (up arrow key) or ▼ (down arrow key) to select the desired **OFF** time.
- Step 5:** Press **ENTER** to finalize the **OFF** setting.

UPDATE: This option allows for changing the rate at which pressure is updated on the display screen. This feature is useful with rapid changes in process pressure that may cause flutter on the display. Options are: **100ms***, **1 sec**, **500ms** and **200ms**, **updates per second** or **100ms***. Since customer processes vary, update rates should be selected based on the application.

To use the UPDATE option:

Step 1: Press the **MENU** key.

Step 2: Press the ▲ (up arrow key) or ▼ (down arrow key) until the word **UPDATE** appears.

Step 3: Press **ENTER**.

Step 4: Press the ▲ (up arrow key) or ▼ (down arrow key) to select the update rate.

Step 5: Press **ENTER** to finalize the selection.

DAMP (or “dampening”): This mode has five different options. This mode allows for taking process pressure readings and averaging them. This option is particularly useful to stabilize minor process fluctuations. The options are: **NONE***, **AVG 8**, **AVG 6**, **AVG 4** and **AVG 2**.

To use the DAMP option:

Step 1: Press the **MENU** key until the word **dAMP** appears.

Step 2: Press **ENTER**.

Step 3: Press the ▲ (up arrow key) or ▼ (down arrow key) to select a dampening option.

Step 4: Press **ENTER** to finalize your **DAMP** option

(The following MENU item is only seen on units with the switch option.)

SWSET: Allows for setting switch set-points. The gauge is offered with one or two **SPDT** switches. If 1 (one) **SPDT** switch is ordered the **MENU** option is **SW1**. if 2 (two) **SPDT** switches are ordered, the **MENU** options are **SW1** and **SW2**.

To use the SWSET OPTION:

Step 1: Press the **MENU** key.

Step 2: Press the ▲ (up arrow key) or ▼ (down arrow key) on the keypad to select the switch to be set (if two switches are present).

Step 3: Press **ENTER**. The top line of the gauge display will indicate pressure at **60% OF THE FULL-SCALE GAUGE RANGE** or the **MOST RECENT SWITCH SET-POINT**. The middle line of the disposition will indicate a bar graph that displays the pressure position within the pressure range. The bottom line will display **SETPT** (blinking).

Note: Set-points are limited to the full-scale pressure range of the gauge.

Step 4: Press the ▲ (up arrow key) or ▼ (down arrow key) on the keypad to increase or decrease switch set-point.

Step 5: Press **ENTER** to finalize the switch set-point. The gauge will display **SET**. After two seconds the top line will indicate **RETRP** pressure. The bottom line will read **SET**.

STEP 6: Repeat the above steps to set **RETRP** (re-trip value). If the gauge is supplied with 1 (one) set-point, the screen will advance to the measurement mode. If 2 (two) switches are supplied, the screen will advance to **SW2**.

Repeat the aforementioned if the gauge is supplied with two switches.

Note: The bar graph will increase or decrease as any set-point pressure is adjusted. The bar graph indicates switch set-point position within the full-scale range of the gauge.

*The switch set-point unit of pressure measurement corresponds with the current set unit of measure of the gauge. If gauge unit of measurement is changed after switch (es) is/are set, switch set-point(s) will automatically be updated to correspond with revised unit of measurement. Switch dead-band is the difference between the **SETPT** (set-point) and the **RETRP** (re-trip) pressure.*

3: Battery Replacement

3" Gauge:

The 3" gauge case uses a quantity of 2—AA alkaline batteries. Approximate battery life is 1500 hours. The gauge has approximately 7 hours of use left, when the lower bar flashes on the battery icon.

Replacement:

Step 1: Remove the single screw on the back of the case.

Step 2: Hold the keypad in hand.

Step 3: Carefully remove the two batteries from the holder, and replace with new. Use only AA Alkaline Non-Rechargeable batteries.

4.5" Gauge:

The 4.5" gauge uses a quantity of 2 C Batteries. Use only Alkaline, Non-Rechargeable batteries. Approximate battery life is 3600 hours. The gauge has approximately 7 hours of use left, when the lower bar flashes on the battery icon.

Replacement:

Step 1: Remove the ring on the front of the gauge case.

Step 2: Carefully pull the front face out of the case.

Step 3: Carefully remove the 2 batteries and replace them.

General Notes for both gauges:

- 1) Never replace only one battery.
- 2) Do not mix ages or brands of batteries.
- 3) Do not replace batteries in hazardous areas.