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# Digital Pressure Gauges

## DPG2001B, DPG2004B Series

INSTRUCTION SHEET

**M4999/0818**

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**DPG2001B**
**DPG2001BBL**


**DPG2004B, NEMA 4X**
**DPG2004BBL, NEMA 4X**

**DPG2001B Battery Powered, Min/Max/Zero**
**DPG2001BBL Battery Powered, Min/Max/Zero, Display Backlighting**
**DPG2004B Battery Powered, Min/Max/Zero, NEMA 4X**
**DPG2004BBL Battery Powered, Min/Max/Zero, NEMA 4X, Display Backlighting**

### Ranges and Resolution

Resolution is fixed as indicated in table.

**G** Gauge reference pressure
**VAC** Vacuum gauge, minus sign not used
**A** Absolute reference (normally reads atmospheric pressure, reads zero at full vacuum)

| Standard | NEMA 4X | psi | kPa | MPa | mbar | bar | atm | kg/cm² | g/cm² | $mmH_2O$ | $cmH_2O$ | oz/in² | $ftH_2O$ | $inH_2O$ | mmHg | torr | inHg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DPG2001B-15A | DPG2004B-15A | 15.00 to 0 absolute | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| DPG2001B-30A | DPG2004B-30A | 30.00 to 0 absolute | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| DPG2001B-100A | DPG2004B-100A | 100.0 to 0 absolute | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| DPG2001B-15VAC | DPG2004B-15VAC | 0 to –15.00 vacuum | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| DPG2001B-15V15G | DPG2004B-15V15G | –15.0 to 15.0 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| DPG2001B-15V100G | DPG2004B-15V100G | –15.0 to 100.0 | ✔ | ✔ | | ✔ | ✔ | ✔ | | | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| DPG2001B-15V200G | DPG2004B-15V200G | –15.0 to 200.0 | ✔ | ✔ | | ✔ | ✔ | ✔ | | | | ✔ | ✔ | ✔ | | | ✔ |
| DPG2001B-03G | DPG2004B-03G | 0 to 3.000 | ✔ | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| DPG2001B-05G | DPG2004B-05G | 0 to 5.000 | ✔ | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| DPG2001B-15G | DPG2004B-15G | 0 to 15.00 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| DPG2001B-30G | DPG2004B-30G | 0 to 30.00 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| DPG2001B-60G | DPG2004B-60G | 0 to 60.00 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| DPG2001B-100G | DPG2004B-100G | 0 to 100.0 | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| DPG2001B-200G | DPG2004B-200G | 0 to 200.0 | ✔ | ✔ | | ✔ | ✔ | ✔ | | | | ✔ | ✔ | ✔ | | | ✔ |
| DPG2001B-300G | DPG2004B-300G | 0 to 300.0 | ✔ | ✔ | | ✔ | ✔ | ✔ | | | | ✔ | ✔ | | | | ✔ |
| DPG2001B-500G | DPG2004B-500G | 0 to 500.0 | ✔ | ✔ | | ✔ | ✔ | ✔ | | | | | ✔ | | | | ✔ |
| DPG2001B-1000G | DPG2004B-1000G | 0 to 1000 | ✔ | ✔ | | ✔ | ✔ | ✔ | | | | | ✔ | | | | ✔ |
| DPG2001B-2000G | DPG2004B-2000G | 0 to 2000 | | ✔ | | ✔ | ✔ | ✔ | | | | | ✔ | | | | ✔ |
| DPG2001B-3000G | DPG2004B-3000G | 0 to 3000 | | ✔ | | ✔ | ✔ | ✔ | | | | | ✔ | | | | ✔ |
| DPG2001B-5000G | DPG2004B-5000G | 0 to 5000 | | ✔ | | ✔ | ✔ | ✔ | | | | | | | | | |
| **Options for all models—Add to end of model number** | | | **-BL** | Backlighting (red LED) | | | | | | **-NIST** | 5-point NIST calibration | | | | | | |

### Accuracy

Includes linearity, hysteresis, repeatability
±0.25% of full scale ±1 least significant digit
Sensor hysteresis: ±0.015% FS, included in accuracy
Sensor repeatability: ±0.01% FS, included in accuracy

### Display

3 readings per second nominal display update rate
4 digit LCD, 0.5" H and 5 character 0.25" H alphanumeric
BL: Red LED backlight activated for 1 minute via front button

### Batteries, Battery Life, Low Battery Indication

B: 2 AA alkaline, approx. 2000 hours
BL: 2 AA alkaline, approx. 150 to 1500 hours depending on backlight usage
Low battery symbol on display

### Auto Shutoff

User selectable 1 minute to 8 hours or front button on/off

### Controls & Functions

Three front buttons turn gauge on or off, zeros gauge reference gauges, and cycles through functions

### Memory

Six max-reading memory, user settable to MEM 1, 2, 3, 4, 5, 6, or aircraft tire NLG 1, NLG 2, MLG 1, MLG 2, MLG 3, MLG 4

### Calibration

Pass code protected calibration
Non-interactive zero, span, and linearity, ±10% of range

### Connection and Material

1/4" NPT male fitting, 316L stainless steel
All wetted parts are 316L stainless steel

### Housing Material

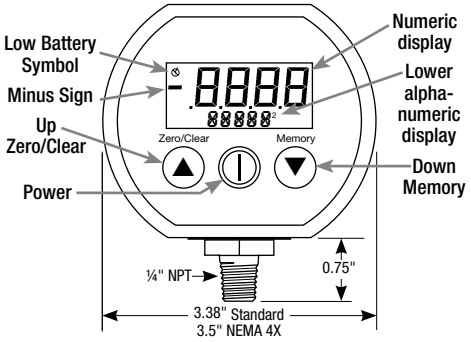
DPG2001B: Extruded aluminum case, epoxy powder coated, ABS/polycarbonate bezel, front and rear gaskets, polycarbonate label
DPG2004B: NEMA 4X ABS/polycarbonate case, rear gasket, polycarbonate label

### Overpressure, Burst, Vacuum

3000 psig sensor: 5000 psig overpressure, 10,000 psi burst
5000 psig sensor: 7500 psig overpressure, 10,000 psi burst
All other sensors: 2 X sensor range overpressure
All other sensors: 4 X sensor range burst

Vacuum service: ±15 psig, 15 psia, 15 psig, 30 psia, 100 psig, 100 psia, 200 psig sensors. Vacuum on all others will permanently damage sensor

112.5% full scale out-of-range display: 1– – – or 1 –.–.–.–
Under-range display (non-vacuum sensors): –Err

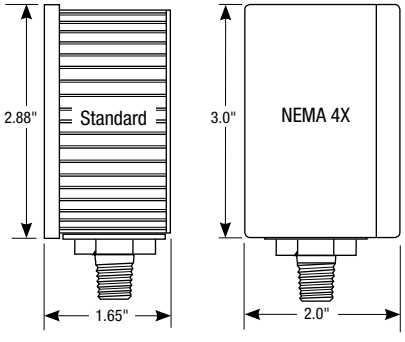



### Weight (approximate)

Gauge: 9 ounces
Shipping weight: 1 pound

### Environmental Temperatures

Storage: –40 to 203°F (–40 to 95°C)
Operating: –4 to 185°F (–20 to 85°C)
Compensated: 32 to 158°F (0 to 70°C)



## Installation Precautions

- ✔ Read these instructions before using the gauge. Configuration may be easier before installation.
- ✔ These products do not contain user-serviceable parts. Contact us for repairs, service, or refurbishment.
- ✔ Gauges must be operated within specified ambient temperature ranges.
- ✔ Outdoor or wash down applications require a NEMA 4X gauge or installation in a NEMA 4X housing.
- ✔ Use a pressure or vacuum range appropriate for the application.
- ✔ Use fittings appropriate for the pressure range of the gauge.
- ✔ Due to the hardness of 316 stainless steel, it is recommended that a thread sealant be used to ensure leak-free operation.
- ✔ For contaminated media use an appropriate screen or filter to keep debris out of gauge port.
- ✔ Remove system pressures before removing or installing gauge.
- ✔ Install or remove gauge using a wrench on the hex fitting only. Do not attempt to turn gauge by forcing the housing.
- ✔ Good design practice dictates that positive displacement liquid pumps include protection devices to prevent sensor damage from pressure spikes, acceleration head, and vacuum extremes.
- ☒ Avoid permanent sensor damage! Do not apply vacuum to non-vacuum gauges or hydraulic vacuum to any gauges.
- ☒ Avoid permanent sensor damage! NEVER insert objects into gauge port or blow out with compressed air.
- ⚠ Gauges are not for oxygen service. Accidental rupture of sensor diaphragm may cause silicone oil inside sensor to react with oxygen.

**WARNING:** This product can expose you to chemicals including lead, nickel and chromium, which are known to the State of California to cause cancer or birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

## Battery Replacement

A low battery indication will be shown in the upper left-hand corner of the display when the battery voltage falls sufficiently. The batteries should be replaced soon after the indicator comes on or unreliable readings may result.

1. Remove the 6 Phillips screws on the back of the unit.
2. Remove the battery cover or cradle (depending on model). Remove batteries by lifting up the positive end of the battery taking care not to bend the battery holder spring.
3. Discard old batteries properly, do not discard into fire, sources of extreme heat, or in any hazardous manner.
4. Always replace both batteries at the same time with high quality alkaline batteries. Install batteries with correct orientation. The negative (flat) end of each battery should be inserted first facing the battery holder spring.
5. Replace the back cover, including the rubber gasket.

## Power-Up and Normal Operation

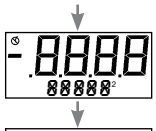
Your gauge is shipped ready to use. It was factory calibrated just prior to shipment with batteries installed.

Press and hold the Power button for approximately 1 second.

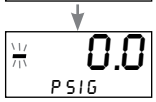

The display is tested.

The full-scale range is indicated.


The display test is briefly shown again.



The actual pressure and units are displayed. The gauge is ready for use. Occasional flashing of the minus sign is normal and indicates the gauge is at zero pressure.



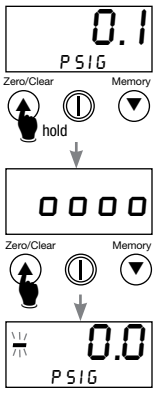

Following the start-up initialization, the display indicates the pressure reading updated approximately 3 times per second. The auto shutoff timer starts when the gauge is powered and resets whenever any button is pressed, unless the gauge shutoff time was set to zero for on/off operation.

## Display Backlighting—BL Versions Only

Display backlighting can be turned on by momentarily pressing the Power button whenever the gauge is on. The backlighting will turn on for one minute and then automatically shut off. This also restarts the auto shutoff timer. The display backlighting will not be apparent under bright lighting conditions.

## Zero the Display

This applies to gauge reference models only. Absolute reference gauges do not use the zero feature since they read atmospheric pressure under normal conditions.




Be sure the gauge is in the normal operating mode. The gauge port must be exposed to normal atmospheric pressure with no pressure or vacuum applied.

Press and hold the Zero/Clear button.

Continue to press the Zero/Clear button until 0000 is displayed.

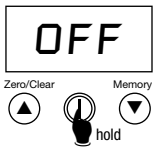
Release the button.

The gauge in now zeroed.

Occasional flashing of the minus sign with zero pressure/vacuum is normal.

The stored zero correction is erased when the gauge is shut off.

## Shut Down

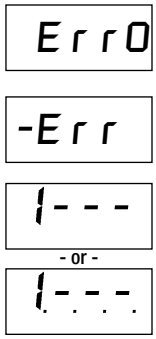



To shut off the gauge manually at any time, press and hold the Power button until the display indicates OFF (about 5 seconds) and then release.

When the auto shutoff timer is used, the display indicates OFF five seconds prior to auto shutoff. Press the Power button to keep the gauge on.

If the gauge is set up without auto shutoff (on/off operation) it will stay on until manually shut off or until the batteries are depleted. Turn gauge off when not in use to conserve batteries.

## Error or Out-of-Range Indications



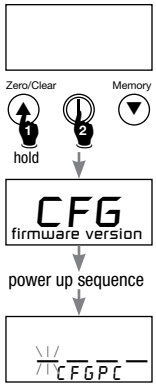

Attempting to zero the gauge with pressure greater than approximately 3% of full-scale pressure or vacuum applied will result in an error condition. The display will alternately indicate Err 0 and the actual pressure.

The gauge must be powered down to reset the error condition.

If excessive vacuum is applied to a pressure-only gauge, the display will indicate -Err until the vacuum is released. Applying vacuum to a pressure gauge can damage the pressure sensor.

If excessive pressure is applied (112.5% over range), an out-of-range indication of 1 – – – or 1.–.–.– will be displayed.

## Enter Gauge Configuration Mode




The configuration mode allows changing engineering units, shut off time, memory labels, or resetting these to factory defaults.

The gauge uses a 4 digit pass code to enter the configuration mode. This is to prevent unauthorized changing of settings.

With the gauge off, press and hold the ▲ button. Then press the Power button.

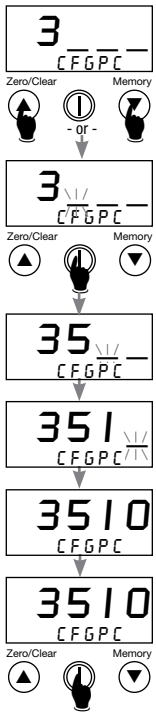
Release all buttons when the display indicates CFG. The gauge firmware version is also displayed.

The gauge then goes through the normal power up sequence.

The display prompts for entry of the configuration pass code (CFGPC), with the first underscore blinking.

Note: The gauge will automatically revert to normal operation if no buttons are pressed for approximately 15 seconds. To cancel and return to normal operation, press and release the Power button without entering any pass code characters.

## Enter Configuration Pass Code




Enter the pass code. 3510 is the factory default, but it is user-modifiable.

Use the ▲ or ▼ buttons to set the left-most digit to 3.

Press and release the Power button to index to the next position. The 3 will remain, and the second position will be blinking.

Use the ▲ or ▼ buttons to select 5.

Press and release the Power button to index to the next position. 3 5 will remain, and the third position will be blinking.

Use the ▲ or ▼ buttons to select 1.

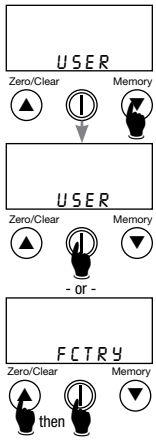
Press and release the Power button to index to the next position. 3 5 1 will remain, and the fourth position will be blinking.

Use the ▲ or ▼ buttons to select 0.

After the pass code is entered press and release the Power button to proceed with configuration procedures.

Note: If an incorrect pass code is entered, the gauge will return to the start of the pass code entry sequence.

## Gauge Configuration—User or Factory




Upon successful pass code entry, the upper display will be blank, and the lower section will display USER.

With User selected, the gauge configuration can be modified as described in the following sections.

Press and release the ▼ button if User is not displayed. The lower display will indicate USER.

Press and release the Power button to continue with configuration.

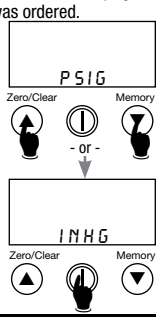
If Factory (FCTRY) is selected, the user configuration will be replaced by the configuration as it left the factory.

To select Factory, press and release the ▲ button. The lower display will indicate FCTRY.

Press and release the Power button to restore the factory configuration and restart the gauge.

## Engineering Unit Selection

The range next to the gauge model number table on page 1 indicates the default range when the gauge was ordered.



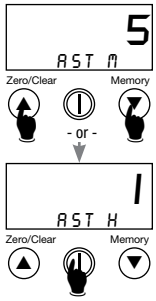

Engineering units may be changed to any of those listed in the same row as shown in the table on page 1.

With the gauge in the user configuration mode, the upper display will be blank with the engineering units in the lower display.

Use the ▲ and ▼ buttons to navigate through the list of engineering units. Available engineering units depend on the sensor range.

When the desired units are displayed, press and release the Power button to save your selection and move to the next parameter.

## Auto Shutoff Time Selection




The auto shutoff time is displayed on the upper display. The lower display will indicate AST M if the time displayed is in minutes or AST H if it is in hours.

Use the ▲ and ▼ buttons to select 0, 1, 2, 5, 10, 15, 20, or 30 minutes, or 1, 2, 4, or 8 hours.

A setting of zero disables the auto shutoff timer. This requires using the Power button to shut the gauge off.

When the desired length of time is displayed, press and release the Power button to save your selection and move to the next parameter.

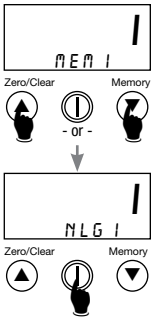
## Memory Label Selection

Up to 6 pressure readings can be stored. While in the memory mode the peak reading is captured.

The six memory locations may be renamed as follows for aircraft landing gear applications. Each of the memory locations may be renamed as desired in any sequence. Care should be taken to avoid duplication or omission of a position.

| | | |
|---|---|---|
| MEM 1 | NLG 1 | Nose landing gear tire 1 |
| MEM 2 | NLG 2 | Nose landing gear tire 2 |
| MEM 3 | MLG 1 | Main landing gear tire 1 |
| MEM 4 | MLG 2 | Main landing gear tire 2 |
| MEM 5 | MLG 3 | Main landing gear tire 3 |
| MEM 6 | MLG 4 | Main landing gear tire 4 |

After auto shutoff time selection, the number 1 is displayed on the upper display. The lower display will indicate the label for memory 1.




Use the ▲ and ▼ buttons to select MEM 1, NLG 1, NLG 2, MLG 1, MLG 2, MLG 3, or MLG 4.

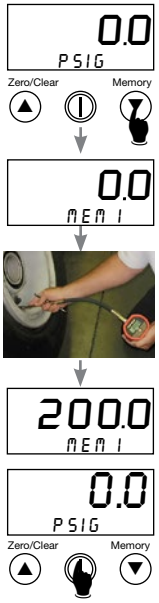
When the desired label for memory 1 is displayed, press and release the Power button.

Repeat the steps for the other memory locations.

When the desired label for memory 6 is displayed, press and release the Power button to save the user configuration and restart the gauge.

## Using the Memory

With the gauge powered up and in the normal operating mode, press and release the Memory button to sequence through the memory locations.




When the Memory button is pressed the gauge is in the peak hold mode. A new higher reading will replace an existing reading, but a pressure reading lower than the one displayed will not be saved.

When desired memory location is displayed, take the pressure reading. The peak reading will be captured.

Remove the gauge from the pressure source and press the memory button for the next location.

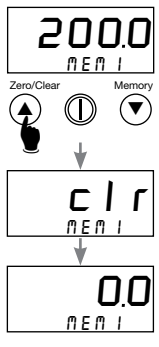
Repeat until all readings are taken.

The readings will be saved even if the gauge is shut off.

Press and release the Power button to exit the memory mode and return to live pressure readings.

## Clear a Memory Location

Before clearing a memory location, make sure the gauge has no pressure applied.




Press and hold the Zero/Clear button.

Release the button when clr is displayed. The reading for the memory location indicated on the lower display will be cleared.

With gauge reference models if no pressure is applied, the gauge will return to zero.

If pressure is applied the new pressure reading will be stored in memory.

With absolute reference models the current atmospheric pressure reading will be stored if the gauge port is open to atmosphere.

Press and release the Power button to exit the memory mode and return to live pressure readings.

## Calibration Preparation

Gauges are calibrated at the factory using equipment traceable to NIST. There is no need to calibrate the gauge before putting it into service. Calibration should only be performed by qualified individuals using appropriate calibration standards and procedures. Calibration intervals depend on your quality control program requirements, although many customers calibrate annually.

The calibration system must be able to generate and measure pressure/vacuum over the full range of the gauge and should be at least four times more accurate than the gauge being calibrated.

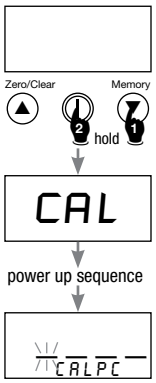
A vacuum pump able to produce a vacuum of 100 microns (0.1 torr or 100 millitorr) or lower is required for vacuum and absolute gauges. Warning: application of vacuum to non-vacuum models will result in damage to the sensor.

Allow the gauge to acclimate to ambient temperature for 20 minutes.

Install fresh batteries.

## Entering Calibration Pass Code

With the gauge off, press and hold the ▼ button. Then press the Power button. Release all buttons when the display indicates CAL.




The display begins by indicating the full-scale positive pressure rating of the gauge in the engineering units as configured by the factory, and then shows all display segments.

Before the gauge enters the Calibration Mode, the display initially indicates _ _ _ _ with the first underscore blinking, and with CALPC (calibration pass code) on the lower display.

Enter the 3510 pass code as described in the Configuration Pass Code section.

## Calibration

The gauge enters and remains in the Calibration Mode until restarted manually or power is removed. Features not related to calibration are disabled.

The calibration may be performed in any of the available engineering units as well as percent (PCT).

For greatest accuracy, use the ▲ and ▼ buttons to select engineering units for calibration with highest resolution (highest number of display counts).

Press and release the Power button when the appropriate engineering units are displayed. Suggested units are listed below.

| Sensor | Suggested units for calibration |
|---|---|
| 5 PSI | 5.000 PSI |
| 15 PSI | 775.7 MMHG or TORR |
| 30 PSI | 61.08 INHG |
| 50 PSI | 50.00 PSI |
| 60 PSI | 60.00 PSI |
| 100 PSI | 7.031 KG/CM2 |
| 200 PSI | 407.2 INHG |
| 300 PSI | 610.8 INHG |
| 500 PSI | 3447 KPA |
| 1000 PSI | 6895 KPA |
| 2000 PSI | 4613 FTH2O |
| 3000 PSI | 6920 FTH2O |
| 5000 PSI | 5000 PSI |

The display will then indicate the currently applied pressure in the engineering units selected for calibration.

### ▲ and ▼ Button Operation

Each time one of the ▲ or ▼ buttons is pressed and released quickly, a small change is made to the digitized pressure signal. It may take more than one of these small changes to result in a single digit change on the display.

To make larger changes, press and hold the appropriate button. After about one second, the display will begin to change continuously. Release the button to stop. Then make fine adjustments by pressing and quickly releasing the buttons as previously described.

### Gauge Reference Pressure Gauges

Apply zero pressure by venting the gauge port to atmosphere. The character display will alternate between ZERO and CAL. Adjust for a display indication of zero using the ▲ and ▼ buttons.

Apply full-scale pressure. The character display will alternate between +SPAN and CAL. Adjust for a display indication of full-scale pressure using the ▲ and ▼ buttons.

Apply 50% full-scale pressure. The character display will alternate between +MID and CAL. Adjust for a display indication equal to 50% of full-scale pressure using the ▲ and ▼ buttons.

## Calibration—continued

### Gauge Reference Vacuum Gauges

Apply zero pressure by venting the gauge port to atmosphere. The character display will alternate between ZERO and CAL. Adjust for a display indication of zero using the ▲ and ▼ buttons.

Apply full-scale vacuum. The character display will alternate between +SPAN and CAL. Adjust for a display indication of full-scale vacuum using the ▲ and ▼ buttons.

Apply 50% full-scale vacuum. The character display will alternate between +MID and CAL. Adjust for a display indication equal to 50% of full-scale vacuum using the ▲ and ▼ buttons.

### Absolute Reference Gauges

Apply full vacuum to the gauge. The character display will alternate between ZERO and CAL. Press the ▲ and ▼ buttons to obtain a display indication of zero.

Apply full-scale pressure. The character display will alternate between +SPAN and CAL. Press the ▲ and ▼ buttons to obtain a display indication equal to full-scale pressure.

Apply 50% of full-scale pressure. The lower display will alternate between +MID and CAL. Press the ▲ and ▼ buttons to obtain an indication equal to 50% of full-scale pressure.

### Bipolar Gauges

In addition to the steps described above for pressure gauges, apply full-scale vacuum. The character display will alternate between -SPAN and CAL. Adjust for a display indication of actual applied vacuum using the ▲ and ▼ buttons.

For bipolar ranges only, apply 50% full-scale vacuum. The character display will alternate between -MID and CAL. Adjust for a display indication equal to 50% of full-scale vacuum using the ▲ and ▼ buttons.

### Save Calibration

Press and hold the Power button until the display indicates - - - - then release the button to store the calibration parameters in non-volatile memory and restart the gauge.

Verify the pressure indications at 0%, 25%, 50%, 75% and 100% of full scale.

## User-Defined Pass Code Configuration

The factory default pass code 3510 may be changed to a different value for configuration and/or calibration.

### Configuration Pass Code

With the unit off, press and hold the ▲ button to view and/or change the user configuration pass code. Then press the Power button. Release all buttons when the display indicates CFG.

### Calibration Pass Code

With the unit off, press and hold the ▼ button to view and/or change the user calibration pass code. Then press the Power button. Release all buttons when the display indicates CAL.

### Change Pass Code Mode

Before the unit enters the view or change pass code mode, the display initially indicates _ _ _ _ with the first underscore blinking, and with CFGPC or CALPC on the character segments.

Note: The unit will automatically revert to normal operation if no buttons are operated for approximately 15 seconds. To cancel and return to normal operation, press and release the Power button without entering any pass code characters.

Enter access code 1220:

Use the ▲ and ▼ buttons to set the left-most digit to 1.

Press and release the Power button to index to the next position. The 1 will remain, and the second position will be blinking.

Use the ▲ and ▼ buttons to select 2.

Press and release the Power button to index to the next position. 1 2 will remain, and the third position will be blinking.

Use the ▲ and ▼ buttons to select 2.

Press and release the Power button to index to the next position. 1 2 2 will remain, and the fourth position will be blinking.

Use the ▲ and ▼ buttons to select 0.

Press and release the Power button to proceed.

Note: If an incorrect access code was entered, the gauge will return to the start of the access code entry sequence.

### Change Pass Code

Once the access code has been entered correctly, the display will indicate the existing user-defined pass code with CFGPC or CALPC on the character segments.

Press the ▲ or ▼ button to select the first character of the new pass code.

When the correct first character is being displayed, press and release the Power button to proceed to the next pass code character.

Repeat above until the entire pass code is complete.

To exit the User Defined Pass Code change mode, press and hold the Power button.

Release the button when the display indicates - - - - to restart the gauge.

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# WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

**OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.**

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

# RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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