Digital Pressure Gauges
DPG2001B, DPG2004B Series

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)

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
Compensated: 32 to 158°F (0 to 70°C)
Operating: –4 to 185°F (–20 to 85°C)
Storage: –40 to 203°F (–40 to 95°C)
Environmental Temperatures
Shipping weight: 1 pound

Weight (approximate)
Gauge: 9 ounces
Shipping weight: 1 pound

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, NLG 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-err or 1-err-
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)

Options for all models—Add to end of model number
- BL  Backlighting (red LED)
- NIST  5-point NIST calibration
**Display Backlighting—BL Versions Only**

Display backlighting can be turned on by momentarily pressing the Power button whenever the gauge is on. 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.

**Enter Configuration Pass Code**

Enter the pass code. 3510 is the factory default pass code, but it is user-modifiable. Use the ▲ or ▼ buttons to set the leftmost 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. The 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. The 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 (FCTR) 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 FCTR.

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 RST M if the time displayed is in minutes or RST H if it is in hours.

Use the ▲ and ▼ buttons to select 0, 1, 2, 3, 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

When 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 any 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 the display initially indicates _ _ _ _ with the first underscore blinking, and the second position will be blinking.
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

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

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 MNHG or TOHR
  - 30 PSI 61.08 INHG
  - 50 PSI 50.00 PSI
  - 60 PSI 60.00 PSI
  - 100 PSI 7331 KGC/CM2
  - 200 PSI 407.2 INHG
  - 300 PSI 610.8 INHG
  - 500 PSI 3447 KPA
  - 1000 PSI 6895 KPA
  - 2000 PSI 4813 FTH2O
  - 3000 PSI 6920 FTH20
  - 5000 PSI 5000 PSI

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

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 CRL. Adjust for a display indication of zero using the ▲ and ▼ buttons.
Apply full-scale pressure. The character display will alternate between +SPRN and CRL 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 CRL. Adjust for a display indication equal to 50% of full-scale vacuum 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 CRL. Adjust for a display indication of zero using the ▲ and ▼ buttons.
Apply full-scale vacuum. The character display will alternate between +SPRN and CRL 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 CRL. 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 CRL. Press the ▲ and ▼ buttons to obtain a display indication of zero.
Apply full-scale pressure. The character display will alternate between +SPRN and CRL. Press the ▲ and ▼ buttons to obtain an indication equal to 50% of full-scale pressure.

Bipolar Gauges

Change the unit of pressure as described above for pressure gauges, apply full-scale vacuum. The character display will alternate between -SPRN and CRL. 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 CRL. Adjust for a display indication equal to 50% of full-scale vacuum using the ▲ and ▼ buttons.

Save Calibration

Press and release 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 or leaves pass code mode, the display initially indicates _ _ _ _ with the first underscore blinking, and with CFPGC or CRLPC 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. 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 correctly entered, the display will indicate the existing user-defined pass code with CFPGC or CRLPC 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.
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.

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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.

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