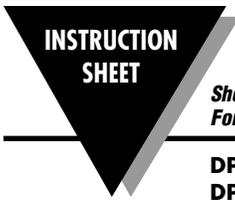




Digital Pressure Gauges

DPG3500, DPG5500, and DPG5600



M4094-0606

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- DPG3500** Battery Powered, Min/Max/Zero, NEMA 4X Housing
- DPG5500** Battery Powered, Min/Max/Zero
- DPG5600** Battery Powered, Min/Max/Zero, Display Backlighting

Ranges and Resolution

Resolution is fixed as indicated in table
Ranges in **Bold** are standard. Contact Omega Engineering for other ranges listed below.
abs: Absolute reference (normally reads atmospheric pressure, reads zero at full vacuum)
vac: Vacuum gauge, minus sign not used unless specified

-30.00 inHg/15.00 psig	120.0 inHg	1600 mmHg	35.00 bar	1.000 kg/cm ² abs
-30.0 inHg/100.0 psig	200.0 inHg abs	760.0 torr abs	70.00 bar	1.000 kg/cm ² vac
-30.0 inHg/200.0 psig	200.0 inHg	1600 torr abs	140.0 bar	±1.000 kg/cm ²
3.000 psig	50.00 oz/in ²	2100 mmH ₂ O	200.0 bar	1.000 kg/cm ²
5.000 psig	80.0 oz/in ²	3500 mmH ₂ O	350.0 bar	2.000 kg/cm ² abs
15.00 psi abs	240.0 oz/in ² abs	200.0 cmH ₂ O	20.00 kPa	2.000 kg/cm ²
15.00 psig vac	240.0 oz/in ² vac	350.0 cmH ₂ O	35.00 kPa	4.000 kg/cm ²
±15.00 psig	±240.0 oz/in ²	1000 cmH ₂ O	100.0 kPa abs	7.000 kg/cm ² abs
15.00 psig	240.0 oz/in ²	2100 cmH ₂ O	100.0 kPa vac	7.000 kg/cm ²
30.00 psi abs	85.0 inH₂O	200.0 mbar	±100.0 kPa	14.00 kg/cm ²
30.00 psig	140.0 inH₂O	350.0 mbar	100.0 kPa	20.00 kg/cm ²
60.00 psig	400.0 inH ₂ O abs	1000 mbar abs	200.0 kPa abs	35.00 kg/cm ²
100.0 psi abs	400.0 inH ₂ O vac	1000 mbar vac	200.0 kPa	70.00 kg/cm ²
100.0 psig	±400 inH ₂ O	±1000 mbar	400.0 kPa	140.0 kg/cm ²
200.0 psig	400.0 inH ₂ O	1000 mbar	700.0 kPa abs	200.0 kg/cm ²
300.0 psig	850 inH ₂ O	2000 mbar abs	700.0 kPa	350.0 kg/cm ²
500.0 psig	7.000 ftH ₂ O	2000 mbar	1500 kPa	1.000 atm abs
1000 psig	12.00 ftH ₂ O	4000 mbar	2000 kPa	±1.000 atm
2000 psig	35.00 ftH ₂ O	1.000 bar abs	3500 kPa	1.000 atm
3000 psig	70.00 ftH ₂ O	1.000 bar vac	5000 kPa	4.000 atm
5000 psig	140.0 ftH ₂ O	±1.000 bar	3.500 MPa	7.000 atm
6.000 inHg	230.0 ftH ₂ O	1.000 bar	7.000 MPa	14.00 atm
10.00 inHg	480.0 ftH ₂ O	2.000 bar abs	14.00 MPa	20.00 atm
30.00 inHg abs	150.0 mmHg	2.000 bar	20.00 MPa	35.00 atm
30.00 inHg vac	260.0 mmHg	4.000 bar	35.00 MPa	70.00 atm
±30.00 inHg	760.0 mmHg abs	7.000 bar abs	1000 g/cm ² abs	135.0 atm
30.00 inHg	760.0 mmHg vac	7.000 bar	1000 g/cm ²	200.0 atm
60.00 inHg abs	760.0 mmHg	14.00 bar	2100 g/cm ² abs	340.0 atm
60.00 inHg	1600 mmHg abs	20.00 bar	2100 g/cm ²	

Batteries & Battery Life

DPG3500 and DPG5500
2 AA alkaline, approx. 2000 hours

DPG5600
2 AA alkaline, approx. 150 to 1500 hrs depending on backlight usage

Low Battery Indication

Low battery symbol on display when batteries must be replaced

Dimensions (see drawing on next page)

DPG3500
3.5" W x 3.0" H x 2.0" D NEMA 4X housing
Add approx. 0.75" to height for pressure fitting

DPG5500 and DPG5600
3.38" W x 2.88" H x 1.65" D housing
Add approx. 0.75" to height for pressure fitting

Weight (approximate)

Gauge: 9 ounces
Shipping weight: 1 pound

Material & Color

DPG3500
Light gray ABS/polycarbonate NEMA 4X case, rear gasket, polycarbonate label

DPG5500 and DPG5600
Extruded aluminum case, light gray epoxy powder coated, black ABS/polycarbonate bezel, front and rear gaskets, polycarbonate label

Connection Size

1/4" NPT male

Sensor Material

All wetted parts are 316 stainless steel

Overpressure

2 times sensor range
3000 psig range & metric equivalents: 5000 psig
5000 psig range & metric equivalents: 7500 psig
112.5% out-of-range display: |--- or |--- depending on model

Burst Pressure

4 times sensor pressure rating, or 10,000 psi, whichever is less

Storage Temperature

-40 to 203°F (-40 to 95°C)

Operating Temperature

-4 to 185°F (-20 to 85°C)

Compensated Temperature

32 to 158°F (0 to 70°C)

Temperature Stability

±0.5% span typical, ±1% span max. 0 to 82°C

Controls & Functions

All Models: Front pushbutton turns gauge on or off and cycles through functions
DPG5600: Press pushbutton to activate 1 minute backlighting when gauge is on

Function	Pushbutton	Prompt (Release Button)	Result
On	Press 1 sec	Gauge Range/Display Test	Actual Pressure
Zero	Press/hold	0000	Zeroed Actual Pressure
Hi Reading	Press/hold	HI	HI & max. reading
Lo Reading	Press/hold	LO	LO & min. reading
Exit Hi/Lo	Press/hold	AP	Actual Pressure
Clear Hi/Lo	Press/hold	HI / LO / AP Clr	Actual Pressure
Clear Zero, Off	Press/hold	HI / LO / AP Clr OFF	Clear Zero, Gauge Off

Accuracy (linearity, hysteresis, repeatability)
±0.25% of full scale ±1 least significant digit

Display (update rate, type, size)
3 readings per second nominal update rate
4 digit LCD, 0.4" digit height
5 character 0.25" H alphanumeric display

DPG5600: Red LED backlight. Backlighting may not be visible under bright lighting conditions.

Calibration

Internal calibration pushbuttons, non-interactive zero, midpoint, span, ±10% range

Shutoff

See gauge rear label, last character of model number
-5: 5 minute auto shutoff (standard)
-NS: No auto shutoff, on/off via front pushbutton

Installation and Precautions

CAUTION: Install or remove gauge using wrench on hex fitting only. Do not attempt to tighten by turning housing or any other part of the gauge.

See gauge rear label for pressure range!
 Use fittings appropriate for the pressure range of the gauge.
 Do not apply vacuum to gauges not specified for vacuum operation.
 Due to the hardness of 316 stainless steel, it is recommended that a thread sealant be used to ensure leak-free operation.

NEVER insert objects into the gauge port or blow out with compressed air. Permanent damage not covered by warranty will result to the sensor.

Power-Up

1. Press and hold the pushbutton for approximately 1 second.
2. The full-scale range is indicated and the display segments are tested.
3. The actual pressure is displayed.

NOTE: Power-Up With Display Zero
 This feature is only used with Gauge reference models. Absolute reference gauges do not use the pushbutton zero feature since they read atmospheric pressure under normal conditions.

1. Be sure the gauge port is exposed to normal atmospheric pressure and no pressure is applied. The zeroing function is only activated at each power-up and the stored zero correction is erased when the gauge is shut off.
2. Press and hold the pushbutton.
3. The full-scale range is indicated and the display segments are tested.
4. Continue to press the pushbutton until **□ □ □ □** is displayed and then release the button. This indicates that the gauge has been zeroed.
5. The actual pressure is displayed.

Attempting to zero the gauge with pressure greater than approximately 3% of full-scale applied will result in an error condition, and the display will alternately indicate **E r r 0** and the actual measured pressure. The gauge must be powered down to reset the error condition.

Normal Operation

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 up or whenever the button is pushed, unless the gauge was ordered without an auto shutoff time (-NS option).

If excessive vacuum is applied to a pressure-only gauge, the display will indicate **- E r r** until the vacuum is released. Applying vacuum to a gauge designed for pressure may damage the pressure sensor.

If excessive pressure is applied (112.5% over range), an out-of-range indication of **! - - -** or **! - . - . -** will be displayed depending on model.

Minimum and Maximum Readings

Minimum and maximum readings are continuously stored and updated whenever gauge is on. The stored readings can be manually cleared if desired. The **HI** and **LO** memory is also cleared whenever the gauge is off.

Press and hold the pushbutton for about 1 second until **HI** is displayed. The maximum stored value is displayed.

After **HI** is displayed, press and hold the pushbutton again for about 1 second until **LO** is displayed. The minimum stored value is displayed.

After **LO** is displayed, press and hold the pushbutton again for about 1 second until **AP** (Applied Pressure) is displayed. The **HI** and **LO** memory is not erased and the gauge returns to normal operation with the display indicating the current pressure.

Press and continue to hold the pushbutton until the display indicates **cl r HI/LO** (about 3 seconds total) and then release the pushbutton. Both **HI** and **LO** values are cleared and the gauge returns to the normal mode and displays the current pressure.

DPG5600 with Display Backlighting

Display backlighting can be turned on by momentarily pressing the 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.

Shut-Down

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

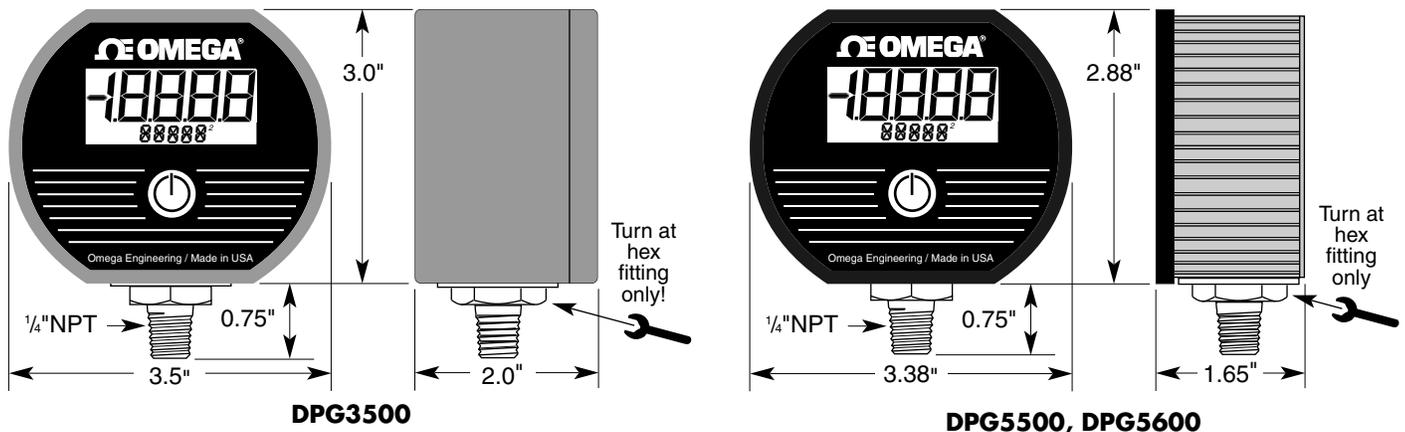
For gauges with auto shutoff, the display indicates **OFF** five seconds prior to auto shutoff. The pushbutton can be pressed to keep the gauge on. The auto shutoff and backlight (if equipped) timers are reset whenever the pushbutton is pressed and released.

If the gauge was ordered without auto shutoff (-NS option) it will stay on until manually shut off or until the batteries are depleted. Turn gauge off when not in use to conserve battery life.

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 battery should be replaced soon after the indicator comes on or unreliable readings may result.

1. Remove the screws on the back of the unit.
2. Remove batteries by lifting up the positive end of the battery (opposite the spring) 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 other 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.
6. Replace the back cover, including the rubber sealing gasket.



CAUTION:**Calibration Precautions**

Install or remove gauge using wrench on hex fitting only. Do not attempt to tighten or loosen by turning housing or any other part of the gauge.

See gauge rear label for pressure range!

Use fittings appropriate for the pressure range of the gauge. The gauge range is indicated on the rear label and is indicated on the display during power-up.

Do not apply vacuum to gauges not designed for vacuum operation.

Due to the hardness of 316 stainless steel, it is recommended that a thread sealant be used to ensure leak-free operation.

NEVER insert objects into the gauge port or blow out with compressed air. Permanent damage not covered by warranty will result to the sensor.

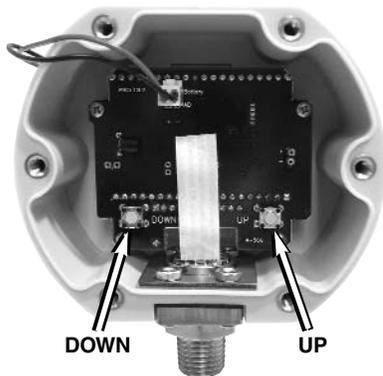
These products do not contain user serviceable parts. Contact Omega Engineering for calibration, service, or refurbishment.

NOTE:**1. Calibration Preparation**

- Calibration should only be performed by qualified individuals using appropriate calibration standards and procedures.
- The calibration equipment should be at least four times more accurate than the gauge being calibrated.
- Remove the screws on the back of the unit and remove cover.
- It is good practice to install fresh batteries before calibrating battery-powered gauges.
- Allow the gauge to equalize to normal room temperature before calibration.

2. Entering the Calibration Mode

- Note the locations of the two internal calibration pushbuttons marked UP and DOWN. These buttons are disabled unless the gauge is in calibration mode.
- With the gauge off, press and hold the DOWN calibration button, and also press the front button to power up the gauge in calibration mode.

**3. Calibration Mode Functions**

- The display first indicates the gauge's full-scale pressure range, tests all display segments, and then indicates CRL to indicate that the gauge is in the calibration mode. Release all pushbuttons.
- The display will then indicate the current pressure reading, updating approximately 3 times per second. The gauge will remain in the calibration mode until powered down or reset manually. While in the calibration mode, the shutoff timer, One Touch Zero (gauge reference models only), Min/Max (for applicable models) are all disabled, and the calibration pushbuttons are active.
- Each press of the UP or DOWN button makes a small correction, which may not always be indicated on the digital display. Press and hold the pushbutton for one second or longer to make larger continuous corrections. The display of the gauge being calibrated is adjusted to match the calibrator's setting or readout.
- If the battery pack is unplugged or the power removed during calibration, calibration settings will not be saved.

4. Gauge Reference Gauges (3 Points)

- With the gauge port open to atmosphere, the character display will alternate between ZER0 and CRL . Press the UP and DOWN buttons to obtain a display indication of zero.
- Apply full-scale pressure. The character display will alternate between $+5P RN$ and CRL . Press the UP and DOWN buttons to obtain a display indication equal to full-scale pressure.
- Apply 50% of full-scale pressure. The character display will alternate between $+MID$ and CRL . Press the UP and DOWN buttons to obtain a display indication equal to 50% of full-scale pressure.

5. Absolute Reference Gauges (3 Points)

- Apply full vacuum to the gauge. The vacuum pump must be able to produce a vacuum of 10 microns (0.01 torr or 10 millitorr) or lower. The character display will alternate between ZER0 and CRL . Press the UP and DOWN buttons to obtain a display indication of zero.
- Apply full-scale pressure. The character display will alternate between $+5P RN$ and CRL . Press the UP and DOWN buttons to obtain a display indication equal to full-scale pressure.
- Apply 50% of full-scale pressure. The character display will alternate between $+MID$ and CRL . Press the UP and DOWN buttons to obtain a display indication equal to 50% of full-scale pressure.

6. Bipolar (\pm) and $-30\text{inHg}/15\text{psig}$ Compound Ranges (5 Points)

- With the gauge port open to atmosphere, the character display will alternate between ZER0 and CRL . Press the UP and DOWN buttons to obtain a display indication of zero.
- Apply full-scale positive pressure. The character display will alternate between $+5P RN$ and CRL . Press the UP and DOWN buttons to obtain a display indication equal to full-scale pressure.
- Apply 50% of full-scale positive pressure. The character display will alternate between $+MID$ and CRL . Press the UP and DOWN buttons to obtain a display indication equal to 50% of full-scale pressure.
- Apply full vacuum. The character display will alternate between $-5P RN$ and CRL . Press the UP and DOWN buttons to obtain a display indication equal to the full vacuum reading.
- Apply 50% of the full-scale vacuum range (for example, -7.4 psi for a ± 15 psi gauge). The character display will alternate between $-MID$ and CRL . Press the UP and DOWN buttons to obtain a display indication equal to 50% of full-scale vacuum.

7. $-30\text{inHg}/100\text{psig}$ and $-30\text{inHg}/200\text{psig}$ Compound (4 Points)

- With the gauge port open to atmosphere, the character display will alternate between ZER0 and CRL . Press the UP and DOWN buttons to obtain a display indication of zero.
- Apply full-scale positive pressure. The character display will alternate between $+5P RN$ and CRL . Press the UP and DOWN buttons to obtain a display indication equal to full-scale pressure.
- Apply 50% of full-scale positive pressure. The character display will alternate between $+MID$ and CRL . Press the UP and DOWN buttons to obtain a display indication equal to 50% of full-scale pressure.
- Apply full vacuum. The character display will alternate between $-5P RN$ and CRL . Press the UP and DOWN buttons to obtain a display indication equal to the full vacuum reading.

8. Exit Calibration Mode and Verify Calibration

- Battery-powered gauges:** Exit the calibration mode and save the calibration data by pressing and holding the front button until the display indicates OFF .
- Verify pressure indications at 0%, 25%, 50%, 75%, and 100% of full scale.
- Replace the rear cover and screws, taking care not to pinch the power leads between the case and the rear cover.



OMEGAnet® Online Service www.omega.com	Internet e-mail info@omega.com
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Servicing North America:

USA: One Omega Drive, Box 4047
Stamford CT 06907-0047
Tel: (203) 359-1660 FAX: (203) 359-7700
e-mail: info@omega.com
ISO 9001 Certified

Canada: 976 Bergar
Laval (Quebec) H7L 5A1, Canada
Tel: (514) 856-6928 FAX: (514) 856-6886
e-mail: info@omega.ca

For immediate technical or application assistance:

USA and Canada: Sales Service: 1-800-826-6342 / 1-800-TC-OMEGA®
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Mexico: En Español: (001) 203-359-7803 e-mail:espanol@omega.com
FAX: (001) 203-359-7807 info@omega.com.mx

Servicing Europe:

Benelux: Postbus 8034, 1180 LA Amstelveen, The Netherlands
Tel: +31 (0)20 3472121 FAX: +31 (0)20 6434643
Toll Free in Benelux: 0800 0993344
e-mail: sales@omegae.nl

Czech Republic: Frystatska 184, 733 01 Karviná, Czech Republic
Tel: +420 (0)59 6311899 FAX: +420 (0)59 6311114
Toll Free: 0800-1-66342 e-mail: info@omegashop.cz

France: 11, rue Jacques Cartier, 78280 Guyancourt, France
Tel: +33 (0)1 61 37 2900 FAX: +33 (0)1 30 57 5427
Toll Free in France: 0800 466 342
e-mail: sales@omega.fr

Germany/Austria: Daimlerstrasse 26, D-75392 Deckenpfronn, Germany
Tel: +49 (0)7056 9398-0 FAX: +49 (0)7056 9398-29
Toll Free in Germany: 0800 639 7678
e-mail: info@omega.de

United Kingdom: One Omega Drive, River Bend Technology Centre
ISO 9002 Certified Northbank, Irlam, Manchester
M44 5BD United Kingdom
Tel: +44 (0)161 777 6611 FAX: +44 (0)161 777 6622
Toll Free in United Kingdom: 0800-488-488
e-mail: sales@omega.co.uk

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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 which wear are not warranted, including but 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.

PATENT NOTICE: U. S. Pat. No. 6,074,089; 5,465,838 / Canada 2,228,333; 2,116,055 / UK GB 2,321,712 / Holland 1008153 / Israel 123052 / France 2 762 908 / EPO 0614194. Other patents pending.

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.

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