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| | |
|--------------------|---|
| Hard Power Cycle | Defined by removing all sources of power from the DPG509 and reapplying the power source afterwards (batteries, external M12 connector) |
| Power Button Cycle | Defined by long pressing the Power/ Backlight button twice |

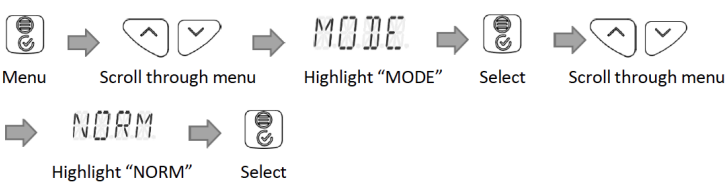
Unless otherwise noted, all key presses in this document refer to short key presses. Within the user menu, if a key press is not detected within 30 seconds, the menu will exit with no changes applied.

Menu Options

| Main | Sub-Menu | Options / Function |
|--|----------|---|
| *Bolded options are only available for advanced menu configured orders | | |
| UNIT | - | 15 selectable pressure units and 5 custom unit slots (custom units only available with advanced menu configuration option) |
| AOUT | OFF | Turns off analog output |
| | 20mA | Outputs a 4 to 20 mA signal |
| | 10V | Outputs a 0 to 10V signal |
| | 5V | Outputs a 0 to 5V signal |
| CAL | ZERO | Zero-scale user adjustment |
| | RSET | Reverts to factory default calibration |
| | FULL | Full-scale user adjustment |
| MODE | NORM | Displays current pressure |
| | TARE | Tares unit using current pressure reading |
| | MAX | Displays maximum pressure recorded |
| | MIN | Displays minimum pressure recorded |
| | OPTN | Toggles the pressure plot display (default is ON) |
| | SET | Menu for setting the time/date |
| | BOOT | Places the device in bootloader mode for system updates |
| | TIME | Select display shutoff timer interval |
| | RATE | Select sampling rate |
| | DATA | Toggles data logging mode (the SD card shipped with data-logging models will need to be initialized with a FAT32 format using a Windows PC) |
| | BKLT | Sets the backlight on time with a keypad press |
| | CUST | Set custom unit calibration constant |
| | PASS | Set and activate unit password |
| | DAMP | Toggles the data filter on the pressure output |

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Mode Selection Example - Normal Mode



Service and Calibration

Your DPG509 pressure gauge has been built, tested and factory calibrated to meet or exceed the specifications listed here in this manual.

If your DPG509 requires service or factory recalibration, please contact our Customer Service Department at one of the following options:

1-203-359-1660 (US & Canada)
1-888-826-6342 (International)
cservice@omega.com

Chat live with an agent at <https://www.omega.com/en-us/>

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 if 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.

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

 - Purchase Order number under which the product was PURCHASED,
 - Model and serial number of the product under warranty, and
 - 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:

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

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QUICK START



DPG509 Series Configurable Digital Pressure Gauge

This guide provides basic DPG509 operational guidance. Refer to the DPG509 User Manual for detailed instructions.

Thank you for purchasing Omega’s DPG509. All units feature a user-friendly interface, four clearly labeled buttons, and a large 4-digit, backlit display. There are four main operation modes: normal displays the most recent pressure reading, tare zeros the unit at applied pressure, minimum and maximum displays the lowest or highest recorded pressure respectively. Section 2.3 contains an overview of all menu options and navigation. Please consult the DPG509 User Manual for more details on the features that come with your DPG509 configuration.



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Engineering Service: 1-800-872-9436 (USA & Canada only)
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The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

Introduction

This guide provides basic DPG509 operational guidance. Refer to the DPG509 User Manual for detailed instructions.

Precautions

- This device has not been designed, tested or approved for use in any medical or nuclear applications.
- Never operate this device in flammable or explosive environments.
- Never operate with a power source other than the one recommended in this manual.
- Never operate this device outside of the recommended use outlined in this manual.
- The back cover may be removed to access the SD card, battery compartment, and USB port. Otherwise, there are no user serviceable parts inside your device. Attempting to repair or service your unit may void your warranty.

Device Setup

Installation

Verify the transducer pressure range exceeds the expected fluid pressure to be measured. Transducer damage may occur if fluid pressure exceeds the maximum pressure range marked on the transducer. Follow the steps below to complete the physical installation of the DPG509. If the unit has NPT threads, apply Teflon, PTFE thread sealant tape, otherwise, install an appropriate fluid seal (o-ring, etc).

Step 1: Install the DPG509 into mating threads until finger tight.

Step 2: Use an open-end wrench on the connection hex to continue rotating an additional $\frac{1}{4}$ to $\frac{1}{2}$ turn beyond finger tight. Alternatively, apply a wrench torque of 16 in-lbs to the connection hex.

Caution: During installation, do not rotate the gauge housing to tighten the connection. Always use a wrench on the hex that is between the threads and housing.

Note: For differential transducers, the two (2) pressure ports are labeled either High or Low. Connect the ports to the appropriate high- or low-pressure fluid side and align to the corresponding high/low port.

Step 3: Test the connection for leaks.

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Step 4: Once the connection is complete, the housing may be rotated $\pm 150^\circ$ to allow for different LCD viewing orientations. Internal “stops” will limit the enclosure housing rotation.



Caution: When changing the viewing orientation, do not apply excessive torque to the enclosure housing once the internal stop is reached.

Step 5: External Power Supply Input (if equipped): Connect a regulated/filtered DC power supply (12-28V DC) between Pin 2 (positive) and pin 5 (negative)

Analog output (if equipped):

4-20mA: connect current loop between M12 pins 1 (positive) and 6 (negative).

Maximum Loop Ω : (V Supply-4) x 50

+/- 5 or 10 V DC: Measure output voltage between pins 1 (positive) and 6 (negative)

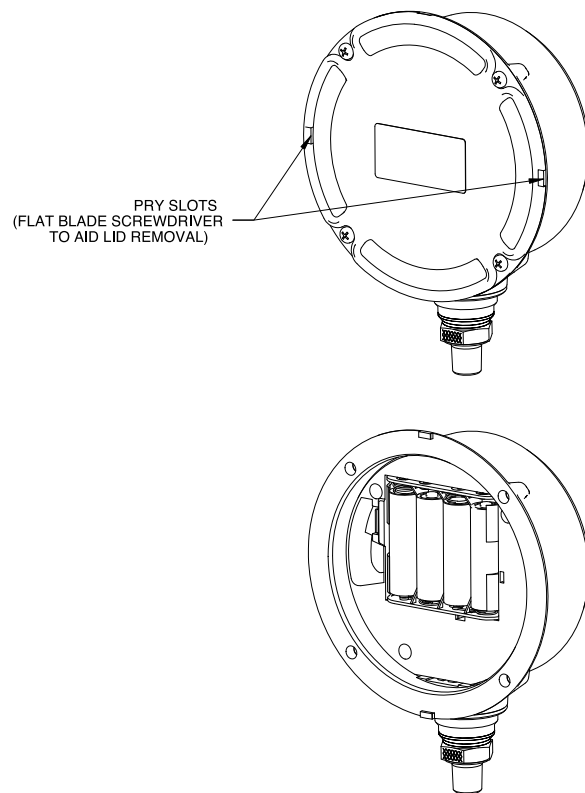
Analog output must be enabled through DPG509 device menu.

Battery Installation and Replacement

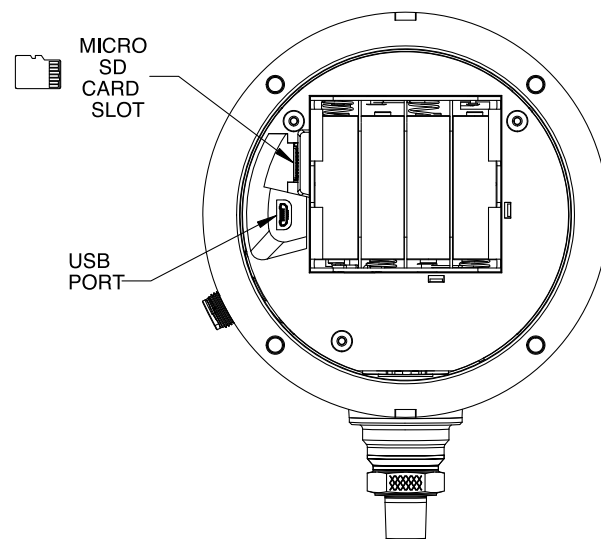
The DPG509 is shipped with 4 AA batteries outside of the unit. To install or replace batteries, first remove the four screws. Then remove the lid using a flathead screwdriver and the two pry slots as needed. Screws are captive and will be retained in the lid.



Caution: Do not apply force to the keypad area on the front of the device when replacing the lid. Force should only be applied on the outer perimeter of the front panel (areas that do not contain keypad buttons or the screen).



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Battery life will vary based on the quality of batteries installed and the combination of selected settings. Below are general guidelines to maximize battery life:

- Keep the backlight off or rarely use
- Select a low sampling rate
- Avoid prolonged exposure to extreme temperatures

Note

Note: User Settings (except for password protection settings and user calibration settings) will be lost in the event of a hard power cycle (such as replacing the batteries). User settings can be retained by first connecting the USB port to a 5V power source such as a computer or cell phone charger, or connecting power to the M12 connector (if equipped).

Battery operating and storage temperatures can vary by manufacturer. The temperature rating of the replacement batteries you choose may limit the temperature to a narrower range than specified for the DPG509. Please consult the battery manufacturer for temperature limitations.

M12 Connector Pinout

M12 connector pinout is shown in the following figure. Note the following:

V Supply: 12 to 28 V DC (24 V DC Nominal)

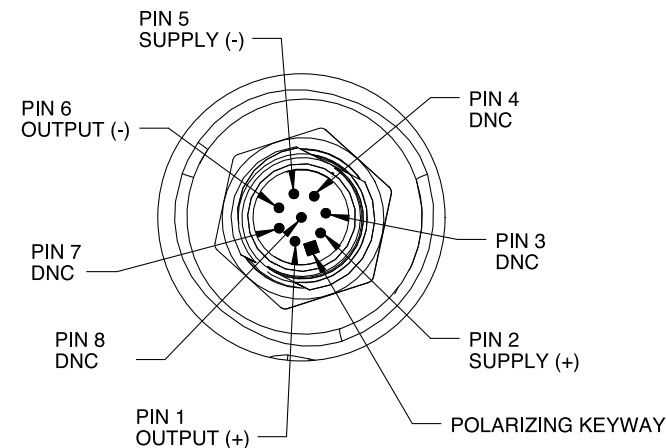
Pin 5 and Pin 6 are connected internally together.

DNC = Do Not Connect



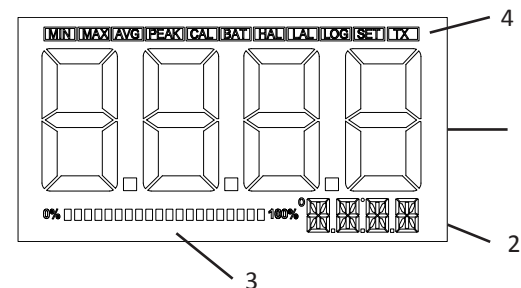
Caution: The use of analog signals requires an external power supply to be connected to Pin 2 and Pin 5 as shown in the pin layout.

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Menu and Configuration

Display Features



1. Primary Display / Process Reading
2. Secondary Display / Pressure Units
3. Pressure Plot Bar Graph
4. Status Icons

Button Functionality



| | | |
|-------------|-----------------|--|
| | Power/Backlight | Powers the device on (long press); power on/off the device backlight display (short press) |
| | Max/Scroll Up | Displays maximum reading; Scroll up in the menu navigation |
| | Menu/Enter | Enter; Access the menu; Exit the menu (long press) |
| | Min/Scroll Down | Displays minimum reading; Scroll down in the menu navigation |
| Long Press | | Defined by pressing and holding any button down for longer than 1.5 seconds |
| Short Press | | Defined by pressing any button down for less than 1.5 seconds |