### Cengkap® Battery Powered Digital Pressure Gauges

#### DPG1000B, F4B

<table>
<thead>
<tr>
<th>PSI</th>
<th>Res inHg/PSI</th>
<th>mmH2O</th>
<th>bar</th>
<th>g/cm²</th>
<th>atm</th>
</tr>
</thead>
<tbody>
<tr>
<td>3PSIG</td>
<td>0.1 - 30V3PSIG</td>
<td>.1</td>
<td>200MMH20G</td>
<td>1</td>
<td>0.25</td>
</tr>
<tr>
<td>5PSIG</td>
<td>0.1 - 5V5PSIG</td>
<td>.1</td>
<td>350MMH20G</td>
<td>1</td>
<td>0.50</td>
</tr>
<tr>
<td>15PSIC</td>
<td>0.1 - 30V3PSIC</td>
<td>.1</td>
<td>200MMH20G</td>
<td>1</td>
<td>1.50</td>
</tr>
<tr>
<td>15PSWAC</td>
<td>.1</td>
<td>85N2H2G</td>
<td>1</td>
<td>350MMH20G</td>
<td>1</td>
</tr>
<tr>
<td>15PSI</td>
<td>0.1 - 140N2H2G</td>
<td>.1</td>
<td>1000MMH20A</td>
<td>1</td>
<td>4.50</td>
</tr>
<tr>
<td>30PSIC</td>
<td>.1</td>
<td>400N2H2A</td>
<td>1</td>
<td>1000MMH20AC</td>
<td>1</td>
</tr>
<tr>
<td>30PSIC</td>
<td>.1</td>
<td>400N2H2AC</td>
<td>1</td>
<td>1000MMH20AC</td>
<td>1</td>
</tr>
<tr>
<td>60PSIC</td>
<td>.1</td>
<td>±400N2H2AC</td>
<td>1</td>
<td>1000MMH20AC</td>
<td>1</td>
</tr>
<tr>
<td>100PSIC</td>
<td>.1</td>
<td>400N2H2G</td>
<td>1</td>
<td>2000MMH20G</td>
<td>1</td>
</tr>
<tr>
<td>115V2PSIC</td>
<td>.1</td>
<td>±85N2H2G</td>
<td>1</td>
<td>3000MMH20G</td>
<td>1</td>
</tr>
<tr>
<td>100PSI</td>
<td>.1</td>
<td>85N2H2G</td>
<td>1</td>
<td>2000MMH20G</td>
<td>1</td>
</tr>
<tr>
<td>115V2PSIC</td>
<td>.1</td>
<td>±85N2H2G</td>
<td>1</td>
<td>3000MMH20G</td>
<td>1</td>
</tr>
</tbody>
</table>

### Accuracy
- Includes linearity, hysteresis, repeatability
- Standard: ±0.25% of full scale ±1 least significant digit
- Max: ±0.01% FS ±1 LSD, see table at left for availability

### Display
- 3 readings per second; 2 display update rates
- Ranges to 2000: 3.5 digit (1999) LCD, 0.5" H digits
- Ranges >2000: 4 digit LCD, 0.5" H digits, 5 character 0.25" H alphanumeric lower display

### Batteries, Low Battery Indication, Battery Life
- Two AA alkaline included
- Low indication on display (life is approximate)
- B ranges to 2000: 2500 hours
- B ranges >2000: 1500 to 1800 hours

### Controls
- B ranges to 2000: Front button turns gauge on/off, starts auto shutoff timer
- B ranges to 2000: Front button turns gauge on/off, starts auto shutoff timer, backlights on when gauge is on.
- B ranges >2000: Front button turns gauge on/off, starts auto shutoff timer, zeros display (gauge ref. only)

### Auto Shutoff
- Factory set to 5, 10, 30 minutes, or off
- Ranges >2000 can be factory set to custom minutes or hours

### Calibration
- Ranges to 2000: Front calibration potentiometers, non-interactive zero and span, ±10% range
- Ranges >2000: Internal calibration buttons, non-interactive zero, span, and linearity, ±10% of range

### Housing Material
- DPG1000B: Extruded aluminum case, epoxy powder coated, ABS/Housing Material
- DPG1000BBL: 4 Digit Ranges, DPG1000B Backlit display

### How to Specify

<table>
<thead>
<tr>
<th>Type</th>
<th>DPG1000B</th>
<th>DPG1000BBL</th>
</tr>
</thead>
<tbody>
<tr>
<td>F4B</td>
<td>range - shutoff time - options</td>
<td>Standard housing, backlit display</td>
</tr>
<tr>
<td>F4BBL</td>
<td>range - shutoff time - options</td>
<td>NEMA 4X housing, backlit display</td>
</tr>
</tbody>
</table>

### Ranges
- See table at left
- psi = PSI
- inHg = INHG
- mmHg = MMHG
- bar = BAR
- atm = ATM
- kg/cm² = KGCM
- psig = PSIG
- kPa = KPA
- g/cm² = GCM
- °F = °F
- °C = °C

### Custom Shutoff Times
- 5 - 30 minutes
- Custom shutoff times available for 4 digit models

### Accessories
- Order separately
- RB: Protective rubber boot
- CD: Calibration data, 5 test points and date
- NC: Made in USA
Press the button on the front of the gauge to activate the display.

1. Remove the 6 Phillips screws on the back of the gauge.
2. Replace both batteries with new ones at the same time. Do not mix different batteries or fresh batteries with old. Replace battery leads between the case and the rear cover.
3. Discard old batteries properly. See battery manufacturer’s instructions.
4. Read these instructions before using the gauge. Contact the factory for assistance. 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 external sensor damage! NEVER insert objects into the 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.

Battery Replacement

A low battery indication (either LOBAT or a symbol depending on the model) will be shown in the upper left corner of the display when the battery voltage falls sufficiently. The battery should be replaced soon after the indicator comes to prevent unreliable readings. WARNING: Batteries must be changed in a non-hazardous location only. Do not mix different batteries or fresh batteries with old. Replace both batteries with new ones at the same time.

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 the 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.

Operation, 4 Digit Models

Press and hold the front button for approximately 1 second. The full-scale range is indicated, the display is tested, and the reading and units are displayed. The gauge may be zeroed at power-up by following the procedure below. Absolute reference gauges do not use the zero feature since they normally read atmospheric pressure. Make sure the gauge port is exposed to normal atmospheric pressure with no pressure applied. The zero function is only used at power-up and the stored zero correction is erased when the gauge is switched off. Press and hold the front button. The full-scale range is indicated and the display is tested. Continue to press the button until 000 is displayed and then release the button. The gauge is now zeroed and ready for use with 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 ERR and the actual measured pressure. The gauge must be powered down to reset the error condition. Following the start-up initialization, the display indicates the pressure reading updated approximately 3 times per second. The auto shutoff timer starts when the pressure is powered up or whenever the button is pushed, unless the gauge was ordered without an auto shutoff time (ON option). If excessive vacuum is applied to a pressure-only gauge, the display will indicate –ERR until the vacuum is released. Applying voltage 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 –1 – – – or I –.–.–.– will be displayed depending on model. Display backlighting for BL models can be turned on by momentarily pressing the button whenever the gauge is on. The backlight 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. To shut off the gauge at any time, press and hold the button 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 button can be pressed to keep the gauge on. The auto shutoff and backlight (if equipped) timers are reset whenever the button is pressed and released. If the gauge was ordered without auto shutoff (-ON 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.

Calibration Preparation, All Models

All gauges are factory calibrated using NIST traceable calibration equipment. Calibration is not required before using the gauge. Calibration intervals vary depending on your quality standards, but annual recalibration is customary. Calibration equipment is not required to zero gauge reference ranges. Absolute reference ranges may be zeroed with application of full vacuum. Span calibration should only be performed using appropriate calibration procedures with calibration standards that are at least four times more accurate than the gauge being calibrated. The calibration system must be able to generate and measure pressure/vacuum over the full range of the gauge. 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. Install fresh batteries before calibrating battery-powered gauges. Allow the gauge to equalize to normal room temperature for approximately 20 minutes before calibration. Calibration, 4 Digit Models

Remove the front covers to access the zero and span calibration potentiometers. F4B models use nylon cover screws. Gauges may be re-zeroed without affecting the span calibration. For gauge reference models the gauge port must be open to the atmosphere. For absolute reference models full vacuum must be applied. Adjust the zero control until the gauge reads zero with the minus (–) sign occasionally flashing. Zero calibration must be done before span calibration. Using the appropriate pressure standards, record readings at three to five points over the range of gauge and adjust span control to minimize error and meet specifications.

Calibration, 3.5 Digit Models

Exit Calibration Mode

Remove the rear cover to gain access to the UP and DOWN buttons located near the lower right and left corners of the circuit board. With the gauge off, press and hold the DOWN calibration button, and also press the front button. The full-scale pressure range and display test is shown, and then CAL is displayed to indicate that the calibration mode is enabled. Release all buttons. The gauge enters and remains in the calibration mode until restarted manually or power is removed. Features not related to calibration are disabled. If the battery pack is unplugged or the power removed during calibration, settings will not be saved. The display will indicate the current pressure reading, updating approximately 3 times per second. Each press of the UP or DOWN button makes a small correction, which may not always be indicated on the display. Press and hold the button for one second or longer to make larger corrections. The gauge’s display is adjusted to match the calibrator’s reading.

Gauge Reference Ranges (3 Points)

With the gauge port open to atmosphere, the character display will alternate between ZERO and CAL. Press the UP and DOWN buttons to obtain a display indication of zero. Apply full-scale pressure (or vacuum for vacuum gauges). The character display will alternate between ±SPAN and CAL. 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 CAL. Use the UP and DOWN buttons to obtain a display indication equal to 50% of full-scale pressure.

Absolute Reference Ranges (3 Points)

Apply full vacuum to the gauge. The character display will alternate between ±ZERO and CAL. Press the UP and DOWN buttons to obtain a display indication of zero. Apply full-scale pressure. The character display will alternate between ±SPAN and CAL. 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 CAL. Press the UP and DOWN buttons to obtain a display indication equal to 50% of full-scale pressure.

Bipolar (±) and Compound Ranges (4 or 5 Points)

With the gauge port open to atmosphere, the character display will alternate between ±ZERO and ±CAL. Press the UP and DOWN buttons to obtain a display indication of zero. Apply full-scale pressure. The character display will alternate between ±SPAN and ±CAL. 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 ±CAL. Press the UP and DOWN buttons to obtain a display indication equal to ±50% of full-scale pressure.

Exit Calibration Mode and Verify Calibration

Exit the calibration mode and save the calibration data by pressing and holding the front button until the display indicates OFF. Verify readings at 0%, 25%, 50%, 75%, and 100% of full scale. Replace the rear cover and screws, taking care not to pinch the battery leads between the case and the rear cover.

Specifications are subject to change without notice. Consult factory for your specific requirements.

Phone: 1-800-942-0315
Fax: 1-800-949-7502
cecomp.com