Falcon NEMA 4X Battery-Powered Digital Pressure Gauges

Electrical Specifications

Ranges and Resolution

<table>
<thead>
<tr>
<th>Ranges and Resolution</th>
<th>Bold:</th>
<th>Absolute reference (atmospheric pressure to zero at full vacuum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30.0 inHg/15.0 psig</td>
<td>±0.25%</td>
<td>120.0 inHg/600 mmHg/35.0 bar/1.000 kg/cm² abs</td>
</tr>
<tr>
<td>30.0 inHg/100.0 psig</td>
<td>±0.25%</td>
<td>199.9 inHg abs/760 mmHg/70.0 bar/1.000 kg/cm² vac</td>
</tr>
<tr>
<td>30.0 inHg/199.9 psig</td>
<td>±0.25%</td>
<td>199.9 inHg abs/760 mmHg/140.0 bar/1.000 kg/cm² vac</td>
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<tr>
<td>3.0 psi</td>
<td>±0.25%</td>
<td>50.0 psi/2100 mmHg/199.9 bar/1.000 kg/cm² abs</td>
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<tr>
<td>5.0 psi</td>
<td>±0.25%</td>
<td>80.0 psi/3500 mmHg/350 bar/1.000 kg/cm² abs</td>
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<tr>
<td>15.0 psi abs</td>
<td>±0.25%</td>
<td>199.9 psi abs/760 mmHg/19.99 kPa/1.000 kg/cm² abs</td>
</tr>
<tr>
<td>15.0 psi vac</td>
<td>±0.25%</td>
<td>199.9 psi vac/760 mmHg/70.0 kPa/1.000 kg/cm² abs</td>
</tr>
<tr>
<td>215.0 psi</td>
<td>±0.25%</td>
<td>2150 psi/10000 mmHg/100.0 psi abs/700 kg/cm² abs</td>
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<tr>
<td>15.0 psi abs</td>
<td>±0.25%</td>
<td>2150 psi abs/10000 mmHg/100.0 psi vac/700 kg/cm² abs</td>
</tr>
<tr>
<td>30.0 psi abs</td>
<td>±0.25%</td>
<td>240 psi/1050 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
</tr>
<tr>
<td>30.0 psi vac</td>
<td>±0.25%</td>
<td>240 psi/1050 mmHg/199.9 mbar/100.0 kPa vac/14.00 kg/cm²</td>
</tr>
<tr>
<td>60.0 psi</td>
<td>±0.25%</td>
<td>400 psi/2100 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
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<tr>
<td>100.0 psi</td>
<td>±0.25%</td>
<td>600 psi/3000 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
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<tr>
<td>150.0 psi</td>
<td>±0.25%</td>
<td>900 psi/4500 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
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<tr>
<td>250.0 psig</td>
<td>±0.25%</td>
<td>1500 psi/7500 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
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<tr>
<td>500.0 psig</td>
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<td>3000 psi/15000 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
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<tr>
<td>1000 psig</td>
<td>±0.25%</td>
<td>5000 psi/25000 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
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<tr>
<td>1999 psig</td>
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<td>3000 psig/15000 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
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<td>3000 psig</td>
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<td>5000 psig/25000 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
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<tr>
<td>5000 psig</td>
<td>±0.25%</td>
<td>10000 psig/50000 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
</tr>
<tr>
<td>60.0 psi</td>
<td>±0.25%</td>
<td>115.0 psi/600 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
</tr>
<tr>
<td>100.0 psi</td>
<td>±0.25%</td>
<td>199.9 psi/900 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
</tr>
<tr>
<td>30.0 psi</td>
<td>±0.25%</td>
<td>300 psi/1500 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
</tr>
<tr>
<td>60.0 psi</td>
<td>±0.25%</td>
<td>600 psi/3000 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
</tr>
<tr>
<td>140.0 psi</td>
<td>±0.25%</td>
<td>210.0 psi/1050 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
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<td>300 psi</td>
<td>±0.25%</td>
<td>420.0 psi/2100 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
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<td>700 psi</td>
<td>±0.25%</td>
<td>900 psi/4500 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
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<td>1400 psi</td>
<td>±0.25%</td>
<td>2800 psi/14000 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
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<td>3000 psi</td>
<td>±0.25%</td>
<td>5600 psi/28000 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
</tr>
<tr>
<td>5000 psi</td>
<td>±0.25%</td>
<td>9000 psi/45000 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
</tr>
<tr>
<td>10000 psi</td>
<td>±0.25%</td>
<td>18000 psi/90000 mmHg/199.9 mbar/100.0 kPa abs/14.00 kg/cm²</td>
</tr>
</tbody>
</table>

Accuracy (linearity, hysteresis, repeatability)

Standard: ±0.25% of full scale ±1 least significant digit
Optional: -HA ±0.1% FS ±1LSD (most ranges)
-4A ±0.4% FS ±1LSD
CD Factory calibration data
NC NIST traceable test report and calibration data

Display (update rate, type, size)

3 readings per second nominal display update rate
Ranges up to 1999: 3 1/2 digit LCD, 1/2” digit height
Ranges up to 1999: 3 readings per second nominal display update rate

Controls and Location

B models, ranges up to 1999: Front pushbutton turns gauge on/off
BBL models, ranges up to 1999: Front pushbutton turns gauge & backlighting on/off
Front calibration potentiometers, non-interactive zero and span, ±10% range

B & BBL models with 3000 psi, 5000 psi ranges, -400 (4-digit display option)
Front button turns gauge on, starts auto shutoff timer, and provides zero function for
gauge reference ranges
Internal calibration pushbuttons, non-interactive zero and span, ±10% range

BBL ranges 3000 psi, 5000 psi, -400 (4-digit display option)
Press button to activate backlighting for one minute while gauge is on

Auto Shutoff (6 minutes standard)
Ranges up to 1999: Factory settable to 5, 10, 30 minutes, or on/off
3000 psi, 5000 psi: Factory settable to any number of minutes or hours
-400 option: Factory settable to any number of minutes or hours

Batteries and Battery Life

Two AA alkaline
B ranges up to 1999: Approx. 2500 hours
B 3000 psi, 5000 psi, -400 option: Approx. 2000 hours
BBL ranges up to 1999: Approx. 180 hours
BBL 3000 psi, 5000 psi, -400 option: Approx. 150 to 1500 hrs depending on
backlight usage

Low Battery Indication
Low battery symbol on display when batteries must be replaced

±0.25% Test Gauge Accuracy
316 Stainless Steel Wetted Parts
Battery Life up to 2500 Hours
Pressure, Vacuum, Absolute or Compound
BBL Includes Backlit Display

Mechanical Specifications

Size
3.5” W x 3.0” H x 2.0” D housing
Add approximately 0.75” to height for pressure fitting

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

Housing
NEMA 4X
UV stabilized polycarbonate/ABS case, light gray color
Clear polycarbonate window to protect display
Gasketed rear cover, six captive stainless steel screws

Pressure/Vacuum Connection and Material
1/8” NPT male, 316 stainless steel

Media Compatibility
All wetted parts are 316 SS
Compatible with most liquids and gases

Overpressure
3000 psig range and metric equivalents: 5000 psig
5000 psig range and metric equivalents: 7500 psig
3000 psi, 5000 psi, -400 option: 112.5% out-of-range display
I – – – or I – – – –
All others 2x rated pressure minimum

Burst Pressure
4x rated pressure minimum or 10,000 psi, whichever is less

Environmental Specifications

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)

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**Installation and Precautions**

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. Use fittings appropriate for the pressure range of the gauge. 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.

**Operation** – **Ranges up to 1999**

Press the round button on the front of the gauge to activate the display. The gauge will stay on for a period of time determined by the auto-shutoff time. The gauge can be shut off at any time by pressing the button again. Display backlighting on DPG1000BBL models is on whenever the gauge is on. If the gauge was ordered without auto shutoff it will stay on until the button is pressed or until the batteries are depleted. The display backlighting will not be apparent under bright lighting conditions. Turn gauge off when not in use to conserve battery.

**Operation** – **3000 psi, 5000 psi Ranges and -400 Option**

Press and hold the pushbutton for approximately 1 second. The full-scale range is indicated, display segments are tested, and then the reading is displayed.

**Power-Up With One-Touch Zero** (Gauge reference models only)

1. Make absolutely certain no pressure is applied to the gauge. The gauge port should be exposed to normal atmospheric pressure. Note that the zeroing function may only be activated at 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 a zero display is displayed and then release the button. This indicates that the gauge has been zeroed.

5. The actual pressure is displayed.

**Display settings are tested, and then the reading is displayed.**

**Display Backlighting (BBL models only)**

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 0 F F (about 5 seconds) and then release.

For gauges with auto shutoff, the display indicates 0 F F 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 (-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**

All Falcon gauges are factory calibrated on NIST traceable calibration equipment. No calibration is required before placing the gauge into service. Calibration equipment should be recalibrated by any metrology lab with pressure calibration equipment at least four times more accurate than the gauge.

**Ranges up to 1999**

Remove the calibration potentiometer covers on the front of the unit to access the zero and span controls. Calibration reference units may be re-zeroed without affecting the span calibration. The gauge port must be open to the ambient with no pressure or vacuum applied. Adjust the Zero control until the gauge reads zero with the minus (–) sign occasionally flashing.

**Calibration (continued)**

Span calibration should only be attempted if the user has access to a pressure reference of known accuracy. The quality of the calibration is only as good as the accuracy of the calibration equipment and ideally should be at least four times the gauge accuracy. Zero calibration must be done before span calibration. Record readings at three to five points over the range of gauge and adjust span control to minimize error and meet specifications.

**3000 psi, 5000 psi Ranges and -400 Option**

The calibration adjustments are internal on these models. The procedure is available from www.cecomp.com or by calling to request the “F16” calibration instructions.

**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.

Remove the 6 Phillips head screws on the back of the unit. Carefully remove batteries from the holders by lifting up the positive end of the battery (opposite the spring). Take care not to bend or distort the battery retention springs.

DO NOT discard the old battery into fire, any other sources of extreme heat, or in any other hazardous manner. Please consult local authorities if there is any question about proper disposal.

Always replace both batteries at the same time with high quality alkaline batteries.

Observe the polarity of the batteries when replacing them. The negative (flat) end of each battery should be inserted first, and should face the spring in the battery holder. Replace the back cover, including the rubber sealing gasket.

**Dimensions**

**Notes:**

- 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.

**Part Numbers**

- DPG1000B range units reference - shutoff
- B or BBL
- Range (see table)
- Units (see table)
- Reference (see table)

**Auto shutoff time**

-5 = 5 minutes
-10 = 10 minutes
-30 = 30 minutes
-ON = on/off, no auto shutoff

**Example:** DPG1000B100PSIG-S = Battery powered, 100.0 psi, 5 minute shutoff

**Unit Abbreviations**

- **psig** = **PSIG**
- **inhg** = **INHG**
- **oz/in^2** = **ZIN**
- **inh2o** = **INH2O**
- **lb/in^2** = **LBH2O**
- **mmHg** = **Mmhg**
- **torr** = **Torr**
- **mmH2O** = **Mmh2o**
- **kg/cm^2** = **Kgcm**
- **bar** = **Bar**
- **cmH2O** = **Cmh2o**
- **mpa** = **Mpa**

**Example:**

- **DPPG1000B100PSIG-S**: Battery powered, 100.0 psig, 5 minute shutoff

**www.cecomp.com**

**Cecomp® maintains a constant effort to upgrade and improve its products. Specifications are subject to change without notice. Consult factory for your specific requirements.