## Electrical Specifications

### Ranges and Resolution

<table>
<thead>
<tr>
<th>Ranges and Resolution</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bold:</strong> Standard ranges, price adder for all others</td>
<td>Absolute reference (atmospheric pressure to zero at full vacuum)</td>
</tr>
<tr>
<td><strong>abs:</strong></td>
<td>Vacuum gauge, minus sign not used unless specified</td>
</tr>
<tr>
<td><strong>vac:</strong></td>
<td>Resolution is fixed as indicated in table below</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact factory for other engineering units</th>
<th>120.0 inHg 1600 mmHg 35.0 bar 1.000 kg/cm² abs</th>
</tr>
</thead>
<tbody>
<tr>
<td>199.9 inHg abs</td>
<td>1600 torr abs 70.0 bar 1.000 kg/cm² vac</td>
</tr>
<tr>
<td>199.9 inHg</td>
<td>1600 torr abs 140.0 bar ±1.000 kg/cm²</td>
</tr>
<tr>
<td>3.00 psig</td>
<td>50.0 oz/in² 2100 mmHgO 199.9 bar 1.000 kg/cm²</td>
</tr>
<tr>
<td>5.00 psig</td>
<td>80.0 oz/in² 3500 mmHgO 350 bar 1.999 kg/cm² abs</td>
</tr>
<tr>
<td>15.00 psig abs</td>
<td>240 oz/in² 199.9 mmHgO 19.99 kPa 1.999 kg/cm²</td>
</tr>
<tr>
<td>15.00 psig vac</td>
<td>240 oz/in² vac 350 bar 199.9 mmHgO 19.99 kPa</td>
</tr>
<tr>
<td>215.0 psig</td>
<td>240 oz/in² 1000 mmHgO 100.0 kPa abs 1.999 kg/cm²</td>
</tr>
<tr>
<td>15.0 psig</td>
<td>240 oz/in² 1000 mmHgO 100.0 kPa abs 1.999 kg/cm²</td>
</tr>
<tr>
<td>30.0 psig abs</td>
<td>85.0 inHgO 199.9 mbar ±1.000 kPa 14.00 kg/cm²</td>
</tr>
<tr>
<td>30.0 psig</td>
<td>140.0 inHgO 350 bar 199.9 mbar 19.99 kg/cm²</td>
</tr>
<tr>
<td>60.0 psig</td>
<td>400 inHgO abs 1000 mbar abs 199.9 kPa abs 35.0 kg/cm²</td>
</tr>
<tr>
<td>100.0 psig abs</td>
<td>400 inHgO vac 1000 mbar vac 199.9 kPa vac 35.0 kg/cm²</td>
</tr>
<tr>
<td>100.0 psig</td>
<td>±400 inHgO ±1000 mbar ±199.9 kPa ±1000 kPa</td>
</tr>
<tr>
<td>150.0 psig</td>
<td>400 inHgO 1000 mbar 700 kPa abs 199.9 kPa abs</td>
</tr>
<tr>
<td>300.0 psig</td>
<td>850 inHgO 1999 mbar abs 700 kPa 350 kg/cm²</td>
</tr>
<tr>
<td>500 psig</td>
<td>7.00 THO 1999 mbar 1500 kPa 1.000 atm abs</td>
</tr>
<tr>
<td>1000 psig</td>
<td>12.00 THO 4000 mbar 1999 kPa 1.000 atm</td>
</tr>
<tr>
<td>1999 psig</td>
<td>35.0 THO 1000 bar abs 3500 kPa 1.000 atm</td>
</tr>
<tr>
<td>3000 psig</td>
<td>70.0 THO 1000 bar vac 5000 kPa 4.00 atm</td>
</tr>
<tr>
<td>5000 psig</td>
<td>140.0 THO 31.000 bar 3.50 MPa 7.00 atm</td>
</tr>
<tr>
<td>8.0 inHg</td>
<td>220 THO 1500 mbar 7.00 MPa 14.00 atm</td>
</tr>
<tr>
<td>10.00 inHg</td>
<td>485 THO 1.999 bar 14.00 MPa 19.99 atm</td>
</tr>
<tr>
<td>30.0 inHg abs</td>
<td>150.0 mmHgO 1.999 bar 19.99 kPa 35.0 atm</td>
</tr>
<tr>
<td>30.0 inHg vac</td>
<td>260 mmHgO 4.00 bar 35.0 kPa 70.0 atm</td>
</tr>
<tr>
<td>±30.0 inHg</td>
<td>760 mmHg abs 7.00 bar abs 1000 g/cm² abs 135.0 atm</td>
</tr>
<tr>
<td>30.0 inHg</td>
<td>760 mmHg vac 7.00 bar vac 1000 g/cm² vac 135.0 atm</td>
</tr>
<tr>
<td>60.0 inHg abs</td>
<td>760 mmHg abs 14.00 bar 2100 g/cm² abs 340 atm</td>
</tr>
<tr>
<td>60.0 inHg</td>
<td>1600 mmHg abs 19.99 bar 2100 g/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 ½ digit LCD, ½” digit height
- 3000 and 5000 psi ranges: 4 digit LCD, 0.4” digit height

### Controls

- Non-interactive zero and span, ±10% range
- Test calibration level: 0-100% range
- Setpoint 1 and Setpoint 2: 0-100% range

### Alarm Deadband (hysteresis)

- 1% of full scale

### Alarm Outputs

- Dual form C (SPDT) relay contacts: 1A/24VDC, 0.5A/115VAC, non-inductive
- Hi (SP1), LO (SP2) alarms normal action (failsafe) configuration standard

### 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
- 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)

## Mechanical Specifications

- **Size**: 3.38” W x 2.88” H x 1.66” D housing
- **Add approximately 0.75” to height for pressure fitting**
- **Add approximately 1” to depth for strain relief and wire clearance**
- **Weight (approximate)**
  - Gauge: 9 ounces
  - Shipping weight: 1 pound
- **Material**
  - Extruded aluminum case, epoxy powder coated
  - Polycarbonate cover. Front and rear gaskets
- **Color**
  - Light gray body, light gray/blue front
- **Pressure/Vacuum Connection and Material**
  - ¼” NPT male, 316 stainless steel
- **Media Compatibility**
  - All wetted parts are 316 SS
  - Compatible with most liquids and gases
- **DPM pressure minimum**
  - 4x rated pressure minimum or 10,000 psi, whichever is less
**Falcon Digital Pressure Gauges with Dual Alarms**

This deadband serves to eliminate output oscillation or "chatter" in the process due to minor fluctuations in pressure. If, for example, the system pressure in a 0-100 psi system is 40.0 psi, and Setpoint 1 is set to 50.0 psi (Hi alarm), the alarm indication will trip if the pressure exceeds 50.0 psi. After the Hi alarm has tripped, pressing the SP1 button will show that the alarm indication will "release" at 1 psi lower (approximately 49 psi).

**Contact Rating and Protection** - The contacts of the alarm relays are rated at 1A/24VDC or 0.5A/115VAC. Using mechanical relay contacts above their rating, or with large inductive loads, will shorten their useful life. In circuits other than low-level switching or pilot duty, the user should consider whether external contact protection such as snubber networks or arc suppression networks are required to protect the contacts.

No internal fusing is included in the alarm contact circuits. The circuit external to the gauge alarm outputs should be fused by the user in applications where good design practice dictates.

**Alarm Setpoints**

Lift calibration label on the top of the unit to access individual controls to adjust Setpoint 1 and Setpoint 2. See gauge label for locations.

To adjust alarm Setpoint 1, press and hold the SP1 button. When holding the SP1 button, the display will show the current setting for Setpoint 1. Turn the top-accessible Setpoint 1 control. Repeat the procedure by pressing the SP2 button to adjust Setpoint 2.

**Calibration**

Lift calibration label on the top of the unit to access individual controls to adjust the zero and span of the display.

Gauge 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.

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.

**Absolute** reference gauges require vacuum generation and atmospheric pressure measurement equipment for accurate calibration and thus are more difficult to calibrate in the field. Gauges may be returned to Cecomp Electronics for factory certified recalibration.

**NIST Traceability** is available.

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**Description**

The DPG1000ADA circuitry includes dual mechanical relay alarm outputs with fully adjustable setpoints in a standard Hi/Lo alarm configuration. The DPG1000ADA alarms are easy to set up and use. Bi-color LEDs on the front panel (green = normal, red = alarm) provide a visual indication of alarm status. Setpoint 1 and Setpoint 2 buttons allow viewing the setpoints on the gauge display without disrupting normal operation. To test system installation and operation, a front-panel TEST button, when pressed, toggles the alarm output status independent of system pressure.

**Installation and Precautions**

Install or remove gauge using wrench on hex fitting only. Do not turn using 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.

**Electrical Connection**

NEVER connect the gauge power wires directly to 115 VAC or permanent damage not covered by warranty will result.

The DPG1000ADA can be powered by:

- **AC source**: 8 to 24 VAC 50/60 Hz
- **DC source**: 9 to 32 VDC

Connection to the DPG1000ADA is made with the two cables at the gauge rear. The smaller two-conductor cable with one RED and one BLACK lead is for the gauge power supply. However, since the DPG1000ADA will operate on either AC or DC power, there is no need to observe polarity; simply connect an AC supply of 8 to 24 VAC, 50/60 Hz, or a DC supply of 9 to 32 VDC to the two wires to activate the gauge. Never allow the gauge supply voltage fall below 8 VAC RMS if AC power is used, or 9 VDC if DC power is used. Operation with less than these values may cause erratic or erroneous readings or alarm operation.

The larger 6-conductor cable is for the alarm relay contact outputs. This cable’s color code is as follows:

<table>
<thead>
<tr>
<th>SETPOINT 1</th>
<th>SETPOINT 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normally Closed (NC)</td>
<td>Normally Closed (NC)</td>
</tr>
<tr>
<td>Common (C)</td>
<td>Common (C)</td>
</tr>
<tr>
<td>Normally Open (NO)</td>
<td>Normally Open (NO)</td>
</tr>
</tbody>
</table>

**Operation**

The gauge is powered on whenever a supply voltage is applied. In normal operation, the system pressure is displayed on the gauge LCD. In addition, the DPG1000ADA circuitry compares the system pressure to two independent setpoint levels; Setpoint 1 and Setpoint 2. These setpoints are adjustable via top-accessible controls and may be viewed by pressing either the SP1 or SP2 buttons. Pressing SP1 or SP2 will switch the display to show, and allowing adjusting of, the corresponding setpoint only, normal operation of the alarm outputs is not otherwise affected.

Alarm status is easily seen on the two alarm indicator LEDs in the corner of the SP1 and SP2 buttons. A GREEN indication is a “clear” or non-alarm condition. RED is an abnormal or alarm condition. If a particular setpoint is configured as a HI alarm, the alarm relay will be energized so that continuity can be expected between the common and normally open designations of standard relay terminology, i.e., the relay contact status with the relay coil not energized.

Therefore, with the Normal (FailSafe) configuration, in a green or non-alarm condition the relay will be energized so that continuity can be expected between the common and normally open leads. In a red or alarm condition, the relay will be open (not energized), so that continuity can be expected between the common and normally closed leads.

Users who do not want an alarm indication when the gauge power is off should specify Reverse action (alarm options 1R, 2R, or 3R). In this case, the relay will be open (not energized) in the non-alarm condition and closed for the alarm condition. In this case, continui- ty can be expected from common to normally closed in the green (non-alarm) condition and from common to normally open in the red (alarm) condition.

**Understanding Deadband** - The alarm circuit setpoints have built-in deadbands, also known as hysteresis, of 1% of span as standard. This means, for example, the deadband is approximately 1 psi in a 0 to 100 psi gauge.

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

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**MODEL DESIGNATION SYSTEM**

DPG1000ADA range units ref - alarm

**Pressure/Vacuum Range**

Units

- **G** = Gauge
- **A** = Absolute
- **VAC** = Vacuum

**Alarm Options**

1N = Hi/Lo Normal action (Std) 1R = Hi/Lo Reverse action
2N = Hi/Hi Normal action 2R = Hi/Hi Reverse action
3N = Lo/Lo Normal action 3R = Lo/Lo Reverse action

**Example:** DPG1000ADA500PSIG-1N = DPG1000ADA 500 psig, HI/LO normal action alarms