

# Falcon DPG1000L Digital Pressure Gauge

## 2-Wire Loop Powered Indicating Transmitter

- **±0.25% Test Gauge Accuracy**
- **316 Stainless Steel Wetted Parts**
- **True Analog Output**
- **Output Test Function**
- **Rugged Extruded Aluminum Case**

### ELECTRICAL SPECIFICATIONS

#### Standard ranges and resolution

30.0 inHg vacuum,  
±15.00 psig  
3.00, 5.00, 10.00, 15.00, 19.99 psig,  
30.0, 50.0, 100.0, 199.9 psig,  
300, 500, 1000, 3000, 5000 psig  
Absolute reference: 15.00, 30.0, 100.0 psia

#### Optional units

Convert standard psi ranges for other engineering units such as kPa, atm, bar, mbar, inHg, mmHg, inH<sub>2</sub>O, ftH<sub>2</sub>O, torr, kg/cm<sup>2</sup>, cmH<sub>2</sub>O, oz/in<sup>2</sup>

#### Display (type, size, update rate)

3½ digit LCD, ½" digit height for ranges up to 1999  
4 digit LCD, 0.4" digit height for ranges 2000 and higher  
3 readings per second nominal display update rate

#### Controls & location

Display zero/span; non-interactive, ±15% range  
Test calibration level; 0-100% range  
Top-accessible multiturn potentiometers  
Loop 4 mA and 20 mA; internal potentiometers

#### Accuracy (linearity, hysteresis, repeatability)

±0.25% of full scale or better, ±1 least significant digit

#### Temperature stability

±0.003% of span per degree C (typical)  
±0.01% of span per degree C (max) 0 to 70°C

#### Loop supply voltage

Any DC supply/loop resistance that maintains 8 to 32 VDC at gauge terminals. Gauge is reverse polarity protected.

#### Output characteristics

True analog output, 50 millisecond typical response time

#### Low loop warning

When gauge terminal voltage falls below approximately 7.8 VDC:  
Ranges up to 1999 (3½ digit display), colon appears  
Ranges 2000 and higher (4 digit display), all decimal points flash

#### Test function

Front panel TEST button, when depressed sets loop current and display to "test calibration" level, independent of pressure input, to allow testing of system operation.  
"Test Cal" level is set by top-accessible multiturn potentiometer to any value from 0 to 100% of FSO.

### ENVIRONMENTAL SPECIFICATIONS

**Storage temperature** . . . . . -55 to +95°C  
**Operating temperature** . . . . . -20 to +85°C  
**Compensated temperature** . . . . . 0 to +70°C



DPG1000L with  
199.9 psig range

### MECHANICAL SPECIFICATIONS

#### Size

3.38"W x 2.88"H x 1.65"D (not including pressure fitting or cable strain relief). Add approximately 0.75" to height for pressure fitting and 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

#### Electrical connection

3 foot long, 2-conductor 22AWG cable

#### Overpressure

5000 psig for 3000 psig range, 7500 psig for 5000 psig range  
All others; 2x rated pressure minimum

#### Burst pressure

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



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## Description

All operating power for the **DPG1000L** gauge is supplied by the 4-20 mA current loop. The 2-wire connection allows the **DPG1000L** to be used as a digital indicating transmitter in any 4-20 mA current loop application. The output is a continuous analog signal based on the transducer output rather than the display. The output is filtered to improve noise immunity and has a response time of about 50 msec.

The TEST pushbutton, when depressed, switches the display and output loop to a preset level determined by the setting of a Test potentiometer.

## Installation

When installing gauge, tighten using wrench on hex fitting only. Do not attempt to tighten by turning housing or any other part of the gauge.

## Electrical Connection

Connection to the **DPG1000L** is made with the 2-wire cable at the gauge rear. Connect the loop (+) supply to the RED lead and the loop (-) supply to the BLACK lead. Reversing the connections will not harm the gauge but the **DPG1000L** will not operate with wrong polarity.

## Loop Voltage

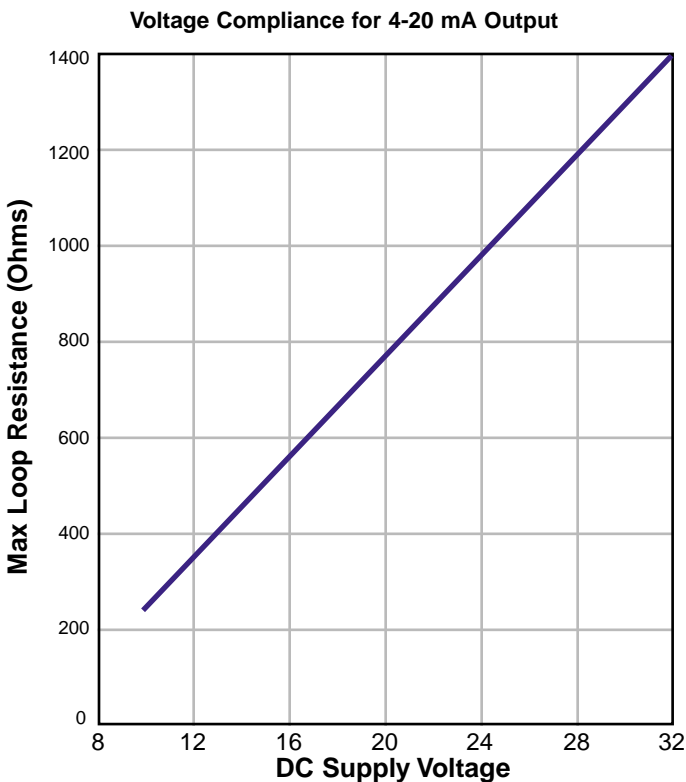
Select a loop power supply voltage and total loop resistance so that when the loop current is 20 mA, the gauge will have at least 8 VDC at its terminals. For correct operation and to avoid erratic or erroneous readings, the gauge terminal voltage must not fall below 8 VDC. Too large a loop resistance will cause the gauge output to "limit" or saturate before reaching its full 20 mA output.

The **minimum** loop supply voltage may be calculated from the formula:  $V_{min} = 8V + (20mA \times \text{Total loop resistance})$

If the terminal voltage of the gauge falls below about 8 VDC, models with ranges up to 1999 will display a colon, ":" in the center of the LCD. For models with ranges 2000 and higher, all decimal points will flash. This is an indication that the loop supply/resistance may not allow adequate headroom for reliable operation. The low-loop warning indicator should never appear in normal use. If it does, the loop supply/resistance should be examined.

## Operation

The **DPG1000L** is designed for continuous operation. Warm-up time is negligible. The display will show the system pressure or vacuum, and the loop current also will be proportional to the system pressure/vacuum; 4 mA = Zero or low end, 20 mA = Span, full-scale or high end.



## TEST Button

When the front-panel TEST button is held depressed, the display and loop current are switched, independent of the system pressure, to a test level determined by the setting of the top-accessible Test potentiometer. This test mode will allow setup and testing of the current loop by switching to this test level whenever desired without having to alter the system pressure.

To set the test output level, press and hold the front-panel TEST button and adjust the Test potentiometer on the top of the gauge to set the display and loop current to the desired test level.

## Calibration

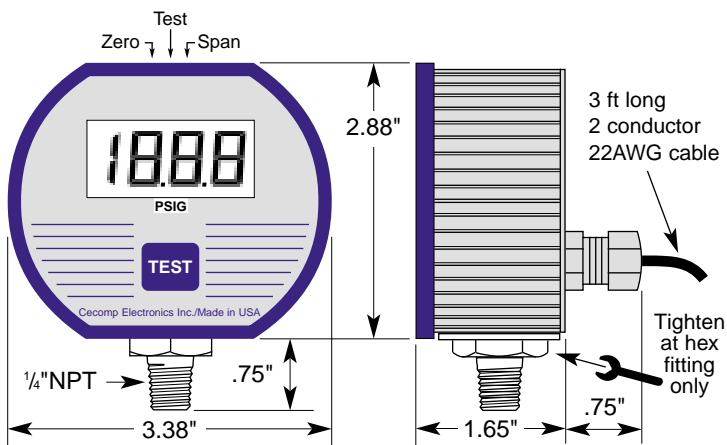
Lift calibration label on the top of the unit to access individual controls to adjust the zero and span of the display.

**GUAGE** 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. Apply full-scale pressure (or vacuum) to the gauge port and adjust the Span control for the correct reading.

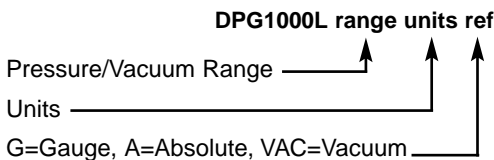
**ABSOLUTE** reference gauges require vacuum generation and atmospheric pressure measurement equipment for accurate calibration and thus are more difficult to calibrate in the field. Gauges may be returned to Ccomp Electronics for factory certified recalibration. N.I.S.T. traceability is available.

The **DPG1000L** has internal controls to adjust the agreement between the displayed value and the 4-20 mA loop current. These are set at the factory and should not normally be adjusted. If adjustment is necessary, the display zero/span must be accurately set first. Then, after removing the rear cover, the Loop Zero and Loop Span controls may be trimmed for 4.00 mA of loop current at the low end of the range, and 20.00 mA at the high end of the range, respectively. Accurate pressure generation and measurement and current measurement equipment are required to successfully complete this calibration.



Ccomp Electronics maintains a constant effort to upgrade and improve its products, therefore specifications are subject to change.

## MODEL NUMBERING SYSTEM



**Example:** DPG1000L15PSIA  
 DPG1000, Loop powered, 15.00 PSI Absolute