Pressure to Current Converters

DPG1000L3-15PSIG
F4L3-15PSIG

Input: ***3 to 15 psig***
Output: ***4-20 mA***

- ***Converts Pressure Signal to Analog 4-20 mA***
- ***F4L Model NEMA 4X Rated***
- ***Display Ranges from 3.00 to 15.00 psig***
- ***Functional Test Pushbutton***



DPG1000L3-15PSIG



F4L3-15PSIG

Free Factory Input & Output Calibration!

Applications

- **Monitor Pneumatic Control Systems**
- **Local Display for On-Site Inspection**

Specifications

Range and Resolution
3.00 to 15.00 psig, resolution fixed at 0.01 psi
Consult factory for special ranges

Accuracy (linearity, hysteresis, repeatability)
Standard: ±0.25% of full scale ±1 least significant digit
-HA option: ±0.1% FS ±1 LSD

Zero and Span
Non-interactive display zero and span, ±10% range

Display
3 readings per second nominal display update rate
3½ digit LCD, ½" digit height

Output Range and Characteristics
3.00 psig 4 mA
15.00 psig 20 mA

See chart on other side for compliance
True analog output, 50 millisecond typical response time
Gauge terminal voltages less than 7.8 VDC may cause erratic operation

Functional Test Button
Sets loop current and display to test calibration level, independent of pressure input, to allow testing of system operation
Multiturn potentiometer to set Test level from 0 to 100% of full scale

Housing Material
DPG1000L Extruded aluminum case, light gray epoxy powder coated, blue ABS/polycarbonate bezel, front and rear gaskets
F4L ABS/polycarbonate bezel, rear gasket, NEMA 4X

Pressure Connection and Material
¼" NPT male, 316 stainless steel

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

Temperature Stability (relative to 77°F or 25°C)
±1% FS for offset and span, 32 to 158°F (0 to 70°C) typical

Compensated Temperature
32 to 158°F (0 to 70°C)

Operating Temperature
–4 to 185°F (–20 to 85°C)

Storage Temperature
–40 to 203°F (–40 to 95°C)

Overpressure and Burst
2x rated over-pressure minimum, 4x rated burst pressure minimum

Power
Powered by 4-20 mA current loop
Order optional **API 9046-24** loop power supply or use with any DC supply or loop resistance that maintains 8 to 32 VDC at gauge terminals

Reverse polarity protected

3 ft long, 2-conductor 22 AWG cable

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

Description and Features

All operating power for the **DPG1000L** or **F4L** converter is supplied by the 4-20 mA current loop. The 2-wire connection allows the **DPG1000L** or **F4L** to be used as a pressure to current converter in any 3 to 15 psig system. 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 temperature compensated piezoresistive transducer features 316 stainless steel wetted parts.

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

Models & Options

DPG1000L3-15PSIG	Pressure to current converter, 3-15 psig to 4-20 mA, 2-wire loop-powered
F4L3-15PSIG	NEMA 4X pressure to current converter, 3-15 psig to 4-20 mA, 2-wire loop-powered

Options—Add to end of model number

-HA	High accuracy, ±0.1% FS ±1 LSD
-CC	Conformal coating for moisture resistance

Accessories

API 9046-24	Loop power supply
CD	Calibration data
NC	Calibration data with NIST certificate

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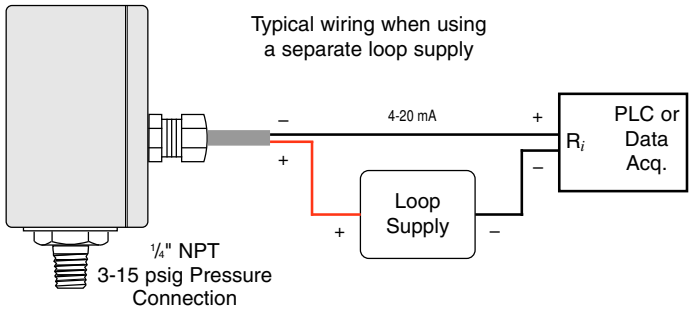
INSTALLATION AND PRECAUTIONS

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.

ELECTRICAL CONNECTION

Connection to the **DPG1000L** or **F4L** 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 unit will not operate with incorrect polarity.



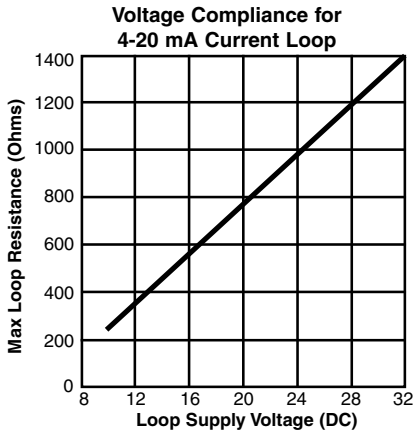
LOOP VOLTAGE

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 7.8 VDC erratic operation may occur. This is an indication that the loop supply/resistance may not allow adequate headroom for reliable operation. This should never occur in normal use. If it does, examine the loop supply/resistance.



OPERATION

The **DPG1000L** or **F4L** is designed for continuous operation. Warm-up time is negligible. The display will show the system pressure and the loop current will be proportional to the system pressure.

4 mA = 3 psig
20 mA = 15 psig

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 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, see gauge label for location of Test potentiometer. Press and hold the front-panel TEST button and adjust the Test potentiometer to set the display and loop current to the desired test level.

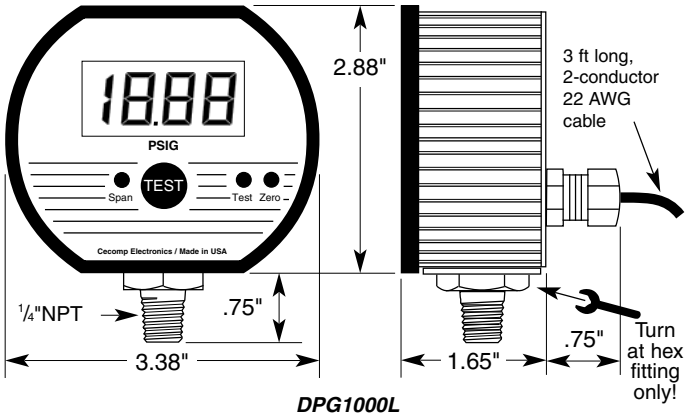
CALIBRATION

See gauge label for location of individual controls to adjust the zero and span of the display.

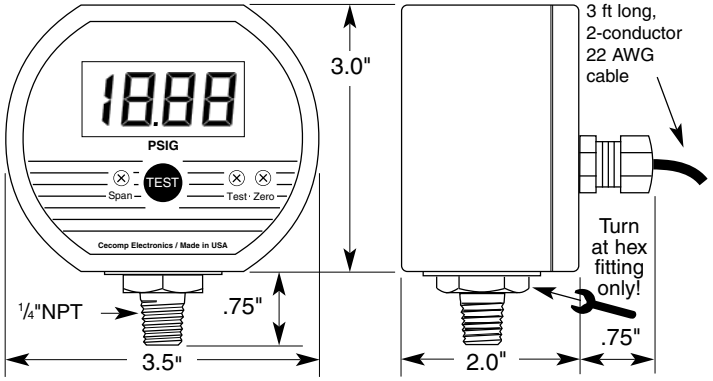
Units may be re-zeroed without affecting the span calibration. The gauge port must be open to the ambient with no pressure or vacuum applied. Adjust the Zero control until the gauge reads zero with the minus (–) sign occasionally flashing. Note that the Zero is set with the gauge at zero psig even though the output is ranged for 3 to 15 psig.

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.

The **DPG1000L** and **F4L** have 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, consult factory. Accurate pressure generation and measurement and current measurement equipment are required to successfully complete this calibration.



DPG1000L



F4L

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