Falcon DPG1000DAR

- ***±0.25% Test Gauge Accuracy***
- ***316 Stainless Steel Wetted Parts***
- ***Output Test Function***
- ***Pressure or Vacuum Applications***
- ***Rugged Extruded Aluminum Case***

Digital Pressure Gauge
Dual Alarms & Retransmitting Output
Low Voltage AC or DC Powered

DPG1000DAR with 100.0 psig range

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 ranges for other engineering units such as kPa, atm, bar, mbar, inHg, mmHg, inH_2O, ftH_2O, torr, kg/cm^2, cmH_2O, oz/in^2

Display (type, size, update rate)
3½ digit LCD, ½" digit height
4 digit LCD, 0.4" digit height for 2000 psi or higher
3 readings per second nominal display update rate

Controls & location
Display zero/span; non-interactive, ±15% range
Setpoint 1 and Setpoint 2; 0-100% range
Test calibration level; 0-100% range
Top-accessible multiturn potentiometers
Retransmission zero/span; 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

Alarm deadbands (hysteresis)
1% of of full scale, standard

Alarm outputs
Dual form C (SPDT) relay contacts
Individual Setpoint 1 and Setpoint 2 settings via top-accessible multiturn potentiometers
HI/LO alarm configuration standard, others available
Relay contacts rated 1A/24VDC, 0.5A/115VAC, non-inductive

Alarm indicators
Bicolor (red/green) LEDs on front panel

Alarm response time
100 milliseconds typical

Retransmission output
True analog output, 50 milliseconds typical response time.
Voltage option "V"; 0-2VDC into 5K ohm or greater
Current option "I"; 4-20mADC. Output drive (compliance) determined by power source. See graph in Appendix.

Test function
Front panel TEST button, when depressed, toggles both SP1 and SP2 alarm status and simultaneously sets display and retransmission output to "test calibration" level, independent of pressure input to allow testing of system operation.

Power
9 to 32 VDC or 8 to 24 VAC 50/60 Hz, 1.0 watt maximum.
Order optional WMPSK 12 VDC wall mount power supply kit to operate on 115 VAC.

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
9 oz. (approx.)

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
316 SS wetted parts; compatible with most liquids and gases

Electrical connection
3 foot long, 4-conductor 22AWG shielded cable for power and retransmitted output
3 foot long, 6-conductor 22AWG cable for alarm contacts

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

ENVIRONMENTAL SPECIFICATIONS

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

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Description

The **DPG1000DAR** is powered by any 9 to 32 VDC or 8 to 24 VAC 50/60 Hz power source. It can be used with unregulated low voltage power sources.

The **DPG1000DAR** circuitry includes dual mechanical relay alarm outputs with fully adjustable setpoints in a standard HI/LO alarm configuration. Bicolor 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 operation, a front-panel TEST button, when pressed, toggles the alarm output status, independent of system pressure.

The **DPG1000DAR** also includes circuitry to retransmit the pressure reading to a remote location. Options are voltage (0-2 VDC) or current (4-20 mA) retransmission. The output is a continuous analog signal based on the transducer output rather than the display. In addition to its function of testing (toggling) the alarm status as described above, the TEST button, when held depressed, switches the display and retransmission output to a preset level determined by the setting of a "Test" potentiometer. This allows testing of the display and process loop by sending a preset signal level to the display and the retransmitting output in place of the actual input signal.

Installation

When installing the 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 **DPG1000DAR** is made with the two cables at the gauge rear. The smaller cable is for the gauge power supply and retransmission output. This cable has one RED and one BLACK lead. If using a 9 to 32 VDC power source, connect the (+) supply to the RED lead and the (–) supply to the BLACK lead. If using a 8 to 24 VAC 50/60 Hz power source, connect to the RED and BLACK leads. For the AC-powered **DPG1000DAR**, there is, of course, no polarity consideration.

The (+) retransmission output appears on the WHITE lead, and the (–) retransmission output appears on the GREEN lead. Use of the shield (drain) wire of the retransmission output is optional. It is not generally needed for 4-20 mA current loops. It may be used for voltage retransmission outputs when the installation will result in greater total cable length to help reduce the possible effects of noise pickup, but long cable runs on voltage outputs should be avoided. See Using the Retransmission Outputs in Appendix A.

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

SETPOINT 1		**SETPOINT 2**	
Normally Closed (NC)	BLACK	Normally Closed (NC)	GREEN
Common (C)	RED	Common (C)	BROWN
Normally Open (NO)	WHITE	Normally Open (NO)	BLUE

Operation

Mount the **DPG1000DAR** on the pressure or vacuum system, wire as shown above, and apply power to the supply leads to activate the display. The gauge is powered ON whenever a supply voltage is applied. The magnitude of the supply voltage has negligible effect on the gauge calibration as long as it is within the voltage range stated above.

In normal operation, the system pressure is displayed on the gauge LCD. In addition, the **DPG1000DAR** circuitry compares the system pressure to two independent setpoint levels; these are referred to as Setpoint 1 and Setpoint 2. These setpoint levels are adjustable via top-accessible controls (see "Calibration") and may be viewed by pressing either the SP1 or SP2 buttons on the front of the unit. Pressing SP1 or SP2 will switch the display to show, and allow adjusting of, the 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 **DPG1000DAR** will provide a RED alarm indication when the system pressure exceeds the current setpoint. If a particular setpoint is configured as a LO alarm, the **DPG1000DAR** will provide a RED alarm indication when the system pressure falls below the setpoint. Alarm configurations are set at the factory at time of manufacture and may be ordered as HI/LO, HI/HI, or LO/LO configurations. See Appendix for additional information on using the **DPG1000DAR** alarm outputs.

For system setup, testing, and troubleshooting, the TEST button is provided. This button, when pressed, toggles the current state of the alarm outputs. Therefore, the alarm outputs may be "exercised" on demand without the need to vary the system pressure to test devices, annunciators, etc. connected to these outputs.

In addition to the alarm test functions described above, the TEST button performs an additional function on the **DPG1000DAR**. When depressed, the TEST button will also switch the display and retransmission output to a test level, independent of the system pressure, determined by the setting of the top-accessible "Test" potentiometer. This feature allows testing of the retransmission loop and any external device(s) connected to it.

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

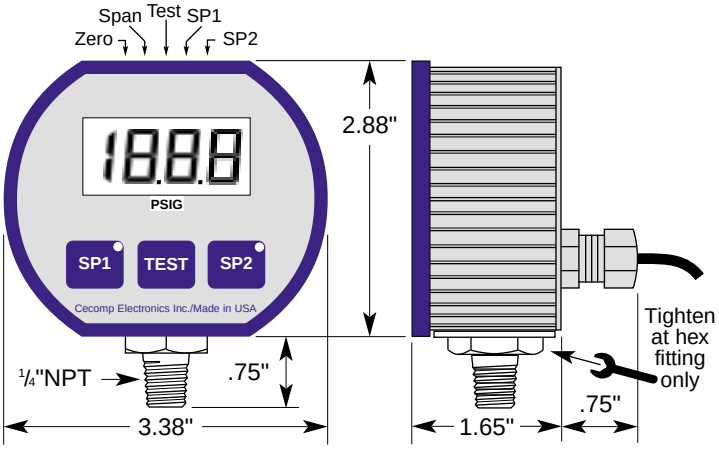
ABSOLUTE reference gauges require vacuum generation and atmospheric pressure measurement equipment for accurate calibration and thus are more difficult to calibrate in the field. Gauges may be returned to Cecomp Electronics for factory certified recalibration. N.I.S.T. traceability is available.

To set the Test output level, press and hold the front panel TEST button and adjust the Test potentiometer on the top to set the display and retransmission output to the desired test level.

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.

General

An important consideration in successful application of the **DPG1000DAR** is to ensure that the gauge supply voltage does not fall below 9 VDC or 8 VAC RMS. Operation with less than these values may cause erratic or erroneous readings or operation.



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

MODEL NUMBERING SYSTEM

DPG1000DAR range units ref - retr - alarm

Pressure/Vacuum Range

Units

G=Gauge, A=Absolute, VAC=Vacuum

Retransmission output options
I = 4-20 mADC
V = 0-2 VDC

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: DPG1000DAR15PSIG-I-1N = DPG1000, retransmission, alarms, 15.00 psig, 4-20 mA output, HI/LO normal action alarm relays