P&R INSTRUMENT SUPPLY, INC.

PG-10000

Digital Pressure Gauge

- Extra large full 4-digit display with 0.75 in. characters and 270° bar graph "analog" readout
- Available ranges from vacuum up to 500 psi, and from 0 up to 10,000 psi
- Direct reading to 9999 psi
- Weather resistant
- Microprocessor-based electronics
- Keypad enable/disable of peak high or peak low hold
- Auto "TARE" (zero) feature
- Visual alarm set point indication
- Automatic light-actuated battery-saver circuit (continuous on with 4-20 mA output, 0-5 VDC output, external power, or functional alarm options)
- Battery powered
- ± 0.25% accuracy of full scale (on selected ranges)
- Battery backup of manually input alarm setpoints

Options

- Other units of measure available
- Other process connection fittings available
- Rear pressure port
- Dual functional alarms as normally closed transistor switches
- 0-2 VDC output (battery powered)
- 4-20 mA 2 wire circuit (loop powered)
- 0-5 VDC output (external power)
- ±0.1% full scale accuracy with NIST certification, on selected ranges
- Dual lithium batteries
- Cleaned for oxygen service
- For OEM applications or other configurations, consult factory

Accessories

- Panel mount flange (rear pressure port only)
- AC to DC external power supply

Operational Description

Battery Powered Digital Gauge Offers Digital and Analog Display with Standard High and Low Peak Hold.

The PG-10000 digital gauge combines the best features of analog and digital instruments. The 0.75 in. full 4 digit display is easily read at a distance. The "analog" bar indicator around the circumference allows for a quick estimation of changing pressures and gives visual indication of alarm set points. The all-stainless steel sensor is resistant to most typical exposures of vibration and shock. The gauge is also less sensitive to the effects of pulsating pressures, a major advantage when compared to vibration sensitive dial gauges. Available options include active alarm set points, 0-2 V or 0-5 V analog output, and 4-20 mA transmitter output.

Applications

The PG-10000 is the ideal test gauge for process control combined with local indication, highly cyclical pressures where mechanical gauges are failing, burst tests (with peak hold), in many severe environments.

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■ Specifications

Performance
Standard Pressure Ranges
Compound Gauge: From vac up to 500 psi
Gauge: From 0 to 10000 psi
Absolute @ ±0.25% Linear Accuracy: From 0 to 5000 psi
Absolute @ ±0.1% Linear Accuracy: From 0 to 10000 psi
Overpressure: 2x full scale
Burst Pressure: 10x full scale or 20,000 (whichever is less)
Accuracy (linearity & hysteresis): ±0.25% of full scale (B.F.S.L.); NIST traceable certification also available for ±0.25% and ±0.1% accuracy
Stability – One Year Zero Drift: < ±1% F.S.
Thermal Zero Shift: ±0.02% F.S./°F
Thermal Sensitivity Shift: ±0.02% F.S./°F
Life: 10 million cycles minimum
Environmental
Compensated Temp: 20 to 130°F (-7 to 54°C)
Storage Temp: -40 to 160°F (-40 to 71°C)
Operating Temp: 0 to 160°F (-18 to 71°C)
Electrical
Battery Life
Standard: 3.6 V C-size lithium battery, 8,000 hrs. typical
Optional: (2) 3.6 V, C-size lithium battery, 16,000 hrs. typical
Storage: 5 year life typical
External Power: 10-32 VDC
Display Type: 4 digit LCD, 0.75 in. digits, and 40 segment bar graph
Display Resolution: 1 part in 9999
Low Battery Detection: Displays battery symbol @ 3.03 VDC ±5% with V_{IN} = 7.2 VDC
Auto Off: Light sensor actuated
Optional Dual Alarms: Normally closed, open drain FET transistor, PNP outputs V_{DS} = 60 V max, I_{DS} = 500 mA max, On resistance = 7.5 Ω, Power = 300 mW max
Physical
Weight: 1.4 lb.
Construction Materials
Case: Weather resistant injection molded phenolic. Case sealed with Buna-N O-ring. For mounting holes, use a 4.65 in. bolt circle diameter (3 x 120° typical) from the top mounting hole.
Wetted Materials: 316L SS (High resolution ranges under 100 psi, in 316L SS incorporate a Hastelloy® C276 diaphragm); One piece Hastelloy® fitting also available (minimum quantities required)
6 Pin Connector: Electrical receptacle, R04-R6M or equivalent (included with optional output or external power selections)
6 Pin Mating Connector: R04-J6F or equivalent (Sold separately. See accessories.)
Process Cavity Volume: 0.09^3 in.

Specifications are subject to change without notice.

■ Electrical Specifications

4-20 mA Output
Excitation: 6-35 VDC max
Input Current: 3-30 mA max
Output: 4-20 mA ±0.16 mA at set points
Output/Input: 2 wire loop powered
Resolution: Infinite
Protection: Reversed polarity

4-20mA Output vs. Pressure Type Table

Pressure Type	*Pressure* Vacuum	0	F.S.	*Output* Display*
Vacuum	*20mA*	*4mA*	*N/A*	
	30.0	0.0	N/A	
Gauge / Absolute	*N/A*	*4mA*	*20mA*	
	N/A	0.0	F.S.	
Compound Gauge	*4mA*	-	*20mA*	
	-30.0	0.0	F.S.	

*Display in inHg, for example only.
Note: For a pressure type of compound gauge, with 4-20 mA output, the full scale pressure range minimum is 100 psi.

0-2 VDC Output
Excitation: Battery powered
Output: Zero set point is ±0.15 V with a 2 VDC span ±0.05 VDC
Output/Input: 2 wire
Resolution: Infinite

0-5 VDC Output
Excitation: 12-31 VDC
Input Current: 6 mA max
Output: 0-5 VDC / ±0.05 VDC at set points
Output/Input: Non-isolated 3 wire
Resolution: Infinite
Protection: Reversed polarity

■ Common Pressure Ranges

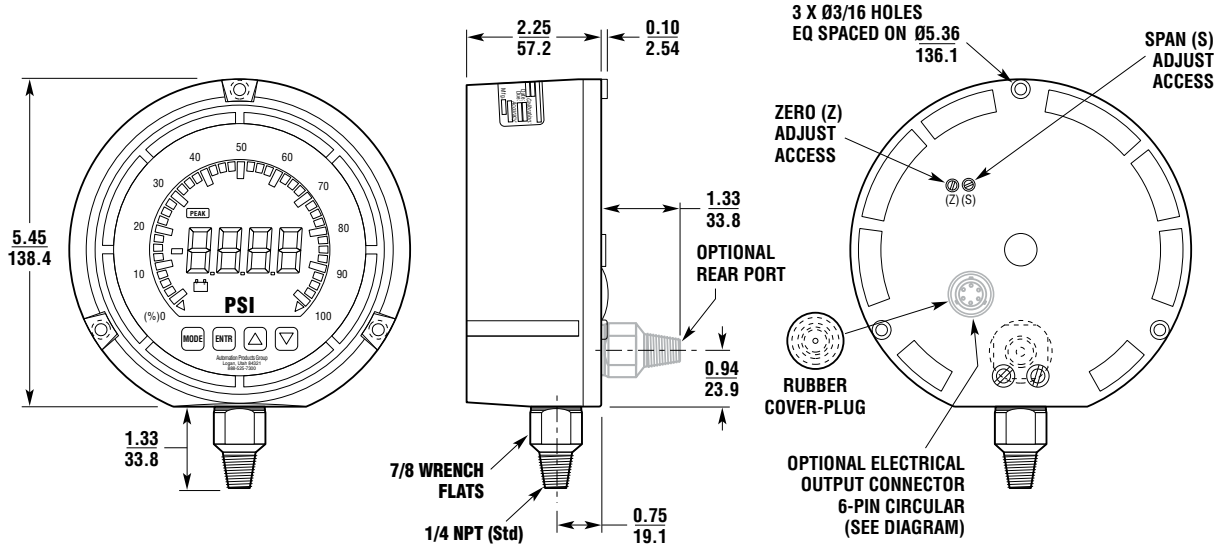
Range Option	Range	Unit of Measure	Display Resolution
30**	-30 to 0	inHg	0.1
30	0 to 30	psi	0.01*
60	0 to 60	psi	0.1
100	0 to 100	psi	0.1
160	0 to 160	psi	0.1
200	0 to 200	psi	0.1
250	0 to 250	psi	0.1
500	0 to 500	psi	0.1
1000	0 to 1000	psi	1
2000	0 to 2000	psi	1
5000	0 to 5000	psi	1
10000	0 to 10000	psi	1

Other ranges available.

*Requires G2 option when ordering.

**Requires VAC option when ordering.

■ *Dimensions — in./mm*



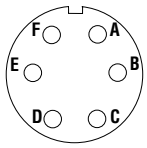
■ *Wiring*

PG-10000 Pin Out Table

	4-20 mA with Alarm	4-20 mA	0-5 VDC	0-2 VDC with Alarm	0-2 VDC	Ex Pwr	0-5 VDC with Alarm
A	+ Excitation	+ Excitation	+ Excitation	N/C	N/C	+ Pwr	+ Excitation
B	– Excitation	– Excitation	+ Output	+ Output	+ Output	– Pwr (Com)	+ Output
C	Dig Gnd	N/C	– Output	– Output	– Output	N/C	– Out/– Ex
D	Alarm 2	N/C	– Excitation	Alarm 2	N/C	N/C	Alarm 2
E	Alarm 1	N/C	N/C	Alarm 1	N/C	N/C	Alarm 1
F	Gnd	N/C	Gnd	Gnd	N/C	N/C	Dig Gnd

N/C indicates no connection.

6 Pin Connector



Electrical Cable Specifications

AWG: 26

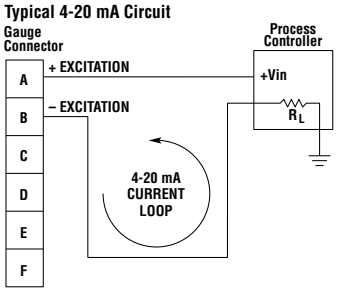
Stranding: 7/34

Type: MIL-W-16878E

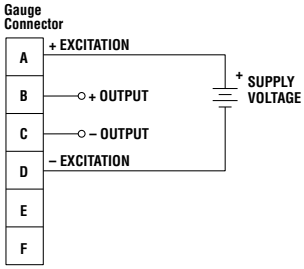
Shield: 36 AWG TPC Braid

Jacket: PVC

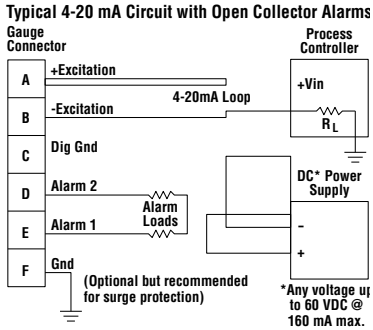
Typical 4-20 mA Circuit



Typical 0-5 VDC Circuit



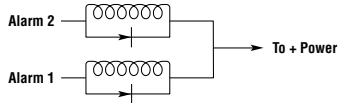
Typical 4-20 mA Circuit with Open Collector Alarms



R_L = 250 ohm for 1-5 V output
R_L = 500 ohm for 2-10 V output
DO NOT EXCEED 750 OHMS WITH 24 VDC SUPPLY.

For alarm circuit, use 1 K to 10 K OHM pull up resistor.

NOTE: Alarm loads may be relay coils as shown below.
Connect 1 A 400 V diodes to protect from relay "kick".



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■ Option Tables

Unit of Measure Table

There are 9 choices available:

psi▲	**mmHg***
bar	**inHg**
mbar*	**kgcm²**
kPa	**fsw**
inH2O*	

*Requires G2 option.
Other units of measure available.

Pressure Type Table

G▲	Gauge
G2	High resolution gauge
CG	Compound gauge
V	Vac
A	Absolute
S	Sealed

Operation Table

Operation		Electrical Connector
L0▲	"C" size lithium battery	E0
L1	4-20 mA output	E1
L2	0-2 VDC output	E1
L3	0-5 VDC output	E1
L4	External power	E1
L7	Dual "C" size lithium battery	E0

Port Table

F0▲	Bottom
F1	Rear
F2	Bottom with 0_2 clean
F3	Rear with 0_2 clean
F6	Rear port with panel bracket installed

▲This option is standard.

Linear Accuracy Chart

Full Scale Display	Display Resolution	Standard Linear Accuracy	Accuracy Options
≥ 15.00 but < 20.00*	0.01	0.25%	N0, N1
≥ 20.00 but < 80.00*	0.01	0.25%	N0, N1, N2
≥ 30.0 but < 80.0	0.1	Better than 1%	N3, N4
≥ 80.0 but < 200.0	0.1	0.25%	N0, N1
≥ 200.0 but < 800.0	0.1	0.25%	N0, N1, N2
≥ 800 but < 2,000	1	0.25%	N0, N1
≥ 2,000 but <10,000	1	0.25%	N0, N1, N2

*Requires high resolution option

Notes:
1. This table refer to linear accuracy for standard fittfings. Contact us for linear accuracies for non-standard fittings.
2. These tables list linear accuracies for specific ranges. For an explanation of how linear accuracy is calculated, pflease contact us.

■ Ordering Information

PG-10000 – Range – □ – □ – □ – □ – □ – □ – □ – □ – □ – □

Unit of Measure
___ See Unit of Measure Table

Pressure Type
G-S See Pressure Type Table

Alarms
C0▲ Dual visual alarms
C2 Dual visual and active alarm outputs (use E1)

Operation
L0-L7 See Operation Table

Port
F0-F6 See Port Table

Electrical Connection
E0▲ No connector
E1 6 pin circular (Mating connector sold separately. See accessories.)

Electrical Cable Length
W0 0 ft. (Use with E1)
Mating connectors (E1) with cable. See accessories.

Process Connection
P0 1/4-18 NPTM
Consult factory for other process connection options.

Accuracy (see Linear Accuracy Chart for details)
N0 ±0.25%
N1 ±0.25% with NIST certification (selected ranges)
N2 ±0.1% with NIST certification (selected ranges)
N3 ±1% or better
N4 ±1% or better with NIST certification
N7 ±2% or better
N8 ±2% or better with NIST certification

Materials
M1▲ 316L SS (under 100 psi, 316L SS/Hastelloy®)
M5 Hastelloy® (minimum quantities required)
Consult factory for other material options.

Accessories

Please order separately, by part number. When ordering a flange as an accessory, it will not be installed on the gauge.

Description	Part Number
6-pin circular mating connector (E1)	509110
6-pin circular mating connector (E1) with cable (see note below)	509110-X0XX*
Panel mount flange (rear port only)	512600

Description	Part Number
AC to DC external power supply (includes E1 mating connector)	511642
Replacement lithium battery	511655

*To order a 6-pin circular mating connector with cable, you will need to specify the operation & alarms and cable length.
Specify operation& alarms: L1(only)=1, L3(only)=2, L4(only)=3, C2(only)=6, L2(only)=7, L4 & C2=8, L1 & C2=9, L3 & C2-=10, L2 & C2 = 11;
Specify cable: 2, 5, 10, 25 or 50 ft.
Example: 509110-1025 has 4/20 mA output with 25 ft. cable