

# P&R INSTRUMENT SUPPLY, INC.



## PG5

### Digital Pressure Gauge

- Large, full 5-digit display with 0.4 in. characters
- Available ranges from vacuum up to 500 psi, and from 0 up to 10,000 psi
- Microprocessor-based circuit has "TARE" capability standard
- Self-powered by standard 9 V battery
- Selectable auto-off (2, 4, 8, 16, 32 min.)
- Peak hold
- Bar graph analog readout
- Max. and Min. function
- Selectable units of measure (psi, bar, mbar, kPa, MPa, inH<sub>2</sub>O, cmHg, mmHg, inHg, kgcm<sup>2</sup>, ftH<sub>2</sub>O)
- ±0.25% accuracy of full scale
- On/off button

#### Options

- Many units of measure available
- Other process connection fittings available
- Rear pressure port
- 0-2 VDC output (battery powered)
- 4-20 mA output (loop powered)
- 0-5 VDC output (external power)
- Up to ±0.1% full scale accuracy with NIST certification, on selected ranges
- 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
- Shock dampening rubber boot

#### Operational Description

##### Battery powered digital gauge with five digit display

The PG5 unit incorporates an all-stainless steel sensor. The 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 4-20 mA two wire, 0-2 VDC, and 0-5 VDC outputs.

#### Applications

No special tools or adaptors are required for installation of the PG5. This makes the unit an easy, cost effective replacement for less accurate, standard mechanical gauges. The unit's long life, ease of operation, high accuracy, and low cost make it perfect for all applications where standard 2.5 in. or larger mechanical gauges have been used.

## ■ Specifications

<b>Performance</b>
<b>Standard Pressure Ranges</b>
<b>Compound Gauge:</b> From vac up to 500 psi, 30 psi minimum
<b>Gauge:</b> From 0 to 500 psi
<b>Sealed Gauge:</b> Greater than 500 psi, up to 10000 psi
<b>Absolute:</b> From 0 to 5000 psi
<b>Overpressure:</b> 2x full scale
<b>Accuracy (linearity &amp; hysteresis):</b> ±0.25% of full scale (B.F.S.L.) or 2 digital counts, whichever is greater; NIST traceable certification also available for ±0.25% and ±0.1% accuracy in selected ranges
<b>Stability – One Year Zero Drift:</b> < ±1% F.S.
<b>Thermal Zero Shift:</b> ±0.02% F.S./°F
<b>Thermal Sensitivity Shift:</b> ±0.02% F.S./°F
<b>Life:</b> 10 million cycles minimum
<b>Environmental</b>
<b>Compensated Temp:</b> 20 to 130°F (-7 to 54°C)
<b>Storage Temp:</b> -40 to 160°F (-40 to 71°C)
<b>Operating Temp:</b> 0 to 160°F (-18 to 71°C)
<b>Electrical</b>
<b>Batteries:</b> Standard 9 V (1), user replaceable (2-year life typical with 16 min. auto off)
<b>External Power:</b> 9-28 VDC
<b>Display Type:</b> 5 digit LCD, 0.4 in. digits
<b>Display Resolution:</b> 1 part in 10000
<b>Low Battery Detection:</b> Battery level indicator with 25% increments
<b>Adjustments:</b> Auto Zero, Tare
<b>Auto-Off:</b> Menu selectable 2, 4, 8, 16, 32 minutes (not available with options L1, L3 or L4)
<b>Physical</b>
<b>Weight:</b> 0.36 lb.
<b>Construction Materials</b>
<b>Case:</b> Injection molded case material EMI-X® PDX-W-88341
<b>Wetted Materials:</b> 15-5 SS: >5000 psi; 316L SS: Up to 10,000 psi
<b>6 Pin Connector:</b> Electrical receptacle, R04-R6M or equivalent with optional output selections (included with optional output selections)
<b>6 Pin Mating Connector:</b> R04-J6F or equivalent (Sold separately. See accessories.)
<b>External Power Connector:</b> 1/8 in. – 3 conductor (included with optional external power selection)
<b>External Power Mating Connector:</b> 1/8 in. – 3 conductor (included with optional external power selection)
<b>Process Cavity Volume:</b> 0.07 <sup>3</sup> in. typical

Specifications are subject to change without notice.

## ■ User Selectable Units

Choices available for pressures less than 100 psi:

psi	kPa	inHg	bar
inH2O	mmHg	mbar	

Choices available for pressures greater than 100 psi:

psi	kPa	cmHg	bar
MPa	ftH2O	kgcm <sup>2</sup>	

Consult the factory for custom units of measure.

## ■ Electrical Specifications

<b>4-20 mA Output</b>
<b>Input Voltage (Excitation):</b> 9 VDC min (no load) to 28 VDC max
<b>Input Current:</b> 3-30 mA max
<b>Output:</b> 4-20 mA ±0.16 mA at set points
<b>Output/Input:</b> 2 wire loop powered
<b>Resolution:</b> 14 bit
<b>Protection:</b> Reversed polarity

## 4-20mA Output vs. Pressure Type Table

Pressure Type	Pressure			Output Display*
	Vacuum	0	F.S.	
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

<b>Input Voltage (Excitation):</b> Battery powered
<b>Output:</b> Zero set point is ±0.15 V with a 2 VDC span ±0.02 VDC
<b>Output/Input:</b> 2 wire
<b>Resolution:</b> 14 bit

## 0-5 VDC Output

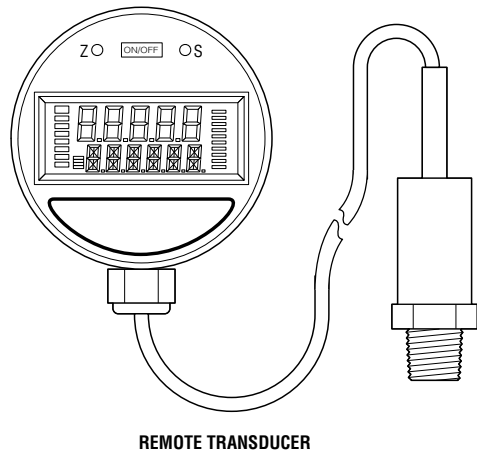
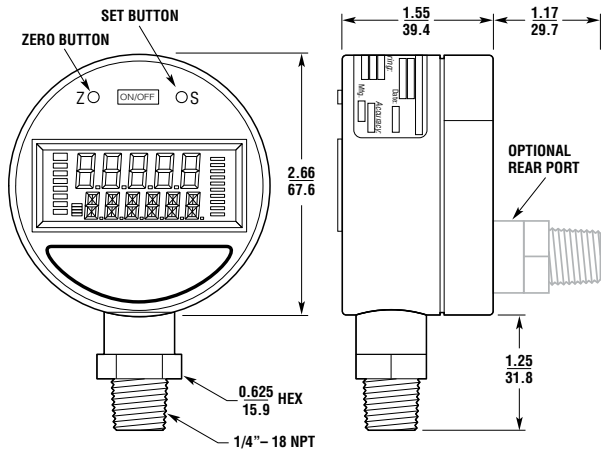
<b>Input Voltage (Excitation):</b> 9 to 28 VDC
<b>Input Current:</b> 6 mA max
<b>Output:</b> 0-5 VDC / ±0.05 VDC at set points
<b>Output/Input:</b> Non-isolated 3 wire
<b>Resolution:</b> 14 bit
<b>Protection:</b> Reversed polarity

## ■ Common Pressure Ranges

Range Option	Range	Unit of Measure	Display Resolution
5	0 to 5	psi	0.01
15	0 to 15	psi	0.01
30	0 to 30	psi	0.01
50	0 to 50	psi	0.01
60	0 to 60	psi	0.01
100	0 to 100	psi	0.01
200	0 to 200	psi	0.01
300	0 to 300	psi	0.1
500	0 to 500	psi	0.1
1000	0 to 1000	psi	1
2000	0 to 2000	psi	1
3000	0 to 3000	psi	1
5000	0 to 5000	psi	1
10000	0 to 10000	psi	1

Other ranges available.

■ Dimensions — in./mm



■ 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 ≤ 100.00	0.01	0.25%	N0, N1, N2
> 100.0 but < 200.0	0.1	0.25%	N0, N1
≥ 200.0 but < 1,000.0	0.1	0.25%	N0, N1, N2
≥ 1,000 but < 2,000	1	0.25%	N0, N1
≥ 2,000 but ≤ 10,000	1	0.25%	N0, N1, N2

Notes:

1. This table refers to linear accuracy for standard fittings. Contact us for linear accuracies for non-standard fittings.
2. This table lists linear accuracies for specific ranges. For an explanation of how linear accuracy is calculated, please contact us.

■ Wiring

PG5 Pin Out Table

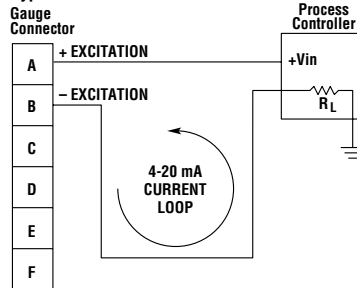
		4-20 mA	0-5 VDC	0-2 VDC	Ex Pwr
6 Pin Circular	A	+ Excitation	+ Excitation	N/A	N/A
	B	- Excitation	+ Output	N/A	N/A
	C	N/C	- Output	N/A	N/A
	D	N/C	- Excitation	N/A	N/A
	E	N/C	N/C	N/A	N/A
	F	N/C	N/C	N/A	N/A
1/8" Plug	Tip	N/A	N/A	+ Output	+ Pwr
	Ctr	N/A	N/A	- Output	- Pwr
	Body	N/A	N/A	N/C	N/C

N/C indicates no connection.  
N/A indicates not applicable.

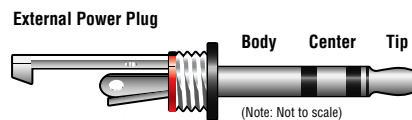
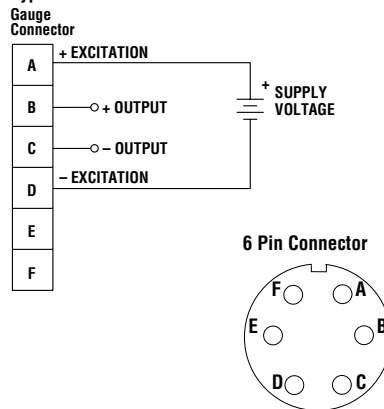
Electrical Cable Specifications

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



## ■ Option Tables

### Pressure Type Table

<b>PSIG</b> <sup>▲</sup>	Gauge (up to 500 psi)
<b>PSICG</b>	Compound gauge
<b>PSIV</b>	Vacuum
<b>PSIA</b>	Absolute
<b>PSIS</b>	Sealed gauge (greater than 500 psi)

### Port Table

<b>F0</b> <sup>▲</sup>	Bottom
<b>F1</b>	Rear
<b>F2</b>	Bottom with O <sub>2</sub> clean
<b>F3</b>	Rear with O <sub>2</sub> clean
<b>F5</b>	Remote transducer with mV sensor
<b>F6</b>	Rear port with panel bracket installed
<b>F7</b>	Bottom port with rubber boot installed
<b>F10</b>	Remote transducer with mV sensor - rear

### Operation Table

<b>L0-E0</b> <sup>▲</sup>	9 V battery
<b>L1-E1</b>	4-20 mA (loop powered) output
<b>L2-E23</b>	0-2 VDC output
<b>L3-E1</b>	0-5 VDC output
<b>L4-E23</b>	External power

Auto-off options are not available with L1, L3 or L4.

### Process Connection Table

<b>P0</b> <sup>▲</sup>	1/4-18 NPTM
<b>P7</b>	7/16-20 SAE male
<b>P14</b>	1/8-27 NPTM
<b>P16</b>	PT 1/4 (BSPM 1/4)

Other options available.

<sup>▲</sup>This option is standard.

## ■ Ordering Information

PG5 - Range - [ ] - [ ] - [ ] - [ ] - [ ]	
<b>Pressure Type</b>	See Pressure Type Table
<b>Port</b>	See Port Table
<b>F0-F7</b>	See Port Table
<b>Operation</b>	See Operation Table
<b>L0-L4</b>	See Operation Table
<b>Process Connection</b>	See Process Connection Table
<b>P0-P16</b>	See Process Connection Table
<b>Accuracy</b> (see Linear Accuracy Chart for details)	
<b>N0</b> <sup>▲</sup>	±0.25%
<b>N1</b>	±0.25% with NIST certification (selected ranges)
<b>N2</b>	±0.1% with NIST certification (select ranges)

### Accessories

Please order separately, by part number. When ordering a flange or boot as an accessory, they 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	509110-X0XX*
	(Specify output: L1=1, L3 = 2)
	(Specify 2, 10, 25 or 50 ft.)
*Example: 509110-1025 is a 4/20 mA output with 25 ft. cable)	
Panel mount flange (rear port only)	512598
AC to DC external power supply (includes E23 mating connector)	511644
Rubber boot - Rear port	512628
Rubber boot - Bottom port	512627