

P&R

INSTRUMENT SUPPLY, INC.



Shown with optional rubber boot.

PG7

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
- Environmentally-sealed housing; IP67
- Microprocessor-based circuit has "Tare", Peak Hold and Max-Min functions standard
- Self-powered by two AA batteries or external power options also available
- Selectable auto-off (2, 4, 8, 16, 32 min.)
- Bar graph analog readout
- Selectable units of measure (psi, bar, mbar, kPa, MPa, inH₂O, cmHg, mmHg, inHg, kg/cm², ftH₂O)
- ±0.25% accuracy of full scale
- Built-in lockout feature to prevent unauthorized access
- User selectable units of force for press applications to directly display the applied force

Options

- Solid-state relay outputs
- 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 bracket; can be used with both bottom and rear port options
- AC to DC external power supply
- Shock dampening rubber boot

Operational Description

Battery powered digital gauge with five digit display

The PG7 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, 0-5 VDC outputs, and two solid-state relays.

Applications

No special tools or adaptors are required for installation of the PG7. 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.

With its many output options and its sealed housing, the PG7 gauge gives a local readout and still provides a required analog output for data acquisition.

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■ Specifications

Performance
Standard Pressure Ranges
Compound Gauge: From vac up to 500 psi, 30 psi minimum
Gauge: From 0 to 500 psi
Sealed Gauge: Greater than 500 psi, up to 10000 psi
Absolute: From 0 to 5000 psi
Overpressure: 2x full scale
Accuracy (linearity & hysteresis): ±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
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
Protection Rating: IP67
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
Batteries: (2) AA alkaline, user replaceable, typical battery life 2000 hours
External Power: 9-28 VDC
Display Type: 5 digit LCD, 0.4 in. digits
Display Resolution: 1 part in 10000
Low Battery Detection: Battery level indicator with 25% increments
Adjustments: Auto Zero, Tare
Auto-Off: Menu selectable 2, 4, 8, 16, 32 minutes (not available with options L1, L3 or L4)
Relays (Optional): Two isolated solid-state relays (120 mA max; 240 V AC/DC max) (not available with options L0, L1 or L2)
Physical
Weight: 0.36 lb.
Construction Materials
Case: Injection molded case material EMI-X® PDX-W-88341
Wetted Materials: 316L SS: Up to 10,000 psi
6 Pin Connector: Electrical receptacle, R04-R6M or equivalent with optional output selections (included with optional output selections)
6 Pin Mating Connector: R04-J6F or equivalent (Sold separately. See accessories.)
External Power Connector: 1/8 in. – 3 conductor (included with optional external power selection)
External Power Mating Connector: 1/8 in. – 3 conductor (included with optional external power selection)
Process Cavity Volume: 0.07 ³ in. typical

Specifications are subject to change without notice.

■ User Selectable Units

Choices available for pressures less than 100 psi:

psi	kPa	inHg	bar
inH ₂ O	mmHg	mbar	

Choices available for pressures greater than 100 psi:

psi	kPa	cmHg	bar
MPa	ftH ₂ O	kgcm ²	

Consult the factory for custom units of measure.

■ Electrical Specifications

L1: 4-20 mA Output
Input Voltage (Excitation): 9 VDC min (no load) to 28 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: 14 bit
Protection: Reversed polarity

4-20mA Output vs. Pressure Type Table

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

L2: 0-2 VDC Output

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

L3: 0-5 VDC Output

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

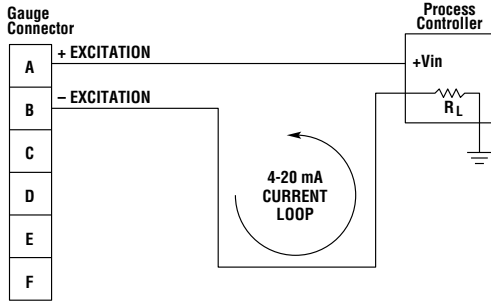
■ Common Pressure Ranges

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	0.1
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

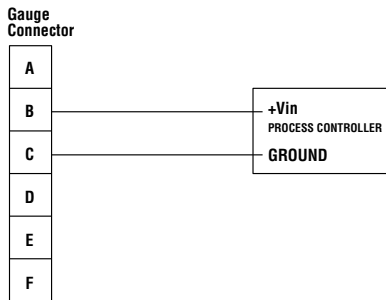
Other ranges available.

■ Wiring

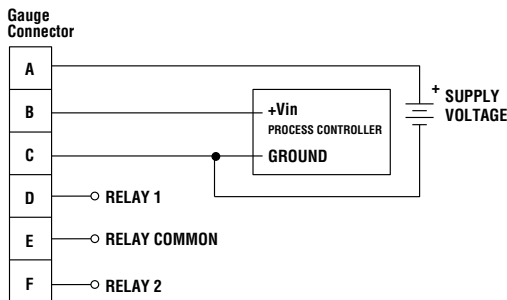
**L1: Typical 4-20 mA Circuit
(Relay option not available)**



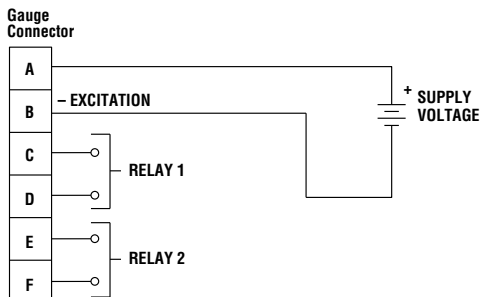
**L2: Typical 0-2 V Circuit with Battery Power
(Relay option not available)**



**L3: Typical 0-5 V Circuit with External Power
(Relay connections with C2 option)**



**L4: Typical Relay Circuit with External Power
(Relay connections with C2 option)**

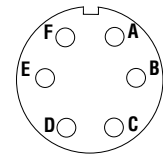


PG7 Pin Out Table

	L1	L2	L3	L4
	4-20 mA	0-2 VDC with Battery Power	0-5 VDC with External Power	2 Relays with External Power
6 Pin Connector				
A	+ Excitation	N/A	+ Excitation	+ Excitation
B	- Excitation	+ Output	+ Output	- Excitation
C	N/A	- Output	- Excitation (GND)	Relay 1*
D	N/A	N/A	Relay 1*	Relay 1*
E	N/A	N/A	Relay Common*	Relay 2*
F	N/A	N/A	Relay 2*	Relay 2*

*Show wiring connections if C2 option is selected.
N/A indicates not applicable.

6 Pin Connector



Electrical Cable Specifications

AWG: 26

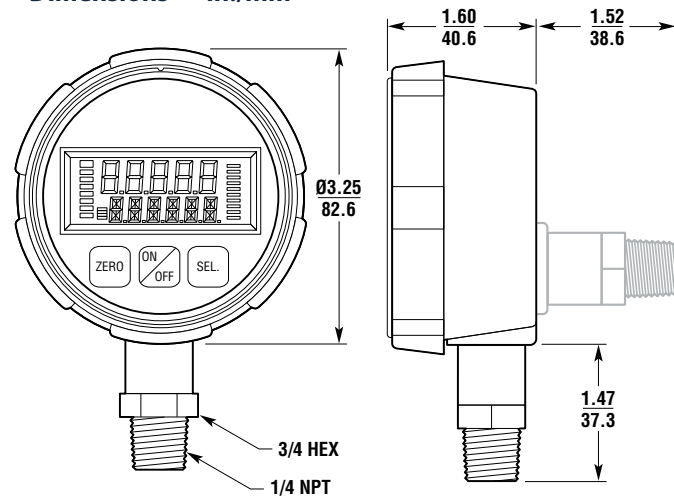
Stranding: 7/34

Type: MIL-W-16878E

Shield: 36 AWG TPC Braid

Jacket: PVC

■ Dimensions — in./mm



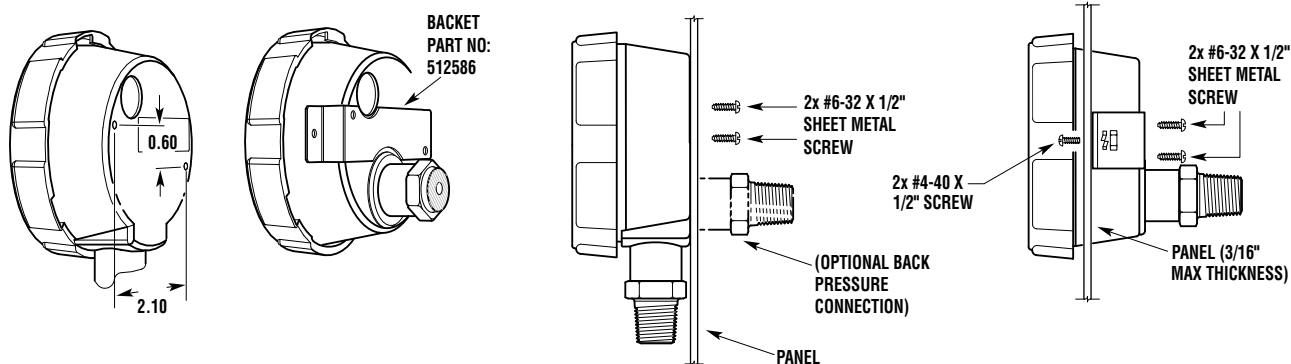
■ Linear Accuracy Chart

Full Scale Display	Display Resolution	Standard Linear Accuracy	Accuracy Options
≥ 15.00 but < 20.00	0.01	0.25%	NO, N1
≥ 20.00 but ≤ 100.00	0.01	0.25%	NO, N1, N2
> 100.0 but < 200.0	0.1	0.25%	NO, N1
≥ 200.0 but < 1,000.0	0.1	0.25%	NO, N1, N2
≥ 1,000 but < 2,000	1	0.25%	NO, N1
≥ 2,000 but ≤ 10,000	1	0.25%	NO, N1, N2

Notes:

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

■ Mounting Information



■ Option Tables

Pressure Type Table

PSIG [▲]	Gauge (up to 500 psi)
PSICG	Compound gauge
PSIV	Vacuum
PSIA	Absolute
PSIS	Sealed gauge (greater than 500 psi)

Port Table

F0 [▲]	Bottom
F1	Rear
F2	Bottom with O ₂ clean
F3	Rear with O ₂ clean
F5	Remote transducer with mV sensor
F7	Bottom port with rubber boot installed

Process Connection Table

P0 [▲]	1/4-18 NPTM
P7	7/16-20 SAE male
P14	1/8-27 NPTM
P16	PT 1/4 (BSPM 1/4)
P30	Sno-Trik® Autoclave

Other options available.

[▲]This option is standard.

■ Ordering Information

Pressure Type	PG7 - Range - [] - [] - [] - [] - [] - []
See Pressure Type Table	
Port	
F0-F7	See Port Table
Operation*	
L0-E0 [▲]	(2) AA batteries; no output
L1-E1	4-20 mA (loop powered) output
L2-E1	0-2 VDC output; battery power
L3-E1	0-5 VDC output; external power
L4-E1	External power
Relays	
C0 [▲]	No Solid-State Relays
C2	(2) Solid-State Relays with Visual Indication (L3 & L4 types only)
Process Connection	
P0-P30	See Process Connection Table
Accuracy (see Linear Accuracy Chart for details)	
N0 [▲]	±0.25%
N1	±0.25% with NIST certification
N2	±0.1% with NIST certification (select ranges)

*Auto-off options are not available with L1-E1, L3-E1 or L4-E1.

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-A0BB*
	(A = Specify output type: L1=1, L2 = 2, L3 = 2, L4 = 3) (B = Specify length: 02, 10, 25 or 50 ft.)
Panel mount bracket	512599
AC to DC external power supply (includes E1 mating connector)	511642
Rubber boot	512626

*Example: 509110-1025 is a 4/20 mA output with 25 ft. cable)