

PPT81 Industrial Analog Microfused High Pressure Transducer, Packard

Microfused stainless steel sensing · Metri-Pack 150 (Packard) connector · 100 to 20,000 PSI



CE

UL

PACKARD

IP65

DESCRIPTION

The PPT81 is an industrial analog pressure transducer for high-pressure hydraulic, pneumatic and process systems. Silicon strain gauges are microfused to a 17-4PH stainless steel diaphragm, eliminating internal O-rings and fill fluids and giving excellent overpressure and fatigue performance.

An SS304 housing with an integral Metri-Pack 150 (Packard) connector mates directly with standard automotive and off-highway harnesses. Choose the output, port and supply that fit your system. Contact us for custom designs.

FEATURES

- Microfused silicon strain-gauge on a 17-4PH stainless diaphragm
- 100 to 20,000 PSI pressure ranges
- Integral Metri-Pack 150 (Packard) 3-pin connector
- 0.5–4.5 V, 0–5 V, 0–10 V or 4–20 mA output
- $\pm 0.5\%$ FS (BFSL) voltage outputs
- 4.75–5.25 VDC or 9–32 VDC supply
- –40 to 125 °C operating temperature
- Protected atmospheric vent · IP65
- Shock, vibration and drop tested to IEC 60068

APPLICATIONS

- Hydraulic systems
- Industrial automation
- Off-highway & automotive engine
- Compressors & pumps
- HVAC/R
- Pneumatics

MAXIMUM ENVIRONMENTAL RATINGS

Operating Temperature	–40 to 125 °C	Proof Pressure	2× full scale
Compensated Temperature	0 to 70 °C	Burst Pressure	3× full scale
Ingress Protection	IP65	Pressure Range	100 to 20,000 PSI

Operational characteristics

$V_+ = 5\text{ V}$ (supply option 1), $V_- = 0\text{ V}$, $T = 25\text{ }^{\circ}\text{C}$ unless noted

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS
Supply voltage — option 1	V_{DD}	4.75	5.0	5.25	VDC
Supply voltage — option 2	V_S	9	—	32	VDC
Output — option 0 (ratiometric)	V_{OUT}	0.5	—	4.5	V
Output — option 1	V_{OUT}	0	—	5	V
Output — option 2	I_{OUT}	4	—	20	mA
Output — option 4	V_{OUT}	0	—	10	V
Accuracy — voltage outputs (BFSL)	$\pm\%FS$	-0.5	—	0.5	%FS
Total error band — 4–20 mA	TEB	-1.0	—	1.0	%FS
Compensated temperature	T_c	0	—	70	$^{\circ}\text{C}$
Operating temperature	T_{OP}	-40	—	125	$^{\circ}\text{C}$
Pressure range	—	100	—	20,000	PSI
Proof / burst pressure	—	2× / 3× full scale			—
Environmental rating	—	IP65			—

NOTES

Accuracy per drawings PPT81-0-XXG21 rev 1.1 and PPT81-2-200G12 rev A. Output option 0 is ratiometric to supply and requires supply option 1.

Electrical connections

PIN	VOLTAGE OUTPUT	4–20 MA
P1	Supply +	Supply -
P2	COM (GND)	Supply +
P3	Output +	N/C

Mating connector

Connector	Aptiv 12065287 (Metri-Pack 150)
Terminals	Aptiv 12089290 (×3)

Pin configuration

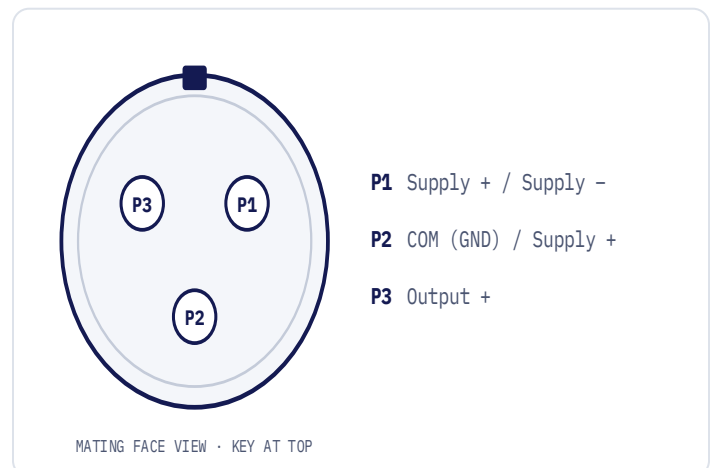


Fig. 1 — Metri-Pack 150 connector face, P1–P3.

Application information

Package

SS304 housing, 0.875" hex, with integral Metri-Pack 150 (Packard) 3-pin connector and a protected atmospheric vent for gauge references.

Pressure ports

1/4"-18 NPT and 1/8"-27 NPT are standard; 7/16-20 UNF and custom ports are available for OEM customers.

Shock & vibration

Tested to EN 60068-2-27 (shock), EN 60068-2-6 (sine vibration), EN 60068-2-64 (random vibration) and IEC 60068-2-32 (drop).

Sensing element

Silicon strain gauges microfused (glass-bonded) to a machined 17-4PH stainless diaphragm — no internal O-rings or oil fill in the media path.

Media

Hydraulic oil, fuel, water, air and other media compatible with 17-4PH stainless steel.

Approvals

CE marked and UL listed. Contact us for certificates and test reports.



20K PSI

Max range

±0.5%

Accuracy FS (BFSL)

125 °C

Max operating temp

IP65

Environmental rating

Analog output

The PPT81 provides a conditioned analog signal on P3 (voltage options) or as a two-wire 4–20 mA loop on P1/P2.

Option 0 — ratiometric ($V_{DD} = 5\text{ V}$)

$$V_{OUT} = 0.5\text{ V} + 4.0\text{ V} \times P / P_{FS}$$

Option 2 — 4–20 mA

$$I_{OUT} = 4\text{ mA} + 16\text{ mA} \times P / P_{FS}$$

P_{FS} is the full-scale range from the part number.

Hookup

PIN · FUNCTION	CONNECT TO
P1 · Supply +	Supply + (voltage options)
P2 · COM	Supply - / ground
P3 · OUT +	ADC or meter input

Typical output

% OF FS	200 PSI	10K PSI	OPT. 0	OPT. 2
0%	0	0	0.50 V	4.0 mA
25%	50	2,500	1.50 V	8.0 mA
50%	100	5,000	2.50 V	12.0 mA
75%	150	7,500	3.50 V	16.0 mA
100%	200	10,000	4.50 V	20.0 mA

Ideal values; actual output is within the total error band.

DESIGN NOTES

4–20 mA: P2 = loop supply + (9–32 V), P1 = loop return through the receiver; P3 is not connected. Keep the vent cover clear of fluid and debris.

Mechanical dimensions – inches [mm]

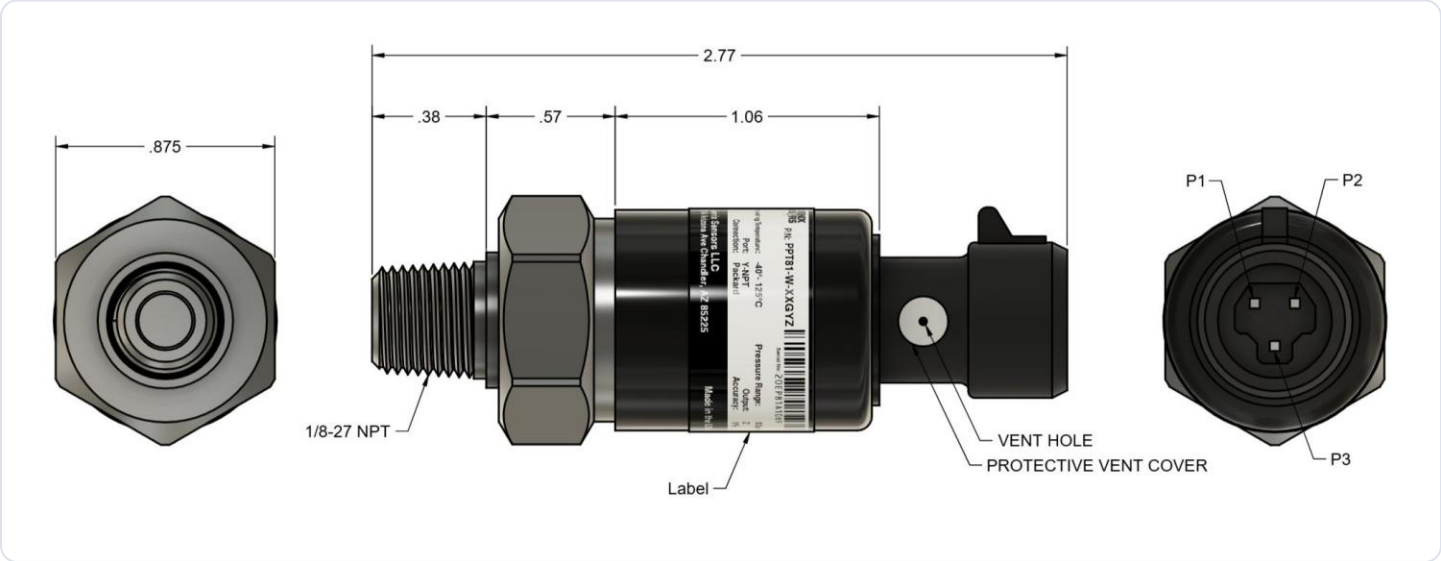


Fig. 2 – PPT81 outline with Packard connector and vent (drawings PPT81-0-XXG21 rev 1.1, PPT81-2-200G12 rev A).

Key dimensions

FEATURE	1/8-27 NPT	1/4-18 NPT
Overall length	2.77 [70.4]	2.75 [69.9]
Hex	0.875 [22.2]	0.875 [22.2]
Body diameter	Ø0.88 [22.4]	Ø0.88 [22.4]
Thread length	0.38 [9.7]	0.49 [12.4]

Construction

Housing	SS304
Port / diaphragm	17-4PH stainless steel
Connector	Metri-Pack 150, 3-pin
Vent	Protected vent cover

Ordering information — part-number configuration

PPT81

—

0

—

500

—

G

—

2

—

1

MODEL OUTPUT RANGE TYPE PORT SUPPLY

OUTPUT		RANGE (PSI)		TYPE	
0	0.5–4.5 V ratio.	100...20K e.g. 200, 500, 1K, 5K, 10K, 20K		G	Gauge
1	0–5 V			A	Absolute
2	4–20 mA			C	Compound
4	0–10 V				
PORT		SUPPLY			
1	1/4"-18 NPT	1	4.75–5.25 VDC		
2	1/8"-27 NPT	2	9–32 VDC		
3	7/16-20 UNF				
4	Custom				

Proof pressure 2× and burst 3× the selected range. Packard connector and IP65 are standard.

EXAMPLES

PPT81-0-500G21 → 0.5–4.5 V · 0–500 PSI gauge · 1/8" NPT · 5 V supply

PPT81-2-200G12 → 4–20 mA · 0–200 PSI gauge · 1/4" NPT · 9–32 V supply

Configure your PPT81

REQUEST A QUOTE

Custom ranges, ports and connectors are available for OEM volumes. Talk to an engineer to sales@phoenixsensors.com spec your part.

(480) 462-1810

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