PPT85 General Purpose Analog Pressure Transducer

Vacuum to 15,000 PSI · five output options · Packard, M12 or flying leads



PACKARD / M12 **IP65 / IP67** **ANALOG**

FEATURES

- -14.5 to 15,000 PSI ranges
- Gauge, absolute, sealed gauge or compound (vacuum)
- 0.5–4.5 V, 0–5 V, 0–10 V, 4–20 mA or 0–100 mV output
- ±0.5% FS typical total error band
- ±0.15% FS linearity · 5 ms response
- 2.7–5.5 VDC or 9–32 VDC supply
- -40 to 125 °C operating temperature
- Packard connector, flying leads or M12

DESCRIPTION

The PPT85 is a general purpose analog pressure transducer for OEM equipment that needs dependable performance across a wide range of pressures and media. A media-isolated piezoresistive MEMS element behind a stainless steel diaphragm provides stable, repeatable measurement from vacuum to 15,000 PSI.

A Delrin or SS316L housing, standard NPT, SAE and BSPP ports and a choice of Packard, M12 or flying-lead connections make the PPT85 simple to specify. Five output options cover most controller inputs. Contact us for custom designs.

APPLICATIONS

- Industrial automation
- Hydraulics
- Oil & gas
- HVAC
- Automotive engine
- Mil/Aero

MAXIMUM ENVIRONMENTAL RATINGS

Operating Temperature	**-40 to 125 °C**	Proof Pressure	**1.5× full scale**
Compensated Temperature	**0 to 70 °C**	Burst Pressure	**2× full scale**
Ingress Protection	**IP65 – IP67**	Pressure Range	**-14.5 to 15,000 PSI**

Operational characteristics

V+ = 5 V (supply option 1), V– = 0 V, T = 25 °C unless noted

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS
Supply voltage — option 1	V_{DD}	2.7	5.0	5.5	VDC
Supply voltage — option 2	V_S	9	—	32	VDC
Output — options 0 / 1 / 4	—		0.5–4.5 V ratiometric / 0–5 V / 0–10 V		—
Output — options 2 / 3	—		4–20 mA / 0–100 mV		—
Total error band	TEB	−1.0	±0.5	1.0	%FS
Linearity (BFSL)	NL	−0.15	—	0.15	%FS
Hysteresis	±%FS	−0.05	—	0.05	%FS
Repeatability	±%FS	−0.05	—	0.05	%FS
Temperature error	±%FS	−1.0	±0.5	1.0	%FS
Response time	t_R	—	5	—	ms
Current consumption	I	—	—	5	mA
Compensated temperature	T_C	0	—	70	°C
Operating temperature	T_{OP}	−40	—	125	°C
Pressure range	—	−14.5	—	15,000	PSI
Proof / burst pressure	—		1.5× / 2× full scale		—

NOTES

Output option 0 is ratiometric to supply. Errors measured over the compensated temperature range.

Electrical connections

WIRE	VOLTAGE OUTPUT	4–20 MA
Red	V+ in	Supply +
White	Output	—
Black	GND	Supply − (loop return)

Flying-lead colors shown. Packard and M12 pin assignments per the PPT85 outline drawing.

Pin configuration

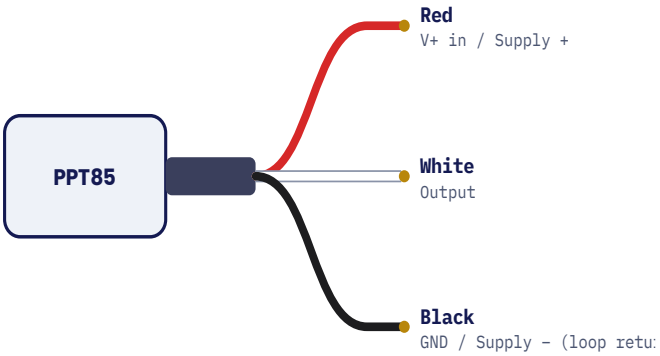


Fig. 1 — Packard, M12 and flying-lead pinouts.

Application information

Package

Delrin or SS316L housing, 1.28" hex × 2.5" height. Electrical connection by Packard connector, flying leads or M12.

Construction

A silicon MEMS die on a ceramic base, oil filled and sealed behind a stainless steel diaphragm. All sensors are factory stabilized.

Pressure ports

1/4" NPT and 1/8" NPT are standard; 7/16-20 UNF, 1/4" BSPP and 9/16-18 UNF (AN) are available for OEM customers.

Media

Tolerant of most media including oil, air, gas, water, some corrosive media and salt water.

Wetted parts

Stainless steel only — SS316L, 17-4PH or 304 depending on configuration.

Pressure ranges

Standard ranges are 50, 100, 500, 1,000, 5,000 and 15,000 PSI gauge; vacuum, compound, absolute and sealed gauge on request.

15K PSI	±0.5%	5	125 °C
Max range	Typical TEB	Output options	Max operating temp

Analog output

The PPT85 delivers a conditioned output proportional to applied pressure. Voltage options use three wires, the 4–20 mA option is a two-wire loop, and option 3 provides an unamplified 0–100 mV signal.

Option 0 — ratiometric (V_{DD} = 5 V)

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

Output scales with supply: $V_{OUT} = V_{DD} \times (0.1 + 0.8 \times P / P_{FS})$.

Option 2 — 4–20 mA

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

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

Typical output

% OF FS	100 PSI	5K PSI	OPT. 0	OPT. 2
0%	0	0	0.50 V	4.0 mA
25%	25	1,250	1.50 V	8.0 mA
50%	50	2,500	2.50 V	12.0 mA
75%	75	3,750	3.50 V	16.0 mA
100%	100	5,000	4.50 V	20.0 mA

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

Hookup

WIRE / PIN · FUNCTION	CONNECT TO
Red · V+	Supply + (2.7–5.5 V or 9–32 V)
Black · GND	Supply – / loop return
White · OUT	ADC or meter input

DESIGN NOTES

For 4–20 mA, connect Red to loop supply + and Black to the loop return through the receiver. For compound ranges, 0.5 V corresponds to the most negative pressure.

Mechanical dimensions — inches [mm]

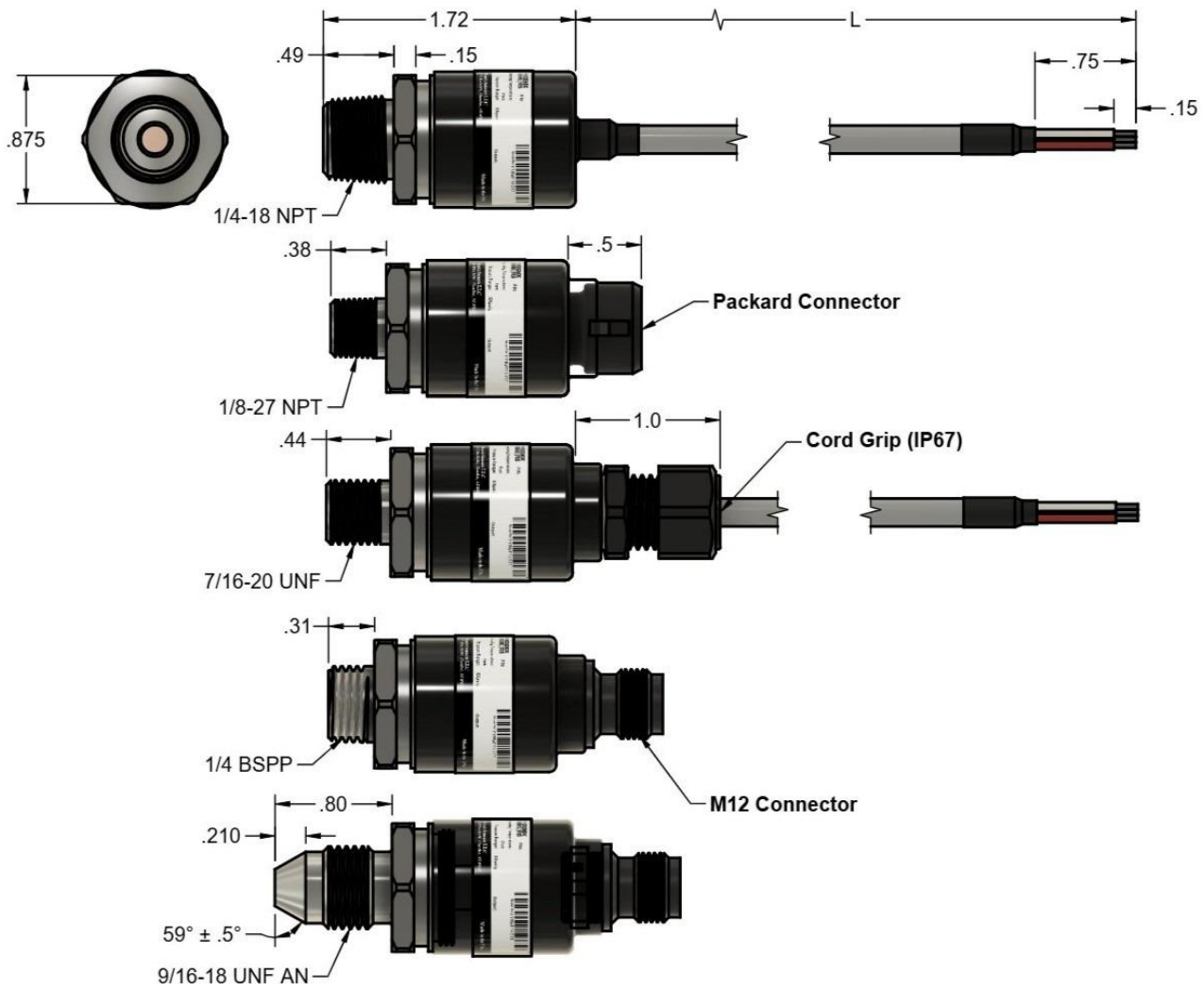


Fig. 2 — PPT85 port and connector configurations: flying leads, Packard, cord grip (IP67) and M12 (drawing PPT85-0-XXY-PESCL).

Key dimensions

PORT	THREAD LENGTH
1/4-18 NPT	0.49 [12.4]
1/8-27 NPT	0.38 [9.7]
7/16-20 UNF	0.44 [11.2]
1/4 BSPP	0.31 [7.9]
9/16-18 UNF AN (59° cone)	0.80 [20.3]
Hex (all versions)	0.875 [22.2]
Body length, 1/4 NPT leads	1.72 [43.7]

Construction

Housing	Delrin or SS316L
Wetted	SS316L / 17-4PH / 304
Electrical	Packard · flying leads · M12

Ordering information — part-number configuration

PPT85	–	0	–	500	G	1	1	S	M	–	10FT
MODEL		OUTPUT		RANGE	TYPE	PORT	SUPPLY	IP	ELECTRICAL		CABLE

OUTPUT	
0	0.5–4.5 V ratio.
1	0–5 V
2	4–20 mA
3	0–100 mV
4	0–10 V

RANGE (PSI)	
15…15 K	e.g. 15, 50, 100, 500, 1K, 5K, 15K

TYPE	
G	Gauge
A	Absolute
C	Compound (vacuum)
S	Sealed gauge

PORT	
1	1/4" NPT male
2	1/8" NPT male
3	7/16-20 UNF male
4	1/4" BSPP male
5	9/16-18 UNF male

SUPPLY	
1	2.7–5.5 VDC
2	9–32 VDC

IP RATING	
— / S	IP65
P	IP67

ELECTRICAL	
—	Packard
M	M12

CABLE	
1FT…20FT	Flying leads

Omit the electrical code for the Packard connector; add a cable length for flying leads.

EXAMPLES

PPT85-0-500G11 → 0.5–4.5 V · 0–500 PSI gauge · 1/4" NPT · 5 V · IP65 · Packard

PPT85-2-1KG12P-10FT → 4–20 mA · 0–1,000 PSI gauge · 1/4" NPT · 9–32 V · IP67 · 10 ft leads

Configure your PPT85

Custom ranges, ports, connectors and cable lengths are available for OEM volumes. Talk to an engineer to spec your part.

REQUEST A QUOTE
sales@phoenixsensors.com
(480) 462-1810

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