

PPT82 Microfused HVAC Pressure Transducer, Analog Output

Compact Ø21.5 mm stainless transducer for HVAC/R, compressor and pump systems · 5 to 1,450 PSI



CE

IP65

HVAC/R

DESCRIPTION

The PPT82 is a compact analog pressure transducer for HVAC/R equipment, air compressors, booster pumps and hydraulic and pneumatic systems. Its small diameter and short body suit installation in tight equipment cabinets and manifold blocks.

A 316L isolation diaphragm protects the piezoresistive silicon sensing element, and digital circuit compensation provides consistent accuracy across -20 to 85 °C. Choose the output, port and electrical connection that fit your system; contact us for custom configurations.

FEATURES

- Compact Ø21.5 mm (0.85") body, 22 mm (7/8") hex
- 5 to 1,450 PSI (35 kPa to 10 MPa) ranges
- Gauge, absolute or sealed gauge reference
- 0.5–4.5 V ratiometric, 0–10 V or 4–20 mA output
- ±0.5% FS typical, ±1.0% FS maximum accuracy
- Digital circuit compensation · ±1.5% FS thermal drift
- 316L wetted diaphragm, SS304 housing
- Packard, M12, Mini 4-pin or cable connection
- 7/16–20 UNF female (refrigerant) port option
- CE · EMC to IEC 61000–6–2 / 61000–6–3

APPLICATIONS

- HVAC/R & air-conditioning systems
- Air compressors
- Booster pumps & water systems
- Hydraulic & pneumatic equipment
- Servo valves & drives
- Piping systems

MAXIMUM ENVIRONMENTAL RATINGS

Ambient Temperature	-20 to 80 °C	Overload Pressure	2× – 3× FS (by range)
Medium Temperature	-30 to 105 °C	Burst Pressure	3× – 6× FS (by range)
Storage Temperature	-40 to 120 °C	Ingress Protection	IP65

Operational characteristics

T = 25 °C unless noted

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS
Supply — output option 0	V_{DD}	—	5.0	—	VDC
Supply — output options 2 and 4	V_S	12	—	30	VDC
Output — option 0 (ratiometric)	V_{OUT}	0.5	—	4.5	V
Output — option 2 (two-wire)	I_{OUT}	4	—	20	mA
Output — option 4	V_{OUT}	0	—	10	V
Accuracy	±%FS	—	0.5	1.0	%FS
Hysteresis & repeatability	±%FS	—	—	0.1	%FS
Temperature drift (-20 to 85 °C)	±%FS	—	—	1.5	%FS
Response time	t_R	—	—	25	ms
Ambient temperature	T_A	-20	—	80	°C
Medium temperature	T_M	-30	—	105	°C
Pressure range	—	5	—	1,450	PSI
Insulation resistance (500 VDC)	R_{ISO}	100	—	—	MΩ
Durability	—	≥ 10 ⁶ pressure cycles			—

NOTES

Overload and burst pressure depend on range — see the range table on page 3.

Electrical connections

PIN	VOLTAGE (3-WIRE)	4-20 MA (2-WIRE)
1	Supply +	Supply +
2	Ground	Current output
3	Voltage output	N/C

Packard (round), M12 and Mini 4-pin share this pin assignment.

Cable version — wire colors

Red	V+ / Supply +
Green	Ground / Current output
Yellow	Voltage output

Pin configuration

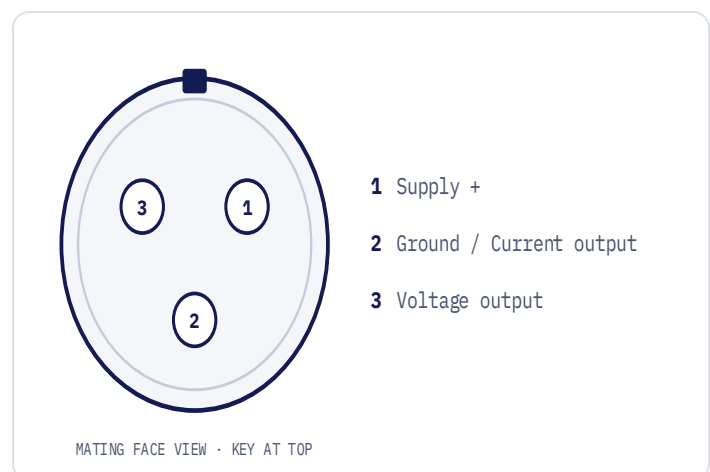


Fig. 1 — Round Packard connector face, pins 1-3.

Application information

Package

SS304 housing, Ø21.5 mm × 25.5 mm body with a 22 mm hex and PA66 electrical connector. Net weight 50–90 g depending on connection.

Pressure ports

1/4" NPT, 1/8" NPT, 7/16–20 UNF male, 7/16–20 UNF female and G 1/4. Recommended torque 15–25 N·m.

Sensing element

Piezoresistive silicon element behind a 316L isolation diaphragm, with digital circuit compensation for offset, span and temperature.

Media & pulsation

Air, water, oil and other fluids compatible with 316L. An optional M4 damper reduces water-hammer and compressor pulsation; verify refrigerant compatibility.

Pressure ranges

CODE (PSI)	RANGE	REFERENCE	OVERLOAD	BURST
5	0–35 kPa	G	3× FS	6× FS
10	0–70 kPa	G	3× FS	6× FS
15	0–100 kPa	G, A	2× FS	5× FS
23	0–160 kPa	G	2× FS	5× FS
36	0–250 kPa	G, A	2× FS	5× FS
58	0–400 kPa	G	2× FS	5× FS
87	0–600 kPa	G	2× FS	5× FS
145	0–1.0 MPa	G	2× FS	5× FS
232	0–1.6 MPa	S	2× FS	5× FS
363	0–2.5 MPa	S	2× FS	5× FS
870	0–6.0 MPa	S	2× FS	3× FS
1450	0–10 MPa	S	2× FS	3× FS

G = gauge, A = absolute, S = sealed gauge.



±0.5%

Typical accuracy FS

1,450

Max range PSI

Ø21.5 mm

Body diameter

IP65

Environmental rating

Analog output

The PPT82 delivers a conditioned analog signal proportional to applied pressure. Voltage options use three wires; the 4–20 mA option is a two-wire loop.

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

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

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

Option 2 — 4–20 mA

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

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

Option 4 — 0–10 V

$$V_{OUT} = 10\text{ V} \times P / P_{FS}$$

Hookup

PIN • FUNCTION	CONNECT TO
1 • Supply +	Supply + (5 V, or 12–30 V)
2 • Ground	Supply – (voltage options)
3 • V_{OUT}	Controller / ADC input

Typical output

% OF FS	145 PSI	363 PSI	OPT. 0	OPT. 2
0%	0	0	0.50 V	4.0 mA
25%	36.3	90.8	1.50 V	8.0 mA
50%	72.5	181.5	2.50 V	12.0 mA
75%	108.8	272.3	3.50 V	16.0 mA
100%	145	363	4.50 V	20.0 mA

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

DESIGN NOTES

4–20 mA: pin 1 = loop supply + (12–30 V), pin 2 = current output to the receiver. Mount vertically where particles are present to minimize port clogging.

Mechanical dimensions – inches [mm]

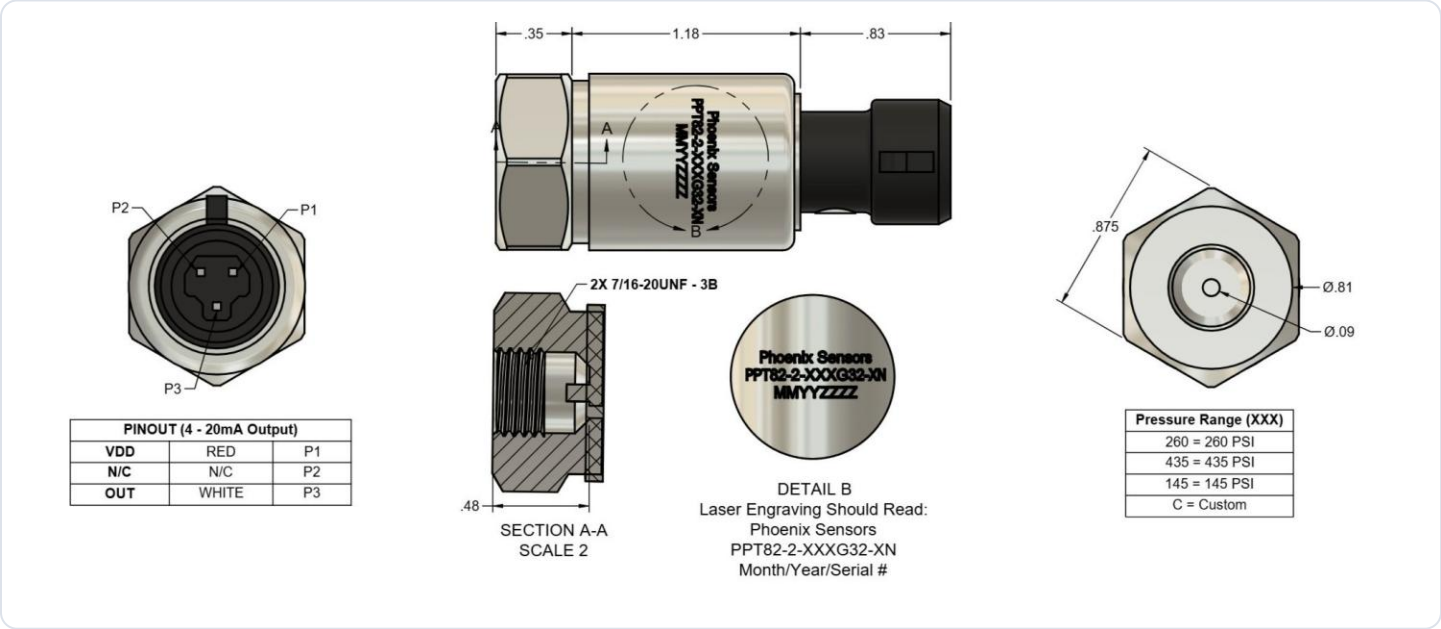


Fig. 2 – PPT82 outline by electrical connection. Port dimensions per thread code.

Key dimensions

CONNECTION	OVERALL HEIGHT
Round Packard	1.89 [48.0]
M12	1.48 [37.5]
Mini 4-pin	1.35 [34.3]
Cable outlet (Ø5.5 mm)	1.24 [31.5]

Construction

Body	Ø0.85 [21.5] × 1.00 [25.5]
Hex	22 mm (7/8")
Housing	SS304
Diaphragm	316L
Connector	PA66

Ordering information — part-number configuration

PPT82	—	0	—	145	G	3F	P
MODEL		OUTPUT		RANGE	TYPE	PORT	ELECTRICAL

OUTPUT		RANGE (PSI)		TYPE		PORT	
0	0.5–4.5 V (5 V)	5...145	G (15, 36 also A)	G	Gauge	1	1/4" NPT
2	4–20 mA (12–30 V)	232...145		A	Absolute	2	1/8" NPT
4	0–10 V (12–30 V)	0	Sealed gauge	S	Sealed gauge	3	7/16-20 UNF male
						3F	7/16-20 UNF female
						4	G 1/4 (BSPP)

ELECTRICAL	
P	Round Packard
M	M12
D	Mini 4-pin
C	Cable outlet

Range codes are the nominal PSI equivalents of the metric ranges on page 3.

EXAMPLES

PPT82-0-145G3FP → 0.5–4.5 V · 0–145 PSI gauge · 7/16-20 UNF female · Packard

PPT82-2-363S1M → 4–20 mA · 0–363 PSI sealed gauge · 1/4" NPT · M12

Configure your PPT82

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

REQUEST A QUOTE

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(480) 462-1810

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