

PPT56 Compact Analog High Pressure (1K PSI+) Transducer

1,000 to 15,000 PSI · media-isolated SS316L · 0.5–4.5 V, 0–5 V, 0–10 V or 4–20 mA



SS316L

1K–15K PSI

ANALOG

DESCRIPTION

The PPT56 is a compact, high-pressure analog transducer for liquid, air and gas from 1,000 to 15,000 PSI. A media-isolated piezoresistive MEMS element sits behind an SS316L diaphragm, giving a small, rugged package with excellent long-term stability.

On-board signal conditioning delivers a calibrated, temperature-compensated analog output. Choose a Delrin or SS316L housing, a standard NPT or SAE port and the output that fits your system. Contact us for custom ranges, ports and connectors.

FEATURES

- 1,000 to 15,000 PSI pressure ranges
- Media isolated SS316L diaphragm — liquid, air & gas
- $\pm 0.5\%$ FS typical total error band
- $\pm 0.25\%$ FS linearity
- Outputs: 0.5–4.5 V ratiometric, 0–5 V, 0–10 V, 4–20 mA
- 4.75–5.25 VDC or 9–32 VDC supply
- -40 to 125 °C operating temperature
- Sealed gauge or absolute reference
- Compact $0.75" \times 1.5"$ package

APPLICATIONS

- Hydraulic systems
- Industrial automation
- Oil & gas
- Mil/Aero
- Compressors & pumps
- Test & measurement
- OEM equipment

MAXIMUM ENVIRONMENTAL RATINGS

Operating Temperature	-40 to 125 °C	Proof Pressure	2× FS (15K PSI max)
Pressure Range	1,000 to 15,000 PSI	Burst Pressure	3× FS (15K PSI max)

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}	4.75	5.0	5.25	VDC
Supply voltage — option 2	V _{DD}	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
Total error band (note 1)	TEB	-1.0	±0.5	1.0	%FS
Linearity (BFSL)	NL	-0.25	—	0.25	%FS
Temperature error	—	-1.0	—	1.0	%FS
Response time	t _R	1	2	20	ms
Operating temperature	T _{OP}	-40	—	125	°C
Pressure range	—	1,000	—	15,000	PSI
Proof pressure	—	2× FS (15,000 PSI max)			—
Burst pressure	—	3× FS (15,000 PSI max)			—

NOTES

1) Total error band includes linearity, hysteresis, repeatability and thermal errors over the compensated range. 2) Output option 0 is ratiometric to supply.

Electrical connections

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

Flying leads standard (1, 2 or 3 ft). Molex and other connectors available — see customer drawing PPT56-0-2KS21-MHS.

Wiring

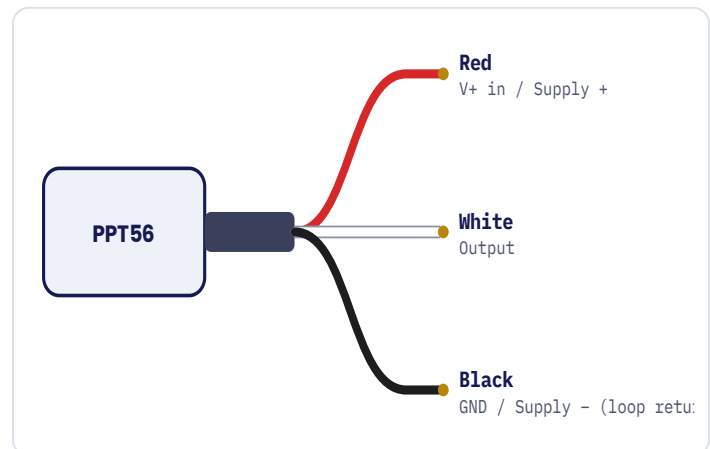


Fig. 1 — Flying-lead wiring.

Application information

Package

Compact $\varnothing 0.75" \times 1.5"$ body in Delrin (standard) or SS316L (high temperature / harsh environment). Flying-lead electrical exit; connector options for OEM volumes.

Pressure ports

$1/4"$ -18 NPT and $1/8"$ -27 NPT male are standard. $7/16$ -20 UNF and $1/4"$ BSPP are available for OEM customers.

Wetted parts

SS316L port and diaphragm with Viton O-ring. Verify compatibility for aggressive media.

Construction

A silicon MEMS die, oil filled and welded behind an SS316L isolation diaphragm and sealed with a Viton O-ring. Every unit is factory stabilized for long-term stability.

Media

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

Pressure ranges

Standard ranges are 1,000, 2,500, 5,000, 7,500, 10,000 and 15,000 PSI, sealed gauge or absolute. Custom ranges available.

15K PSI

Max range

$\pm 0.5\%$

Typical total error band

125 °C

Max operating temp

$\varnothing 0.75"$

Body diameter

Analog output

The PPT56 delivers a conditioned analog signal proportional to applied pressure. Voltage outputs use three wires (supply, output, ground); 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.

Hookup

WIRE / PIN · FUNCTION	CONNECT TO
Red · V+	Supply + (option 1: 5 V · option 2: 9–32 V)
Black · GND	Supply – / ground
White · OUT	ADC or meter input

Typical output

% OF FS	1K PSI	10K PSI	OPT. 0	OPT. 2
0%	0	0	0.50 V	4.0 mA
25%	250	2,500	1.50 V	8.0 mA
50%	500	5,000	2.50 V	12.0 mA
75%	750	7,500	3.50 V	16.0 mA
100%	1,000	10,000	4.50 V	20.0 mA

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

DESIGN NOTES

For the 4–20 mA option, connect Red to loop supply + and Black to the loop return through the receiver. Size the loop supply for the receiver burden resistor.

Mechanical dimensions – inches [mm]

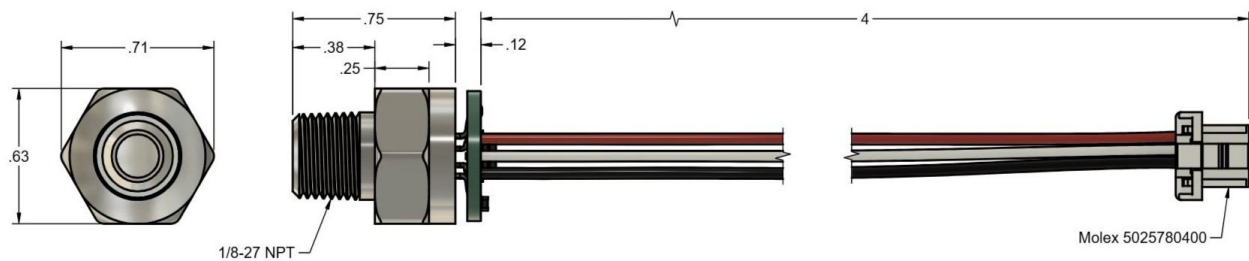


Fig. 2 – PPT56 outline, 1/8-27 NPT with Molex 5025780400 harness (drawing PPT56-0-2KS21-MHS rev B).

Key dimensions

FEATURE	VALUE
Hex (across flats × height)	0.71 × 0.63 [18.0 × 16.0]
Length, port to lead exit	0.75 [19.1]
Thread length, 1/8-27 NPT	0.38 [9.7]
Hex thickness	0.25 [6.4]
Lead length (this config.)	4 [102]

Construction

Housing	Delrin or SS316L
Port / diaphragm	SS316L
O-ring	Viton
Electrical	Flying leads (std)

Ordering information — part-number configuration

PPT56	—	0	—	2K	S	2	1	S	—	1FT
MODEL		OUTPUT		RANGE	TYPE	PORT	SUPPLY	IP		CABLE

OUTPUT		RANGE (PSI)		TYPE		PORT	
0	0.5–4.5 V ratio.	1K	1,000	S	Sealed gauge	1	1/4" NPT male
1	0–5 V	2.5K	2,500	A	Absolute	2	1/8" NPT male
2	4–20 mA	5K	5,000			3	7/16–20 UNF
4	0–10 V	7.5K	7,500			4	1/4" BSPP
		10K	10,000				
		15K	15,000				
		...	Custom (e.g. 2K)				
SUPPLY		IP RATING		CABLE			
1	4.75–5.25 VDC	S	IP65	1FT	1 ft leads		
2	9–32 VDC	P	IP67	2FT	2 ft leads		
				3FT	3 ft leads		

Proof pressure 2× and burst 3× the selected range, 15,000 PSI maximum. Output option 0 requires supply option 1.

EXAMPLES

PPT56-0-2KS21S-1FT → 0.5–4.5 V · 0–2,000 PSI sealed gauge · 1/8" NPT · 5 V · IP65 · 1 ft leads

PPT56-2-10KS12P-3FT → 4–20 mA · 0–10,000 PSI sealed gauge · 1/4" NPT · 9–32 V · IP67 · 3 ft leads

Configure your PPT56

REQUEST A QUOTE

Custom ranges, ports, connectors and cable lengths are available for OEM volumes. Talk to sales@phoenixsensors.com or call (480) 462-1810.

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