PPT83 Standard Glass Fused Industrial Analog (100 PSI+) Transducer

PPT83-FE glass-fused stainless front end · 100 to 15,000 PSI · 0.5–4.5 V, 0–5 V, 0–10 V or 4–20 mA



GLASS FUSED **IP65 / IP67** **100–15K PSI**

FEATURES

- Glass-fused silicon strain gauges on a 17-4PH stainless diaphragm
- Media isolated — no O-rings or oil fill in the media path
- 100 to 15,000 PSI · gauge, absolute or compound
- ±1.0% FS total error band; ±0.25% FS option (H)
- ±0.25% FS linearity · 5 ms response
- 0.5–4.5 V, 0–5 V, 0–10 V or 4–20 mA output
- 4.75–5.25 VDC or 9–32 VDC supply
- -40 to 125 °C operating temperature
- IP65 standard; IP67 with cord grip

DESCRIPTION

The PPT83 is a standard industrial analog transducer built on the PPT83-FE glass-fused front end. Silicon strain gauges are inorganically bonded to a machined 17-4PH stainless steel diaphragm, giving a fully welded, media-isolated pressure path with high overpressure capability and excellent long-term stability.

A Delrin cap and potted electronics keep the package low-profile and cost-effective for OEM volumes. Choose the output, port, supply and accuracy grade that fit your system. Contact us for custom designs.

APPLICATIONS

- Industrial automation
- Hydraulics
- Mil/Aero
- Automotive engine
- Compressors
- Pneumatics
- HVAC

MAXIMUM ENVIRONMENTAL RATINGS

Operating Temperature	**-40 to 125 °C**	Proof Pressure	**2× full scale**
Storage Temperature	**-55 to 130 °C**	Burst Pressure	**5× full scale**
Ingress Protection	**IP65 – IP67**	Pressure Range	**100 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}	4.75	5.0	5.25	VDC
Supply voltage — option 2	V_S	9	—	32	VDC
Supply current (voltage outputs)	I_{DD}	—	1.0	1.5	mA
Output — options 0 / 1 / 4	—	0.5–4.5 V ratiometric / 0–5 V / 0–10 V			—
Output — option 2	I_{OUT}	4	—	20	mA
Total error band — standard	TEB	–1.0	±0.5	1.0	%FS
Total error band — option H	TEB	–0.25	—	0.25	%FS
Linearity (BFSL)	NL	–0.25	—	0.25	%FS
Response time	t_R	—	5	10	ms
Compensated temperature	T_C	–40	—	85	°C
Operating temperature	T_{OP}	–40	—	125	°C
Pressure range	—	100	—	15,000	PSI
Proof / burst pressure	—	2× / 5× full scale			—

NOTES

Total error band over the compensated temperature range. Output option 0 is ratiometric and requires supply option 1.

Electrical connections

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

24" (2 ft) cable standard. Sealed 2-pin connector available for 4–20 mA versions.

Wiring

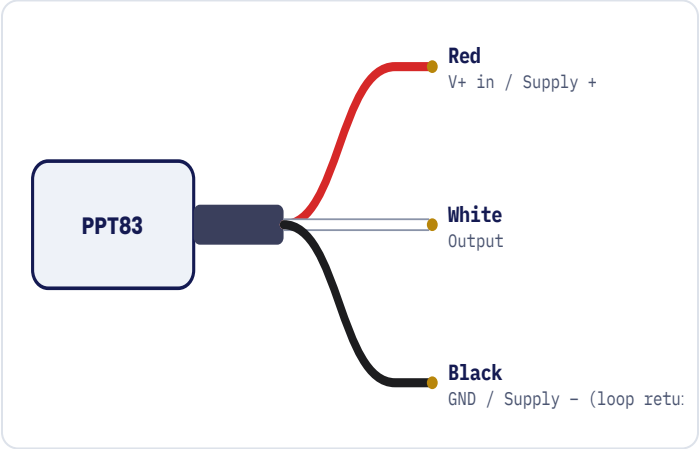


Fig. 1 — Cable wiring.

Application information

Package

Low-profile Delrin cap over a 17-4PH stainless port. IP65 standard; IP67 with cord grip. 24" cable exit standard.

Sensing element

The PPT83-FE front end: silicon strain gauges glass-fused (inorganically bonded) to the stainless diaphragm. No internal O-rings, adhesives or oil fill in the media path.

Pressure ports

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

Media

Harsh liquids, air and gas — oil, fuel, water, some corrosive media and salt water — compatible with 17-4PH stainless steel.

Pressure ranges

Standard ranges are 100, 300, 500, 1,000, 1,500, 3,000, 5,000, 10,000 and 15,000 PSI. Custom ranges available.

Accuracy option H

Specify option H for a ±0.25% FS total error band on demanding control and measurement applications.

15K PSI	±0.25%	5 ms	5×
Max range	TEB option H	Response time	Burst pressure FS

Analog output

The PPT83 provides a conditioned analog output 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 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	500 PSI	5K PSI	OPT. 0	OPT. 2
0%	0	0	0.50 V	4.0 mA
25%	125	1,250	1.50 V	8.0 mA
50%	250	2,500	2.50 V	12.0 mA
75%	375	3,750	3.50 V	16.0 mA
100%	500	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 + (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. Use shielded cable in electrically noisy environments.

Mechanical dimensions — inches [mm]

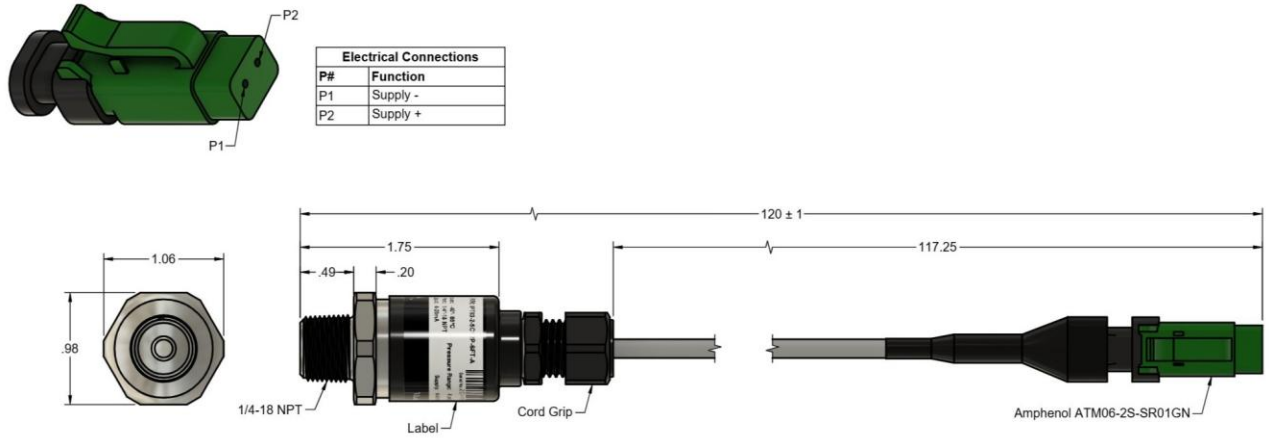


Fig. 2 — PPT83 outline, IP67 cord-grip version with Amphenol ATM06-2S connector (drawing PPT83-2-5C12P-10FT-A-IET).

Key dimensions

FEATURE	VALUE
Hex (across corners × flats)	1.06 × 0.98 [26.9 × 24.9]
Body length (excl. port)	1.75 [44.5]
Thread length, 1/4-18 NPT	0.49 [12.4]
Cable length (this config.)	120 ± 1 [3048]

Construction

Cap	Delrin
Port / diaphragm	17-4PH stainless
Front end	PPT83-FE glass fused
Electrical	3-wire cable, 24" std
Sealing	IP65 · IP67 cord grip

Ordering information — part-number configuration

PPT83	–	0	–	500	G	1	1	S	H
MODEL		OUTPUT		RANGE	TYPE	PORT	SUPPLY	IP	ACCURACY

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

RANGE (PSI)	
100…15K	100, 300, 500, 1K, 1.5K, 3K, 5K, 10K, 15K

TYPE	
G	Gauge
A	Absolute
C	Compound

PORT	
1	1/4" NPT
2	1/8" NPT
3	7/16-20 UNF-3A
4	Custom

SUPPLY	
1	4.75–5.25 VDC
2	9–32 VDC

IP RATING	
S	IP65
P	IP67 (cord grip)

ACCURACY	
—	±1.0% TEB
H	±0.25% TEB

Proof pressure 2× and burst 5× the selected range.

EXAMPLES

PPT83-0-500G11S → 0.5–4.5 V · 0–500 PSI gauge · 1/4" NPT · 5 V · IP65 · ±1.0%

PPT83-2-3KA12PH → 4–20 mA · 0–3,000 PSI absolute · 1/4" NPT · 9–32 V · IP67 · ±0.25%

Configure your PPT83

Custom ranges, ports, cable lengths 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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