

PTE Series

ALL-METAL PRESSURE SENSORS

PRODUCT DATA



GENERAL

PTE Series pressure sensors combine Application Specific Integrated Circuit (ASIC) technology with a media isolated, metal diaphragm design. This digitally compensated sensor featuring thick-film technology offers value and performance, making it the ideal pressure sensing solution for demanding applications. Fully temperature-compensated, calibrated, and amplified, the PTE is available in 0...550 bar pressure ranges.

PTE sensors deliver $\pm 0.25\%$ full-scale accuracy – Best Fit Straight Line (BFSL) – and as low as 2% total error over a temperature range of $-40\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$ [$-40\text{ }^{\circ}\text{F}$ to $+257\text{ }^{\circ}\text{F}$]. Industry standard connectors and process ports are offered for enhanced reliability and user flexibility.

They are suitable for use in:

- Compressors
- Refrigeration and HVAC/R
- General industrial
- General hydraulics
- Multiple transportation applications including braking and alternate fuels
- Medical

The sensors are equipped with a standard 4...20 mA current-controlled output.

FEATURES

- All-metal wetted parts for use in wide variety of fluid applications
- No internal elastomeric seals and thus no O-ring compatibility issues
- Amplified outputs eliminate cost of external amplifiers
- Input reverse voltage protection guards against mis-wiring
- Response time of under 2 ms for accurate, high-speed measurement
- Rated IP65 or better for protection against harsh environments

TECHNICAL SPECIFICATIONS

At $25\text{ }^{\circ}\text{C}$ ($77\text{ }^{\circ}\text{F}$) and at rated excitation

Measurement range 0 ... +550 bar (0 ... 8,000 psi)

Process connection G1/4"
G1/2"

Operating temp. range $-40\text{ }^{\circ}\text{C}$... $+125\text{ }^{\circ}\text{C}$

Storage temp. range $-40\text{ }^{\circ}\text{C}$... $+125\text{ }^{\circ}\text{C}$

Total Accuracy

$p < 7\text{ bar}$ (100 psi) $\pm 0.5\%$ of FFS

$p \geq 7\text{ bar}$ (100 psi) $\pm 0.25\%$ of FFS

Output signal 4...20 mA

Operating voltage 10...30 VDC

Materials

In contact with medium Stainless steel 304L (1.4306);
diaphragm: Haynes 214 alloy

Housing Plastic – Amodel AS-4133 HS - PPA

Protection rating IP65

Approvals CE

Electrical connection M12x1 or DIN 175301-C

SPECIFICATIONS

Table 1. Pressure range specifications (at 25 °C [77 °F] and at rated excitation unless otherwise specified)

	bar											
Pressure	6	10	16	25	40	60	100	160	250	350	500	550
Proof pressure	18	30	48	75	80	120	200	320	500	700	750	825
Burst pressure	60	100	160	250	400	600	1000	1600	2068	2068	2068	2068

NOTE: Comparable metric units follow the same proof and burst specifications.

Table 2. Physical and environmental specifications

Parameter	Characteristic
Material in contact with media	Port: stainless steel 304L (1.4306); diaphragm: Haynes 214 alloy
Housing material	Plastic – Amodel AS-4133 HS – PPA
Weight	57 g (typical for G ¼")
Shock	100 g peak (11 ms)
Vibration	MIL-ST-810C, Figure 514.2-5, Curve AK, Table 514.2-V, Random Vibration Test (overall g rms = 20.7 min.)
ESD	IEC 61000-4-2:2008 or later addition
Radiated Immunity	IEC 61000-4-3:2006 or later addition
Fast Transient Burst	IEC 61000-4-4:2004 or later addition
Immunity to Conducted Disturbances	IEC 61000-4-6:2008 or later addition
Radiated Emissions	CISPR 11:2009 or later addition
Compensated and operating temperature range	-40 ... +125 °C (-40 ... +257 °F) (see also Fig. 1)
Storage temperature range	-40 ... +125 °C (-40 ... +257 °F)
Approvals	CE

Table 3. Performance specifications (at 25 °C [77 °F] and at rated excitation unless otherwise specified)

Parameter	Characteristic
Response time	< 2 ms
Accuracy, BFSL ¹ :	
≥ 100 psi	±0.25% FFS
< 100 psi	±0.50% FFS
Total error band of gage ² :	
< 300 psig	±3% FFS
≥ 300 psig	±2% FFS

¹ Includes pressure non-linearity, pressure hysteresis, and non-repeatability. Thermal errors are not included.

² Includes zero error, span error, thermal effect on zero, thermal effect on span, thermal hysteresis, pressure non-linearity, pressure hysteresis, and non-repeatability.

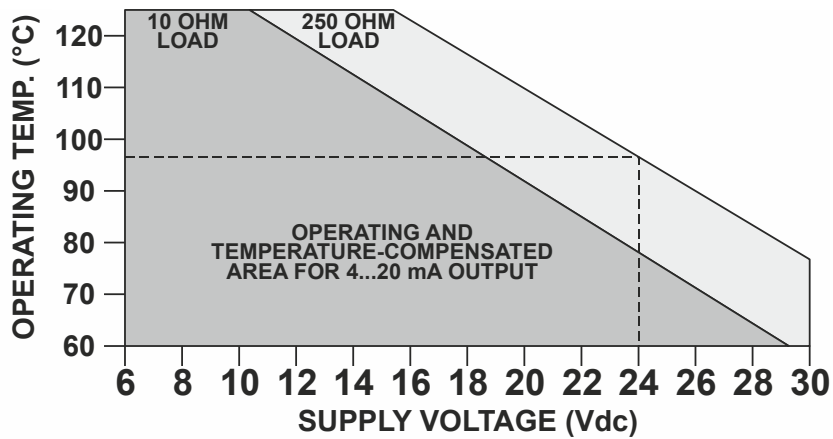


Fig. 1. Operating and temperature-compensated area for 4...20 mA output

NOTE: The operating area is extended using a 250 Ohm resistor. Higher loads extend the operating area. The dashed line indicates the operating and temperature-compensated area with a 24 V supply using a 250 Ohm resistor.

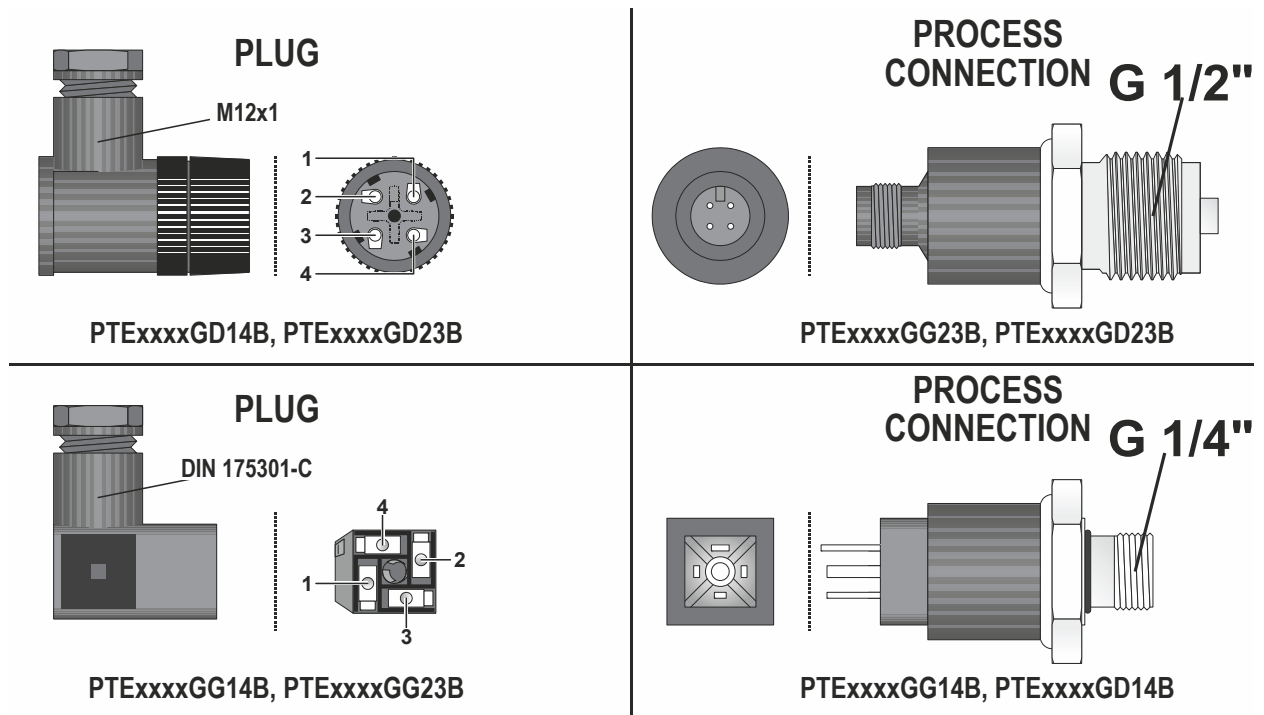


Fig. 2. Pin assignments

Table 4. Pin and wire codes for M12X1 Brad Harrison and DIN 175301 (43650) form C

pin	current
1	+ excitation
2	- excitation (return)
3	N/C
4	N/C

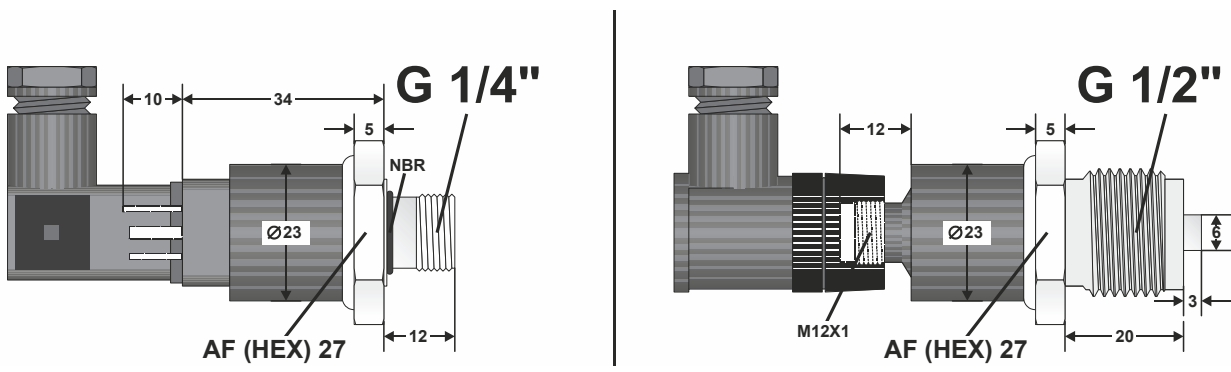


Fig. 3. Dimensions (mm)

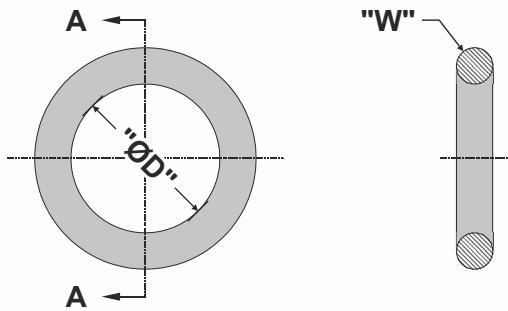
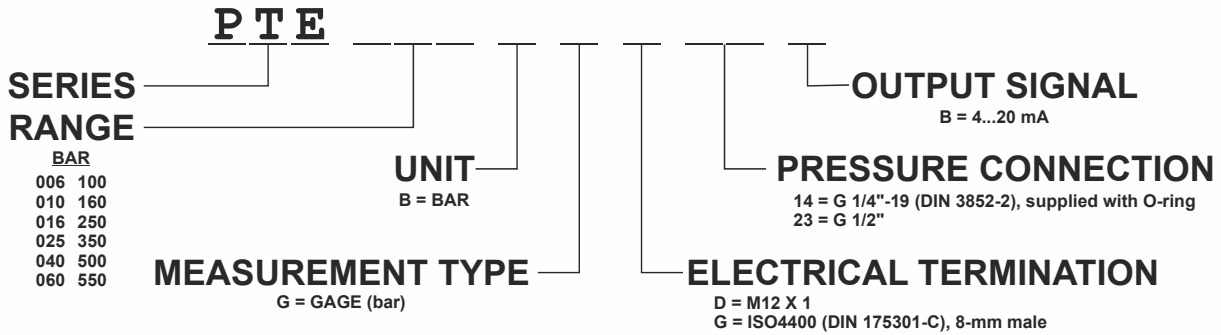


Fig. 4. O-ring

"ØD" (mm)	"W" (mm)	DESCRIPTION
10.8	1.8	G 1/4"
COMPOUND: NITRILE (BUNA N) TO ASTM D 2000 OR SAE J200		

NOMENCLATURE AND ORDER GUIDE



ORDERING EXAMPLE FOR PRESSURE TRANSMITTER 0...6 bar WITH PLUG M12x1 AND 1/4" PROCESS CONNECTION: PTE006BGD14B

Fig. 5. OS number key

Honeywell



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