

# Paine™ 211-50-070 Series Pressure Transducer

mV/V, Downhole, HP/HT, +260 °C, Ranges to 30,000 PSIA (2,068 BAR)



The Paine 211-50-070 Series is our rugged High Pressure/High Temperature (HP/HT) combination transducer designed for +500 °F (+260 °C) offshore oil, gas, and power industry requirements. The Paine 211-50-070 Series, based on its small size, all-welded construction, and ability to perform in corrosive high shock and vibration environments, is the best solution for new tool and process equipment design when temperatures are going to reach +500 °F (+260 °C).

## Solutions

- High pressure and high temperature measurement
- Each sensor is provided with coefficients to load into your electronics for temperature and non-linearity compensation
- All-welded, sealed construction
- Harsh/extreme environment ready

## Potential applications

- Oil and gas exploration and production
- MWD, PWD, and LWD tools
- Wellhead and pump station monitoring
- Geothermal and power generation
- OEM and end-user applications

## Features

- **Full Scale (F.S.) sensitivity:** 2.8 mV/V nominal
- **Total error band (non-linearity, hysteresis, and thermal effects):** ± 0.150% F.S.
- **Output:** mV/V
- **Operating temperature:** +75 to +500 °F (+23 to +260 °C)
- **Pressure range:** 0–5,000 to 0–30,000 PSIA (344 to 2,068 BAR)
- **Operating media:** Compatible with alloy UNS NO7718 solution annealed and aged to a minimum hardness of 40HRC
- **Pressure fitting:** Per MS33656-E3

## Specifications

**Calibration:** Calibration certificates are supplied with each unit and available online.

## Performance

**Full Scale (F.S.) sensitivity:** 2.8 mV/V nominal

**Total error band (non-linearity, hysteresis, and thermal effects):** ± 0.150% F.S.

**Non-linearity and hysteresis combined:** ±0.150% of F.S. maximum (BSLM)

**Output at zero pressure:** 0 ± 2.8 mV/V nominal

**Platinum resistance temperature detector (RTD):** 0 °C, 1000 Ω ± 0.06% Ω to IEC 751, Class A, Alpha = 0.00385 nominal

**Uncompensated:** This sensor is not hardware compensated for temperature effects on signal. Each sensor is provided with coefficients to load into your electronics for temperature and nonlinearity compensation.

## Environmental

**Environmental:** Error due to combined effect of shock, vibration, and acceleration shall be less than 0.01% of F.S.O. per G.

**Operating temperature range:** +75 to +500 °F (23 to +260 °C)

**Compensated temperature range:** +75 to +500 °F (23 to +260 °C)

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## Mechanical

**Pressure range:** Contact factory for additional pressure ranges.

**Table 1. Pressure Table**

Standard part number	Pressure range PSIA (BAR)	Proof pressure PSIA (BAR)	Burst pressure PSIA (BAR)	Replaceable seal part number
211-50-070-01	0–5,000 (0–344)	7,500 (517)	10,000 (689)	247-99-250-01
211-50-070-02	0–10,000 (0–689)	15,000 (1,034)	20,000 (1,378)	247-99-250-01
211-50-070-03	0–15,000 (0–1,034)	18,750 (1,292)	22,500 (1,551)	247-99-250-01
211-50-070-04	0–20,000 (0–1,378)	25,000 (1,723)	30,000 (2,068)	247-99-250-01
211-50-070-05	0–22,500 (0–1,551)	28,125 (1,923)	30,000 (2,068)	247-99-250-01
211-50-070-06	0–25,000 (0–1,723)	31,250 (2,154)	33,000 (2,757)	247-99-250-02
211-50-070-07	0–30,000 (0–2,068)	37,500 (2,585)	40,000 (2,757)	247-99-250-02

**External case pressure:** Up to 20,000 psi (1378 bar)

**Pressure media:** Any compatible with alloy UNS NO7718 solution annealed and aged to a minimum hardness of 40 HRC.

**Pressure fitting:** Per MS33656-E3

**Installation information:** Mount on port using annealed alloy 600 replaceable seal. Thermal coefficient of the mounting expansion should not exceed  $8.3 \times 10^{-6}$  in/in °F for operation above 100 °C.

**Recommended installation torque:** 125 to 150 in-lb (14–17 Nm)

## Electrical

**Excitation:** 1 to 20 VDC (10 VDC nominal)

**Input resistance:**  $1500 \pm 300 \Omega$

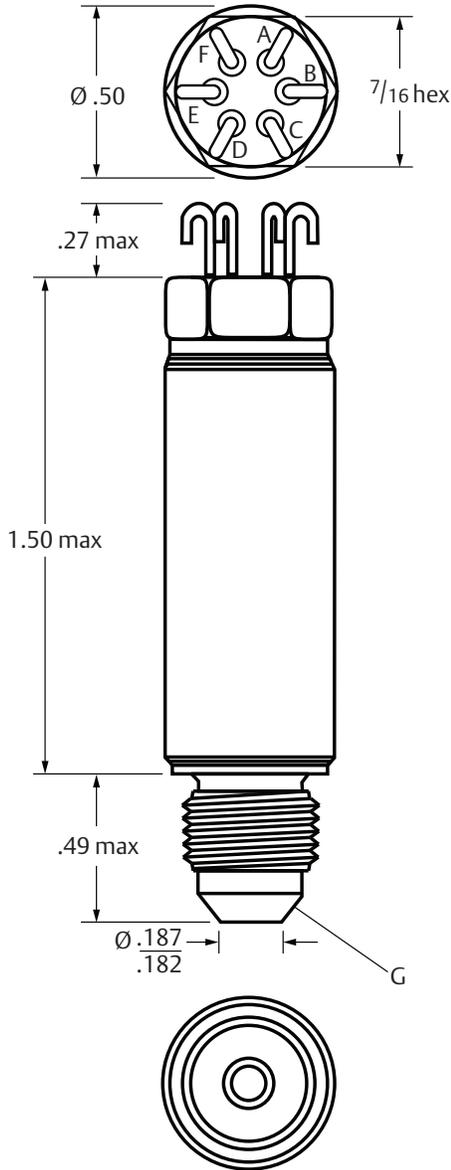
**Output resistance:**  $1500 \pm 150 \Omega$

**Insulation resistance:** All conductors together to case, 10 GΩ minimum at 50 VDC and +77 °F (+25 °C)

**Electrical connections:** High temperature solderable pins

# Dimensional drawings

Figure 1. Paine 211-50-070 Series



Connections	
PIN	Function
A	+ Excitation
B	+ Signal
C	- Signal
D	- Excitation
E	R.T.D.
F	R.T.D.

A - F. See connections table.  
 G. Fitting end per MS33656-E3  
 Dimensions are shown in inches.

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