HIGH ACCURACY

measurement instruments

PRODUCT DATASHEET

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Product Data Sheet
September 2017
211-50-070, Rev M

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).

EMERSON

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

Un-compensated: 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)

Contents

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
211-50-520-01	0–5,000 (0–344)	7,500 (517)	10,000 (689)	247-99-250-01
211-50-520-02	0–10,000 (0–689)	15,000 (1,034)	20,000 (1,378)	247-99-250-01
211-50-520-03	0–15,000 (0–1,034)	18,750 (1,292)	22,500 (1,551)	247-99-250-01
211-50-520-04	0–20,000 (0–1,378)	25,000 (1,723)	30,000 (2,068)	247-99-250-01
211-50-520-05	0–22,500 (0–1,551)	28,125 (1,923)	30,000 (2,068)	247-99-250-01
211-50-520-06	0–25,000 (0–1,723)	31,250 (2,154)	33,000 (2,757)	247-99-250-02
211-50-520-07	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 8.3×10^{-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 ± 300 Ω

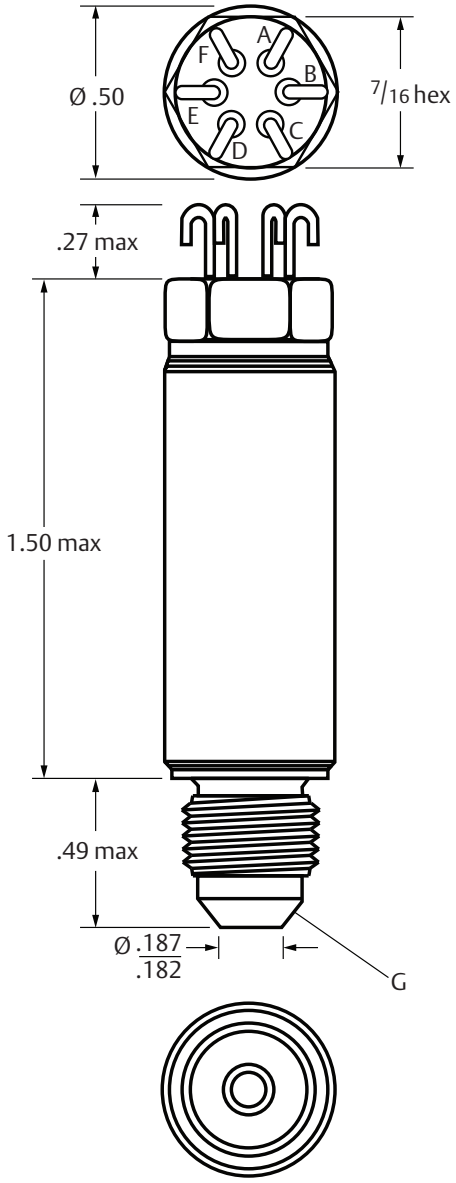
Output resistance: 1500 ± 150 Ω

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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Our offering:

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	Temperature Measurement		Flow Measurement
	Marine Measurement & Analytical		Gas Analysis
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