Product Data Sheet
September 2017
311-38-540, Rev F

Paine™ 311-38-540 Series Pressure Transducer

mV/V, HP/HT, +218 °C, Ranges to 30,000 PSIA (2,068 BAR)

Well suited for applications requiring high shock, vibration, and external case pressures, the Paine 311-38-540 Series is the perfect solution for critical pressure and direct media stream temperature measurements. The Paine 311-38-540 Series is designed for corrosive environments and is provided in pressure ranges of 0–5,000 to 0–30,000 psia (0–344 to 0–2068 bar) and temperature measurement from –40 to +425 °F (–40 to +218 °C).

EMERSON

Solutions

- High pressure and high temperature measurement
- Direct media stream temperature measurement
- Rapid temperature change detection
- All-welded, sealed construction
- Harsh/extreme environment ready

Potential applications

- Oilfield drilling/production
- Industrial plant automation monitoring
- Harsh/extreme/corrosive environments
- Heavy/agricultural/off-road equipment

Features

- **Full Scale (F.S.) sensitivity:** 2.6 mV/V nominal
- **Total error band (non-linearity, hysteresis, and thermal effects):** Shall not be greater than 0.02% of the F.S. as compared to the serial number specific polynominal model P (T, mV) for all input pressures and temperatures over the calibrated range.
- **Output:** mV/V
- **Operating temperature:** –40 to +425 °F (–40 to +218 °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-E4 except I.D.

Specifications

Calibration: Calibration certificates are supplied with each unit and available on-line.

Performance

Full Scale (F.S.) sensitivity: 2.6 mV/V nominal

Total error band (non-linearity, hysteresis, and thermal effects): Shall not be greater than 0.02% of the F.S. as compared to the serial number specific polynominal model P (T, mV) for all input pressures and temperatures over the calibrated range.

Output at Zero Pressure: 0.12 ± 0.1 mV/V over calibrated temperature range

Platinum Resistance Temperature Detector (RTD): 0 °C, 1000Ω ± 0.06% Ω to IEC 751, Class A, Alpha = 0.00385 nominal

Environmental

Operating temperature range: –40 to +425 °F (–40 to +218 °C)

Calibrated temperature range: +75 to +350 °F (+23 to +176 °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)	Total error band (%FS)
311-38-540-04	0–20,000 (0–1,378)	24,000 (1,654)	30,000 (1,378)	0.02%
311-38-540-06	0–25,000 (0–1,723)	30,000 (2,068)	33,000 (2,275)	0.02%
311-38-540-07	0–30,000 (0–2,068)	36,000 (2,482)	40,000 (2,757)	0.02%

Operating media: Any compatible with alloy UNS N07718 solution annealed and aged to a maximum hardness of 40 HRC, and alloy 600 (Probe).

Pressure fitting: 0.750-16 UNF-2A thread. Threads and O-ring mating surfaces to be plated with Armoloy® thin dense chrome, 0.0001- 0.0002 inch thick per drawings 40100-480 and 40100-481 (available upon request).

Electrical

Excitation: 1 to 20 VDC (10 VDC nominal)

Input resistance: 1500 ± 300 Ω

Output resistance: 1500 ± 150 Ω

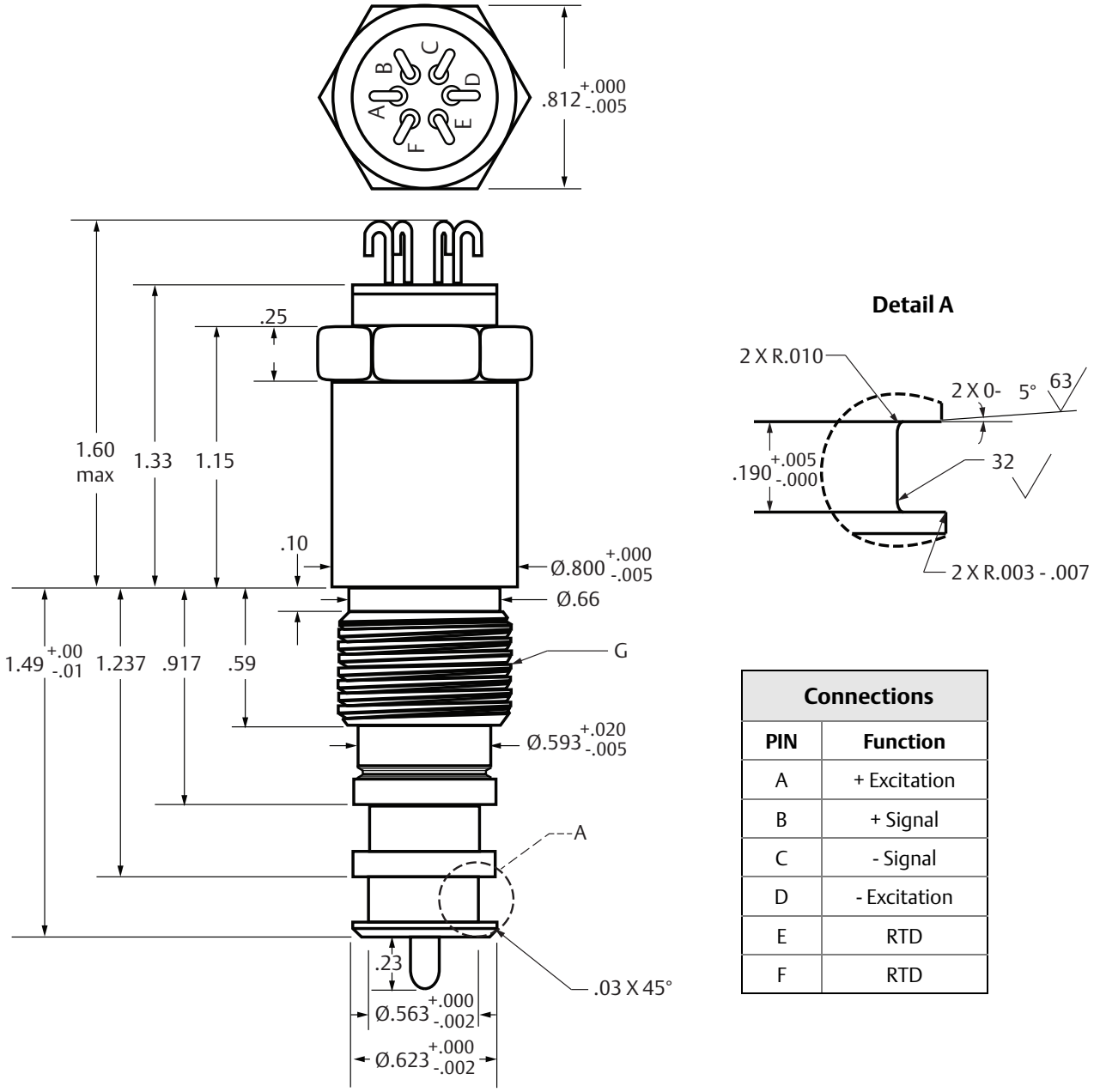
Insulation resistance: All conductors together to case, 10 GΩ minimum at 50 VDC and +77 °F (25 °C)

Platinum resistance temperature detector (RTD): Class A, 1000 Ω at 32 °F (0 °C) to IEC 751, Class A, Alpha = 0.00385 nominal

Electrical connections: Six each, high temperature solderable pins

Dimensional Drawings

Figure 1. Paine 311-38-540 Series



Connections	
PIN	**Function**
A	+ Excitation
B	+ Signal
C	- Signal
D	- Excitation
E	RTD
F	RTD

A–F. See Connections table
G. .750-16 UNF-2A thread
Dimensions are inches.

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