



**HIGH ACCURACY**

m e a s u r e m e n t i n s t r u m e n t s

## PRODUCT DATASHEET

[www.high-accuracy.com](http://www.high-accuracy.com)

# Paine 320-10-010 Series Pressure Transmitter

## Digital, High Precision, +150°C, Pressure and Temperature



Designed for new tool designs and retrofits our digital **320-10-010 Series** is fully compensated and calibrated for pressure ranges from 0-5,000 PSIA (0-345 BAR) to 0-30,000 PSIA (2069 BAR) with a 0.025% full scale accuracy.

It is an excellent choice for harsh downhole applications providing designers the digital network flexibility and programmability of a highly precise pressure and temperature measurements at temperatures of -40°F to +302°F (-40°C to +150°C).

## Solutions

- **High Temperature & High Pressure.**
- Digital Measurement Accuracy.
- Harsh/Extreme Environment Ready.
- Excellent Long Term Stability.

## Potential Applications

- Downhole Tools (MWD, LWD, Wireline & more).
- Offshore Energy Exploration
- Artificial Lift & Subsea Risers.
- Industrial Control Systems & Automation.

## Features

- **Accuracy:** 0.025%
- **Repeatability:** +0.015%
- **Pressure Range:** 0-5,000 to 0-30,000 PSIA (345 to 2069 BAR).
- **Operating Temperature:** -40°F to +311°F (-40°C to +155°C).
- **Digital Output:** RS-485. Other options, RS-232, Modbus®, CANbus®, CANopen® & SPI.
- **Temperature Output:** °F or °C.
- **Temperature Measurement:** 0°F to +302°F (-18°C to +150°C).
- **Temperature Resolution:** 12 Bits Minimum, Better Than 0.05°F.

# Specifications

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

## Performance

**Accuracy:** ± 0.025% of the Full Scale (F.S.) at 75°F to +302°F (-24°C to +150°C). Accuracy is relative to primary standard at time of calibration and includes resolution, hysteresis, non-repeatability and thermal effects.

**Repeatability:** ± 0.015% F.S. over the calibration temperature range.

**Pressure Output in PSI:** Fully compensated for the effects of temperature & non-linearity.

**Pressure Resolution:** 16 Bits minimum (see Pressure Table).

**Temperature Output:** °F or °C.

**Temperature Measurement:** -0°F to +302°F (-18°C to +150°C).

**Temperature Resolution:** 12 Bits minimum. Better than 0.05°F.

## Environmental

**Operating Temperature Range:** -40°F to +311°F (-40°C to +155°C).

**Calibrated Temperature Range:** +74°F to +302°F (+23°C to +150°C)

**Pressure Media:** Fluids and gases compatible with NO7718, solution annealed and aged to a maximum hardness of 40 HRC.

**Proof Pressure:** See Pressure Table.

**Burst Pressure:** See Pressure Table.

## Mechanical

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

Pressure Table					
Standard Part Number	Pressure Range PSIA (BAR)	Proof Pressure PSIA (BAR)	Burst Pressure PSIA (BAR)	Pressure Resolution (Better Than)	Seal Part Number
320-12-0010-10K0	0-10,000 (689)	15,000 (1034)	20,000 (1378)	0.16 PSI	247-99-250-01
320-12-0010-20K0	0-20,000 (1378)	25,000 (1723)	20,000 (1378)	0.31 PSI	247-99-250-01
320-12-0010-30K0	0-30,000 (2068)	35,000 (2413)	50,000 (3443)	0.46 PSI	247-99-250-02

**Pressure Fitting:** Per MS33656-E3 except bore diameter.

**Installation Information:** Mount using annealed Inconel® 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).

**Mounting:** Transmitter must be mechanically restrained for use in high shock and/or vibration applications.

## Electrical

**Digital Output:** RS-485. Refer to Paine document 200.100 for more information.

**Input Voltage:** 5.00 VDC ± 0.25 VDC.

**Input Current:** 35 mA maximum.

**Insulation Resistance:** All pins together to case. 1,000 MΩ minimum at 50 VDC and 75°F ± 10°F (24°C to ± 6°C).

**Over Voltage Protection:** Protected from damage up to 5.5 VDC.

**Reverse Polarity:** "POWER IN" is not protected from the application of reverse polarity.

**Electrical Connection:** Mates with Glenair P/N: 801-007-16Z16-7SA. Connector sold separately.

**Sleep Pin Functionality:** Transmitter is fully functional when sleep pin is held to logic low (0.00 VDC). When sleep pin is held to logic high (5.00 VDC) the transmitter will be in standby mode.

**User Guide and Programming:** Document 200.107 provided.

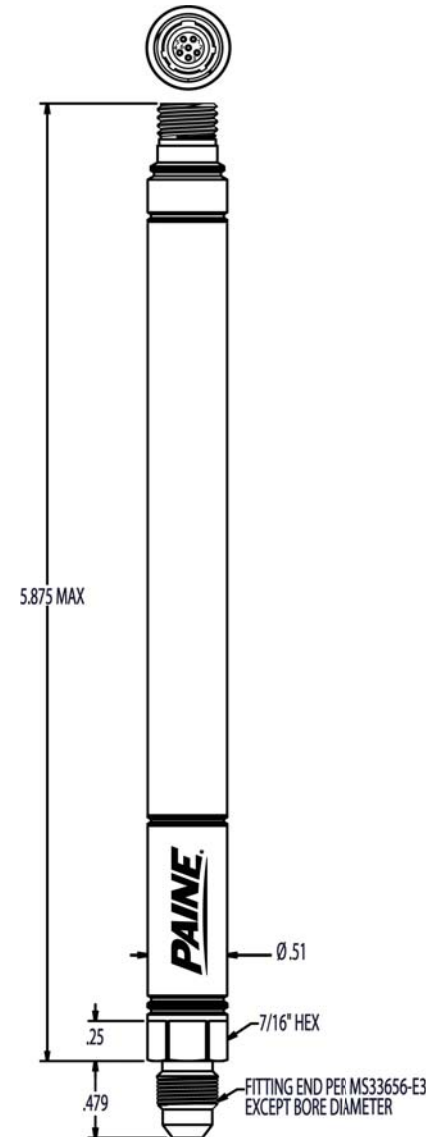
**Electrostatic Discharge (ESD):** This transmitter is susceptible to ESD, per ANSI/ESD STM5.1 Human Body Model (HBM) Class 3A and must be protected.

### Emerson Process Management

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## Dimensions (inches)



## Connections

PIN	FUNCTION
1	POWER IN
2	RS-485 "B" *
3	RS-485 "A" *
4	POWER RETURN / COMMUNICATION RETURN
5	CASE GROUND
6	SLEEP
7	NOT USED













\* Per TIA-485-A



# HA HIGH ACCURACY

measurement instruments

Our offering:

	<p>Pressure Measurement</p>		<p>Level Measurement</p>
	<p>Temperature Measurement</p>		<p>Flow Measurement</p>
	<p>Marine Measurement &amp; Analytical</p>		<p>Gas Analysis</p>
	<p>Liquid Analysis</p>		<p>Flame and Gas Detection</p>
	<p>Tank Gauging</p>		<p>Wireless Infrastructure</p>
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