



HYDROGEN

Pressure Transducer AST2000 & AST4000

Overview

The AST2000 & AST4000 series is now available for hydrogen pressure sensing applications. Tested to a variety of hydrogen and automotive standards, the HYDROGEN series combines the best mechanical design for hydrogen measurement with high performance digital compensation.

Benefits

- One-piece design
- All 316L wetted material for optimal compatibility
- No oil-filled cavities leave no chance of containment
- Non-welded diaphragm eliminates leak paths and weak points
- Digitally compensated
- Krystal Bond™ Technology

Applications

- PEM Fuel Cells
- Hydrogen Storage
- Hydrogen Filling Stations
- Test Stands
- Back Up Power

Approval Options

- EC79
- 07-01820/1 TUV

INDUSTRIAL OEM

AST2000/AST4000 Hydrogen Pressure Transmitter

Environmental Data

Ambient Temperature: 25°C (77°F) (Unless otherwise specified)

Operating Ambient	-40 to 85°C (-40 to 185°F)
Storage	-40 to 125°C (-40 to 257°F)

Shock, Vibration & Ingress Protection (IP)

Standard	Description	Test Value
EN 60067-2-27	Shock Test	500m/s ² , 6ms, half sine-wave, 6 shocks (3/direction), horizontal and vertical axis, 12 total shocks
EN 60068-2-6	Sinusoidal Vibration	5-25 Hz, 2mm, 25-150 Hz, 50m/s, Sweep rate: 1 octave/min, Duration: 24 hours/axis (48 hours total), horizontal and vertical axis
EN 60068-2-64	Random Vibration	10-2000 Hz, vibration level: 0.0314 (m/s ²) ² /Hz, 24 hrs/axis (48 hrs total), 2 directions: horizontal and vertical
IEC 60068-2-32	Drop Test	Drop of 1 meter to floor made of concrete. Dropped twice on the threaded end and two times perpendicular to the threaded end.
IP-66	Ingress Protection	Dust-tight, protected against powerful water jets

Electromagnetic Compatibility (EMC)

Standards	Description	Test Value
EN55011	Radiated Emissions	Class A, 30-1000 MHz
EN61000-4-2	Electrostatic Discharge Immunity	±8 kV Air Discharge ±4 kV Contact Discharge, VCP, HCP
EN61000-4-3	Radiated Electromagnetic Field Immunity	10V/m, 80-2700 MHz 80% 1kHz AM Modulation
EN61000-4-4	Electrical Fast Transient/Burst Immunity	±0.5 kV, ±1 kV, ±2 kV on DC Mains ±0.5 kV, ±1 kV on I/O Ports
EN61000-4-5	Surge Immunity	±0.5 kV, ±1 kV, on I/O Ports & DC Lines
EN61000-4-6	Conducted immunity	10V rms, 0.15-80 MHz, DC Mains 10V rms, 0.15-80 MHz, I/O Ports 80% 1kHz AM Modulation
EN61000-4-8	Power Frequency Magnetic Field Immunity Test	30 A/m @ (50Hz, 60Hz) 3 orthogonal orientations

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Performance

Ambient Temperature: 25°C (77°F) (Unless otherwise specified)

Parameters	AST2000	AST2000 High Accuracy	AST 4000	UNITS	NOTES
Accuracy	±0.25%	±0.25%	±0.50%	%Span	1
Zero Error	±1	±1	±1%	%Span	2
Span Error	±1	±1	±2%	%Span	3
Thermal Error, Zero	-1.0	-	±1.5	%Span	4
Thermal Error, Span	-1.0	-	±1.5	%Span	5
Total Error Band	-	1.0%	-	%Span	8
Stability (1 year)	±0.25 TYP	±0.25 TYP	±0.25 TYP	%Span	
Proof Pressure	2X Rated Pressure	2X Rated Pressure	2X Rated Pressure	PSI	6
Burst Pressure	5X Rated Pressure	5X Rated Pressure	5X Rated Pressure	PSI	7
Compensated Temp. Range	0 - 55° (32 to 132°)	-20 - 60° (-4 to 140°)	0 - 55° (32 to 132°)	°C (°F)	

Electrical Data

Model	AST2000		AST4000	
Output	4-20mA	1-5V	0.5-4.5V Ratiometric	0.5-4.5V Ratiometric
Excitation	10-28VDC	10-28VDC	5.0 ± 0.5VDC	5.0 ± 0.5VDC
Output Impedance	> 10k Ω	< 100 Ω	< 100 Ω	< 100 Ω
Current Consumption	-	<10mA	< 10mA	< 10mA
Output Noise	-	<2mV RMS	< 2mV RMS	< 2mV RMS
Output Load	0-800Ω	10k Ω Min.	10k Ω Min.	10k Ω Min.
Reverse Polarity Protection	Yes	Yes	Yes	Yes
Bandwidth	DC-250 Hz	DC-1kHz	DC-1kHz	DC-1kHz

Notes

1. The maximum deviation from a best fit straight line (BFSL) fitted to the output measured over the pressure range at 25°C. Includes all errors due to pressure non-linearity, hysteresis, and non-repeatability. Span is the algebraic difference between full scale output and zero pressure offset.
2. The maximum variation from the ideal offset measured at 25°C.
3. The maximum variation from the ideal full-scale span measured at 25°C.
4. The maximum variation of offset within the compensated temperature range relative to 25°C.
5. The maximum variation of full-scale span within the compensated temperature range relative to 25°C.
6. The maximum pressure that can be safely applied to the product for it to remain in specification once pressure is returned to the operating pressure range.
7. The maximum pressure that can be applied without causing escape of the pressure media.
8. Total pressure error band includes all accuracy errors, thermal errors over the compensated temperature range and span and offset calibration tolerances.

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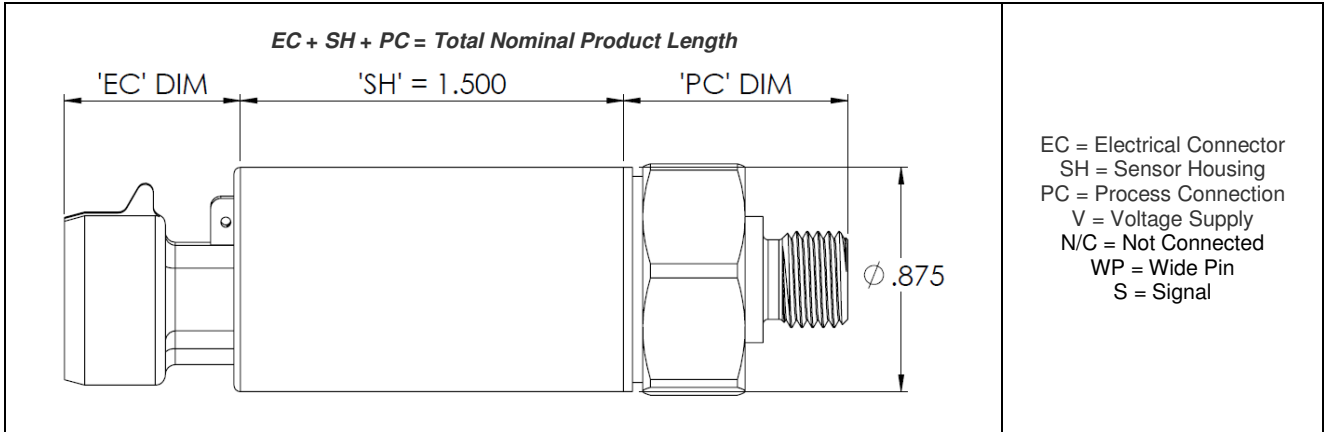
AST2000/AST4000 Hydrogen Pressure Transmitter

Certification Information

AST Model Number	Description	TE Part Number (TCPN)	Approval Type
AST2000 & AST2000 High Accuracy			
AST2000M00448B1F1384	High Accuracy Over Temperature	11100570-00	EC79
AST2000M00448B1F1000	Standard	11100569-00	EC79
AST2000F00448B1F1000	Standard	11100520-00	EC79
AST2000F00448B1F1384	High Accuracy Over Temperature	11100521-00	EC79
AST4000			
AST4000M00448B1F1000	Standard	11104561-00	EC79
AST4000F00448B1F1000	Standard	11104118-00	EC79

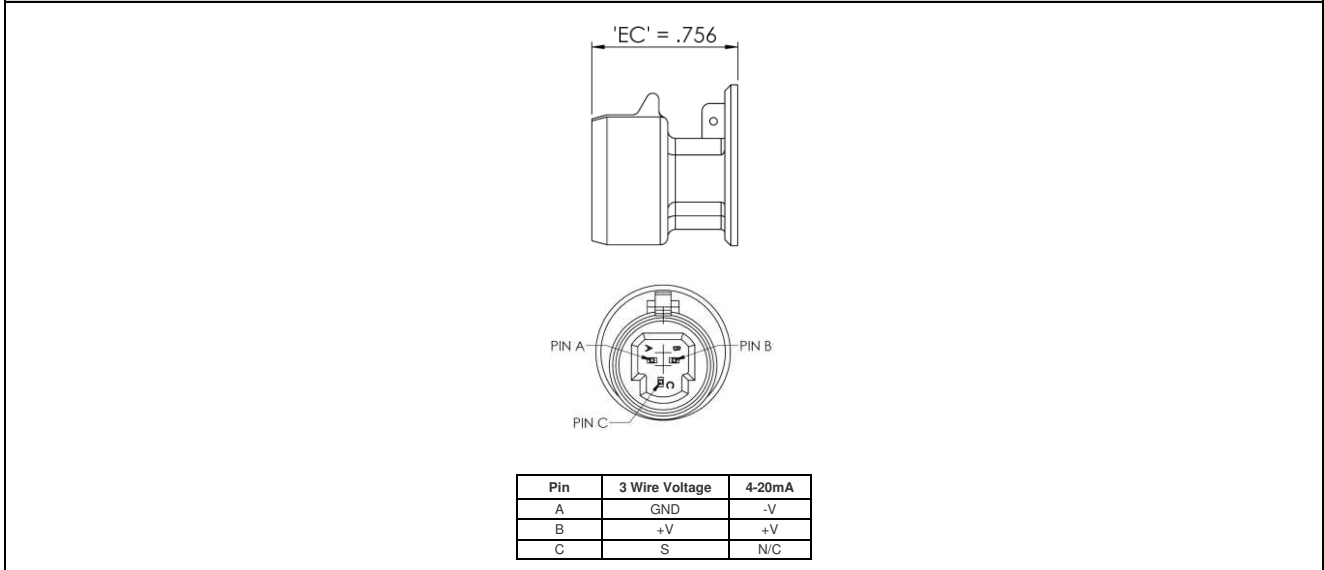
Dimensions & Electrical Connection

Unless otherwise specified, all dimensions are in inches



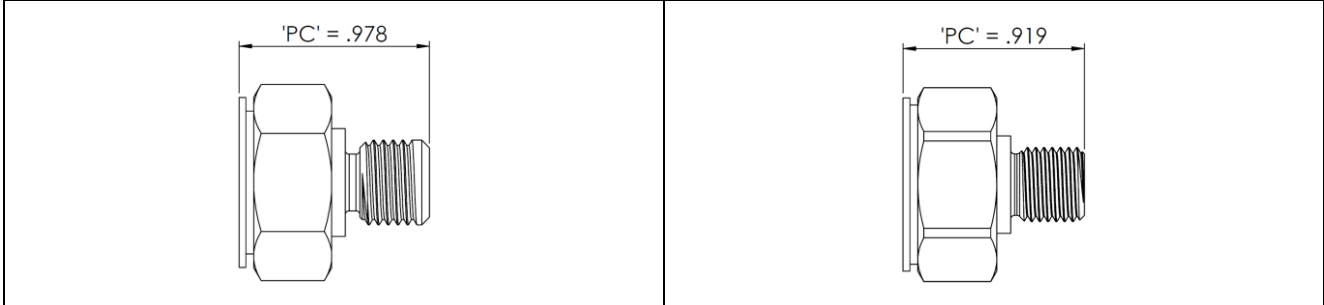
Electrical Connectors Option Codes

**F
Packard Metripack, 150**



Pressure Port Option Codes

F 7/16 – 20 UNF	M 3/8 – 24 UNF Male
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AST2000/AST4000 Hydrogen Pressure Transmitter

Ordering Information

AST2000

AST4000

F

00448

B

1

F

1

000

Process Connection

F= 7/16-20 UNF Male [SAE 4]

M= 3/8-24 UNF Male [SAE 3]

5-Digit Pressure Code

00020= 20 Bar

00448= 448 Bar

00900= 900 Bar

* 3/8-24 UNF Male [SAE 3] not available in 900 Bar

Pressure Unit

B= Bar

Output

1= 0.5-4.5V ratiometric [5VDC Supply]

3= 1-5V

4= 4-20mA

Electrical Connection

F= Packard Metripack 150 3-Pin

Wetted Material

1= 316L

Option Codes

000= Standard. No Options (temp compensation 0 to 55°C)

384= High Accuracy EC79 (temp compensation -20 to 60°C)

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