



## EXPLOSION-PROOF

### High Accuracy 0.1% Pressure Transducer AST46HA

#### Overview

Applying digital compensation, the AST46HA offers top performance over a wide temperature range. Where other sensor technologies will freeze or boil, the AST46HA uses a one piece stainless steel sensor to offer continuous operation.

- CSA approved for use in hazardous areas including:

Explosion-proof – Sealed & Vented Gauge Pressure Transducer (up to 20,000 psi)

- ✓ Class I, Division 1, Groups A, B, C and D T5;
- ✓ Enclosure Type 4
- ✓ Ex db IIC T5 Gb
- ✓ Class I, Zone 1, AEx db IIC T5 Gb

Dust Ignition-proof – Sealed Gauge Pressure Transducer (up to 20,000 psi)

- ✓ Class II, Division 1, Groups E, F and G T100°C;
- ✓ Enclosure Type 4
- ✓ Ex tb IIIC T100 °C Db
- ✓ Zone 21, AEx tb IIIC T100°C Db

#### Applications

- Well Optimization
- Oil and Gas Pipelines
- Drilling Platforms
- Marine & Offshore
- CNG / Hydrogen Fill Stations
- Paint Booths
- Remote Telemetry Unit
- Cold Climate Drilling & Mining
- Panel Instrumentation

#### Benefits

- ANSI/ISA-12.27.01.2003 Certified “Single Seal” (no secondary seal required)
- ABS (American Bureau of Shipping) Approved
- ASIC Compensation
- Superb Temperature Performance | Wide Operating Temperature
- Excellent Accuracy
- High Proof and Burst Pressure
- Exotic Alloys Available (Hastelloy, Inconel)

**Environmental Data**

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

<b>Operating Ambient</b>	-40 to 85°C (-40 to 185°F)
<b>Operating Media</b>	-40 to 125°C (-40 to 257°F)
<b>Storage</b>	-40 to 100°C (-40 to 212°F)

**Shock, Vibration & Ingress Protection (IP)**

Standard	Description	Test Value
EN 60067-2-27	Shock Test	500m/s <sup>2</sup> , 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 <sup>2</sup> ) <sup>2</sup> /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-65 (Gauge)	Ingress Protection	Dust-tight, protected against water jets
IP-66 (Sealed Gauge)	Ingress Protection	Dust-tight, protected against powerful water jets

**Electromagnetic Compatibility (EMC)**

Standard	Description	Test Value
EN55011	Radiated Emissions	Class A, 30-1000 MHz ±8 kV Air Discharge
EN61000-4-2	Electrostatic Discharge Immunity	±4 kV Contact Discharge, VCP, HCP
EN61000-4-3	Radiated Electromagnetic Field Immunity	10V/m, 30-2700 MHz 80% 1kHz AM Modulation ±0.5 kV, ±1 kV, ±2 kV on DC Mains
EN61000-4-4	Electrical Fast Transient/Burst Immunity	±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 10 V rms, 0.15-80 MHz, DC Mains
EN61000-4-6	Conducted Immunity	10 V 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

**Performance**

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

Parameters	MIN	TYP	MAX	UNITS	NOTES
Accuracy	-0.1		+0.1	%Span	1
Zero Error	-0.5		+0.5	%Span	2
Span Error	-0.5		+0.5	%Span	3
Thermal Error, Zero	-0.5		+0.5	%Span	4
Thermal Error, Span	-0.5		+0.5	%Span	5
Stability (1 year)		±0.25		%Span	
Proof Pressure		2X Rated Pressure		psi	6
Burst Pressure		5X Rated Pressure or 50,000 (whichever is less)		psi	7
Compensated Temp. Range		-20 to 70° (-4 to 158°)		°C (°F)	

**Electrical Data**

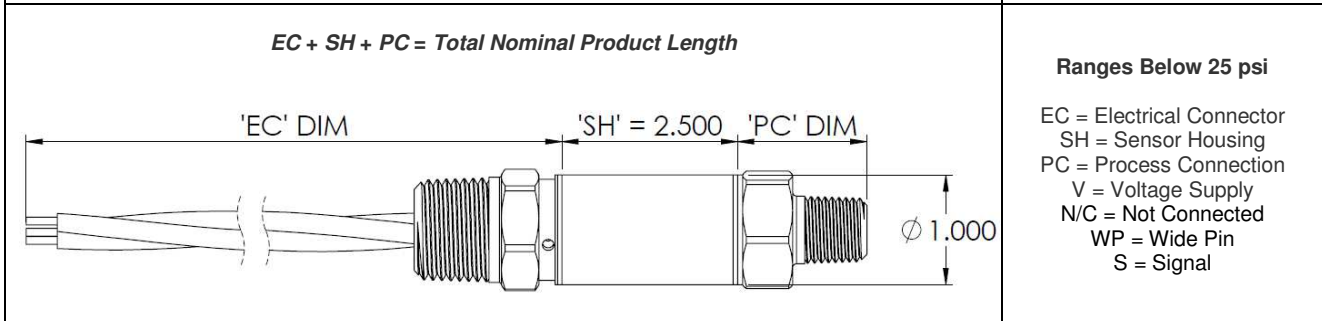
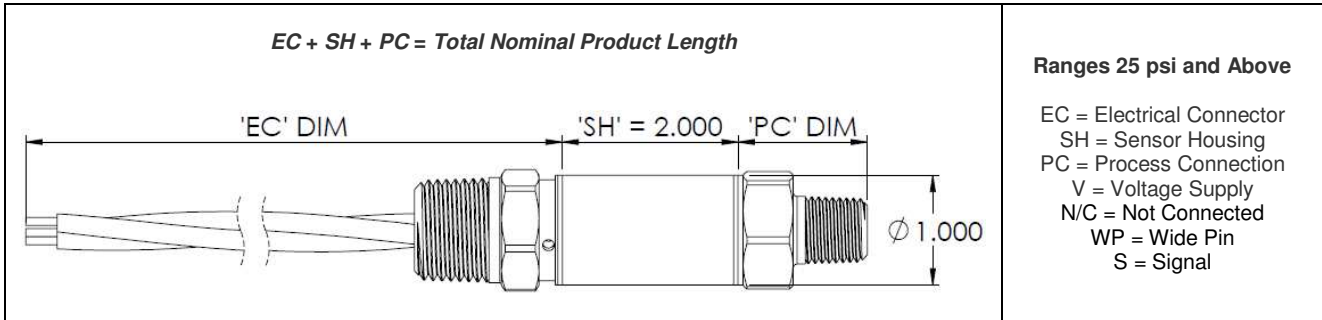
Model	AST46HA			
Output	4-20mA	0-5V, 1-5V, 1-6V	0-10V, 1-10V	0.5-4.5V Ratiometric
Excitation	10-28VDC	10-28VDC	15-28VDC	5.0 ± 0.5VDC
Output Impedance	> 10k Ω	< 100 Ω	< 100 Ω	< 100 Ω
Current Consumption	-	<10mA	<10mA	<10mA
Output Noise	-	<1mv RMS	<1mV RMS	<1mV RMS
Output Load	0-800 Ohms	5k Ohms min.	5k Ohms min.	5k Ohms, min.
Reverse Polarity Protection	Yes	Yes	Yes	Yes
Sampling Rate	400Hz	400Hz	400Hz	400Hz

**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.

**Dimensions & Electrical Connection**

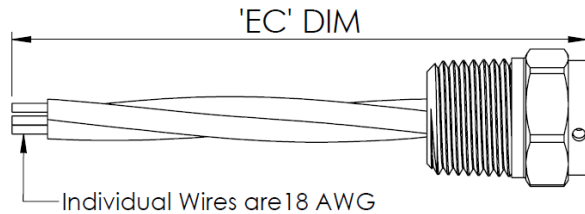
Unless otherwise specified, all dimensions are in inches



**Electrical Connectors Option Codes**

Cable		
<b>T</b> 2ft (0.6m)	<b>U</b> 4ft (1.2m)	<b>W</b> 6.6ft (2m)

Color	3 Wire Voltage	4-20mA
Green	Case	Case
Black	GND	-V
Red	+V	+V
White	S	N/C



**Pressure Port Option Codes**

<b>A</b> 1/4 NPT Male	<b>I</b> 1/4 NPT Female	<b>P</b> 1/2 NPT Male	<b>W</b> F250C Female Autoclave

Legend	
✓	Standard Available
X	Not Available

**Available Process Connection, Material Configurations & Pressure Codes**

**17-4PH psi**

Pressure Range	Pressure Reference	Pressure Range Code	psi Unit	Process Connection Code			
				A	I	P	W
-14.7 - 25	V	0025	P	✓	✓	✓	X
-14.7 - 50	V	0050	P	✓	✓	✓	X
-14.7 - 100	V	0100	P	✓	✓	✓	X
-14.7 - 150	V	0150	P	✓	✓	✓	X
-14.7 - 200	V	0200	P	✓	✓	✓	X
-14.7 - 250	V	0250	P	✓	✓	✓	X
-14.7 - 500	V	0500	P	✓	✓	✓	X
0 - 25	G	0025	P	✓	✓	✓	X
0 - 50	G	0050	P	✓	✓	✓	X
0 - 100	G	0100	P	✓	✓	✓	X
0 - 150	G	0150	P	✓	✓	✓	X
0 - 200	G	0200	P	✓	✓	✓	X
0 - 250	G	0250	P	✓	✓	✓	X
0 - 500	G	0500	P	✓	✓	✓	X
0 - 1,000	0	1000	P	✓	✓	✓	X
0 - 2,500	0	2500	P	✓	✓	✓	X
0 - 5,000	0	5000	P	✓	✓	✓	X
0 - 7,500	0	7500	P	✓	✓	✓	X
0 - 10,000	1	0000	P	✓	✓	✓	X
0 - 15,000	1	5000	P	X	✓	✓	X
0 - 20,000	2	0000	P	X	X	X	✓

**17-4PH Bar**

Pressure Range	Pressure Reference	Pressure Range Code	BAR Unit	Process Connection Code			
				A	I	P	W
-1 to 2	V	0002	B	✓	✓	✓	X
-1 to 5	V	0005	B	✓	✓	✓	X
-1 to 7	V	0007	B	✓	✓	✓	X
-1 to 10	V	0010	B	✓	✓	✓	X
-1 to 20	V	0020	B	✓	✓	✓	X
0 - 2	G	0002	B	✓	✓	✓	X
0 - 5	G	0005	B	✓	✓	✓	X
0 - 7	G	0007	B	✓	✓	✓	X
0 - 10	G	0010	B	✓	✓	✓	X
0 - 20	G	0020	B	✓	✓	✓	X
0 - 35	G	0035	B	✓	✓	✓	X
0 - 50	G	0050	B	✓	✓	✓	X
0 - 100	0	0100	B	✓	✓	✓	X
0 - 250	0	0250	B	✓	✓	✓	X
0 - 350	0	0350	B	✓	✓	✓	X
0 - 500	0	0500	B	✓	✓	✓	X
0 - 700	0	0700	B	✓	✓	✓	X
0 - 1,000	0	0000	B	X	✓	✓	X

# INDUSTRIAL OEM

AST46HA Pressure Transmitter

## 316L psi

Pressure Range	Pressure Reference	Pressure Range Code	psi Unit	Process Connection Code			
				A	I	P	W
0 - 1	G	0001	P	✓	X	✓	X
0 - 2.5**	G	0069	H	✓	X	✓	X
0 - 5	G	0005	P	✓	X	✓	X
0 - 7.5**	G	0208	H	✓	X	✓	X
0 - 10	G	0010	P	✓	X	✓	X
0 - 15	G	0015	P	✓	X	✓	X
-14.7 - 25	V	0025	P	✓	✓	✓	X
-14.7 - 50	V	0050	P	✓	✓	✓	X
-14.7 - 100	V	0100	P	✓	✓	✓	X
-14.7 - 150	V	0150	P	✓	✓	✓	X
-14.7 - 200	V	0200	P	✓	✓	✓	X
-14.7 - 250	V	0250	P	✓	✓	✓	X
-14.7 - 500	V	0500	P	✓	✓	✓	X
0 - 25	G	0025	P	✓	✓	✓	X
0 - 50	G	0050	P	✓	✓	✓	X
0 - 100	G	0100	P	✓	✓	✓	X
0 - 150	G	0150	P	✓	✓	✓	X
0 - 200	G	0200	P	✓	✓	✓	X
0 - 250	G	0250	P	✓	✓	✓	X
0 - 500	G	0500	P	✓	✓	✓	X
0 - 1,000	0	1000	P	✓	✓	✓	X
0 - 2,500	0	2500	P	✓	✓	✓	X
0 - 5,000	0	5000	P	✓	✓	✓	X
0 - 7,500	0	7500	P	✓	✓	✓	X
0 - 10,000	1	0000	P	✓	✓	✓	X
0 - 15,000	1	5000	P	X	✓	X	X
0 - 20,000	2	0000	P	X	X	X	✓

## 316L Bar

Pressure Range	Pressure Reference	Pressure Range Code	BAR Unit	Process Connection Code			
				A	I	P	W
-1 to 2	V	0002	B	✓	✓	✓	X
-1 to 5	V	0005	B	✓	✓	✓	X
-1 to 7	V	0007	B	✓	✓	✓	X
-1 to 10	V	0010	B	✓	✓	✓	X
-1 to 20	V	0020	B	✓	✓	✓	X
0 - 2	G	0002	B	✓	✓	✓	X
0 - 5	G	0005	B	✓	✓	✓	X
0 - 7	G	0007	B	✓	✓	✓	X
0 - 10	G	0010	B	✓	✓	✓	X
0 - 20	G	0020	B	✓	✓	✓	X
0 - 35	G	0035	B	✓	✓	✓	X
0 - 50	G	0050	B	✓	✓	✓	X
0 - 100	0	0100	B	✓	✓	✓	X
0 - 250	0	0250	B	✓	✓	✓	X
0 - 350	0	0350	B	✓	✓	✓	X
0 - 500	0	0500	B	✓	✓	✓	X
0 - 700	0	0700	B	✓	✓	✓	X
0 - 1,000	0	0000	B	X	✓	X	X

# INDUSTRIAL OEM

AST46HA Pressure Transmitter

## Inconel psi

Pressure Range	Pressure Reference	Pressure Range Code	psi Unit	Process Connection Code			
				A	I	P	W
-14.7 - 25	V	0025	P	✓	X	✓	X
-14.7 - 50	V	0050	P	✓	X	✓	X
-14.7 - 100	V	0100	P	✓	X	✓	X
-14.7 - 150	V	0150	P	✓	X	✓	X
-14.7 - 200	V	0200	P	✓	X	✓	X
-14.7 - 250	V	0250	P	✓	X	✓	X
-14.7 - 500	V	0500	P	✓	X	✓	X
0 - 25	G	0025	P	✓	X	✓	X
0 - 50	G	0050	P	✓	X	✓	X
0 - 100	G	0100	P	✓	X	✓	X
0 - 150	G	0150	P	✓	X	✓	X
0 - 200	G	0200	P	✓	X	✓	X
0 - 250	G	0250	P	✓	X	✓	X
0 - 500	G	0500	P	✓	X	✓	X
0 - 1,000	0	1000	P	✓	X	✓	X
0 - 2,500	0	2500	P	✓	X	✓	X
0 - 5,000	0	5000	P	✓	X	✓	X
0 - 7,500	0	7500	P	✓	X	✓	X
0 - 10,000	1	0000	P	✓	X	✓	X
0 - 15,000	1	5000	P	X	✓	✓	X
0 - 20,000	2	0000	P	X	X	X	✓

## Inconel Bar

Pressure Range	Pressure Reference	Pressure Range Code	BAR Unit	Process Connection Code			
				A	I	P	W
-1 to 2	V	0002	B	✓	X	✓	X
-1 to 5	V	0005	B	✓	X	✓	X
-1 to 7	V	0007	B	✓	X	✓	X
-1 to 10	V	0010	B	✓	X	✓	X
-1 to 20	V	0020	B	✓	X	✓	X
0 - 2	G	0002	B	✓	X	✓	X
0 - 5	G	0005	B	✓	X	✓	X
0 - 7	G	0007	B	✓	X	✓	X
0 - 10	G	0010	B	✓	X	✓	X
0 - 20	G	0020	B	✓	X	✓	X
0 - 35	G	0035	B	✓	X	✓	X
0 - 50	G	0050	B	✓	X	✓	X
0 - 100	0	0100	B	✓	X	✓	X
0 - 250	0	0250	B	✓	X	✓	X
0 - 350	0	0350	B	✓	X	✓	X
0 - 500	0	0500	B	✓	X	✓	X
0 - 700	0	0700	B	✓	X	✓	X
0 - 1,000	0	1000	B	X	X	✓	X

**Hastelloy psi**

Pressure Range	Pressure Reference	Pressure Range Code	psi Unit	Process Connection Code			
				A	I	P	W
0 - 1	G	0001	P	X	X	✓	X
0 - 10	G	0010	P	X	X	✓	X
0 - 15	G	0015	P	X	X	✓	X
-14.7 - 25	V	0025	P	✓	X	✓	X
-14.7 - 50	V	0050	P	✓	X	✓	X
-14.7 - 100	V	0100	P	✓	X	✓	X
-14.7 - 150	V	0150	P	✓	X	✓	X
-14.7 - 200	V	0200	P	✓	X	✓	X
-14.7 - 250	V	0250	P	✓	X	✓	X
-14.7 - 500	V	0500	P	✓	X	✓	X
0 - 25	G	0025	P	✓	X	✓	X
0 - 50	G	0050	P	✓	X	✓	X
0 - 100	G	0100	P	✓	X	✓	X
0 - 150	G	0150	P	✓	X	✓	X
0 - 200	G	0200	P	✓	X	✓	X
0 - 250	G	0250	P	✓	X	✓	X
0 - 500	G	0500	P	✓	X	✓	X
0 - 1,000	0	1000	P	✓	X	✓	X
0 - 2,500	0	2500	P	✓	X	✓	X
0 - 5,000	0	5000	P	✓	X	✓	X
0 - 7,500	0	7500	P	✓	X	✓	X
0 - 10,000	1	0000	P	✓	X	✓	X
0 - 15,000	1	5000	P	X	X	✓	X

**Hastelloy Bar**

Pressure Range	Pressure Reference	Pressure Range Code	BAR Unit	Process Connection Code			
				A	I	P	W
-1 to 2	V	0002	B	✓	X	✓	X
-1 to 5	V	0005	B	✓	X	✓	X
-1 to 7	V	0007	B	✓	X	✓	X
-1 to 10	V	0010	B	✓	X	✓	X
-1 to 20	V	0020	B	✓	X	✓	X
0 - 2	G	0002	B	✓	X	✓	X
0 - 5	G	0005	B	✓	X	✓	X
0 - 7	G	0007	B	✓	X	✓	X
0 - 10	G	0010	B	✓	X	✓	X
0 - 20	G	0020	B	✓	X	✓	X
0 - 35	G	0035	B	✓	X	✓	X
0 - 50	G	0050	B	✓	X	✓	X
0 - 100	0	0100	B	✓	X	✓	X
0 - 250	0	0250	B	✓	X	✓	X
0 - 350	0	0350	B	✓	X	✓	X
0 - 500	0	0500	B	✓	X	✓	X
0 - 700	0	0700	B	✓	X	✓	X
0 - 1,000	0	1000	B	X	X	✓	X

\*See Ordering Information for list of options.  
 \*\*Must be orderd in inches H<sub>2</sub>O



# INDUSTRIAL OEM

AST46HA Pressure Transmitter

## Ordering Information

<b>AST46HA</b>	<b>A</b>	<b>1</b>	<b>0000</b>	<b>P</b>	<b>3</b>	<b>T</b>	<b>1</b>	<b>H</b>	<b>000</b>	<b>-Z</b>
<b>Process Connection</b> A= 1/4" NPT Male I= 1/4" NPT Female P= 1/2" NPT Male W= F250C Female Autoclave										
<b>Pressure Reference</b> G= Gauge Pressure V= Gauge Pressure (Vacuum Calibrated) 0= Sealed Gauge (Up to 9,999 psi) 1= Sealed Gauge (10,000 to 19,999 psi) 2= Sealed Gauge (20,000 psi Only)										
<b>Pressure Range</b> Insert Pressure Range Code (see table for availability)										
<b>Pressure Unit</b> B= Bar      P= psi										
<b>Output</b> 1= 0.5-4.5V ratiometric 2= 0-5V (3 wire) 3= 1-5V (3 wire + case connection) 4= 4-20mA (loop powered + case connection) 5= 0-10V (3 wire) 6= 1-6V (3 wire + case connection) G= 1-10V										
<b>Electrical Connection</b> T= 2ft. 18 AWG wires      U= 4ft. 18 AWG wires      W= 2 Meter 18 AWG wires										
<b>Wetted Material</b> 0= 17-4PH      1= 316L      2= Inconel 718      4= Hastelloy C276										
<b>Failure State</b> H= High      L= Low      N= None										
<b>Option Codes</b> 000= No Options										

Approval Type	
Leave Blank	Class I, Division 1, Groups A, B, C and D T5; Class II, Division 1, Groups E, F and G T100°C; Enclosure Type 4 Ex db IIC T5 Gb Ex tb IIIC T100°C Db Class I, Zone 1, AEx db IIC T5 Gb Zone 21, AEx tb IIIC T100°C Db (For Pressure Reference Code 0, 1 and 2)
	Class I, Division 1, Groups A, B, C and D T5; Enclosure Type 4 Ex db IIC T5 Gb Class I, Zone 1, AEx db IIC T5 Gb (For Pressure Reference Code G and V)
	All configurations are ANSI/ISA 12.27.01 Single Seal Approved
-Z	CRN Registered to ANSI/ASME B31.3. in addition to standard configuration approvals

Notes: CSA approved products require case/earth ground electrical connection. See Dimensions and Electrical Connection Section for wiring details.

**NORTH AMERICA**  
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 a TE Connectivity Company  
 Tel: 800-522-6752  
 Email: [customercare.molive@te.com](mailto:customercare.molive@te.com)

**ASIA**  
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### TE.com/sensors

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